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INNOVATION CONFIGURATION

Evidence-Based Reading Instruction for Adolescents in Grades 6-12

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PUBLICATION DATE, 2024
CEEDAR Document No. IC-13b

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Office of Special Education Programs
U.S. Department of Education

This content was produced under U.S. Department of Education, Office of Special Education Programs, Award No. H325A220002. David Guardino serves as the project officer. The views expressed herein do not necessarily represent the positions or policies of the U.S. Department of Education. No official endorsement by the U.S. Department of Education of any product, commodity, service, or enterprise mentioned in this website is intended or should be inferred.

Recommended Citation:

Drake Patrick, J., & Acosta, K. (2024). *Evidence-Based Reading Instruction for Adolescents in Grades 6-12* (Document No. IC-13b). University of Florida, Collaboration for Effective Educator, Development, Accountability, and Reform Center. http://ceedar.education.ufl.edu/tools/innovation-configurations/

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Innovation Configuration for Evidence-Based Reading Instruction for Adolescents in Grades 6-12

This paper features an innovation configuration (IC) matrix that can guide teacher preparation professionals in the development of appropriate use of evidence-based reading instruction for adolescents in Grades 6-12. This matrix appears in the Appendix. An IC is a tool that identifies and describes the major components of a practice or innovation. With the implementation of any innovation comes a continuum of configurations of implementation from non-use to the ideal. ICs are organized around two dimensions: essential components and degree of implementation (Hall & Hord, 1987; Roy & Hord, 2004). Essential components of the IC—along with descriptors and examples to guide application of the criteria to coursework, standards, and classroom practices—are listed in the rows of the far-left column of the matrix. Several levels of implementation are defined in the top row of the matrix. For example, no mention of the essential component is the lowest level of implementation and would receive a score of zero. Increasing levels of implementation receive progressively higher scores.

ICs have been used in the development and implementation of educational innovations for at least 30 years (Hall & Hord, 2001; Hall et al., 1975; Hall & Hord, 1987; Roy & Hord, 2004). Experts studying educational change in a national research center originally developed these tools, which are used for professional development (PD) in the Concerns-Based Adoption Model (CBAM). The tools have also been used for program evaluation (Hall & Hord, 2001; Roy & Hord, 2004).

Use of this tool to evaluate course syllabi can help teacher preparation leaders ensure that they emphasize proactive, preventative approaches instead of exclusive reliance on behavior reduction strategies. The IC included in the Appendix of this paper is designed for teacher preparation programs, although it can be modified as an observation tool for PD purposes.

The Collaboration for Effective Educator, Development, Accountability, and Reform (CEEDAR) Center ICs are extensions of the seven ICs originally created by the National Comprehensive Center for Teacher Quality (NCCTQ). NCCTQ professionals wrote the above description.

Importance of Reading Comprehension Instruction for Adolescents

The belief that reading is important and necessary for adolescents has been long standing (Alvermann, 2002; Conley, 2012; Guthrie & Klauda, 2014; Leko & Mundy, 2012; Moje et al., 2000; Reynolds, 2021). However, adolescents' experiences with reading have changed dramatically over the last decade with the emergence of technology, the rise of social media, and access to information. On the one hand, adolescents actively engage with reading and meaning-making throughout their day, navigating multiple modes of information and communicating through texts and memes (National Council of Teachers of English [NCTE], 2018; Pearson et al., 2023). On the other hand, adolescents are often disconnected from school-based reading tasks and struggle to relate to the academic language prevalent in secondary texts (Wilkinson et al., 2020).

Recent national and international assessments lend insight into adolescents' progress in reading achievement. While overall high school graduation rates are at an all-time high of 86.5% (National Center for Education Statistics [NCES], 2023), the National Assessment of Educational Progress (NAEP) shows declining reading scores for both fourth and eighth graders (The Nation's Report Card, n.d.). In addition, nearly two-thirds of 12th-grade students are performing below the proficient level (The Nation's Report Card, n.d.). While the 2018 Program for International Student Assessment (PISA) scores show United States 15-year-old students performing slightly above the average in reading, the difference in reading literacy scores

between socio-economically advantaged students and less advantaged peers is one of the largest differences between the top 10% and lowest 10% of students of all participating nations (Organisation for Economic Co-operation and Development [OECD], 2019).

Digging deeper, the National Assessment of Educational Progress (NAEP) reading results show concerning disparities. Eighth- and twelfth-grade students with disabilities continue to lag behind their peers without disabilities, scoring approximately 40 points lower. Similar results for eighth-grade English-language learners show a gap of 39 points between students who are English learners and their peers who are not and an even larger gap of nearly 50 points in 12th grade (The Nation's Report Card, n.d.). For 12th-grade students, the score decline was concentrated in the lower percentiles with an overall decline in text comprehension (The Nation's Report Card, n.d.). In addition, eighth-grade NAEP scores reveal the percentage of students performing at the lowest levels is higher for students who are Black, Hispanic, Native Hawaiian, and American Indian/Alaska Native (The Nation's Report Card, n.d.).

Overall, reading scores do not show significant growth. NAEP scores show only 37% of 12th-grade students are academically prepared for college (2019). Additionally, colleges report that many students are underprepared for college and often referred for remedial coursework (Holschuh, 2019; Ran & Lin, 2022; Sanchez, 2022). Analysis of high school students' preparation for college and careers further identifies racial disparities in high school students' readiness (Martinez et al., 2020; Reardon, 2016).

There is a clear need to engage adolescents in acquiring the sophisticated skills needed to comprehend academic texts. While reading instruction in elementary grades may provide a strong foundation, as students advance in schooling, they encounter increasingly complex language across disciplinary texts. An adolescent may be expected to decipher directions to

complete a science experiment, evaluate the causes of the Civil War from a primary document, interpret the meaning of a character's action in a novel, and translate a computer code for a video game all in one day. They must develop the knowledge and skills needed to read and understand new concepts, analyze ideas, evaluate information, and produce writing across a variety of settings not only to excel in school but to thrive in their future (Bigozzi et al., 2017; International Literacy Association [IRA], 2019; Pearson et al., 2020; NCTE, 2018; Reynolds, 2021). Applying and acquiring these sophisticated literacy skills can challenge any adolescent and become especially challenging for students with disabilities, English learners, and adolescents who struggled with reading in elementary school.

The challenge is knowing the right combination of practices to best address secondary reading. Research results are not easily generalizable in secondary settings and are often complicated by the diversity in school settings and students, as well as the challenge in designing and conducting experimental research that provides causal evidence (Shanahan, 2023; Sohn et al., 2023). Despite this complexity, the data detect a need and the research available provides strong arguments for evidence-based practices that will support adolescents in developing strong academic reading skills (Fang, 2024; Heller & Greenleaf, 2007; Kamil et al., 2008; Langer, 2001; Pearson et al., 2020).

Teacher Education

Adolescents will benefit from knowledgeable teachers who have an in-depth understanding of how to provide instruction in academic reading (Baye et al., 2019; Binks-Cantrell et al., 2012; Chambers Cantrell et al., 2017; Fang, 2024; ILA, 2017; Robertson et al., 2020). Secondary teachers must understand the specialized characteristics of disciplinary texts and how to support adolescents in developing comprehension skills to successfully extract and

construct meaning from those texts (Lupo et al., 2024). This includes ensuring that secondary teachers have content knowledge about the essential components of reading, including the underlying language systems, and the reading process (Didion et al., 2019), as well as the pedagogical content knowledge about the principles for effective instruction, and the evidence-based practices to teach adolescents to read within and across the disciplines (Heller & Greenleaf, 2007). Effective secondary teachers can integrate their knowledge of reading development, evidence-based instructional strategies, content, student needs, and learning standards to create motivating and engaging learning environments for adolescents (Baye et al., 2019; Lauterbach et al., 2020; Vaughn & Fletcher, 2012).

The myth that secondary students have acquired the skills needed in elementary school to read successfully in middle and high school must be dispelled. Secondary teachers must leave educator preparation programs knowing it is their responsibility to teach their students how to read in each content area (ILA, 2017). Secondary teachers need knowledge of disciplinary literacy. *Disciplinary literacy* refers to the specialized ways that language is used within a discipline to construct information and communicate ideas (Fang & Roberston, 2020; Goldman, Britt, et al., 2016; Shanahan & Shanahan, 2008). Because most learning for adolescents is disciplinary in nature, instruction should be embedded in meaningful content area learning and should attend to teaching students how to navigate the unique aspects of disciplinary texts to build comprehension. Throughout this IC, we convey the importance of addressing secondary reading from a disciplinary lens. However, for a full review of evidence-based strategies for disciplinary literacy in K-12 settings see the IC *Evidence-Based Practice for Disciplinary Literacy* (Fang & Drake Patrick, 2024).

Secondary teachers should also be knowledgeable about digital literacy. *Digital literacy* includes the broad set of skills students must acquire to engage meaningfully with electronic forms of information (Demirtas, 2023; Spires & Bartlett, 2012). It can include using information gained through reading digital texts to communicate and compose various types of text as well as the use of digital tools to communicate (Coiro, 2021; Demirtas, 2023; Spires & Bartlett, 2012). The term *digital reading* has emerged to address the skills and strategies individuals use to comprehend digital information (Coiro, 2021). It may be beneficial to include explicit instruction and practice in navigating information on the internet, including how to read with hyperlinks and how to evaluate information sources (Cho & Afflerbach, 2015; Ebner & Ehri, 2013; Kanniainen et al., 2021; Salmeron & Vidal-Abarca, 2018). This is important in any discussion of reading comprehension for adolescents because they are steeped in consumption of digital texts from a short text to a visual image to a lengthier article or e-book. Further, the use of digital information sources may influence adolescents' motivation and engagement in reading (Jang et al., 2023; McKenna et al., 2012). In this IC, we assume text to include both print and digital.

Academic language is the language used in academic settings, including vocabulary, sentence structures, grammar, and specialized discourses (Fang, 2017; Nagy et al., 2012). Academic language varies from the everyday social language adolescents use (Fang, 2017; Schleppegrell, 2004; Snow & Ucelli, 2009). It is simultaneously dense, abstract, and technical (Fang, 2012). With the increased emphasis on college and career readiness, adolescents must continue to develop their proficiency in using academic language and understanding academic vocabulary in the secondary school setting. While this IC addresses targeted ideas for addressing vocabulary in secondary settings, the disciplinary literacy IC further extends the principles of instruction for academic language.

Additionally, for secondary educators to execute evidence-based practices in secondary reading effectively, teacher candidates will need strong knowledge of and practice in implementing high-leverage practices (HLPs). Teacher candidates will especially need highly developed knowledge of how to use explicit instruction (HLP 16), provide scaffolded support (HLP 15), and teach cognitive and metacognitive strategies to support learning and independence (HLP 21) to effectively support adolescents in developing skilled reading. This IC does not provide an explicit discussion on how educators can incorporate HLPs with evidence-based practices (EBPs) into their instruction. For more information on HLPs and their use with EBPs, please refer to the CEEDAR Center website on HLPs and the newly revised and updated book *High-Leverage Practices for Students with Disabilities, Second Edition* (Aceves & Kennedy, 2024).

This IC is designed to provide educator preparation providers with knowledge about the essential components of reading comprehension instruction for students in grades 6-12 to integrate into their preparation programs. The accompanying IC matrix (see Appendix) provides a resource to guide teacher educators in evaluating and revising their preparation programs with the essential knowledge and skills secondary teachers need to be effective teachers for adolescents.

Limitations of the Innovation Configuration

This IC summarizes the research and evidence-based practices most relevant to teaching adolescents academic reading. Because of space limitations, this IC does not address all aspects of an effective secondary reading program. Developing adolescents' text-based reading skills should be a part of a comprehensive approach to developing adolescents' literacy skills, which also includes writing (see the IC on *Evidence-Based Practices for Writing Instruction* (Troia,

2014). In addition, teachers of adolescents should develop knowledge of culturally sustaining practices.

Adolescents who have persistent difficulties with the foundational code-based skills of reading (i.e., phonemic awareness, basic phonics, and fluency) will still need instruction in these areas (Vaughn et al., 2022). Please refer to the IC, *Evidence-Based Reading Instruction, Grades K-5* for a more thorough discussion of code-based skills.

Organization of the Innovation Configuration

This IC is organized by sections that describe eight essential components of reading comprehension to include in a comprehensive secondary education reading program. We argue these eight essential components will support teacher candidates in acquiring the skills, knowledge, and dispositions needed to implement effective reading instruction for each adolescent they encounter, including students with disabilities. For each essential component, we provide a justification, identify the foundational knowledge required for the essential component, and include the evidence-based practices that educators can use to support teaching secondary reading.

Essential component one: The nature of reading comprehension and theories of adolescent literacy

Essential component two: The influence of knowledge on comprehension

Essential component three: Word learning: The role of vocabulary and morphology

Essential component four: Comprehension strategies

Essential component five: Combining strategies for instruction

Essential component six: Multicomponent reading interventions

Essential component seven: Motivation and engagement

Essential component eight: Assessment practices

It should be noted that this review is not exhaustive, and therefore, instructors are encouraged to access the citations to further explore each component to instruct teacher candidates.

Essential Component One: The Nature of Reading Comprehension

Having an in-depth understanding of the complex nature of reading comprehension will support secondary teachers in planning effective lessons that engage students in meaningful comprehension-building activities. Skilled reading involves a combination of different skills and processes that are executed automatically and intentionally when readers engage with texts.

Theoretical models lend insight into the components of skilled reading and inform our understanding of how to develop students' comprehension ability and where to intervene when comprehension processes are breaking down. One of the most widely referenced is the *Simple View of Reading* (SVR; Gough & Tunmer, 1986; Hoover & Tunmer, 2022). This model demonstrates the role that language comprehension plays in understanding text. *The Simple View* argues that reading is the product of two independent components: word recognition (WR) and language comprehension (LC). Development of the formula WR x LC = RC (reading comprehension) illustrates the dependence of reading comprehension on both word recognition and language comprehension. To comprehend, a reader must have developed skills in word recognition and language comprehension. If a reader is weak in one area, then reading comprehension is inhibited.

While the *Simple View* accurately identifies the two main areas of skilled reading, the work of Scarborough (2001) further unpacked each category, identifying the underlying knowledge needed to fully execute skilled reading. Using the metaphor of a rope, Scarborough

(2001) illustrated the interaction of word recognition, including phonological awareness, decoding and sight recognition, and language comprehension, including background knowledge, vocabulary, language structures, verbal reasoning, and literacy knowledge, as interweaving strands of a rope. This model sheds greater insight into areas of focus for reading instruction, fine-tuning why it is necessary to build readers' knowledge of both code and meaning-based skills.

While these models outline the foundational components of reading, other models capture the more complex nature of reading comprehension, which is especially important in consideration of teaching adolescents. *The Active View of Reading* (Duke & Cartwright, 2021) sheds light on what happens during reading, integrating the influence of both cognitive and sociocultural factors with language processing skills. This model aligns with the RAND (Snow, 2002) heuristic for reading, framing reading as a multidimensional process that is influenced by internal and external factors.

Cognitive Processes

It is also essential to build an understanding of the cognitive processing involved in reading. Kintsch's construction integration (CI) model (1988) illustrates how individuals go through different layers and processes to develop meaning from a text. When readers approach text, they initially access the *surface code*, making sense of the exact words and phrases used in the text. The words and phrases are combined to produce propositions that then lead to making meaning at the sentence level. Next, the reader accesses background knowledge to connect these propositions to form a *textbase* that leads to understanding the theme and topic of the text. Finally, the reader integrates the new information with their prior knowledge, building a new mental model, or situation model, to expand and build an understanding of the concepts in the

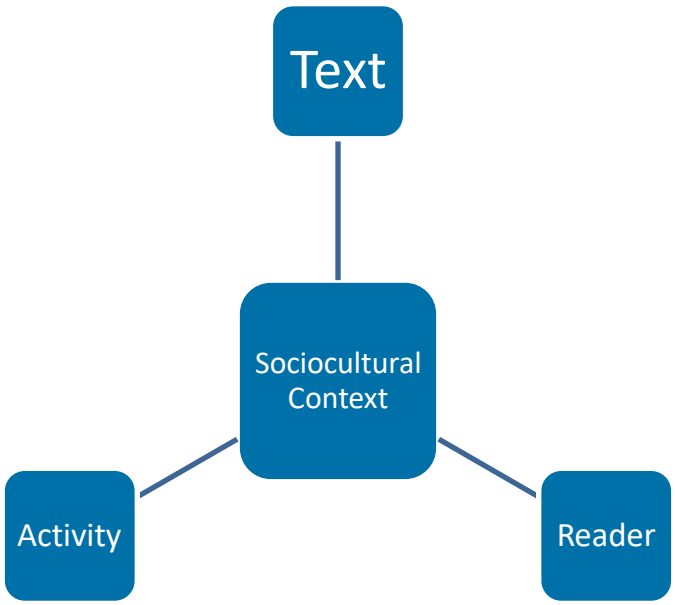
text. The CI model informs our understanding of the dynamic process of reading, showing how the reader uses prior knowledge to interact with and make new meaning from text.

Factors that Influence Instruction

The RAND (Snow, 2002) reading heuristic illustrates how multiple factors interact in the classroom to influence the outcome of successful reading comprehension. The reader brings a set of knowledge and skills to the text that interact with the demands of the text and task that has been assigned to the text. A teacher must understand how these elements interact within the particular sociocultural setting of that classroom to plan for instruction that meets the needs of each reader.

Figure 1

Model of Comprehension



Note. Adapted from Snow (2002) *Reading for Understanding*, p. xiv.

An in-depth understanding of each factor is critical to planning instruction that supports readers in accessing complex academic texts. *Reader factors* include cognitive capacity, various

types of knowledge (linguistic, background, strategy, discourse, strategic knowledge), and motivation. *Text factors* include text complexity, text structure and features, including visual and digital texts, and genre. *Activity factors* encompass the varying purposes for reading that shift between disciplines, especially for adolescents who encounter reading tasks in multiple subject areas each day. Adolescents will benefit from intentionally designed instruction that accounts for each of these factors.

Essential Component Two: Background Knowledge

Knowledge plays a critical role in reading comprehension (Afflerbach, 1990; Filderman et al., 2022; Hattan, 2024; Pearson et al., 2020; Peng et al., 2024; Recht & Leslie, 1988; Smith et al., 2021; Stanovich & Cunningham, 1993). *Background knowledge* includes the broad body of information, experiences, and beliefs a reader brings to a particular text that influences how and if that reader can access meaning from that text.

Background knowledge is a significant moderator of adolescents' ability to comprehend texts (Afflerbach, 1990; Filderman et al., 2022; Hattan, 2024; Pearson et al., 2020; Peng et al., 2024; Recht & Leslie, 1988; Smith et al., 2021; Stanovich & Cunningham, 1993). Deep and accurate background knowledge facilitates the acquisition of new knowledge by integrating knowledge gained from reading with existing knowledge to develop a deeper understanding (Hattan, 2024; McCarthy et al., 2018; Murphy & Alexander, 2002; Pearson et al., 2020; Smith et al., 2021). Deep background knowledge can even compensate for deficits in other ability areas to positively influence comprehension (McCarthy et al., 2018; Smith et al., 2021). On the other hand, a surface-level or inaccurate understanding can have the opposite effect, inhibiting the development of a deeper knowledge of what is being read (Alvermann et al., 1985; Hattan, 2024; Kintsch, 1988; O'Reilly et al., 2019).

Teachers should develop an understanding of the role of background knowledge in reading and how they can positively influence students' connections to and development of background knowledge through a repertoire of strategies and activities.

Activate Prior Knowledge

Educators tend to be most familiar with activating students' knowledge about a topic before reading. This can be helpful not only to see what students already know about a topic but also to detect misconceptions or unrelated information that may hinder the acquisition of important concepts (Alverman et al., 1985). This can be especially important in content classes such as science and social studies (Baye et al., 2019). Effective strategies for preparing students to read include asking topic-related questions to access and build knowledge before reading (Kim et al., 2006), watching a short video, or reading an accessible shorter text before the main text (Kim et al., 2017; Vaughan et al., 2022). Engaging in discussion before reading a text has also been shown to positively impact comprehension (Biancarosa et al., 2020).

Inferencing

For students to have a deep understanding of a text, they must be able to make inferences. To make inferences, readers use background knowledge during reading (Hattan, 2024; Hattan & Lupo, 2020). As readers interact with text during reading, they integrate what they know with what they are learning to make inferences, evaluating the new information to adapt and build a new and deeper mental representation of the concepts (Kintsch, 1988; National Academies of Sciences, Engineering, and Medicine, 2018).

There are two different types of inferences students can make, local and global (Hennessy, 2021). *Local inferences* are those that require the reader to make connections within and between sentences, such as making a connection or inferring who the author is referring to

when using a pronoun such as “him” or “her.” *Global inferences* require the reader to use background knowledge and knowledge from across texts to make connections to develop a complete mental model. Being able to access and use background knowledge to infer at the local and global levels is associated with higher levels of comprehension (Hall et al., 2020). Explicit instruction in grammar and syntax and how sentences are connected can support students in making local inferences (Cain & Nash, 2011; Zheng et al., 2023). Teaching students to develop a goal or purpose for reading can help set the stage for students to start thinking about inferences they will need to make as they are reading.

Additionally, adolescents often need support in connecting and building background knowledge, especially when working with challenging content area texts that may seem disconnected from their everyday lives. Explicit instruction in how to connect prior learning and experiences to new learning can enhance students’ reading comprehension (Barth & Elleman, 2017; Elbro & Buch-Iversen, 2013; Hattan, 2024; Peng et al., 2024). Through think-alouds, teachers can model how to make connections to prior learning and can lead intentional discussions that lead students to make connections to new information that is being learned (Schumaker, 2022; Vaughn et al., 2022). Strategies such as a K-W-L chart (what I Know, what I Want to know, and what I’ve Learned) (Ogle, 1986) or anticipation guides can scaffold adolescents’ understanding of how to activate and use background knowledge to make sense of the text (Alvermann et al., 1985; Duffelmeyer, 1994; Hattan, 2024; Ortlieb, 2013). In addition, Question the Author (QtA), a strategy that encourages readers to connect and elaborate on what they are thinking during reading, has been shown to positively impact student comprehension (Beck et al., 1996; Joseph et al., 2016; Sencibaugh & Sencibaugh, 2015).

Another strategy that shows promising effects is the TWA strategy, which stands for Think before you read, think While you read, and think After you read (Johnson et al., 2012; Firat, 2019). This strategy has been used in small studies with students with learning disabilities with positive results (Joseph et al., 2016).

Wide Reading

Engaging students in wide reading may also build students' background knowledge (Guthrie et al., 2004; Reutzel et al., 2008). Reading from a wide range of texts exposes students to more vocabulary, writing conventions, and topics (Boardman et al., 2008; Vaughn et al., 2022). One strategy teachers can use to engage students in wide reading is to generate text sets, which are a variety of texts related to a topic, to support students in developing knowledge (Lupo et al., 2019). It is important to know that while engaging in wide reading can expose students to new experiences and a variety of different topics, research has found positive but limited evidence that supports a direct link between wide reading and improvements in reading comprehension, particularly for adolescents with learning disabilities (Wexler et al., 2010; Zimmerman et al., 2021).

Cultural Background and Experiences

Background knowledge must also consider adolescents' language, culture, and lived experiences both in and outside of school. Linking adolescents' experiences to what they are learning can positively impact how they interact with the content of texts (Bui & Fagan, 2013; Hattan & Lupo, 2020). Adopting a culturally responsive approach to teaching prioritizes learning about students' lives and experiences in a way that can positively inform how we prepare to support readers in comprehending texts, especially English learners (Bui & Fagan, 2013; Byrd, 2016; Catts, 2022; Hogg, 2011).

Essential Component Three: Word Knowledge

Word knowledge instruction needs to continue in secondary settings. Adolescents encounter new academic vocabulary across their classes every day. Each content area introduces a significant amount of discipline-specific vocabulary as well as uses general words in specialized ways, presenting significant challenges to adolescents who are not prepared to navigate the sheer amount, variety, and complexity of the types of words they encounter in each discipline. Adolescents need to develop the knowledge and skills to acquire word meanings in their subject area classes so they can discuss, write, and explain the new concepts they are learning. Thus, educators must learn the essentials of word learning, which include morphology and vocabulary, and how to integrate evidence-based practices into word learning instruction to support adolescents' comprehension.

Generative and Additive Approaches to Word Learning

Two types of vocabulary instruction should be included in a multifaceted approach to vocabulary instruction: *additive vocabulary instruction* and *generative vocabulary instruction*. Additive vocabulary instruction involves selecting and explicitly teaching new words to students. For example, if reading a science article about DNA, knowing the meaning of *chromosome* and *gene* is important and may require teachers to provide a clear, direct explanation of the word meanings. Understanding of target words increases when teachers explicitly teach the word meanings and engage students in active learning activities (Elleman et al., 2019; McKeown et al., 1985; O'Connor et al., 2019).

On the other hand, *generative vocabulary* instruction emphasizes word-learning strategies, teaching students to recognize the relationships between words and word parts. For example, a teacher might review the prefix *dict-* meaning *say* and brainstorm words using this

prefix such as *diction*, *dictator*, *dictionary*, *contradict*, and *indicator* to support students in seeing the relatedness of words and using word parts to figure out meanings of unfamiliar words. The use of generative vocabulary strategies has been found to support vocabulary and background knowledge development of struggling readers and English learners (Helman et al., 2022), as well as increase motivation and engagement for learning (Larson, 2014).

Morphology

Recent research indicates that engaging adolescents in morphology instruction can impact vocabulary knowledge and reading performance (Crosson & McKeown 2016; Crosson et al., 2021; Goodwin & Ahn, 2013; Helman et al., 2022; McKeown et al., 2018), especially for English language learners (Lesaux, Crosson, et al., 2010; Lesaux et al., 2014; Levesque et al., 2021).

Instruction in morphology involves building students' knowledge of morphemes, the smallest meaning-carrying unit in a word, and morphological awareness, the ability to recognize and manipulate morphemes to decipher word meanings (Meaux et al., 2020). In academic reading, many words are multi-morphemic, containing a blend of prefixes, suffixes and roots. Being aware of the meaning of the word parts can influence both the breadth and depth of vocabulary knowledge (Kieffer & Lesaux, 2012). With a strong knowledge of morphemes, students can segment larger words into morphemes and more quickly decode and determine word meanings (Goodwin et al., 2013; Kieffer & Lesaux, 2010) as well as spell and read with greater competence and confidence (Crosson et al., 2019; Levesque et al., 2021).

Educators should engage in explicit and systematic approaches to teaching morphemes. Many of the words adolescents encounter as they engage in complex academic reading tasks are multimorphemic and can be figured out by analyzing word structures (Crosson & McKeown,

2016; Hiebert, 2020; Levesque et al., 2021). Most adolescents will have acquired a general knowledge of the more common prefixes, suffixes, and base words from the Anglo-Saxon layer of language. These are words that are single morphemes such as “dog” or compound words such as “halftime.” Most academic vocabulary derives from Latin and Greek. Introducing morphemes that are used frequently in content areas will support students in generating strong word analysis skills. For example, knowing the Latin root “port” means “to carry” will support students in social studies class when they encounter the words import, export, and deport.

Explicit routines to support word analysis have been shown to impact students’ word knowledge growth (Jones et al., 2019). The following evidence-based strategies use a mnemonic to teach students word analysis routines. These strategies must be explicitly taught over time with ample opportunities to practice using the strategy across learning contexts and to receive feedback from teachers and peers.

- BEST (O’Connor, 2007): Break the word apart, Examine each part, Say each part, Try the whole thing in context.
- DISSECT (a sub-step of the Word Identification Strategy; Lenz et al., 1996; Woodruff et al., 2002): Discover the context, Isolate the prefix, Separate the suffix, Say the stem, Examine the stem, Check with someone, Try the dictionary.
- REWARDS: Reading Excellence: Word Attack & Rate Development Strategies (Archer et al., 2000; Benner et al., 2022). The steps of this multisyllabic word reading strategy include: (a) circle word parts at the beginning and end of each word, (b) underline each vowel sound, (c) read the word aloud part by part, and (d) say the whole word.

Developing Vocabulary Knowledge

Vocabulary knowledge involves understanding word meanings and how to use them to meaningfully communicate ideas. Vocabulary learning is multidimensional and involves semantic, orthographic, morphological, syntactic, and contextual knowledge (Cervetti et al., 2012; Moats, 2009; Nagy & Scott, 2000; Nation, 2001; Townsend et al., 2020). It has been well-established that vocabulary knowledge is strongly linked to reading comprehension (Hirsch, 2006; Lesaux et al., 2010; National Reading Panel, 2000; Oslund et al., 2018; Perfetti & Stafura, 2014; Stahl & Fairbanks, 1986; Stahl & Nagy, 2007) and that an individual's understanding of what they read is closely linked to the depth and breadth of their vocabulary (Scott & Nagy, 1997; Snow, 2002; Stahl et al., 1989; Wright & Cervetti, 2017). For adolescents, knowing a wide range of words and how they operate within and across disciplines is imperative to their academic success (Ogle et al., 2015).

As students progress through school, they learn an estimated 2,000-3,0000 new words per year through reading and discussion (Stahl & Nagy, 2007). These words are used to label new concepts, describe phenomena, and explain theories. If students do not have strong word-learning strategies, they continue to fall behind their peers who can navigate the complex vocabulary found in academic texts (Townsend et al., 2020).

General Principles of Effective Vocabulary Instruction

A comprehensive plan for vocabulary instruction should be multifaceted, providing multiple and varied opportunities to learn words, to learn about words, and to practice using words across content areas (Manyak et al., 2021; O'Connor et al., 2019; Townsend et al., 2020). Research supports the following principles of effective vocabulary learning: multiple exposures

to words, active engagement in word learning, interest and motivation, wide reading, and word consciousness.

Multiple Exposures to Words. Vocabulary knowledge is built from multiple exposures to words (Beck et al., 2013; McKeown et al., 1985). For adolescents who are encountering new words in academic settings, repeated exposure to words reinforces learning and leads to deeper understanding (Beck et al., 2013). Academic vocabulary is not a part of an adolescent's everyday lexicon; therefore, teachers should ensure that students see, hear, and engage with words multiple times and across various contexts (McKeown et al., 2018). Such exposures will also raise students' awareness of multiple meanings of words across different contexts such as musical *pitch* versus baseball *pitch* or *solution* in chemistry versus in math. While the exact number of times a person needs to encounter a word is nearly impossible to estimate, it is generally agreed upon that it takes more than one exposure to know a word well (Graves, 2006) with evidence that up to 12-17 exposures can have a positive impact on reading comprehension (Ausubel & Youssef, 1965; McKeown et al., 1985).

Active Engagement in Word Learning. Providing varied experiences further reinforces word learning (Graves, 2016). It is not enough to just memorize the definition of a word. Adolescents need to understand how to use words within and across contexts, be able to provide examples and non-examples of words and relate the words to other words (McKeown et al., 2018). Instruction including games and activities that engage students in actively using target words can increase understanding (Townsend & Collins, 2009). Also, using the target words in meaningful discussions provides adolescents with opportunities to practice using the words to communicate concepts and explore ideas (Ford-Connors & Paratore, 2015).

Interest and Motivation. Promoting awareness of and interest in language and words can be a factor in vocabulary learning (Elleman et al., 2019, Ganske, 2023; Scott et al., 2008). Teachers can call attention to and have conversations about interesting words and language, building awareness of connotations of words (i.e., the emotions a word may prompt) as well as the pragmatics of language (i.e., how language may differ in varying social situations; for example, one uses language differently while speaking to a friend at the gym versus speaking to the principal in the school office). Looking at word origins and considering how words change in meaning over time are other ways to promote interest in words (Guthrie & Klauda, 2014).

Wide Reading. Providing opportunities to read a wide variety of texts in content area classrooms also promotes vocabulary learning (Ardoin et al., 2016; Graves, 2000; Suk, 2017). As students engage in reading more content area text, they are exposed to more vocabulary as well as increasing the number of encounters with content vocabulary. A promising practice for engaging students in wide reading is the use of text sets to foster deeper word and world knowledge (Elish-Piper et al., 2014; Lupo et al., 2018; Lupo et al., 2019).

Word Consciousness. An important element of a comprehensive plan includes creating classroom environments that foster an awareness and interest in word learning, or *word consciousness* (Graves, 2016; Scott & Nagy, 2009). The term *word consciousness* refers to the idea that teachers create classroom communities that value and talk about language and words at every opportunity—both planned and unplanned (Beers & Nagy, 2009). Teachers are cognizant of opportunities to talk about words and engage students in a variety of word-learning activities (Neugebauer et al., 2017). Teachers further develop students' *metalinguistic awareness,* which involves their knowledge of morphology, syntax, and semantics (Beers & Nagy, 2009; Hennessy, 2021). In turn, students develop an awareness of the differences between spoken and

written language, the nuances between word meanings and uses, and embrace taking risks in their word learning.

Selecting Words to Teach

Explicit teaching of target words in content areas increases adolescents' acquisition of those words (Lawrence et al., 2017). It is crucial that teachers are thoughtful about which words and how many words deserve valuable instructional time. When selecting words to teach, teachers must consider the purpose of the lesson and then the utility of the word, how the word relates to other words, and how important the word is to understanding the content of what is being learned (Beck et al., 2013; O'Connor et al., 2019). Teachers must evaluate and determine which words they should directly teach and which words students can independently learn. Archer and Hughes (2011) suggested selecting words that are: (a) unknown; (b) important for understanding the text; (c) likely to be heard, read, written, and spoken in the future; (d) difficult to learn and need interpretation (i.e., unknown or complex concepts); (e) abstract; and (f) difficult to pronounce. Graves et al. (2014) and Graves (2016) suggested a strategy called Selecting Words from Instructional Text (SWIT) that involves organizing words into the following categories to determine the level of instruction needed for each word: essential, widely useful, more common, and imported.

A widespread system for evaluating words is the three-tier system (Beck et al., 2013). In this system, Tier 1 words are common everyday words such as *house* and *car*. They words do not often require direct instruction. Tier 2 words are high-utility words that are wide-ranging and appear in a variety of domains. These words encompass the sophisticated words needed to engage in academic settings and are often the target for instruction. Examples include words often found in school directions such as *paraphrase* and *summarize* or words such as *establish* or

compromise. Tier 3 words are less common words that are discipline-specific and mostly occur in specific domains such as *equilateral* or *microorganism*. These words are important to understanding specific content and are learned through explanation.

While selecting words to teach, teachers should strive to choose words that belong to a large morphological family. A morphological family is a set of words, such as *vapor*, *evaporate*, *evaporation*, *vaporize*, and *evaporative*, that share the same base. In contrast, teachers should consider the lonely isolation of *mistletoe* and *umbrella*, which are not bolstered by several morphologically related words. Readers tend to read words more quickly and more accurately if they belong to a fairly large and semantically tight morphological family (Carlisle & Katz, 2006; Levesque et al., 2017). Readers access such words more readily because they appear to reinforce each other in the mind.

In addition, teachers should pay attention to polysemous words, words that carry multiple meanings. Polysemous words convey more than one meaning and can often be represented as nouns, adjectives, verbs, or adverbs. An example is the word *set.* You may have a *set* of numbers in math or you may *set* an item down or you may *set* the dinner table. These words may be particularly problematic for less-skilled readers, students with disabilities, and English learners (Snow & Kim, 2007; Stahl, 1999).

Knowledge of cognates will support teachers who work with English language learners. Cognates are words that are similar in their native languages to English forms of words (Blachowicz et al., 2006; Garcia, 1991; Jiménez et al., 1996; Nagy et al., 1993). An example of a cognate is the word *accident* in English which is similar to the word *accidente* in Spanish, or *garten* in German which is similar to the English word *garden*. Students who are learning

English may benefit from drawing upon first-language skills by using their knowledge of cognates to relate to the new words.

To support teachers with selecting vocabulary words to teach their students, scholars have examined texts to identify words most common in academic settings (Coxhead, 2000; Greene & Coxhead, 2015). The resources below include lists of common academic words that are helpful in guiding the selection of words to teach:

- Biemiller (2010) Words Worth Teaching
- Coxhead's (2000) Academic Word List
- Greene & Coxhead's (2015) Middle School Vocabulary Lists (MVSL)

Evidence-Based Strategies for Word Learning

The following strategies support adolescents in acquiring vocabulary knowledge. Adolescents will benefit from learning a repertoire of strategies to figure out word meanings (Murphy et al., 2017; Vaughn et al., 2015).

Contextual Analysis

Analyzing the clues in texts can be a productive strategy for word learning (Elleman et al., 2019; Ford-Connors & Paratore, 2015). Teachers should model how to use context clues and actively engage students in practicing this technique. Teachers can select a passage and then think aloud, highlighting unknown words and surrounding text that may help determine word meaning. Teachers should provide opportunities for students to practice the skill with increasingly complex texts, monitor student progress, provide feedback, and invite students to reflect on the process to build metacognitive awareness of their application of the strategy (Ganske, 2023). Students also need to realize when this strategy does not work and be able to use other strategies to determine word meaning. It is important to note that using context clues to

identify the meaning of words should be used with caution as using context clues is not always a reliable strategy (Kress Schatz & Baldwin, 1986), especially when working with English learners (Nassaji, 2003).

The Outside-In Strategy: Inferring Word Meaning from Morphological Clues and Context (Ebbers & Denton, 2008) is an example of a strategy that uses context and morphological clues to infer word meanings.

- Look outside the word at context clues in neighboring words and sentences.
- Look inside the word at the word parts (i.e., prefix, root, and suffix).
- Re-read the entire context, keeping the meaningful word parts in mind.
- Make an inference about the meaning of the word. Does it make sense in the context of the passage?

Baumann and colleagues (2002) further suggested teaching a multipart vocabulary strategy that includes contextual analysis to infer a word's meaning, morphemic analysis to derive a word's meaning, and using the dictionary to confirm a word's meaning.

Graphic Organizers

Graphic organizers support vocabulary learning by creating a visual representation of the concept or word being studied (Vaughn et al., 2009). Word webs, word lines, semantic mapping, and word maps are useful graphic organizers that support students in seeing the relationships between words and word parts to develop a deeper understanding of the words and concepts being studied (Dexter & Hughes, 2011; Novak, 1993; Reed et al., 2019; Reutebuch et al., 2013). When using graphic organizers, teachers should explicitly teach how to use the graphic organizer by introducing and modeling its use. Teachers should also encourage the active use of the organizers to discuss, review, and write about target words and concepts. Three examples of

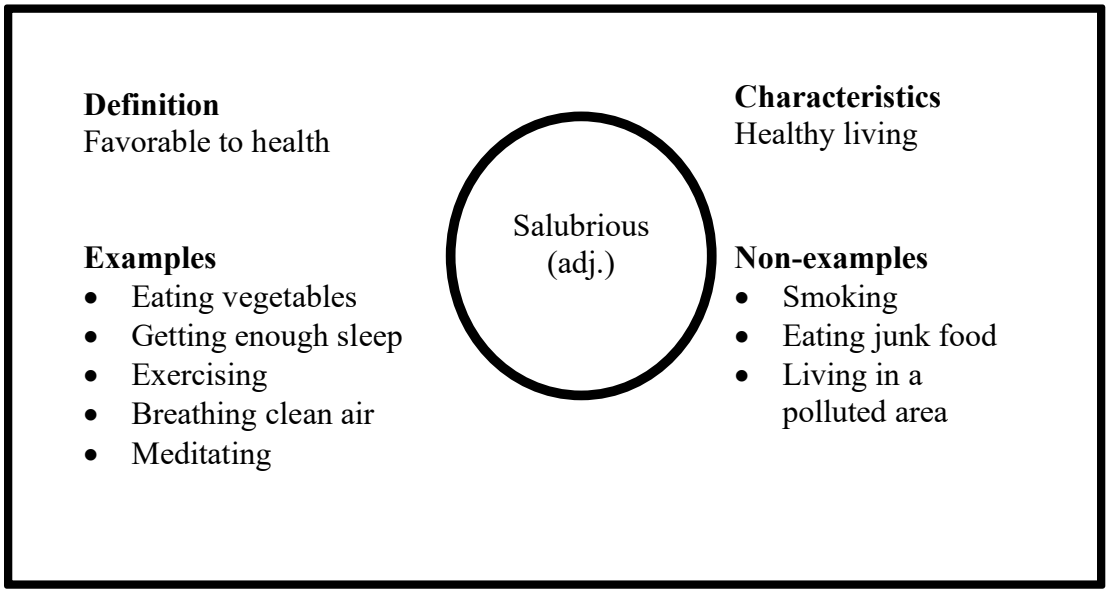
organizers are described below: (a) verbal and visual word associations; (b) semantic maps; and (c) semantic feature analysis.

Verbal and Visual Word Associations

An example of an organizer that uses verbal and visual word association is the Frayer model (Frayer et al.,1969). This four-square organizer includes: (a) the definition, (b) essential characteristics (c) examples, and (d) non-examples. In the example below (see Figure 2), the vocabulary word *salubrious* is written in the center area. The student-friendly definition is written in the upper left box. The essential characteristics are in the upper right box, an example or image is in the bottom left box, and a non-example is in the bottom right box. Students can also draw a picture or write a sentence about the word to help them remember what it means.

Figure 2

The Frayer Model

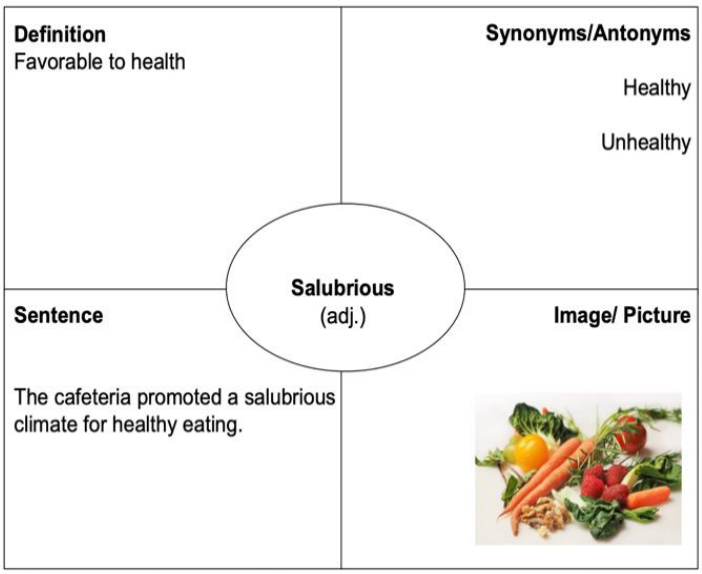


Note. The Frayer model uses the verbal and visual word association for the word *salubrious* to help students study and retain a personally meaningful conception of the word.

Another example is the v*ocabulary frame*. A vocabulary frame, similar to a Frayer organizer, is a graphic organizer that identifies words and word parts to support word learning. This strategy can be helpful for terms with concise definitions and concepts with elaborated definitions to be used before, during, and after reading to gain a deep understanding of the most important concepts necessary to understand a topic (Ellis, n.d.). The vocabulary word is placed in the center of the paper where students can include the parts of speech. Next, in the upper left corner, they write the definition in student-friendly language or a formal definition. Then, they place two synonyms or antonyms in the upper right corner, a sentence in the lower left corner, and an image in the bottom right corner to support visualization of the word.

Figure 3

Vocabulary Frame



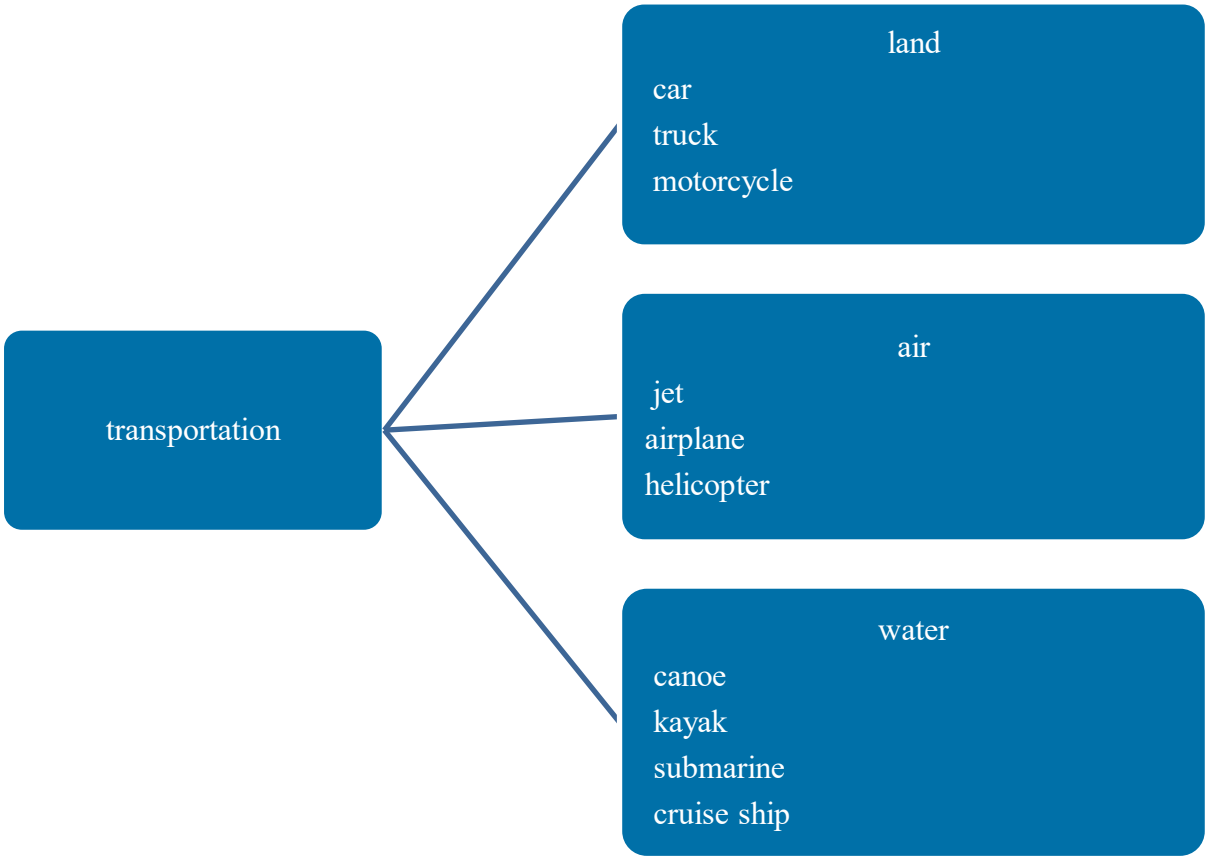
Teachers can invite students to share their organizers with others so that they have opportunities to say and hear the word and explain their examples and images, further reinforcing learning of the word. In addition, English learners should be encouraged to include cognates in their vocabulary frames if applicable.

Semantic Maps

Semantic or concept maps are graphic organizers that support adolescents in organizing and understanding content knowledge (Ciullo et al., 2015; Dexter et al., 2011; Schroeder et al, 2018). Word maps are a type of concept map that analyzes different aspects of complex vocabulary words, highlighting examples and non-examples, identifying concrete examples familiar to students and examples from the texts they are reading, and can include related words, word parts, and images. The example below (see Figure 4) features the word *transportation*.

Figure 4

Word Map



Note. A word map is a visual representation of a definition. This type of mapping is often applied to reading instruction.

Semantic Feature Analysis

Semantic feature analysis (SFA) involves students analyzing concepts and the features that may be common across those concepts (Anders & Bos, 1986; Bos & Anders, 1990). The information is presented in a chart with the concepts listed on the left and the features across the top. Students then read and discuss the concepts and features, developing a deeper understanding of the relationship between the concepts. This strategy simulates how words are organized in the brain (Anders & Bos, 1986).

Figure 5

Semantic Feature Analysis (SFA)

Types of Transportation	Has at least 4 wheels	Requires a license to drive	Has a gas motor	Has only two wheels
Car	x	x	x	
Bicycle				x
Motorcycle		x	x	x
Pickup truck	x	x	x	

Note. A semantic feature analysis (SFA) is a chart that shows the relationship between concepts by analyzing the features of each word.

Multimedia Learning

With the increased access to technology, consideration for how to leverage multimedia to enhance vocabulary learning must be considered. Recent research explores the use of web-based tools to increase adolescents' vocabulary acquisition (Adlof et al., 2019; Kennedy et al., 2015).

In one study, researchers created content acquisition podcasts (CAPS) to deliver vocabulary instruction for targeted vocabulary words (Kennedy et al., 2015). CAPS that included explicit instruction and the keyword mnemonic strategy and were approximately 2 minutes in length positively impacted vocabulary acquisition for both students with and without learning disabilities (Kennedy et al., 2015). Preliminary results of a web-based vocabulary program to

provide individualized vocabulary indicate students who participated in the program made gains in their knowledge of the vocabulary learned and both teachers and students were generally positive in their feedback about using the program (Adlof et al., 2019). Teachers at the secondary level should be aware of the potential integration of multimedia learning to support vocabulary acquisition.

Students who are less skilled in reading will need more intensive support; however, the same principles of vocabulary learning should be applied, although the instruction may have to be more intensive, explicit, and systematic. Instruction should include greater scaffolding with more explicit modeling, guided and independent practice opportunities for students, along with explicit feedback from the teacher (Kuder, 2017). It may be beneficial for Tier 2 and Tier 3 interventions to target words that are likely to be found across domains or target words through direct instruction from upcoming units of study in content area classes (Boardman et al., 2008, Gutlohn & Besselieu, 2014). In addition, generative vocabulary strategies, including morphological analysis, show promise in supporting students with disabilities and should be included in targeted interventions (Kuder, 2017).

One example of an academic vocabulary intervention with sixth graders incorporated a short 15-minute explicit instructional routine that included direct instruction on word meanings, contextual analysis, multiple opportunities to respond, and structured activities. The words chosen were academic words that had high utility. The routine included the same components of explicit instruction as recommended for general education; however, the researchers lessened the number of words to four per week versus the typical six to eight in general education settings. Results were positive, showing that students gained vocabulary knowledge (O'Connor et al., 2015).

Intensified instruction should also engage students in correctly pronouncing complicated words. Teachers should briefly model how to say the word, point out the syllabic breaks, and note the stressed syllable(s). Students should immediately use the words in an appropriate context several times, with teachers providing corrective feedback. This practice is helpful for all students, particularly English learners, students with disabilities, and students with speech impairments (Levesque et al., 2021).

Mnemonic Strategy Instruction

Mnemonics involve using cues to support learning new material. The *keyword mnemonic strategy* has been shown to positively impact discipline-specific vocabulary knowledge of students with disabilities (Kuder, 2017; Mastropieri et al., 1985; Terrill et al., 2004). In this method, a familiar word or image is used to connect the student's prior knowledge to the new concept. For example, if the target word is *stampede,* the teacher would pick a keyword that sounds similar to the target word (e.g., *stamp*) and then include an image to support recall of the concept. The teacher may create an image with stamps with legs and have the stamps all running. Next, a phrase or sentence is created to aid memory (e.g., the stamps ran over everything in their path). Then, when the student is prompted to recall the meaning of *stampede*, the image and sentence help them to recall the meaning.

Computer-Assisted Strategies

Consideration of the use of technology and multimedia strategies in instruction is worthwhile. In a small study of students with specific language impairments (SLI), students who viewed videos of explicit vocabulary instruction of targeted words gained more word knowledge on multiple measures of vocabulary acquisition as compared to students with SLI who did not receive the video instruction (Lowman & Dressler, 2016). This finding supports the positive

outcomes for students with LD that Kennedy et al. (2015) found in using content acquisition podcasts (CAP) to reinforce content vocabulary learning.

Assessment for Vocabulary

While most curricula contain vocabulary assessments, these assessments typically assess the breadth, how many words students know, and not the depth of their vocabulary knowledge, how deeply students know words. Vocabulary assessments can help teachers gain a better understanding of their students' vocabulary knowledge (Cervetti et al., 2012).

Vocabulary Knowledge Scales

Developed to support multilingual learners in acquiring English vocabulary, the vocabulary knowledge scale is a self-reporting scale that students can use to self-assess how well they know a word before a lesson begins and then use it to guide their deepening understanding of a word (Paribakht & Wesche, 1993). Teachers can review the word list at the start of a lesson or unit and invite students to rate their word knowledge. This can serve as a formative assessment to help guide the teacher in identifying who may need more support in understanding the key vocabulary. Then, when the lesson or unit is complete, students can return to the rating and measure their growth. There are several variations of the vocabulary knowledge rating scales.

Figure 6

Vocabulary Knowledge Rating Scale

	I do not know this word.	**I have seen it.**	**I can use it in a sentence.**	**I can explain it.**
biome				
ecosystem				

desert				
rain forest				

For a student who consistently scores low in vocabulary but is skilled in decoding, a diagnostic vocabulary assessment may be necessary. There are a variety of resources available that offer diagnostic vocabulary assessments. One of these is *Assessing Reading: Multiple Measures, Second Edition* by CORE (Diamond & Thorsnes, 2018).

Essential Component Four: Comprehension Strategy Knowledge

Comprehension strategies are routines and procedures used to make sense of what is being read. Developing adolescents' knowledge of comprehension strategies across disciplines can contribute to developing proficiency in comprehension of academic texts (Duke et al., 2021; Elleman, 2017; Peng et al., 2024; Vaughn, et al., 2015). Comprehension strategies should be explicitly taught and practiced; however, once learned, they should become part of a collaborative approach to reading comprehension for understanding and using content knowledge (Duke et al., 2021; Vaughn et al., 2022). The goal of strategy instruction is for students to be able to apply the skills and strategies independently. Using an instructional routine that involves modeling through think-alouds, guided practice with feedback, and opportunities to apply the strategies independently can benefit adolescents in acquiring the reading skills needed to comprehend a variety of texts across different disciplines (Joseph et al., 2016). A wide range of strategies have been shown to effectively support students' comprehension development and should be selected purposefully to meet the needs of each student (Duke et al., 2021; Peng et al., 2024; Vaughn et al., 2022).

Comprehension Monitoring

Monitoring comprehension is a metacognitive process in which readers evaluate if they are understanding what they read. Engaging adolescents in awareness and regulation of their comprehension enables them to adapt and determine how, when, and why to apply strategies to their reading (Hong-Nam et al., 2014; Soto et al., 2019). Higher use of metacognitive strategies positively impacts adolescents' reading comprehension (Berkeley et al., 2010; Joseph et al., 2016; Malone & Mastropieri, 1991; Sohn et al., 2023), whereas lower metacognitive awareness is linked to a lower level of comprehension (Tibken et al., 2022). Rereading, asking questions, summarizing, paraphrasing, and taking notes are practices that skilled readers engage in to evaluate and adjust how well they understand what is being read (August et al., 1984; Short & Ryan, 1984). To ensure adolescents use comprehension strategies effectively, they will require explicit instruction on monitoring their reading comprehension (Berkeley & Riccomini, 2011; Malone & Mastropieri, 1991; Vaughn et al., 2022). Some examples of comprehension monitoring strategies known to have positive effects on adolescents' reading comprehension are strategies such as questioning the author (QtA) (Beck et al., 1996; Joseph et al., 2016), identifying the main idea and summarizing text (Filderman et al., 2022; Malone & Mastropieri, 1991), learning text structure, engaging in close reading (Fisher & Frey, 2014), engaging in in-depth discussions, and peer tutoring (Fisher & Frey, 2019).

Questioning

Answering and asking questions is critical to becoming a skilled reader. Skilled readers engage in questioning before, during, and after reading to make meaning from texts (August et al., 1984; Short & Ryan, 1984). In fact, research suggests that students with and without disabilities who engage in self-questioning have higher comprehension outcomes than their peers

who do not (Joseph et al., 2016). Research also shows that effective adolescent reading instruction should build essential questions that guide students in purposeful reading tasks (Goldman, Snow, et al., 2016).

Embedding purposeful questioning strategies and routines into lessons will support adolescent readers in comprehension development and comprehension monitoring (Castells et al., 2022). Learning how to identify and answer different types of questions enables adolescents to draw inferences, identify key understandings, and build meaning from texts (Raphael & Au, 2005; Ritchey et al., 2017; Vaughn, Cirino, et al., 2010; Vaughn, Wanzek, et al., 2010). Teacher-planned questions should be designed to build literal, inferential, and evaluative comprehension and be integrated throughout instruction to build adolescents' comprehension capacity (Beck et al., 1996; Elleman, 2017).

Explicit teaching of question types has been shown to positively impact adolescents' understanding of what they read (Castells et al., 2022). One targeted strategy is the QAR (Question, Answer, Relationship) strategy, (Raphael, 1982) which is designed to help readers identify question types before answering them. Students learn about four question types, "right there," think and search," "author and me," and "on your own." For example, the question "What color are the cat's eyes?" would be labeled a "right there" question because it is explicitly stated in the text, and a "think and search" would require the reader to make inferences and "think and search" for the answer, like "How are the cat and the dog alike?" (Raphael, 1982).

Another research-based questioning strategy is Questioning the Author (QtA) (Beck & McKeown, 1985; Beck et al., 1996). This strategy mentioned earlier to aid in the development of background knowledge can also be used to support the monitoring of comprehension. QtA embeds questions purposefully throughout a text by beginning with an initial discussion that

includes asking students what they think might be the author's purpose. Then, the teacher includes questions at planned stopping points to prompt readers to pause and examine what is happening in the text. Stopping points include sections the teacher believes may be challenging for students to understand, as well as sections where the teacher knows students can connect prior knowledge or previously learned information with new information by asking questions such as, "That's what the author says, but what does it mean?" (Beck et al., 1996, p. 389) or "How does that fit in with what the author already told us?" (p. 389). Once students respond, teachers are to then use a student's response and build upon it to further the discussion and engage students in more talk, supporting the development of sense-making.

Main Idea, Paraphrasing, and Summarization

Identifying the main idea and being able to summarize or connect the main ideas into a coherent statement in one's own words is a critical skill for comprehending texts (Filderman et al., 2022; Gajria & Salvia, 1992; Malone & Mastropieri, 1991; Peng et al., 2024; Stevens et al., 2019). However, identifying important details and removing extraneous information is a challenging skill for students to learn, especially adolescents who struggle with reading and those who have disabilities. Therefore, it is important teachers directly teach this skill to students and provide them with ongoing repetitive guided practice to support their ability to summarize the main points of a passage (Barth et al., 2016; Klinger et al., 2012; Solis et al., 2018). One effective way to do this is to use the cognitive strategy of Get the Gist (Klingner et al., 2012). The Get the Gist strategy involves identifying the main points of a passage and then using these main points to develop a succinct gist, or summary statement using ten words or less. Creating a gist statement is effective because it requires students to synthesize information into a few key details in their own words.

It is worth noting the importance of including written language instruction to support reading comprehension, especially when summarizing texts (Graham & Hebert, 2011). There is a strong correlation between reading comprehension and written language (Graham & Hebert, 2011; Kim & Graham, 2022); thus, demonstrating and teaching students how to summarize orally but also in writing is important to comprehension.

Text Structure

Text structure is how a text is organized to assist readers in understanding the content and the author's intended message. It is important to teach students text structures because those who understand text structures can use this information to more easily make predictions, find supporting details, and process information for overall comprehension (Bakken et al., 1997; Bogaerds-Hazenberg et al., 2021; Meyer & Freedle, 1984; Gajria et al., 2007). There are two different categories of texts: literary and informational. Within each, various organizational structures serve to communicate the ideas within the text. Literary texts include poetry, drama, and fiction, whereas informational texts include expository, procedural, persuasive, and argumentation texts. When adolescents are reading across disciplines, it is helpful to be aware of the various text structures authors use to organize and express content (Catts, 2022).

To support students in learning about text structures and how text structures can inform their comprehension, researchers recommend directly teaching students about the various ways texts are organized (Gersten et al., 2001; Hall-Mills & Marante, 2023; Vaughn et al., 2022). This includes teaching students specific signal words that indicate a text is about a cause and effect or about comparing two different concepts. Additionally, having students identify key ideas using a graphic organizer structured around the text type can also support reading comprehension (Hall-Mills & Marante, 2023). Finally, once students learn about text structures, teachers can support

students by using this information to develop a summary or gist statement of what they have read (Vaughn et al., 2022).

Close Reading

There is debate and disagreement on how to define close reading and what entails close reading (Fang, 2016; Hodge et al., 2020). Regardless of how close reading is defined, the purpose remains the same, to support a student with attending to important details within a text to aid comprehension. Close reading is not a teaching technique but rather an outcome or a result when students engage in the practice of methodical interpretation of texts (Hinchman & Moore, 2013). Although the construct of close reading is challenging to empirically validate due to the many components included in close reading, Fisher and Frey (2014) did find positive results on reading comprehension outcomes for struggling middle schoolers who engaged in close reading of texts. The typical components of close reading are supported by research (e.g., re-reading, annotation, paraphrasing, and making inferences) (Graham et al., 2020; Millis & King, 2001). Hinchman and Moore (2013) summarized strategies that have been recommended for close reading of a text:

1. Read and reread: Read for different purposes and at different rates.
2. Annotate: Be an active reader—take notes and identify the most important information and sections of text.
3. Summarize: Retell the passage.
4. Self-explain: Figure out how ideas and information relate to one another (Hinchman & Moore, 2013, p. 444).

Close reading of complex text requires time and multiple readings of the text. Before embarking on a close reading of a text, teachers first need to determine the purpose of each

reading (Fang, 2016). Depending upon student needs, teachers may do a first read with students by helping them identify unknown words and challenging text structures or grammar. Then, students may read to figure out what the text says and determine the plot of the story or the main idea and details of an expository piece. Students read the text again this time to determine the literary devices the author used or the quality of the evidence. Word choice and use of language are discussed. Finally, readers think more deeply about the text to critically analyze it, relate the text to their lives, and think about the author's deeper purpose.

The skills involved in close reading of a text are important for all students, including students with disabilities. Students need to learn how to approach difficult text without giving up, and the selected text must be within their ability to understand, albeit with hard work (Fang, 2016). While teachers explicitly instruct students how to approach difficult text, they model the skills of questioning, annotating, noticing important text features, paraphrasing, wondering about word choice, and rhetorical devices. To become adept at close reading, students with disabilities will likely benefit from more explicit instruction, more models, more time, and more practice.

One of the best ways to teach students the concept of close reading is through teacher modeling using think-aloud statements, making the teacher's processes visible to students (Oster, 2001). Modeling the metacognitive processes is not easy and requires teachers to practice, preferably while taping their attempts, and then reflect upon how clearly they modeled (Nagro & Monnin, 2022).

In-Depth Discussions

Class discussions, when thoughtfully conducted, are an important tool to enhance reading comprehension, foster critical thinking, and prepare students for college and their careers. Discussions can take place in all content classes and are excellent vehicles to increase the

participation of students with disabilities. Recent research suggests that engaging students in effective in-depth discussions in combination with a close reading of a text is one of the most significant ways to improve comprehension for older readers (Pearson et al., 2020) including for English learners (Proctor et al., 2020).

To be effective, discussions should be sustained interactions, include thought-provoking questions, and involve an interpretation and analysis of a text with application to problem-solving (Barth et al., 2016; Kamil et al., 2008; Pearson et al., 2020). For English learners, small group discussions with sentence starters and frames can support students in engaging in in-depth discussions (Proctor et al., 2020). Additionally, providing students with one or two overarching big idea questions related to themes from a reading that are engaging and thought-provoking can promote more in-depth discussion, allowing students to have opportunities to share their interpretations of a text using evidence from the text and their reasoning skills (Pearson et al., 2020; Proctor et al., 2020). There is also some evidence that providing one or two thought-provoking questions increases adolescent motivation and engagement with the reading thereby potentially increasing comprehension (Pearson et al., 2020).

Peer Tutoring

Peer tutoring can take many forms, with teachers forming homogenous or heterogenous pairs based on student interest, test scores, or other factors dependent upon the task and students. Research has demonstrated that all students can benefit from peer tutoring, including students with disabilities, students of average ability, and students who are identified as gifted (Alzahrani & Leko, 2018; Cohen et al., 1982; Fisher & Frey, 2019). Both the tutor and tutoree have been shown to increase their comprehension and social and emotional skills when working with a peer (Fisher & Frey, 2019). Researchers believe strategies that incorporate peer tutoring are effective

because of increased motivation to learn when working with peers (Cohen et al., 1982; McMaster et al., 2006; Fisher & Frey, 2019).

For peer tutoring to be most effective, it requires the teacher to explicitly teach students how to engage in peer tutoring, using specific protocols and a reward system to keep students on track (Fisher & Frey, 2019; Fuchs et al., 1999; Sáenz et al., 2005). One specific strategy developed by Fuchs et al. (1999) is peer-assisted learning strategies (PALS). PALS includes heterogeneous pairs of students. Partners are determined based on reading scores, with teachers partnering a higher-performing reader with a lower-performing reader. Students then take turns reading a text with the higher-performing student reading first to serve as a model. After students have read a paragraph or small section, they then create a gist or summary statement in 10 words or less. The final step of PALS requires students to create a prediction or confirm or disconfirm a previously made prediction. While students are working in pairs, they can earn points for fluently reading, developing accurate summary statements, making predictions, and engaging in on-task behaviors. These points are then used by the teacher to provide students with a previously identified reward. In the study with high school students by Fuchs and colleagues (1999), students had opportunities to use their points to earn a $10 reward.

One surprising finding from the Fuchs et al. (1999) study was that students who participated in PALS reported a statistically significant increase in their beliefs about their reading ability and work habits, stating they worked harder with their peers. Students also reported they felt their teachers worked harder. The researchers attributed these findings to increased motivation when working with peers. The findings also call into question the role of the teacher for reading instruction. Once students have been trained to work with a peer, the teacher may not always need to provide direct reading comprehension instruction but can serve

as a supervisor or monitor for students as they work together. Because of the success with peer learning and increased motivation to learn, several of the strategies described below also include a peer-learning component.

Essential Component Five: Integration of Multiple Strategies

While research has demonstrated each of the strategies discussed above to be effective in promoting reading comprehension for adolescents, the most effective use of comprehension strategies is when they are used together (Peng et al., 2024; Sohn et al., 2023). Although there is no one perfect combination of strategies, recent research by Peng and colleagues (2024) has identified that some of the most efficacious multiple strategy combinations are those that teach the main idea, text structure, and summarization or main idea, text structure, inferencing, and self-monitoring. Furthermore, the authors of this study noted that regardless of which strategy combination is used, the inclusion of strategies to access background knowledge is crucial to the success of any combination of strategies employed. Therefore, regardless of which combination of strategies teachers use, they must include strategies that support students in gaining and accessing background knowledge.

Specific multiple strategies identified in research that include many of the strategy combinations listed above and have demonstrated positive effects on students' reading comprehension include Collaborative Strategic Reading (CSR) (Bryant et al., 2000; Bryant et al., 2001; Klingner et al., 2012; Vaughn, Klingner, et al., 2011) and reciprocal teaching (Palinscar & Brown, 1984; Slater & Horstman, 2002). More recently, the multiple strategy of Promoting Adolescents' Comprehension of Texts (PACT) has been used (Swanson, Wanzek, et al., 2017)

Collaborative Strategic Reading

Collaborative Strategic Reading (CSR) is one multi-component strategy that has had positive impacts on adolescents' reading comprehension (Bryant et al., 2000; Bryant et al., 2001; Klingner et al., 2012; Vaughn, Klinger, et al., 2011). It has been used in heterogeneous classrooms, enabling students with different levels of skills to work together to comprehend complex text. When students have learned each component, they independently practice applying it, and then they work in small collaborative groups. It takes about one semester for students to learn CSR. It is recommended that students apply the strategy with teacher support once per week in each class (i.e., science, social studies, and English/language arts) (Vaughn, Klinger, et al., 2012). The components of the strategies are as follows:

Before Reading: Preview and Predict

- The teacher guides students through the process of looking at pictures, headings, and subtitles.
- The class discusses what students already know about the topic, and then the students write predictions based on the preview about what they expect to learn.
- Additional ideas to generate interest or support background knowledge about the topic can also be included (e.g., video, pictures) as well as pre-teaching vocabulary and providing students with opportunities to practice and discuss the new vocabulary, which is key for English language learners and students with reading difficulties.

During Reading: Click & Clunk and Get the Gist. Students silently or orally read a passage as a small group and consider the following steps:

- Clicking refers to smooth and fluent reading with understanding.

- Clunks are challenging words or phrases encountered during reading. Students practice using fix-up strategies to decipher clunks. Fix-up strategies include re-reading and looking for the context clues; re-reading the sentence before and after the sentence where a clunk was located; using prefixes, suffixes, root words, or words within the word that students know; and looking for cognates, which is especially useful for English language learners.
- Get the Gist is a strategy for identifying the main idea. After reading a paragraph or section, students compose a gist statement. This is a sentence of the main idea of that section of text. Students discuss their clunks and gist statements in their groups. There are three steps to create a good gist statement. First, students locate the most pertinent *who* or *what* from that section of text. Next, students identify the most important information about the *who* or *what*. Finally, students compose a sentence stating the main idea in about 10 words.

After Reading: Wrap-up Extending Comprehension

Students each write three questions to extend comprehension. The first question is a *Right There* question, which is a question for which the answer can be identified in one location in the text. The next question is called *Think and Search*, and it requires students to locate information in various parts of a text to arrive at the answer. Finally, students create an *Author and You* question, a higher-level question such as making an inference or evaluation. The goal is for students to look back at their gist statements, think about the passage, and compose several sentences that summarize the passage (Klingner et al., 2012).

Reciprocal Teaching

Reciprocal teaching, a multi-component strategy developed by Palinscar and Brown (1984), is a recommended strategy for teaching reading and writing at the secondary level (Slater & Horstman, 2002). Reciprocal teaching supports students by engaging in dialogue centered on the relevant features of a text. Students, with support from a teacher, interact with and discuss the text. Students learn cognitive strategies to monitor their comprehension by developing awareness of their thought processes during reading. As with all strategies, the strategy must be modeled, explicitly taught, and practiced before students can independently apply it.

After learning the strategy, students work in small groups, and each student is assigned a role—prediction expert, summarizer, question generation, and clarification—to foster the dialogue. One student serves as the teacher and leads a group discussion as the group members complete the following steps:

- Generate questions to ask thought-provoking questions about a short segment of the text.
- Clarify any misunderstandings or comprehension difficulties.
- Summarize or paraphrase the text segment.
- Make predictions about an upcoming section of the text.

Promoting Adolescents' Comprehension of Text

Promoting Adolescents' Comprehension of Text (PACT) has positively impacted the reading comprehension of adolescents with disabilities within secondary English Language Arts and social studies classrooms (Pearson et al., 2020; Swanson, Wanzek, et al., 2017; Wanzek et al., 2019). PACT includes a peer-learning component and engages adolescents in using a combination of cognitive strategies.

The first step requires the teacher to develop and then share with the students an overarching question or "canopy" for the unit of study (Capin & Vaughn, 2017). The teacher then shows a short video clip about the topic and has students engage in peer discussions about the video to gain student interest and motivation. The teacher then reviews at least six essential words or concepts required for students to understand the content and identifies passages for students to read either independently or with a peer. After reading, the teacher checks for student understanding by asking questions related to the reading to ensure there are no student misconceptions. The final step includes the peer component of team-based learning (TBL) with teams of about four students placed into heterogeneous groups. In these groups, students are required to take a comprehension quiz and then work with their peers to write their reasoning for their responses to each comprehension question. Once complete, the teacher reviews any content with which students have demonstrated difficulty. The final culmination of the unit of study ends with the teams of peers creating an activity, such as a board game, that demonstrates their comprehension of the topic and content. The teacher then brings the students back to the essential question where students discuss what they have learned.

Essential Component Six: Reading Intervention

Adolescents who are performing below their peers often exhibit reading difficulties in multiple areas such as reading and listening comprehension, word identification, vocabulary knowledge, and fluency. Evidence suggests that multi-component interventions yield positive results for students who are performing below grade level on benchmark assessments (Pearson et al, 2020; Scammacca et al., 2015; Vaughn, Wexler, et al., 2011). Delivering targeted lessons through small group instruction that combine practice in word analysis, building vocabulary knowledge, word and connected level fluency, and comprehension may best support adolescents'

growth in reading performance (Daniel et al., 2024; Opatz & Kocherhans, 2024; Vaughn et al., 2022). Lesson delivery should be anchored with the high-leverage practices of explicit instruction, progress monitoring, and targeted feedback.

The IES guide *Providing Reading Interventions for Students in Grades 4–9* recommends four practices for adolescents who need intervention: (a) Build students' decoding skills so they can read complex multisyllabic words; (b) Provide purposeful fluency-building activities to help students read effortlessly; (c) Routinely use a set of comprehension building practices to help students make sense of the text; and (d) Provide students with opportunities to practice making sense of stretch text (i.e., challenging text) that will expose them to complex ideas and information (Vaughn et al., 2022).

Strategic Adolescent Reading Intervention

The Strategic Adolescent Reading Intervention (STARI) is a recent multicomponent intervention developed by researchers through the Strategic Education Research Partnership (SERP) that has shown promising results for improving adolescent word-based and comprehension skills (Kim et al., 2017). This multi-component strategy has an intentional focus on motivation and engagement, with the inclusion of word-based and meaning-based skills, and incorporates peer learning.

A typical STARI unit begins with the teacher posing an essential question to the class. Students then engage in partnered reading for fluency practice, timing each other and self-monitoring their progress, with the fluency passages related to the unit theme. After the fluency practice, the teacher provides students with direct instruction in decoding and morphology related to keywords students will encounter in the many unit readings. Students then do additional partnered readings through reciprocal teaching where they summarize passages and

engage in discussions about their summaries. After reading, students are then provided questions to purposely provoke debate such as, “Do you agree or disagree?” (Kim et al., 2017, p. 368). Students will reread texts, find evidence to support their arguments, and then engage in a debate with their peers about their position. Evidence from a year-long study on STARI indicates this method not only supported the reading achievement of struggling adolescents but also increased student motivation and engagement, which the researchers argue is a key ingredient for the academic success of adolescents (Kim et al., 2017).

Computer-Adapted Instruction

Computer-adapted instruction (CAI) is using a computer program to provide instruction to students (Snyder & Huber, 2019). The instruction is adapted because it adjusts materials, reading levels, and content based on student responses. Because of the adaptability of CAI programs, they are often used as supplemental instruction within a tiered framework. Technological advances and the COVID-19 pandemic have increased classroom use of CAI across content areas (Goodwin et al., 2020; Midila Ahmed & Musa Ahmed, 2023; Rogayan et al., 2015) and with students with varying exceptionalities (Kim & Xin, 2022; Snyder & Huber, 2019; Twyman & Tindal, 2006). CAI programs have increased in popularity as an additional tool teachers use within their classrooms as CAI can help provide differentiated instruction and support to varied learners (Goodwin et al., 2020; Snyder & Huber, 2019). As students work through a CAI program, they engage with the materials at their own pace, can have passages read aloud to them, watch interactive videos, and engage in a variety of interactive activities. The interactive nature of CAI programs has also been shown to increase student motivation (Goodwin et al., 2020; Rogayan et al., 2015). Two popular CAI programs for secondary readers

are Lexia® PowerUp Literacy®, Read 180®, and Imagine Learning (2023; formerly known as Edgenuity).

Multi-Tiered Systems of Support in Secondary Contexts

Multi-Tiered Systems of Support (MTSS) is a three-tiered prevention framework that uses a system of ongoing quantitative and qualitative data collection and analysis to identify student academic and behavioral needs to provide targeted support (Center on MTSS, 2023). Adolescents who struggle with reading may benefit from support within an MTSS framework. Preservice secondary teachers should understand what reading support looks like in each tier in secondary settings.

Tier 1 is the least restrictive setting, serving about 80% of the student population (Center on MTSS, 2023), and is often described in elementary settings as core instruction. However, what core instruction is and looks like in secondary settings is different from elementary settings, as student schedules and classes in secondary settings are structured by content and discipline. Thus, general educators in all content and discipline areas in secondary settings are responsible for Tier 1 instruction.

Unfortunately, there is limited research on the effectiveness and implementation of MTSS within secondary contexts (Shanahan, 2023; Thomas et al., 2020). Due to the nature and structure of secondary settings, researchers recommend that to support reading comprehension within the varying disciplines, Tier 1 instruction should focus on building students' background knowledge and vocabulary, while all teachers regardless of discipline implement the same reading strategies to ensure cohesion and avoid confusion, particularly for struggling learners (e.g., Get the Gist; Faggella-Luby et al., 2012; Shanahan, 2023; Vaughn & Fletcher, 2012). Furthermore, as students age, mitigating reading difficulties is complex, challenging, and can

take longer to remediate (Pyle & Vaughn, 2012; Scammacca et al., 2015; Vaughn & Fletcher, 2012; Wanzek et al., 2013). Therefore, researchers recommend that students in secondary settings identified as needing additional support through screening assessments should be provided additional Tier 2 and/or 3 reading support immediately to mitigate reading difficulties and prevent further decline in the ability to access challenging Tier 1 content and disciplinary texts (Fuchs et al., 2010; Pyle & Vaughn, 2012; Vaughn, Denton, et al., 2010; Vaughn & Fletcher, 2012).

Unfortunately, receiving additional reading support in a secondary setting often requires students to give up an elective course (Pyle & Vaughn, 2012; Solis et al., 2015). Elective courses are not only engaging for students but also provide students with opportunities to gain additional post-secondary career skills (Dougherty et al., 2018). Thus, educators, students, and families must collaboratively decide if receiving additional reading support outweighs any potential benefits of an elective course and perhaps using assistive technology such as a text-to-speech reader may be more appropriate.

Assistive Technology

As noted above, researchers recommend that older students who continue to struggle with fundamental word-based skills should still receive immediate and intensive interventions to remediate any reading difficulties (Fuchs et al., 2010; Vaughn & Fletcher, 2012; Vaughn et al., 2022). While adolescents with disabilities and other struggling readers continue to receive intensive reading interventions, they still need to be able to access grade-level printed material. Therefore, any teacher preparation program that is preparing educators to work with struggling adolescent readers should include instruction on how to identify, use, and teach students with

disabilities to use assistive technological devices to independently access printed material (Silvestri et al., 2022).

Assistive technology (AT) is defined by the Assistive Technology Industry Association (ATIA) as, "any item, piece of equipment, software program, or product system that is used to increase, maintain, or improve the functional capabilities of persons with disabilities" (ATIA, 2024, para. 1). AT devices often used for reading accessibility include text-to-speech software. Recent research indicates when adolescents who struggle with decoding are taught to use text-to-speech software, they can improve their comprehension because the barrier of decoding the text has been removed and students can focus on the content (Knoop-van Campen et al., 2022; Lindeblad et al., 2017; Silvestri et al., 2022; Wood et al., 2018). Microsoft or Apple products have some embedded text-to-speech functions. Schools have also used paid software programs such as Kurzweil 3000 or purchased reading pens that read aloud material to students. Additionally, many of the computer-adapted reading programs schools use now include text-to-speech functions for reading passages. Regardless of which AT device an educator uses with a student, the educator must purposely select the device to align with the needs of the student. An AT evaluation should occur to help educators, students, and families decide which AT device would work best for the student (Silvestri et al., 2022). To learn more about how to embed AT within a teacher preparation program, refer to the CEEDAR Center IC *Supporting Content Learning Through Technology for K-12 Students With Disabilities*.

Essential Component Seven: Motivation & Engagement

Effective reading instruction for adolescents has an intentional focus on motivation (Guthrie et al., 1999; Guthrie & David, 2003; Kent et al., 2015; Toste et al., 2020). Reading motivation is often conceptualized as the values, interests, self-efficacy, and attitude a reader

brings to the task of reading (Guthrie et al., 2004). Engagement refers to how immersed a reader is in the task of reading and considers behavioral, effective, and cognitive aspects of reading (Lee et al., 2021). While studies vary in how they conceptualize and measure motivation and engagement, there is general agreement that each contributes to reading progress and achievement (Fisher & Frey, 2018; Guthrie & Klauda, 2014; Taboada et al., 2009).

Four evidence-based practices have been shown to increase motivation and impact adolescents' engagement with reading (Kamil et al., 2008): (a) establish content and process learning goals for and with students (Turner & Paris, 1995); (b) provide student choice (Allred & Cena, 2020; Schneider et al., 2018; Tegmark et al., 2022); (c) design reading tasks and select texts that are relevant to adolescents (Ivey & Johnston, 2013; Townsend et al., 2020); and (d) increase opportunities for students to engage in self-directed and collaborative learning (Guthrie & Klauda, 2014). Additionally, there is some evidence that using a culturally responsive approach to instruction can also increase student motivation and engagement, as teachers are thoughtfully developing lessons and content that align with students' lived experiences (Dee & Penner, 2017; Hogg, 2011; Johnson & Johnson, 2016). Teacher candidates should gain an understanding of these concepts and how to design instruction that adheres to principles of motivation and engagement (Taboada et al., 2020).

Essential Component Eight: Assessment

To best understand how to deliver instruction, teachers must have a robust assessment system in place. No one reading assessment can assess all dimensions of literacy; therefore, a balance of ongoing formative and summative assessments should be utilized in secondary reading programs to determine the best course of action to meet the needs of each student (Afflerbach, 2016; ILA, 2017). To use assessments to inform instruction, teachers need to

develop their assessment literacy, gaining knowledge of the purpose and uses of various reading assessments. They also need to develop their data literacy and understanding how to use and interpret data from screening, progress monitoring, diagnostic, and outcome-based measurements (DeVere Wolsey et al., 2020). In addition, teachers should consider how to engage students in self-assessment of their growth in reading (Afflerbach, 2016; Lee et al., 2020).

Secondary students needing more intensive interventions require frequent progress monitoring at least once a week using additional standardized approaches (Bailey et al., 2020). Curriculum Based Measures (CBMs) are a type of formative assessment educators should use for ongoing progress monitoring of student reading performance (Deno, 1985). With CBM, teachers assess a student's progress toward an identified skill within the curriculum such as reading comprehension. A useful CBM for monitoring reading comprehension is a maze passage, where students must read a passage and fill in a word with strategically placed blanks within the passage (Espin et al., 2010). Intervention Central has a free maze generator teachers can use with any passage type and grade level to help monitor reading progress (https://www.interventioncentral.org/teacher-resources/test-of-reading-comprehension) along with a variety of other CBMs in their CBM Warehouse (https://www.interventioncentral.org/curriculum-based-measurement-reading-math-assesment-tests). To learn more about using CBM, please refer to the Iris Center Module on Progress Monitoring (https://iris.peabody.vanderbilt.edu/module/pmr/) to learn how to administer CBMs and how to use CBMs to monitor student progress to make informed instructional decisions. The text, *Assessing Reading: Multiple Measures, Second Edition* (Diamond & Thorsnes, 2018), is another resource for information on using formative reading assessments. Additionally, many

schools use commercially available, computer-generated CBMs such as iReady (Curriculum Associates, 2024), AimsWeb Plus (Pearson, 2024), or DIBELS ® (University of Oregon, n.d.).

Identifying Appropriate Assessments

Selected assessments must closely align with the intended purpose of instruction, a student's goals, and the learning standards (Overton & Jordan, 2024). When selecting assessments, teachers need to consider the reliability and validity of assessment tools (National Center on Intensive Intervention, n.d.; Overton & Jordan, 2024). The National Center on Intensive Intervention (NCII) has a website educators can use to review assessments for reliability and validity https://charts.intensiveintervention.org/ascreening. For a more detailed understanding of assessment practices and how educators can use assessments to inform reading instruction and monitor student reading progress, the NCII has many free resources on data based instruction (https://intensiveintervention.org). The IC on Assessment Practices Within a Multi-Tiered System of Supports (Bailey et al., 2020) also provides additional details on assessment selection and use for progress monitoring and instructional decision making.

Conclusion

As national reading scores indicate, it is imperative educators use evidence-based reading practices to support the reading achievement of adolescents. Therefore, educator preparation programs must ensure they are providing their pre-service educators with current evidence-based information on the essential components of reading instruction for adolescents. Essential components include information on the nature of reading comprehension and how adolescents learn how to read. Other essential components include information on how to access and support the development of background knowledge and vocabulary, as both are strong indicators of reading comprehension. Furthermore, including information on the importance of main idea

identification and developing summary statements are also essential components for effective reading comprehension. Pre-service teachers need to know how to combine various types of strategies for optimal reading comprehension performance by using such strategies as CSR or peer learning. We would also be remiss if a teacher preparation program for adolescent reading did not also include ways pre-service teachers can support and increase student motivation to learn, a key factor when it comes to teaching adolescents.

Finally, pre-service educator preparation programs should also include in their courses not only information on the essential components but ample practice opportunities with feedback (McDonald et al., 2013). Research has consistently demonstrated that pre-service educators require practice opportunities with feedback when learning how to implement strategies as it helps them become more reflective and thoughtful educators (Kazemi et al., 2016; Nagro & Cornelius, 2013). These practice opportunities should also be varied and can include strategies such as microteaching, simulations, mixed-reality simulations, and video-recorded feedback (Nagro & Cornelius, 2013). For more information on how educator preparation programs can incorporate practice-based learning opportunities into their coursework, please visit the CEEDAR Center webpage on Practice-Based Learning Opportunities (PLOs).

Adolescents deserve improved instruction to meet the rigorous challenges posed by curriculum standards, higher education, and careers. It is in our best interest as a democracy, an economic system, and individuals to ensure that all students, including those with disabilities, are provided instruction that meets their needs, is delivered by trained teachers, and is supported by knowledgeable leaders.

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Appendix A: Innovation Configuration for Evidence-Based Reading Instruction for Adolescents in Grades 6-12

Essential Components	Implementation Levels				
Instructions: Place an X under the appropriate variation implementation score for each course syllabus that meets the criteria level from 0 to 3. Score and rate each item separately.	**Level 0**	**Level 1**	**Level 2**	**Level 3**	**Rating**
	There is no evidence that the component is included in the syllabus, or the syllabus only mentions the component.	Must contain at least one of the following: reading, test, lecture/ presentation, discussion, modeling/ demonstration, or quiz.	Must contain at least one item from Level 1, plus at least one of the following: observation, project/activity, case study, or lesson plan study.	Must contain at least one item from Level 1 as well as at least one item from Level 2, plus at least one of the following: tutoring, small group student teaching, or whole group internship.	Rate each item as the number of the highest variation receiving an X under it.
1.0 The Nature of Reading Comprehension					
1.1 Simple View of Reading 1.2 Scarborough's Reading Rope 1.3 Active View of Reading 1.4 Kintsch's Construction Integration Model 1.5 RAND Heuristic for thinking about reading comprehension					

Essential Components	Implementation Levels				
Instructions: Place an X under the appropriate variation implementation score for each course syllabus that meets the criteria level from 0 to 3. Score and rate each item separately.	**Level 0**	**Level 1**	**Level 2**	**Level 3**	**Rating**
	There is no evidence that the component is included in the syllabus, or the syllabus only mentions the component.	Must contain at least one of the following: reading, test, lecture/ presentation, discussion, modeling/ demonstration, or quiz.	Must contain at least one item from Level 1, plus at least one of the following: observation, project/activity, case study, or lesson plan study.	Must contain at least one item from Level 1 as well as at least one item from Level 2, plus at least one of the following: tutoring, small group student teaching, or whole group internship.	Rate each item as the number of the highest variation receiving an X under it.
2.0 Background Knowledge					
2.1 Importance of background knowledge to comprehension 2.2 Activate background and prior knowledge 2.3 Inferencing 2.4 Provide opportunities to read a wide range of texts 2.5 Use text sets 2.6 Connect to students' cultural background and experiences 2.7 Provide opportunities to read a wide range of texts					

Essential Components	**Implementation Levels**				
Instructions: Place an X under the appropriate variation implementation score for each course syllabus that meets the criteria level from 0 to 3. Score and rate each item separately.	**Level 0**	**Level 1**	**Level 2**	**Level 3**	**Rating**
	There is no evidence that the component is included in the syllabus, or the syllabus only mentions the component.	Must contain at least one of the following: reading, test, lecture/ presentation, discussion, modeling/ demonstration, or quiz.	Must contain at least one item from Level 1, plus at least one of the following: observation, project/activity, case study, or lesson plan study.	Must contain at least one item from Level 1 as well as at least one item from Level 2, plus at least one of the following: tutoring, small group student teaching, or whole group internship.	Rate each item as the number of the highest variation receiving an X under it.
3.0 Word Knowledge					
3.1 Generative and additive vocabulary 3.2 Morphology such as Greek and Latin roots 3.3 Teach students explicit word analysis and morphological analysis routines (e.g., BEST, DISSECT, etc.) 3.4 Teach students essential words prior to reading 3.5 Establish principles of effective vocabulary learning (i.e., provide multiple exposures, generate interest in words, engage					

in wide reading, raise word consciousness, emphasize connections between words) 3.6 Selecting words to teach 3.7 Contextual analysis 3.8 Use graphic organizers to analyze words (Frayer model, semantic maps, semantic feature analysis) 3.9 Use multimedia learning 3.10 Mnemonic Strategy Instruction 3.11 Computer-assisted Strategies 3.12 Vocabulary assessment (knowledge/rating charts)					

Essential Components	Implementation Levels				
Instructions: Place an X under the appropriate variation implementation score for each course syllabus that meets the criteria level from 0 to 3. Score and rate each item separately.	**Level 0**	**Level 1**	**Level 2**	**Level 3**	**Rating**
	There is no evidence that the component is included in the syllabus, or the syllabus only mentions the component.	Must contain at least one of the following: reading, test, lecture/ presentation, discussion, modeling/ demonstration, or quiz.	Must contain at least one item from Level 1, plus at least one of the following: observation, project/activity, case study, or lesson plan study.	Must contain at least one item from Level 1 as well as at least one item from Level 2, plus at least one of the following: tutoring, small group student teaching, or whole group internship.	Rate each item as the number of the highest variation receiving an X under it.

4.0 Comprehension Strategy Knowledge					
4.1 Build comprehension monitoring strategies 4.2 Engage students in active questioning before, during, and after reading (i.e., QAR & QTA)in word recognition and word study for adolescent readers. 4.3 Explicit teaching of the main idea, paraphrasing, and summarization (i.e., Get the Gist) 4.4 Teach text structures 4.5 Engage in close reading 4.6 Engage in in-depth discussions 4.7 Peer tutoring					

Essential Components	Implementation Levels				
Instructions: Place an X under the appropriate variation implementation score for each course syllabus that meets the criteria level from 0 to 3. Score and rate each item separately.	**Level 0**	**Level 1**	**Level 2**	**Level 3**	**Rating**
	There is no evidence that the component is included in the syllabus, or the syllabus only mentions the component.	Must contain at least one of the following: reading, test, lecture/ presentation, discussion, modeling/ demonstration, or quiz.	Must contain at least one item from Level 1, plus at least one of the following: observation, project/activity, case study, or lesson plan study.	Must contain at least one item from Level 1 as well as at least one item from Level 2, plus at least one of the following: tutoring, small group student teaching, or whole group internship.	Rate each item as the number of the highest variation receiving an X under it.
5.0 Integration of Multiple Strategies					
5.1 Collaborative Strategic Reading (CSR) 5.2 Reciprocal Teaching 5.3 Promoting Adolescents' Comprehension of Text (PACT)					

Essential Components	Implementation Levels				
Instructions: Place an X under the appropriate variation implementation score for each course syllabus that meets the criteria level from 0 to 3. Score and rate each item separately.	**Level 0**	**Level 1**	**Level 2**	**Level 3**	**Rating**
	There is no evidence that the component is included in the syllabus, or the syllabus only mentions the component.	Must contain at least one of the following: reading, test, lecture/ presentation, discussion, modeling/ demonstration, or quiz.	Must contain at least one item from Level 1, plus at least one of the following: observation, project/activity, case study, or lesson plan study.	Must contain at least one item from Level 1 as well as at least one item from Level 2, plus at least one of the following: tutoring, small group student teaching, or whole group internship.	Rate each item as the number of the highest variation receiving an X under it.
6.0 Reading Intervention					
6.1 Multicomponent (including decoding and fluency) 6.2 Provide opportunities to practice making sense of stretch text to expose students to complex ideas and information 6.3 Strategic Adolescent Reading Intervention (STARI) 6.4 Computer adapted instruction (CAI) 6.5 Multitiered Systems of Support (MTSS) at secondary level 6.6 Teach students to use assistive technology to access printed material					

Essential Components	Implementation Levels				
Instructions: Place an X under the appropriate variation implementation score for each course syllabus that meets the criteria level from 0 to 3. Score and rate each item separately.	**Level 0**	**Level 1**	**Level 2**	**Level 3**	**Rating**
	There is no evidence that the component is included in the syllabus, or the syllabus only mentions the component.	Must contain at least one of the following: reading, test, lecture/ presentation, discussion, modeling/ demonstration, or quiz.	Must contain at least one item from Level 1, plus at least one of the following: observation, project/activity, case study, or lesson plan study.	Must contain at least one item from Level 1 as well as at least one item from Level 2, plus at least one of the following: tutoring, small group student teaching, or whole group internship.	Rate each item as the number of the highest variation receiving an X under it.
7.0 Motivation and Engagement					
7.1 Set a clear purpose for learning with content and process goals 7.2 Provide opportunities for choice 7.3 Make learning relevant 7.4 Include self-directed and collaborative learning 7.5 Use a culturally sustaining approach to instruction					

Essential Components	Implementation Levels				
Instructions: Place an X under the appropriate variation implementation score for each course syllabus that meets the criteria level from 0 to 3. Score and rate each item separately.	**Level 0**	**Level 1**	**Level 2**	**Level 3**	**Rating**
	There is no evidence that the component is included in the syllabus, or the syllabus only mentions the component.	Must contain at least one of the following: reading, test, lecture/ presentation, discussion, modeling/ demonstration, or quiz.	Must contain at least one item from Level 1, plus at least one of the following: observation, project/activity, case study, or lesson plan study.	Must contain at least one item from Level 1 as well as at least one item from Level 2, plus at least one of the following: tutoring, small group student teaching, or whole group internship.	Rate each item as the number of the highest variation receiving an X under it.
8.0 Assessment					
8.1 Using data from comprehension assessments to inform instruction for adolescents 8.2 Provide opportunities for choice					

Appendix B: Summary Levels of Support for Evidence-Based Reading Instruction for Adolescents in Grades 6-12

Practices	Level of Evidence	References
1.0 The Nature of Reading Comprehension		
1.1 Simple View of Reading	N/A	Gough & Tunmer (1986); Hoover & Tunmer (2022)
1.2 Scarborough's Reading Rope	N/A	Scarborough (2001)
1.3 Active View of Reading	N/A	Duke & Cartwright (2021)
1.4 Kintsch's Construction Integration Model	N/A	Kintsch (1988)
1.5 RAND Heuristic for thinking about reading comprehension	N/A	Snow (2002)

2.0 Background Knowledge		
2.1 Activate background and prior knowledge	Strong	Afflerbach (1990); Elbro & Buch-Iverson(2013); Filderman et al. (2022); Hattan (2024); Peng et al. (2024); Recht & Leslie (1988); Smith et al. (2021); Stanovich & Cunningham (1993)
2.2 Inferencing	Strong	Barth & Elleman (2017); Hall et al. (2020); Rice & Wijekumar (2024); Sencibaugh & Sencibaugh (2015)
2.3 Connect to students' cultural background and experiences	Emerging	Bui & Fagan (2013); Byrd (2016); Cattts (2022); Hattan & Lupo (2020); Hogg (2011)
2.4 Provide opportunities to read a wide range of texts	Limited	Wexler et al. (2010); Zimmerman et al. (2021)
3.0 Word Knowledge		
3.1 Use generative word approaches	Emerging	Helman et al. (2022); Larson (2014)
3.2 Teach morphological awareness (i.e., word origins, affixes, Latin and Greek roots) corroborating, perspective taking) in document-based lessons.	Strong	Crosson et al. (2021); Lesaux et al. (2014); Levesque et al. (2021); McKeown et al. (2018)

3.3 Teach students explicit word analysis and morphological analysis routines (e.g., BEST, DISSECT, HINTS)	Strong	Archer et al. (2000); Benner et al. (2022); Lenz et al. (1996); O'Connor (2007); Woodruff et al. (2002)
3.4 Establish principles of effective vocabulary learning (i.e., provide multiple exposures, generate interest in words, engage in wide reading, raise word consciousness, emphasize connections between words)	Strong	Ausubel & Youssef (1965); Graves (2016); McKeown et al. (2018); McKeown et al. (1985); Scott et al. (2008); Scott & Nagy (2009)
3.5 Use contextual analysis	Emerging	Elleman et al. (2019) ;Ford-Connors & Paratore (2015); Ganske (2023); Kress Schatz & Baldwin; (1986)
3.6 Use graphic organizers to analyze words (e.g., Frayer model, concept maps, semantic feature analysis)	Strong	Anders & Bos (1986); Bos & Anders (1990); Cuillo et al. (2015); Dexter & Hughes (2011); Dexter et al. (2011); Frayer et al. (1969); Novak (1993); Reed et al. (2019); Reutebuch et al. (2013); Schroeder et al. (2018); Vaughn et al. (2009)
3.7 Multimedia learning	Limited	Adlof et al. (2019); Kennedy et al. (2015)
3.8 Mnemonic strategy instruction	Limited	Kuder (2017); Mastropieri et al. (1985); Terrill et al. (2004)
3.9 Computer-assisted strategies	Emerging	Lowman & Dressler (2016)

3.10 Vocabulary assessment (i.e., word knowledge/rating charts)	Emerging	Cervetti et al. (2012); Iqbal & Komal (2017); Paribakht & Wesche (1993)
4.0 Comprehension Strategy Knowledge		
4.1 Build comprehension monitoring strategies	Strong	Berkeley et al. (2010); Joseph et al. (2016); Malone & Mastropieri (1991); Sohn et al. (2023)
4.2 Engage students in active questioning before, during, and after reading (i.e., QAR & QTA)	Strong	August et al. (1984); Beck et al. (1996); Castells et al. (2022); Johnson et al. (2012); Joseph et al. (2016); Raphael (1982)
4.3 Explicit teaching of the main idea, paraphrasing, and summarization (Get-the-gist)	Strong	Barth et al. (2016); Klinger et al. (2012); Solis et al. (2018)
4.4 Teach text structures	Strong	Bakken et al. (1997); Bogaerds-Hazenberg et al. (2021); Gajria et al. (2007); Hall-Mills & Marante (2023); Meyer & Freedle (1984)
4.5 Engage in close reading	Emerging	Fang (2016); Fisher & Frey (2014); Hinchman & Moore (2013)
4.6 In-depth discussions	Strong	Barth et al. (2016); Kamil et al. (2008); Pearson et al. (2020); Proctor et al. (2019)

4.7 Peer tutoring	Strong	Cohen et al. (1982); Fuchs et al. (1999); McMaster et al. (2006); Sáenz et al. (2005)
5.0 Integration of Multiple Strategies		
5.1 Collaborative Strategic Reading (CSR)	Strong	Bryant et al. (2001); Bryant et al. (2000); Klinger et al. (2012); Vaughn et al. (2011)
5.2 Reciprocal teaching	Emerging	Palinscar & Brown (1984); Slater & Hortsman (2002)
5.3 Promoting Adolescents' Comprehension of Text (PACT)	Strong	Capin & Vaughn (2017); Pearson et al. (2020); Swanson, Wanzek et al. (2017); Wanzek et al. (2019)
6.0 Reading Intervention		
6.1 Multicomponent Intervention Decoding (some decoding strategies also fit with morphological analysis ex. BEST & DISSECT)	Strong	Archer et al. (2000); Benner et al. (2022); