

A Balanced Approach to Literacy Instruction and Support for Diverse Learners

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Abstract

In this article, the authors explore various theories to inform educators and educational leaders who are looking for ways to better meet the literacy needs of all of their diverse students, including striving readers, culturally and linguistically diverse readers, and proficient and excelling readers. They call on educators to embrace a balanced approach that is informed by multiple bottom-up and top-down theories to better meet the needs of all their students. Focus is first given to Gough's and LaBerge and Samuels' information processing models (bottom-up models) followed by the psycholinguistic, schema, and transactional reader response top-down theories. Discussion of both the bottom-up and top-down theoretical approaches includes background information on notable theorists and explanations of specific theories that are instrumental in enriching the teaching of reading in a variety of classroom settings to a variety of students. Literature relevant to these theories is reviewed, and practical classroom implications of implementing these theories are explored to provide educators with hands-on tools and suggestions they can use to improve and enrich literacy instruction for all their students. Finally, a case is made for why educators should call upon multiple theories when making instructional decisions.

keywords: literacy theory, balanced literacy, diverse learners, striving readers

The purpose of this article is to explore various theories to inform educators and educational leaders who are looking for ways to better meet the literacy needs of their diverse students, including striving readers, culturally and linguistically diverse readers, and proficient and excelling readers. Recent results from our National Report Card regarding lower achievement levels in reading raises alarm and points to the need for changes in the way we approach reading instruction in schools throughout the U.S. and our state

specifically. Looking specifically at results in Georgia on the 2019 National Assessment of Educational Progress (NAEP), only 32% of students in 4th and 8th grades performed at or above the proficient level in reading, a 2% decrease from 2017. Even while statistics reveal a lack of improvement in reading, they also show an increase in the diversity of the student population, which calls for differentiated instructional practices to address the needs of students from a variety of cultural,

linguistic, and socioeconomic backgrounds.

Because literacy is a critical component in the academic and future success of students, selecting instructional strategies that will help to build and develop a literacy-rich environment that will contribute to literacy success for all students is challenging, but this challenge does not result from a lack of knowledge or focus on reading as an area of concern. Literacy has been and continues to be a key initiative in many states, districts, and schools throughout the U.S. and specifically here in Georgia with the new dyslexia legislation signed into law in 2019. Considerable funding has been invested in numerous reading programs and research-based literacy incentives that promise impactful results, yet outcomes continue to show the need for more change, as our students continue to struggle to reach, much less surpass grade-level reading proficiency.

Improving literacy instruction does not rely on what is new or yet to be discovered; instead, we need to look back to the foundational theories and models that continue to provide guidance, methods, and strategies that contribute to a strategic, informed, intentional, and balanced approach to the teaching of literacy. Helping teachers recognize how theories affect the way we think about life and learning will ultimately lead to a better understanding of how a variety of models and theories can lead to

more effective and high-quality instruction for *all* students (Tracey & Morrow, 2017). Moreover, educators should approach the teaching of literacy intentionally and strategically; one effective way of doing this is through the exploration, examination, and application of multiple foundational literacy theories.

Considering the diversity of their students and the different levels of their reading abilities, a one-size-fits-all approach will not be effective; teachers need to be familiar with a variety of theories so that they will be able to call upon multiple strategies to meet the diverse needs of their students. A balanced approach to literacy instruction requires knowledge of both bottom-up and top-down models. Being proficient in various theoretical approaches also empowers teachers to be strategic and flexible in designing lessons that will engage all of their students, including less-motivated readers, striving readers, multilingual learners, and proficient or excelling readers (Griffin, 2019).

Reading is a complex endeavor that integrates both lower and higher-order thinking, and both are required to achieve understanding of a text (Afflerbach et al., 2015). As such, bottom-up approaches posit that the road to reading comprehension begins with processing lower-level information, like letter sounds and word meanings, which will then lead to higher-level information

processing, such as comprehending the overall meaning of the text (Tracey & Morrow, 2017). Top-down approaches, conversely, begin with an overall understanding of the central idea of a text, and from there, readers then focus on the lower-level processes, such as the phrases and words that create the overall message (Angosto et al., 2013).

