

# Visualization While Reading: A Review of the Comprehension Strategy

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Reading comprehension is a complex, linguistic, cognitive ability, which makes it difficult to not only understand but teach (Horowitz-Kraus, Vannest & Holland, 2012). This may be why most reading strategies focus on text-based processing as opposed to visualizing while reading (De Koning & van der Schoot, 2013). Even though it may be difficult to teach, studies show the ability to visualize while reading outweighs the effort needed to teach it.

Visualization – the ability to create pictures in the brain based upon written or spoken words – is one of many strategies to aid in comprehension. Gambrell and Bales (1986) expand this definition to include the ability to organize and store new mental images to form or draw conclusions from later. Despite the fact students are consistently surrounded by visual images in movies, television, video games, computers, and cell phones, most are passive consumers, which does not necessarily translate into the development of visualizing while reading (Gorman & Eastman, 2010; Hibbin & Rankin-Erickson, 2003).

Visualization is key to making the learning experience more dynamic and transformative, but teachers should not take for granted that visualization is a strategy students automatically possess (Manning, 2002; Wilson, 2012). As such, this is a strategy that needs to be introduced at a young age and consistently modeled for students during reading to help aid in understanding and comprehension throughout their education.

## A Theoretical Look at Visualization

A few theories have been developed to illustrate the importance of visualization, but none has been more cited by researchers than dual-coding theory (Paivio, 1971; Sadoski, McTigue & Paivio, 2012). Dual-Coding Theory (DCT) explains that both verbal and nonverbal cognition are represented and processed in different but interconnected subsystems (Gambrell & Jawirz, 1993). While the verbal system deals with language and is ordered a

logical manner with sequential processing, the nonverbal system focuses on the representation and processing of objects and events and is organized in a more holistic manner. According to Paivio (1991), both subsystems are capable of functioning independently of one another, but they can also work side-by-side, influencing one another. To illustrate, when one hears or reads the words hot dog, they can verbalize what it is, such as something eaten in a bun and served at baseball games, but can also produce nonverbal pictures including olfactory images concerning the way hot dogs smell or contextual visual images that relate to personal experiences eating hot dogs (Hibbing and Rankin-Erickson, 2003). These responses – both verbal and nonverbal – can happen independently of one another or at the same time according to DCT.

Beyond DCT, Wittrock's Theory of Generative Learning and Rosenblatt's Transactional Theory have helped to provide insight into the roles imagery and visualization play in comprehension (Gambrell & Jawitz, 1993). Under the Theory of Generative Learning, imagery aids comprehension as the reader connections prior knowledge to text through mental visualization. Likewise, Transactional Theory looks at the relationship between the reader and the text but instead focuses on how the reader plays an active role in their own comprehension as they live through the experiences of the characters in the text. In this sense, the visualization arises from the students placing themselves in the context of the story within their own mind and imagination.

Each of these theories provides some insights on how imagery relates to the process of reading comprehension. That meaning from literature is not always what is literally printed in the text, but a result of the "constructive processes that the reader brings to bear on the message" (Gambrell & Jawitz, 1993, p. 266). As such, it is clear to see that these theories, and the research that has utilized them, seek to better explain the ways that readers respond to literature in order to comprehend it.

## **Visualization as a reading-level dependent skill**

Learning how to better visualize while reading can be highly beneficial to students not only in terms of academics but in life beyond school. However, research also shows this strategy comes easier for some students more than others because good readers naturally respond to the text and adjust their comprehension strategies to suit their needs (Gorlewski, 2009).

Beyond reading level, there are other important factors that can affect a student's ability to visualize while reading. Gambrell and Jawitz (1993) state the construction of mental images activates prior knowledge about the text. While this can help some students master visualization, this can be extremely problematic to those students who don't have much prior knowledge to reflect upon. Manning (2003) echoes this sentiment, stating that a lack of background knowledge can hinder their ability to visualize during reading. This means that teachers need to use this skill in conjunction with engagement and offer experiences during the reading instruction.

These findings all illustrate how a student's reading-level can impact their ability to visualize as a part of reading comprehension, so this skill is a must within the classroom to help students find success in reading and reading comprehension.

## **Different application beyond reading comprehension**

While visualization is an important strategy to aid literature comprehension, it is not the sole reason why mastery of this skill is important. Being able to use mental imagery is vital because it helps to aid in the engagement of students. According to Park (2012), visualization during reading is something that can connect students in a social way as they share while reading. As the world continues to become more diverse and multicultural, any way a teacher can help to bridge the gap between students is always a plus.

Pressley et al. (1989) points out that there are two different approaches to constructing images:

representationally, where students create an image that directly matches the description, and mnemonically, which is used when the literature doesn't lend to easy representational imaging so our brains seek connections between previous understanding to create a mental image. For example, in the sentence "Mr. Woloshyn put the flyer on the windshield of the antique car," one can create a representational image for just about everything in the sentence, except for Mr. Woloshyn, so a mnemonic image for the word is created based upon basic understanding and visual representations of an everyday man.

Visualization, as it pertains to recall, helps not only with narrative passages but with cross-curricular reading as well (McGlenn, 1985). This is especially important at the secondary level where English teachers are no longer teaching students how to read, but how to comprehend and apply the texts to different areas. As one can see, visualization is more than just being able to enjoy literature, but a skill that can connect readers on a social level and help them in other areas of learning.

## **Instructional implication of visualization for educators**

Following Rosenblatt's transactional theory, reading can be characterized as both aesthetic and academic – both of which are always present when a student is reading (Parson, 2006). The problem occurs when teachers erroneously believe they must favor one purpose over another. Parsons points out that while "comprehension makes visualization possible, visualization is essential to engagement," which should be the ultimate goal of the teacher (p. 499). As such, it is important to remember that metacognitive skills can be taught and students can be trained to use them to help aid them in their learning (Chan, Cole, Morris, 1990).

The teaching of comprehension reading strategies, visualization included, is not something that should be taught independent of actual reading (Scharlach, 2008). For skills to make sense, students need to be immersed in them as a part of their everyday learning. As such, visualization should be explicitly taught, modeled, and scaffolded for students

(Gorlewski, 2009; Scharlach, 2008; Wilson, 2012).

It is better to first model how to use imagery with fiction in order to make it easier to transfer that skill to nonfiction texts (Wilson, 2012). The first and most common method of teaching mental imagery and visualization is the notion of thinking of a movie playing in a reader's head as they listen to or read a story (Hibbing & Rankin-Erickson, 2003). The use of drawings and illustrations, both teacher or student made, can also help increase visualization ability. Likewise, creating opportunities for students to discuss what they are reading opens more opportunities to improve visualization skills because students are exposed to multiple viewpoints on the same text (Manning, 2002; Park, 2012).

Reflection as a part of visualization can reduce the challenges that come with reading comprehension and can relate back to the reader's individual identity and the roles they have in the world (Park, 2012; Rader, 2010). In addition, teachers can also use the skill of visualization to help bridge the gap between reading comprehension and critical literacy. By allowing students to read about other cultures and people in the world, the skill of visualizing the people or events in the story can help the student grow more as both a student and a human being (Park, 2012).

### Discussion

There are several benefits to increasing the skill of visualization within the classroom. First, developing these skills helps to aid in building a strong foundation to assist in comprehension of difficult text often found in the textbooks of other subjects. Furthermore, building up this skill, especially at a younger age, helps at the secondary level where reading ability and study skills are assumed and expected in order to be successful in all subjects, not just in the English classroom. In addition, since modeling and discussion is needed to help foster the skill in students, this creates a bond between the teacher and students and also between the students and their peers. Likewise, disengagement is a huge problem, especially at the secondary level, so finding a way to bring

students in through a shared visualization and excitement for reading is another avenue for engagement. Finally, developing a strong mental imagery ability during reading can help to foster a love for reading among students, which can result in more reading for pure enjoyment purposes in the future.

Whatever reason educators choose to include visualization practice in their classroom, it is important to remember that students need to see a good, viable model of the comprehension strategy within their teacher: "Reluctant readers will not miraculously begin to visualize the story world; it is up to us to help them learn how to do so" (Parsons, 2006, p. 499-500).

## More to Explore Sidebar

### Brain Movies

Edutopia has a recent blog about how to help readers picture story elements during instruction for helping readers move from the text to the creating a "movie" in their brain. The blog offers some steps teachers can implement immediately in the classroom.

<https://www.edutopia.org/blog/brain-movies-visualize-reading-comprehension-donna-wilson>

### Reading Rockets

Geared more toward the elementary level, Reading Rockets offers an overview of visual imagery, how to use it, various resources, video examples, even some children's literature to help teach the skill to students.

