



The Readtopia® Evidence-Base

A White Paper



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The Readtopia® Evidence-Base

A White Paper

This publication was developed by Dr. Karen Erickson of the Center for Literacy and Disability Studies with Building Wings LLC.

The Center for Literacy and Disability Studies (CLDS) is a center within the Department of Allied Health Sciences at the University of North Carolina at Chapel Hill. The Center's mission is to promote literacy and communication for individuals of all ages with disabilities.

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Introduction

Readtopia is a comprehensive instructional program developed for older students with moderate to severe disabilities. Readtopia employs evidence-based approaches to teach English language arts (ELA) and reading as part of integrated curriculum units that are rooted in meaningful social studies and science topics. Below, the evidence-base supporting the instruction in ELA and reading at the conventional ¹ and emergent levels is described.

Conventional Literacy Instruction

VOCABULARY

As one of the domains of receptive and expressive language, vocabulary is the understanding of the meaning of words and how they are related to each other (*ASHA, n.d.*). By understanding words and their connections to concepts and facts, students develop skills that eventually help them comprehend text (*Kamil & Hiebert, 2005; Neuman & Dwyer, 2009*). The strong correlation between vocabulary knowledge and reading ability is likely related to the fact that vocabulary knowledge extends beyond narrow definitions to the understanding of the concepts that are connected with them, and this provides the base upon which reading comprehension is built (*Stahl & Murray, 1994; Stahl & Nagy, 2006*).

Individuals with significant disabilities reportedly acquire relatively small vocabularies, regardless of modality (*Beukelman, Yorkston, Poblete, & Naranjo, 1984; Cameto et al., 2010*). The language and vocabulary abilities of students with significant disabilities tend to correspond to the degree of intellectual impairment, with some students with mild intellectual disabilities demonstrating only minor deficits while many others with more severe intellectual disabilities demonstrate more significant challenges (*Justice & Redle, 2014*). Nonetheless, students with all levels of intellectual disabilities can continue to acquire new vocabulary well into adolescence when provided opportunities to do so (*Chapman et al., 1998; Romski & Sevcik, 1996*).

Unfortunately, most studies of vocabulary learning among students with intellectual disabilities in the context of ELA instruction have taken a sight word approach (*Roberts, Leko, & Wilkerson, 2013*). In other words, the studies have not focused on the conceptual understanding of word meanings, but have focused on teaching word identification (*Erickson et al., 2009*). The evidence-base regarding vocabulary instruction suggests that effective vocabulary instruction:

- (a) includes direct instruction of vocabulary words specific to the texts we want students to read (*Anderson & Nagy, 1991*);
- (b) provides students with repeated opportunities to encounter words in a variety of contexts (*Stahl, 2005*);
- (c) focuses on the words students are most likely to encounter across texts and contexts (*Beck, McKeown, & Kucan, 2002*);

FOOTNOTES

- ¹ Note that the students described in Readtopia as Transitional readers are included in the research base as beginning conventional readers.

- (d) helps students understand the word’s definition and how the word functions in different contexts (*Nash & Snowling, 2006; Stahl & Kapinus, 2001*); and
- (e) integrates a variety of approaches (*National Institute for Child Health and Development, 2000*).

In Readtopia, each of these principles of effective, evidence-based vocabulary instruction is followed. The vocabulary intervention combines explicit instruction of words that are specific to the texts students will read while also focusing on words that students are most likely to encounter across contexts (*Anderson & Nagy, 1991; Beck, McKeown, & Kucan, 2002*). Students are taught word definitions and encounter each word repeatedly across multiple contexts (*Nash & Snowling, 2006; National Institute for Child Health and Development, 2000; Stahl & Kapinus, 2001*) aligned with grade-level standards. This combined approach supports students with significant disabilities in developing the strong knowledge of words that provides the base upon which new words can be learned (*Hirsch, 2003*).