This paper is an exploration of bottom-up and top-down theoretical approaches and how they both contribute to an effective balanced approach to literacy instruction. First, focus will be given to two prominent bottom-up models, followed by a focus on three leading top-down theories. These five theories are included as a representative sample of prominent paradigms from both schools of thought. Discussion of both theoretical approaches will consist of historical background information, notable theorists, and explanations that are instrumental in enriching the teaching of literacy in a variety of classroom settings. Literature relevant to these theories will be reviewed and practical classroom implications of implementing these theories will be explored to provide educators with hands-on tools and suggestions they can utilize to improve and enrich literacy instruction. Finally, a case will be made for why educators should consider multiple theories when making instructional decisions.

Bottom-Up Theoretical Approach

Background

To reach the top of a flight of stairs, one must begin at the bottom and climb each step one by one, each step providing the leverage and support needed to reach the next until one finally achieves the goal of reaching the top. Much like climbing stairs, the bottom-up approach to literacy instruction posits that the reading process begins with mastering foundational lower-order skills that then provides access to the next set of skills, and this process continues in a step-by-step fashion to higher-order skills which eventually lead to the goal of overall reading comprehension. Gough's information processing model and LaBerge and Samuels' automatic information processing model are two models that have influenced and continue to influence literacy pedagogy and classroom practices.

Bottom-up theorists perceive reading as a process that begins with decoding. According to Samuels (1988), decoding refers to the ability to connect the printed word to its corresponding sound. This process is critical in helping students to be successful in the next component of reading, comprehension (Samuels, 1988). This bottom-up approach to reading reflects the ideas found in the cognitive-processing perspective, which focuses on examining the fundamental mental actions that take

place during reading. One model that reflects the bottom-up and cognitive-processing perspective is Philip Gough's information processing model. Gough described the stages the mind goes through to process, store, and receive information when interacting with texts during reading (Tracey & Morrow, 2017). Initially proposed in 1972, Gough's information processing model was later renamed The Simple View of Reading (Hoover & Gough, 1990). Around the same time as Gough, David LaBerge and S. Jay Samuels presented another reading model that stemmed from the cognitive processing lens called the automatic information-processing model. Like Gough, LaBerge and Samuels viewed reading as a stage-by-stage process (Tracey & Morrow, 2017).

Selected Theories

Gough's Information Processing Model

Gough's information processing model is text-driven where the reading process begins with the printed word on the page and proceeds in sequential order from a phonics-based approach to word recognition to the overall meaning of the text (Lonigan et al., 2018). The process starts when the visual representation of the letter, the iconic image, is examined by the scanner and decoded and changed to the corresponding sound in the phonemic

tape. At the next level, these letter sounds are brought together and attempts are made to connect them to word meanings—a stage referred to as the librarian. Once meaning is attained, the next step involves combining the words into sentences in the primary memory, and the Merlin stage, helps to give these sentences meaning; the sentences are then added to the knowledge system (Lonigan et al., 2018; Tracey & Morrow, 2017). According to Rumelhart (1994), Gough's model takes into account the various ways that different types of information interact to lead to understanding. *The Simple View*, as this model was later coined, posits that decoding skills and language comprehension are the processes that lead to the higher-order skill of reading comprehension, which can be illustrated as the equation $R = D \times LC$ where R is reading comprehension, D is decoding, and LC is language comprehension (Gough & Tunmer, 1986; Hoover & Gough, 1990).

Automatic Information Processing Model

Another notable model that is bottom-up in orientation is the automatic information processing model (AIPM) developed by LaBerge and Samuels (LaBerge & Samuels, 1974). The AIPM rests on two assumptions: (a) The human brain is capable of processing a small amount of information at one time, and (b) it

is necessary for someone to decode and understand words in a text in order to achieve understanding (Samuels, 2004, 2006). As shown in Figure 1, the AIPM has five different parts that, like Gough’s model, occur in a linear order (Sadoski et al., 2012; Tracey & Morrow, 2017). First, readers use their visual memory (VM) to process the text and identify the visual input as letters. Readers then move to the phonological memory (PM) where sounds are attached to images, then on to the episodic memory (EM), where the reader now pays attention to the context

surrounding the information they are viewing. This and other knowledge is stored in the semantic memory (SM). This follows to the final part of this process, attention (A), of which there are two types—external attention and internal attention (LaBerge & Samuels, 1974; Samuels, 2004). Readers must be able to decode words accurately and automatically recognize them to achieve fluency; once they can do this, readers will have more working memory available to dedicate to understanding what they are reading (Schrauben, 2010).

Figure 1

Stages of the Automatic Information Processing Model



A discussion of the AIPM is incomplete without highlighting one of its core components, *automaticity*. More clearly, automaticity is the ability to perform a complex task effortlessly with little attention (Samuels, 1988). Emergent and striving readers often struggle with decoding, which leaves their mental faculties so taxed that they have little mental energy left to devote to

comprehending the text they are struggling to decode. As such, emergent and striving readers need extensive practice with letter-sound recognition (phonemic awareness) and phonics, along with a vocabulary of high-frequency words, knowledge of morphological (word parts) and orthographic (spelling) patterns (rimes and phonographs), etc. for them to build skills in decoding so

that the mental task of decoding becomes more and more effortless and automatic, thus freeing their attention to devote to understanding or comprehending the text (LaBerge & Samuels, 1974; Samuels, 2004).

Selected Research Findings

Several studies have been conducted that investigate instructional strategies that emerge from Gough's simple view of reading and the AIPM, both of which emphasize the linear progression from decoding to comprehension. To find ways to improve the decoding skills of students identified as poor readers, Squires (2018) explored how working memory and cognitive load affected the decoding skills of elementary students. Squires noted the negative effect when readers have to devote a significant amount of attention to cognitive tasks associated with decoding that then leave fewer resources for them to use for the job of comprehension. Specifically, Squires administered three different measures to a group of 2nd and 5th-grade students that required varying levels of cognitive demand for auditory-verbal and visual-spatial working memory, then assessed their level of decoding skills. Findings revealed a relationship between auditory-verbal working memory and the students' ability to perform decoding tasks, which suggests that reading programs that are language-

rich would be beneficial in improving reading and academic performance.

In a paper where he reflected on his career in reading education, Samuels (2006) noted the positive results, specifically in fluency, associated with using the repeated reading strategy for the first time with a group of special education students in the late 1970s. Over 30 years later, Bennett et al. (2017) investigated the effect of repeated reading, combined with culturally relevant stories and technology, to improve the reading fluency of a small group ($N = 7$) of second-grade African American students in two inner-city elementary schools. Results showed improvement in reading fluency and comprehension for six of the seven students who participated and the gains were greater when compared to some of their peers in the conduct group.

In a similar study, Redcay and Preston (2016) used a control and experimental group of 20 second-graders in each to determine the effect of teacher-guided repeated reading instruction delivered using an iPad app. The goal was to help students improve their ability to read automatically. Though there were some limitations due to differences between the groups selected, both the fluency and comprehension scores of students in the experimental group were significantly higher than those in the control group, thus demonstrating the benefits of the

repeated reading strategy in improving automaticity in the reading process with the added benefit of meaningfully integrating technology in the process (Redcay & Preston, 2016).

Instructional Implications

Bottom-up models like Gough's simple view of reading and AIPM emphasize the importance of students mastering the skills needed for success in reading sequentially. This linear progression is significant as it relates to the classroom, not only in terms of daily decisions that teachers make about instruction but in decisions regarding helping striving readers. Research-based practices in literacy instruction have the potential to influence historically lower-performing groups, including students of color, students with exceptionalities, and multilingual learners. Utilizing technology may also help to make instruction more engaging and accessible to students (Redcay & Preston, 2016).

Georgia's Standards of Excellence, based heavily on the Common Core Standards, emphasize higher-level, critical thinking, which has inadvertently prompted some teachers to drift away from spending time on foundational reading skills such as decoding and fluency, even when supporting striving readers in the upper elementary and secondary grades (Hendrix & Griffin, 2017). Bottom-up models suggest that

without helping students to master these early reading skills, they will not be able to acquire higher-level comprehension skills.

Implementing repeated reading activities in classes of striving readers and multilingual learners could lead to significant improvement and growth in their literacy skills (Bennett et al., 2017; Rasinski, 2017; Redcay & Preston, 2016; Samuels, 2006). Samuels (2006) found that incorporating a peer-lead repeated reading activity had a more significant effect on student performance than a teacher-led one. Teachers can plan group activities where they can work with small groups of students, while other students read aloud to each other (Rasinski, 2017). As shown in Redcay and Preston's (2016) study, teachers can also use iPads or other forms of technology to incorporate repeated reading activities in the classroom with small groups or individually at home, thus increasing the ease and likelihood of differentiating instruction. In another study on scaffolding second language reading for multilingual learners, Taguchi et al. (2016) introduced another way to incorporate technology in the learning process by using an audio recording to model reading the text, so students can hear the text being read aloud and practice reading it on their own.

Bottom-up models are also useful for coming up with interventions for striving readers. Students at all grade levels who are having trouble with comprehension or demonstrating higher-order reading skills need to be assessed for their knowledge of the lower-level skills. Having students read aloud will help teachers recognize where in the reading process they require support and interventions (Rasinski, 2017). Free software programs, such as Screencast-O-Matic ([screencast-o-matic.com](https://www.screencast-o-matic.com)), allow teachers to record lessons that meet the needs of their students. In addition, free audio recording or video recording apps like Flipgrid (flipgrid.com) enable students to practice and demonstrate their progress to their teachers, parents, and themselves. Readers theater is another fun way for students of all ages to work on improving their fluency and mastery of lower-level reading skills (Young et al., 2019). Frequent formative assessments also need to be in place to monitor students' progress so that instruction is aligned with their specific needs. The bottom-up approach continues to earn its place in the literacy classroom as it continues to be relevant for improving literacy instruction, especially for emergent and striving readers.

Top-Down Theoretical Approach

Background

Before working on learning a new musical piece, a conductor will often allow the musicians to hear the entire composition, so that each member will have a clear understanding of how each part and instrument works together to produce the final performance. This whole-to-part metaphor is similar to the thinking behind the top-down orientation toward the reading process, which focuses first on the role of the readers and their understanding of the overall text rather than the elements of the text itself (Tracey & Morrow, 2017). When students begin with a contextual understanding of the text, they may more easily master the individual skills and vocabulary that they need to grasp the meaning more fully. For example, a reader begins by trying to understand the message of an entire paragraph first before focusing on the words, phrases, and sentences that comprise the paragraph (Angosto et al., 2013). This theory contrasts with the bottom-up approach to reading, which stresses the importance of first mastering the foundational skills, such as decoding, word recognition, and fluency before the reader can reach the higher-order thinking that is involved in grasping overall meaning (Suraprajit, 2019).

Top-down theories find their roots in constructivism with three primary factors underlying literacy acquisition: (a) Not all learning can be seen by an outside viewer, as some learning processes occur internally within the reader's mind; (b) some learning occurs as a result of successful educational guesswork on the part of the reader (e.g., using context clues); (c) readers sometimes attain meaning by inserting their background knowledge and making connections when there are gaps in their understanding of the text—a process called *inferencing* (Tracey & Morrow, 2017). Noted educational or learning theorists that contributed to top-down theories include Jean Piaget and John Dewey. Piaget influenced the foundation of constructivist theory through his beliefs that humans learn using a process of continuous building of logical structures; Dewey added the importance of learning to be grounded in experiential and inquiry learning. According to Dewey, an effective learning environment is one where students have the opportunity to create hypotheses, test their hypotheses using data that they have collected, and reflect on the process they engaged in to arrive at their conclusions. These early thinkers influenced the later development of top-down theories that continue to play a significant role in literacy education, including psycholinguistic, schema, and

transactional reader response theories.