[https://www.readingrockets.org/strategies/visual\\_imagery](https://www.readingrockets.org/strategies/visual_imagery)

### Guided Comprehension

NCTE has a plethora of resources concerning visual literacy and guided comprehension. While many of them are geared toward younger audiences, the skills and techniques could be used at any grade level.

[www.readthinkwrite.org](http://www.readthinkwrite.org)

### CSI-Literacy

This site offers an array of resources that are fun and easy-to-use to improve literacy skills. In addition to reasoning and evidence concerning why this visualization while reading is important, the site provides helpful tips and techniques to help teach the skill to students.

<https://www.csi-literacy.com/blogs/blog/reading-strategies-visualizing#:~:text=Play%20a%20%E2%80%9Cso undscape%E2%80%9D%20and%20have,them%20to%20visualize%20while%20reading>

## References

- Chan, L. S., Cole, P. G. & Morris, J.N. (1990). Effects of instruction in the use of a visual-imagery strategy on the reading-comprehension competence of disabled and average readers. *Learning Disability Quarterly*, 13(1), 2-11.
- De Koning, B. B., & van der Schoot, M. (2013). Becoming part of the story! Refueling the interest in visualization strategies for reading comprehension. *Educational Psychology Review*, 25(2), 261-287.
- Gambrell, L. B., & Bales, R. J. (1986). Mental imagery and the comprehension-monitoring performance of fourth- and fifth-grade poor readers. *Reading Research Quarterly*, 21(4), 454-464.
- Gambrell, L. B., & Jawitz, P. B. (1993). Mental imagery, text illustrations, and children's story comprehension and recall. *Reading Research Quarterly*, 28(3), 264-73.
- Gorlewski, J. (2009). Shouldn't they already know how to read? Comprehension strategies in high school English. *English Journal*, 98(4), 127-132.
- Gorman, R., & Eastman, G. S. (2010). "I see what you mean": Using visuals to teach metaphoric thinking in reading and writing. *English Journal*, 100(1), 92-99.
- Hibbing, A. N., & Rankin-Erickson, J. L. (2003). A picture is worth a thousand words: Using visual images to improve comprehension for middle school struggling readers. *Reading Teacher*, 56(8), 758.
- Horowitz-Kraus, T., Vannest, J. J., & Holland, S. K. (2013). Overlapping neural circuitry for narrative comprehension and proficient reading in children and adolescents. *Neuropsychologia*, 51(13), 2651-2662. doi:10.1016/j.neuropsychologia.2013.09.002
- Manning, M. (2002). Visualizing when reading. *Teaching Pre K-8*, 32(8), 89.
- McGlinn, J. E. (1985). The use of visualizing in comprehending difficult abstract prose.
- McTigue, E. M. (2010). Teaching young readers imagery in storytelling: What color is the monkey?. *Reading Teacher*, 64(1), 53-56.
- Parsons, L. T. (2006). Visualizing worlds from words on a page. *Language Arts*, 83(6), 492-500.
- Park, J. Y. (2012). A different kind of reading instruction: Using visualizing to bridge reading comprehension and critical literacy. *Journal of Adolescent & Adult Literacy*, 55(7), 629-640.
- Paivio, A. (1971). *Imagery and verbal processes*. New York, NY: Holt, Rinehart, and Winston. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Paivio, A. (1991). *Dual coding theory: Retrospect and current status*. *Canadian Journal of Psychology*, 45, 255-287.
- Pressley, M., Johnson, C.J., Symons, S., McGoldrick, J.A. & Kurita, J.A. (1989). Strategies that Improve Children's Memory and Comprehension of Text. *Elementary School Journal*, 90(1), 3-32.
- Rader, L. A. (2010). Teaching students to visualize: Nine key questions for success. *Preventing School Failure*, 54(2), 126-132.
- Sadoski, M., McTigue, E. M., & Paivio, A. (2012). A dual coding theoretical model of decoding in reading: Subsuming the Loberge and Samuels model. *Reading Psychology*, 33(5), 465-496. doi:10.1080/02702711.2011.557330
- Scharlach, T. D. (2008). START comprehending: Students and teachers actively reading text. *Reading Teacher*, 62(1), 20-31.
- Wilson, D. (2012). Training the mind's eye: "Brain movies" support comprehension and recall. *Reading Teacher*, 66(3), 189-194.

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Jennifer Williams presenting at NCTE 2019 (Photo Credit: Michelle Waters, 2019)