COMPREHENSION INSTRUCTION

In general, reading comprehension is improved when students are engaged in curriculum that provides ongoing opportunities for engagement and interaction regarding text (*Trabasso & Bouchard, 2002*). At the center of each Readtopia unit is a chapter book. Text comprehension lessons have been provided for each chapter in each of these books. The lessons support the type of engagement and interaction *Trabasso and Bouchard (2002)* suggest is important for all learners. The comprehension lessons in Readtopia have an **Anchor-Read-Apply** format. The anchor step in each lesson helps students activate their own prior knowledge regarding the thinking skill that they will be asked to apply while reading or listening to the chapter. Activating prior knowledge in this way helps students make connections between what they already know and what they are reading (*Roberts, Torgesen, Boardman, & Scammacca, 2008*).

After activating background knowledge, each lesson has a clear purpose for reading that focuses students on the thinking they should do while reading. These purposes are directly related to tasks that are completed during the apply step and give teachers valuable insight into students’ understanding of the chapter. These apply tasks are used instead of traditional comprehension questions because comprehension questions have limited instructional value (*Edmonds, et al., 2009*). In addition to supporting students in learning to comprehend texts, this focus on working with a small group to complete the lessons that accompany each chapter in the books at the center of each Readtopia unit addresses key research-based principles of increasing motivation in struggling readers (*Guthrie & Davis, 2003*). For example, in the Readtopia comprehension lessons:

- (a) the purposes for reading each chapter are interesting content goals that are systematically related to concrete experiences and prior knowledge for each student;
- (b) students are encouraged to engage socially with one another related to the text and the specific purposes for reading; and
- (c) the texts are interesting and written using **considerate text** that addresses the language and learning needs of older, struggling readers. Considerate text respects a student’s age and language competence including vocabulary, syntax, and comprehension skills.

Current research on teaching students with significant disabilities to comprehend text focuses primarily on key ideas and details, or surface level memory of the text (*Mims, Browder, Baker, Lee, & Spooner, 2009; Mims, Hudson, & Browder, 2012*). The lessons in Readtopia are intended to move students beyond surface level memory of information in the texts (*Kintsch, 1998*). Reading with comprehension requires much more than just remembering the literal, surface level information in a text, yet many students with disabilities fail to make any inferences when reading or listening to text (*Barnes, Ahmed, Barth & Francis, 2015*). To help students improve their ability to make the kinds of inferences that are required in reading, texts in Readtopia were written to minimize many inferencing demands in order to ensure that overall comprehension is successful enough that students can focus on the important inferences that remain.

Some of the types of inferences that are required to support comprehension as described in detail by *Hall and Barnes (2017)* are described briefly here with reference to the ways they are supported in Readtopia.

Anaphora Resolution. Most of the time, resolving anaphora while reading focuses on pronouns and determining which noun is referenced by a pronoun. Consider a text that reads, *“Don likes an adventure. He will go anywhere.”* The reader must determine that *he* is *Don*. Similarly, the reader might have to connect a noun or noun-phrase with its referent. For example, the text might read, *“Don, the cameraman, and the pilot had to wait. The team finally left the next morning.”* The reader must determine that *the team* refers to *Don, the cameraman, and the pilot*. In Readtopia, the need to resolve anaphora is restricted except when the referent to the pronoun, noun, or noun-phrase is close in proximity (in the text) and supported.

Lexical Inferences. This type of inference requires the reader to associate the meaning of individual words to make inferences. For example, consider the sentences: *“After the war, Germany was poor, and life was hard for the German people.”* The reader has to connect *hard* with *poor* and recognize that something bad happened in the war that caused *life* in Germany to be *hard*. In Readtopia, these kinds of inferences are explicitly supported in adjacent sentences. For example, in this case, the sentence that precedes this example reads, *“Germany lost World War 1.”*

Inferring Word Meanings. It has long been understood that students without disabilities learn most of the new words they acquire each year through reading (*Nagy, 1988; Nagy & Herman, 1987*). It is important that texts include novel vocabulary words to help students build their receptive vocabulary, and providing a diverse range of text types supports this (*Gardner, 2004*). In Readtopia, care has been taken to use domain-specific, rich vocabulary, but to do so with the support of in-text, cohesive definitions. This minimizes, but does not eliminate, the demands on the reader to infer word meanings. For example, the word *pauper* is not a very common word, but it is necessary in a text about *The Prince and the Pauper*. To introduce the word, it is used in a sentence, defined in the next sentence, and then further supported in a third sentence as follows, *“Tom’s parents were paupers. This meant that they were very poor. They were too poor to take care of their children.”* In this way, Readtopia provides a great deal of support to students in learning new words while reading.

In addition to these text-connecting inferences, readers must make knowledge-based inference when reading (*Hall & Barnes, 2017*). These inferences require the reader to go beyond the text and draw upon prior knowledge. For example, consider the following text: *“Black Dog and Flint talked for a long time. Then I heard a scream. I saw Black Dog running from the inn. He was bleeding from his back.”* To understand this, the reader has to use prior knowledge to understand that there is a relationship between the scream and the bleeding on Black Dog’s back. In Readtopia, these knowledge-based inferences draw upon general rather than domain-specific prior knowledge.

USING VIDEOS TO ANCHOR INSTRUCTION

The videos in Readtopia serve the important role of anchoring each unit by building background knowledge, teaching vocabulary, and providing critical multimedia content delivery that supports learning for students with disabilities (*Vaughn, Roberts, Swanson, Fall, & Stillman-Spisak, 2014*). Background knowledge and vocabulary knowledge are often diminished among students with disabilities (*Shanahan & Shanahan, 2008*). Video provides educators with an important means of addressing these areas while controlling every moment of the instruction (*Mayer, 2011*).

Videos have been used successfully with students with significant disabilities to teach specific skills through video modeling and video self-monitoring (*Bellini, & Akullian, 2007; Mechling & Hunnicutt, 2011*). Video has also been used to provide students with an independent means of learning new information related to academic content (*Evmenova, Graff, & Behrmann, 2017*). It is suggested that students, including those with significant disabilities, can successfully incorporate information presented through video into useful mental models (*Bellini, & Akullian, 2007*). The videos in Readtopia were designed to take advantage of this last point and help students build mental models or correct faulty mental models, upon which they can build deeper understandings throughout each unit.

Kennedy, Deshler, and Lloyd (2015) detail the specific research-based design principles of video for use in instruction for students with disabilities. The principles that are implemented in Readtopia include:

coherence	irrelevant information is excluded
signaling	explicit cues mark the start of major elements
redundancy	when text appears on the screen it is restricted to carefully selected words and short phrases to support retention of information
spatial contiguity	when text is used, it is close in proximity to the images it supports
temporal contiguity	visual elements are closely aligned with auditory information
modality	narration is used throughout
segmenting	videos are short and build on one another across the unit
voice	the narration is clear and carefully paced
image	the images are not abstract and clearly represent the content being presented

This attention to the principles that maximize the instructional supportiveness of videos, helps build prior knowledge throughout each unit in Readtopia. This increase in prior knowledge helps students learn new information when reading or listening to text and is known to increase text comprehension in general (*Watson, Gable, Gear, & Hughes, 2012*).

CLOSE READING OF INFORMATION TEXT

Close reading is a concept that came to the forefront with the latest generation of college and career readiness standards and their emphasis on reading more complex text (*Fisher & Fry, 2012*). Through close reading, students can acquire important background knowledge as they study and work to remember the information in the text (*Cervetti, Jaynes, & Hiebert, 2009*). Given that background knowledge and domain specific vocabulary are often underdeveloped among students with disabilities (*Shanahan & Shanahan, 2008*), close reading is an important intervention for older students with a range of disabilities. However, care must be taken to ensure that the text is not so complex that close reading is a futile task that fails to build comprehension and negatively impacts motivation (*Thomason, Brown, & Ward, 2017*). In Readtopia, texts for close reading are available at multiple levels to help teachers address this challenge of finding appropriately challenging texts.

In close reading, students are taught to carefully and critically examine a text, which usually involves repeated reading for different purposes (*Fisher & Frey, 2012*). In Readtopia, close reading is combined with teaching students about different information text structures. Students with a range of disabilities have historically struggled to read and understand information texts because they do not have strong enough knowledge of different text types, and their reading comprehension improves as they learn more about different text structures (*Gersten, Fuchs, Williams, & Baker, 2001*). One important way to teach students about various information text structures is to teach them using texts that have easy-to-recognize structures such as timelines, compare / contrast, maps, graphs, biographies (*Jitendra & Meenakshi, 2011*). Each of these and more are used in Readtopia.

Close reading of information text is combined with an approach called **On-the-Back Activities** in Readtopia. These activities are literally printed on the back of each information text type so that students have to hold information from the text in their working memory when they turn over the text to complete each question. This format is based on the evidence that suggests that close reading of complex text types for the purpose of answering text-dependent questions increases text comprehension for struggling readers (*Fisher & Frey, 2012; 2014*), and a desire to improve the working memory challenges faced by many students with disabilities who struggle with reading (*Swanson, Kehler, & Jerman, 2010*).

PHONICS INSTRUCTION USING A SPELLING-BASED APPROACH

Phonics refers to the relationship between letters and sounds and how this relationship can be used to decode words (*Adams, 1990*). The attention to these letter-sound relationships allows readers to decode unknown words, master unfamiliar spelling patterns, and become a more fluent reader (*Mesmer & Griffith, 2005*). The ability to decode, or use phonics, to identify words is one critical component of successful silent reading comprehension (*see e.g., NICHD, 2000*). Being able to successfully decode words in text supports the development of the ability to read words with automaticity and accuracy, which supports comprehension (*Ehri, 2005*).

All readers benefit from the development of full alphabetic decoding, which involves applying letter-sounds knowledge to all of the letters in words as they are read (*Ehri, 1999*). Full alphabetic decoding supports students during our explicit instruction and helps them successfully decode words we have not taught them directly (*Share & Stanovich, 1995*). Unfortunately, students who have difficulty decoding words tend not to pay attention to all of the letters in the words they are trying to read (*Beck & Beck, 2013*). As a result, these students require explicit instruction to achieve full alphabetic decoding (*Groff, 1998; Stahl, Duffy-Hester, & Stahl, 1998*). In Readtopia, this explicit instruction is provided using a spelling-based approach to phonics through which students are taught to manipulate individual letters to make words that differ from one another by just one or two letters or use the same letters organized in different ways (*Beck & Beck, 2013; Cunningham, 2016; Stahl, Duffy-Hester, & Stahl, 1998*). The specific program was developed based on the work of *Cunningham (2000)*.

McCandliss and colleagues (2003) used a spelling-based intervention like the one in Readtopia to teach students who were struggling to decode words after 1–3 years of other forms of instruction. The students made more significant progress in decoding than their peers in a matched control group, and importantly, they also made more significant progress in phonological awareness and comprehension. Others have found similar results with spelling-based approaches with young students who are struggling to learn to decode (*Cunningham & Cunningham, 1992; Pullen & Lane, 2014*). Finally, *Hanser and Erickson (2007)* used an intervention that was directly related to the approach in Readtopia to improve the word identification and spelling skills of three students with significant disabilities who also have complex communication needs.

The specific approach in Readtopia has many advantages given the range of students who are in the target population for the program. First, the making words instruction in Readtopia allows all students to participate actively in decoding instruction even if they cannot use speech to communicate. Second, the instruction is easily differentiated to include students who are still learning letter names, letter sounds, and phonological awareness. These students can participate in the instruction with an emphasis on identifying individual letters, sounds, and manipulating words with a simple focus on initial phonemes and rhymes. This type of decoding intervention that includes a combination of phonological awareness and letter-sound instruction has been proven to be more effective than interventions that focus on phonological awareness or letter-sound knowledge in isolation (*see NICHD, 2000; Weiser & Mathes, 2011*). Finally, the lessons in Readtopia include important steps beyond the word making that help students learn to attend to spelling patterns in words as they sort words following the teacher's directions and then transfer what they learned in the lesson to spell untaught words.

WORD STUDY INSTRUCTION EMPHASIZING MORPHEMES

English and its associated orthographic patterns are based on sounds, called phonemes, and units of meaning, called morphemes (*Carlisle & Stone, 2005*). It is widely agreed that phonemic awareness is one of the best predictors of learning to read in the early grades (*National Institute of Child Health and Human Development, 2000*), but a growing body of research encourages deeper understanding of the unique contributions of orthographic knowledge and morphological awareness as students progress through the grades (*Apel, Diehm and Apel, 2013; Berninger, Abbot, Nagy & Carlisle, 2010; Goodwin & Ahn, 2010; Nagy, Carlisle, & Goodwin, 2014*). That is, as words become more complex, the ability to process orthographic units at the morpheme level positively impacts decoding and comprehension of words with multiple syllables (*Angelelli, Marinelli, & Burani, 2014; Cunningham, 2006; Deacon & Kirby, 2004; Gabig, 2013; Goodwin & Ahn, 2010; Nagy, Beringer & Abbot, 2006; Wolter & Green, 2013*).

Meta-analyses provide evidence that targeted morphological interventions can result in significant literacy gains for school-age children, particularly for those with speech, language and literacy challenges (*Bowers, Kirby, & Deacon, 2010; Goodwin & Ahn, 2010, 2013; Reed, 2008; Wolter & Green, 2013*). Research further suggests that students' awareness of the morphological relationship between words improves through elementary and middle school (*Goodwin, Lipsky & Ahn, 2012; Ku & Anderson, 2003; Mahony, Singson & Mann, 2000; Tyler & Nagy, 1989*).

Orthographic knowledge. Orthographic awareness refers to the mapping of the pronunciations of words to their written forms. This is the process that students use when reading sight words (*Adams, 1990*), and it relates to knowledge of the changes that must be made to words that have been changed by the addition of suffixes (*Kirk & Gillon, 2009*). While morphemes are by definition meaningful orthographic units, morphemes can be processed as orthographic patterns without linking to their meaning (*Carlisle & Stone, 2005*).

Orthographic knowledge is a more specific reference to information stored in memory as either complete words or orthographic units. These units stored in memory are sometimes called mental graphemic representations (*Wolter & Apel, 2010; Apel, Masterson, & Brimo, 2012*). Orthographic pattern knowledge refers to knowledge of how letters represent sounds and which letter patterns are acceptable in English (*Apel, Masterson, & Brimo, 2012; Apel, 2011*). Strong mental graphemic representations are important to support the development of reading fluency and, therefore, comprehension. Furthermore, strong mental graphemic representations allow readers to identify unfamiliar words by analogy with stored mental graphemic representations from other words (*Goodwin & Ahn, 2010*).

In Readtopia, these evidence-based understandings of morphemic and orthographic approaches to word reading are integrated in the word study instruction. Students learn words that contain the most frequently occurring morphemes in written English and learn strategies to segment those words and use the morphemes in them to read and spell other words.

MOTIVATION AND ENGAGEMENT

Readtopia is designed to promote intrinsic motivation and engagement because each is a critical element of long term reading achievement (*Froiland & Worrell, 2016; Guthrie, Klauda, & Ho, 2013*). On its own, intrinsic motivation to learn (i.e., the enjoyment of learning) is directly related to long term reading achievement (*Froiland & Oros, 2014; Guthrie, Klauda, & Ho, 2013*). However, intrinsic motivation also promotes persistence in task completion and engagement (i.e., time spent meaningfully interacting with a task) in learning (*Ryan & Deci, 2009*), which are also positively related with long term reading achievement (*Skinner, Furrer, Marchand, & Kindermann, 2008*). By helping teachers create learning communities that promote intrinsic motivation **and** engagement, Readtopia maximizes the likelihood of success in learning (*Froiland & Worrell, 2016*).

In Readtopia, we recognize that a direct focus on behavioral engagement (i.e., on-task behavior) does not have the same impact on student learning as a focus on intrinsic motivation (*Froiland, Mayor, & Herlevi, 2015*). We also recognize that controlling or extrinsic attempts (e.g., rewards) to motivate student engagement actually interferes with the development of intrinsic motivation (*Putwain & Remedios, 2014*). As such, we promote motivation **and** engagement by drawing upon several evidence-based approaches:

Connect instruction to student experiences (*Guthrie & Davis, 2003*). Throughout each unit in Readtopia there are numerous activities designed to help students connect the instruction to their own life experiences. Specifically, the Anchor step in each literature comprehension lesson connects the lessons to each individual student's existing knowledge and experience. Similarly, the real-world activities found in each unit focus on connecting the unit to the students' experience.

Encourage collaboration (*Guthrie & Davis, 2003; Trabasso & Bouchard, 2002*). In most Readtopia lessons, teachers work with groups of students who are encouraged to interact with each other. For example, during video-lessons, students work in pairs to reflect on what they have learned and share back with the group. During comprehension lessons, students work together with the teacher to complete Apply tasks after reading. These collaborative learning opportunities promote intrinsic motivation to learn and therefore can increase engagement and learning.

Focus on knowledge goals (*Kover & Worrell, 2010*). Knowledge goals include big ideas and supporting concepts. These goals emphasize meaningful understanding as opposed to skill mastery which does not promote student motivation or engagement (*Guthrie & Davis, 2003*). In Readtopia, students are encouraged to focus on the big ideas and supporting concepts. At the same time, skills are taught, but the focus is on their application and use rather than mastery out of context.

Emergent Literacy Instruction

SHARED READING

Shared reading is an evidence-based intervention designed to build engagement and interaction while teaching very early text comprehension. There is promising evidence for shared reading, which builds important skills in the domains of oral language and print concepts (NIFL, 2009; US Dept of Education, 2015). The overall findings of the WWC (What Works Clearinghouse) review of shared reading were mixed; however, one randomized control study that met the WWC standards reported statistically significant findings in the domain of oral language (Mautte, 1991). A second study that met WWC standards with reservations reported statistically significant impact on print concepts (Justice, et al., 2010), a domain not included in the WWC review of shared reading.

Shared reading has been used successfully to promote oral language and print concepts in students with significant disabilities (e.g., Bellon-Harn & Harn, 2008; Liboiron & Soto, 2006; Skotko, Koppenhaver & Erickson, 2004), and shared reading has been used to teach students with significant disabilities and complex communication needs to respond to comprehension questions (Mims, Browder, Lee, & Spooner, 2009). The language and literacy skills that are acquired during shared reading are the result of the ways that adults communicate with students while reading (Bellon-Harn & Harn). For example, Bellon-Harn & Harn combined scaffolding strategies, modeling, and expansions with AAC to increase the number of student utterances during shared reading. Similarly, Skotko, et al. combined modeling, AAC, and other print referencing and dialogic reading strategies to increase engagement, commenting, and responding in students with significant disabilities. Other specific evidence-based features of shared reading that build comprehension among students with significant disabilities include the use of objects that relate to the text (Browder et al., 2008), encouraging students to talk about pictures before reading (Shurr & Taber-Doughty, 2012), simplifying books and reading them repeatedly (Browder, Lee, & Mims, 2011), and incorporating picture communication symbols and three-dimensional objects (Browder, Gibbs, Ahlgrim-Delzell, 2008; Mucchetti, 2013). Finally, teachers of students with significant disabilities can increase attention and engagement during shared reading by commenting and responding to the student's initiations and interests rather than reading every page from beginning to end (Bellon, Ogletree & Harn, 2000).

In Readtopia, these evidence-based approaches to shared reading are combined using an evidence-based framework called **Follow the Car** (Cole, Maddox, Lim, & Notari-Syverson, 2002).

CAR is an acronym for:

- (1) **Comment** and wait;
- (2) **Ask** questions and wait; and
- (3) **Respond** by adding a little more.

Between each step, adults pause and wait quietly to give the student an opportunity to respond or make a new comment. This framework was designed to facilitate interaction and language development and provides an important structure to support the comprehensive integration of all of the specific shared-reading strategies that the research suggests can build skills for students with significant disabilities.

ALPHABETIC KNOWLEDGE

Alphabet knowledge is fundamental to literacy learning (*Chiappe, Siegel, & Gottardo, 2002; Foulon, 2005*). It encompasses the ability to distinguish letter shapes, name them, produce or select them from a keyboard, and identify the sounds that letters represent; and, it is a strong predictor of later reading success in young children without disabilities (*Hammill, 2004; NIFL, 2009; Storch & Whitehurst, 2001*). It is also strongly related to word and non-word reading as well as later reading comprehension for students with significant disabilities (*Sermier Dessemontet & de Chambrier, 2015*). Importantly, the impact of alphabet knowledge grows stronger over the first two years of reading development in students with significant disabilities (*Sermier Dessemontet & de Chambrier*), but the strength of the relationship decreases over time for children without disabilities (*NIFL, 2009*). This is an important indicator of the fact that students with significant disabilities need more time to learn to apply knowledge of letter sounds to decoding words and reading text than their peers without disabilities (*e.g., Allor, Mathes, Roberts, Cheatham, & Al Otaiba, 2014*).

There is growing evidence that successfully developing alphabet knowledge and applying that knowledge in later reading is related to instructional opportunity. For example, the relationship between alphabet knowledge and later reading is strongest for students with intellectual disabilities included in general education settings where significantly more time is focused on reading instruction when compared to separate special education classes (*Sermier Dessemontet & de Chambrier, 2015*). Furthermore, when alphabet knowledge is taught in isolation using direct instruction techniques, at least some students with significant disabilities struggle to learn and/or generalize alphabet knowledge (*e.g., Bailey, Angell, & Stoner, 2011; Flores, Shippen, Alberto & Crowe, 2004*).

In contrast, when it is taught and immediately applied in the context of comprehensive, shared and independent reading and writing that extends over a period of months and years, students with significant disabilities can develop alphabet knowledge and apply it meaningfully to reading and spelling (*e.g., Allor et al, 2010; Fallon, Light, McNaughton, & Drager, 2004; Johnston, Buchanan, & Davenport, 2009; Koppenhaver & Erickson, 2003*). In Readtopia, the instruction reflects this combination as students who still need to develop alphabet awareness are taught letters and letter-sounds directly as they participate in phonics instruction and then apply that knowledge across the comprehensive reading and writing instruction that comprise the program.

EMERGENT WRITING

Emergent writing contributes to understandings of letters and phonemes and eventual reading achievement (*Bloodgood, 1999; Dickinson et al., 2003; Storch & Whitehurst, 2002; Ukrainetz et al., 2000*). Writing is also critical for independent and autonomous communication for students with significant disabilities that include complex communication needs (*Barker, Saunders, & Brady, 2012; Erickson, 2017*). Although emergent writing is important, students with the most significant disabilities often have few opportunities to learn to write (*Erickson, Koppenhaver, & Cunningham, 2016*). The few studies that have focused on writing instruction for students with the most significant disabilities indicate that students can benefit from writing instruction, but a set of evidence-based approaches has not been established (*Pennington & Koehler, 2017*). Furthermore, some of the existing studies have employed strategies like word and picture banks (*Prest, Miranda, & Mercier, 2010*); unfortunately, these are known to interfere with developing important literacy skills like word identification and spelling (*Erickson, Hatch & Clendon, 2010*), and independent production of text that communicates independent thought (*Erickson et al., 2010*). If writing is going to have maximal impact on literacy and communication for students with the most significant disabilities, it must help students learn to translate thought into text (*van Kraayenoord et al, 2014*).

In Readtopia, shared writing instruction is found mostly in activities that ask students to write in response to shared reading and viewing tasks. However, students should also be provided with opportunities to identify their own topics and purposes, write about those topics and achieve purposes using letters and words (not symbols), share their writing with others, and revise their writing independently and / or after feedback from adults and peers. While some of this is supported in Readtopia, teachers are directed to another curriculum for additional structure and support regarding writing instruction, especially for students working at the emergent and transitional levels.

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CONVENTIONAL LITERACY INSTRUCTION

Vocabulary

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