Selected Theories

Psycholinguistic Theory

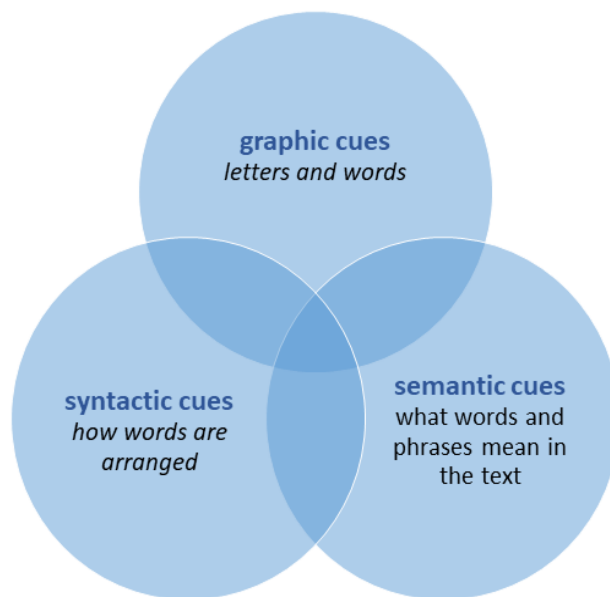
One of the theoretical models of reading closely associated with the top-down processing approach is the psycholinguistic theory. Artley (1980) described psycholinguistics as the joining of linguistics and cognitive psychology. This theory suggests that when readers engage in the process of reading, they use their prior knowledge of language and the world to make sense of what they are reading (Goodman, 1971). As such, young children learning to read would be more impacted by the knowledge they obtain from the adults and the environment around them than from specific instructional materials (Smith & Goodman, 1971). According to this constructivist viewpoint, at the center of the learning process is the learner herself actively connecting old knowledge with new knowledge, formulating hypotheses to make sense of unknown information, and making inferences to help him understand what the text means. Kenneth Goodman (1967), one of the first theorists to apply psycholinguistics to the reading process, referred to this process of predicting the meaning of a text based on prior experiences and schemata as “a psycholinguistic guessing game” (p. 126). As shown in

Figure 2, this theory posits that proficient readers use three central cueing systems: (a) graphic cues, referring to letters and words; (b) syntactic cues, referring to how words are arranged grammatically; and (c)

semantic cues, referring to the reader's perception of what words and phrases mean in the text (Hayes, 1980).

Figure 2

Cueing Systems in Psycholinguistic Theory of Reading



Schema Theory

Another notable top-down or constructivist theory is the schema theory. The ideas surrounding schema theory and its connection to the reading process were first developed by psychologist Sir Frederic Barlett (1932/1995), who used the term *schema* to describe one's mental organization of events that occurred in the past. Anderson and Pearson (1984) applied schema theory to

reading by suggesting that readers had schemata for content, text structures, and reading processes; they posited that a reader's ability to comprehend text is directly related to how detailed their schemata are. According to Anderson and Pearson, existing structures of knowledge are always changing, and these changes involve three processes: (a) *accretion* occurs when readers acquire new information; (b) *tuning* is when a schema has to be changed to

integrate new information; and (c) *restructuring* occurs when the reader realizes that an old schema is no longer enough and a new one needs to be created.

Transactional Reader Response Theory

Both the psycholinguistic and schema theories place heavy emphasis on readers' prior knowledge and how they use schemata to engage in the reading process to construct meaning. In her development of the transactional reader response theory (TRRT), Louise Rosenblatt (2013, 1994/1978) also gives credence to the significance of the reader's schemata in extrapolating meaning from the text; however, she also adds another element to the reading process, the reader's *transaction* with the text. Rosenblatt (1994/1978) postulated that because schemata are acquired from life experiences, a reader's response to the text is central to comprehension. Stated differently, what readers take from a text is influenced by the knowledge that they bring to it. This exchange between reader and text is referred to as a transaction, as the way each affects the other is what contributes to the meaning (Probst, 1987). This meeting between reader and text is further influenced by the type of response the reader has to the text: An *efferent* response refers to the factual information that a reader gathers from

a text, while an *aesthetic* response refers to a more personal or emotional response (Sebastian, 2014). In keeping with the constructivist view, the TRRT emphasizes that the reader is an active participant in the reading process (Woodruff & Griffin, 2017).

Selected Research Findings

Instructional strategies that emerge from top-down literacy theories such as psycholinguistic theory, schema theory, and TRRT have been shown to significantly and positively affect student literacy outcomes. In a meta-analysis of articles published between 2007 and 2017 on effective vocabulary instruction, Moody et al. (2018) examined the theories that influenced word-learning strategies and found that recommendations for effective vocabulary instruction were greatly influenced by both schema and psycholinguistic theories. Strategies based on these theories included comparing and contrasting word features using semantic groupings, utilizing a Frayer Model graphic organizer to learn new vocabulary words, incorporating the home languages of multilingual students in classroom discussions, and examining common semantic meanings and phonological features of words. The influence of both schema and psycholinguistic theories highlighted the importance of prior knowledge, word connections, and

mentally organizing words to maximize understanding.

Chilton and Ehri (2015) demonstrated the central role schemata play in vocabulary acquisition and reading comprehension of elementary school children ($N = 40$). Their research experiment examined the impact of connecting semantic scenarios to meanings for third graders who were learning the definitions of six new verbs (*anticipate*, *attain*, *devise*, *restrain*, *wield*, and *persist*). To observe the influence of schema and context on learning, Chilton and Ehri provided instruction for one group of students where the new words were used in sentences where events were all connected to a common scenario, like a birthday party, while another group of students was also provided with sentences with the new words, but without connections to everyday events or scenarios. Results showed that students who were offered the opportunity to use their existing schemata of the common scenarios included in the sentences were better able to acquire and retain the meanings of the new words that they learned. This theory also demonstrates how students actively apply their schemata of content and reading processes to build knowledge and achieve reading comprehension (Suraprajit, 2019). This focus on the reader being the central agent in the creation of meaning during the reading process is also evident in

Rosenblatt's TRRT (Sebastian, 2014).

Meyer and Schendel (2014) explored the use of the TRRT with a small group ($N = 10$) of first-grade students who were identified as striving readers. This action research study examined the effect of the implementation of literature circles on student's assessment outcomes and classroom behaviors. Students were placed in literature circles and given specific roles, including Artful Artist, Question Asker, Connector, and Passage Picker, to facilitate meaningful transactions with the text. Students called upon their collective prior knowledge to discuss and write about their aesthetic and efferent responses to the high-interest texts they were reading collectively in literature circles. Meyer and Schendel cited high student engagement, enhanced comprehension, and attainment of new learning strategies and tools as just some of the benefits gained from their implementation of literature circles.

Instructional Implications

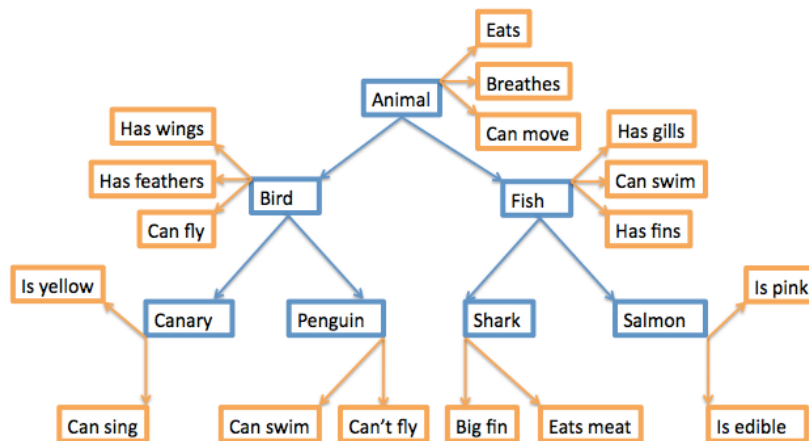
The discussion above of research studies highlights practical ways instructional strategies that emerge from psycholinguistic theory, schema theory, and TRRT can positively influence student achievement in reading. These strategies include the use of graphic organizers to explore prior

knowledge and to make connections to the text and build new meaning, the use of existing schemata to acquire new vocabulary, and participation in literature circles to increase engagement and learning while reading a text. Little and Box (2011) suggested using semantic mapping as a useful instructional tool to help students who may not have enough of the background knowledge they need to comprehend the text they are reading. Much like the example with

common animals shown in Figure 3 below, this strategy involves allowing students to create a visual representation of ideas connected to the concepts in the text they will read; this can be even more effective if, after allowing students to brainstorm on their own, the teacher leads the class in a collective sharing of ideas that helps all students build their knowledge of the concept using what they already know and what they are learning from their peers.

Figure 3

Example of Semantic Map to Build Schemata Related to Common Animals



Technology can also be integrated. Venn diagrams and mapping tools are available via free online apps for students to use to explore their prior knowledge. Literature circles may be conducted online using discussion boards so that students not only get to interact with the text but also communicate with their peers to discuss the books they

are reading. In discussing the use of technology to facilitate reader response, Clarke (2014) suggested several technological tools that could be used to engage students in strategies based on the TRRT. These digital tools include Wordle (wordle.net) to create a graphic representation of word connections, Kami (kamiapp.com) to annotate text

online, VoiceThread (voicethread.com) to allow students to discuss text with their peers, and Glogster (glogster.com), Smore (smore.com), or Prezi (prezi.com) to create engaging multimedia presentations.

The top-down approach continues to play a significant role in the teaching of literacy; its premise that the learner is the most vital component in the reading process encourages teachers to keep students at the center of their instructional practices and learning activities.

Concluding Thoughts

Viewing learning experiences from multiple theoretical perspectives, including from bottom-up and top-down approaches as we have done, allows educators to consider different explanations and ways to analyze and meet the needs of diverse at all stages of the literacy acquisition continuum. When educators are aware of the theories they use to “see” and work through a phenomenon, theoretical background knowledge is even more effective. Being conscious of and purposeful in the way we use and apply various theories allows us to analyze, think through, discuss, reuse, improve, or even dismiss them if needed; most importantly, this awareness will enable us to recognize when something is working, how it is working, and how to make it work better (Tracey & Morrow, 2017).

In the context of literacy instruction, if teachers only choose to consider one theoretical orientation in their approach to teaching students how to read, they could miss the opportunity to help many students reach their potential, and may even cause some to fail in their attempts. Considering multiple theoretical perspectives also improves our understanding of individual components that need to be considered when trying to solve a problem (Tierney, 1994). When a teacher has a student who is struggling to read, utilizing all methods at her disposal to help that student to be successful is vital, and understanding that there are multiple ways to understand and work through literacy problems is equally essential (Tracey & Morrow, 2017).

What was and what is, as it relates to learning and life, continue to be inextricably linked. Ryan and Dagostino (2017) pointed out that Louise Rosenblatt’s warning made 80 years ago that teachers were not doing a sufficient job developing their students’ interest in having a pleasurable and meaningful experience in reading is still relevant to today’s standardized testing driven school environments. This is not just a literacy problem; the way students relate to reading and writing correlates to their development as creative, problem-solving, productive members of a democratic society

(Ryan & Dagostino, 2017). Increased knowledge of the strategies affiliated with various theoretical orientations, including bottom-up and top-down, can lead to immediate improvement in the way we help our students to read. There is no old way versus new way—all strategies should be considered in developing a balanced approach that meets the needs of *all* our students.

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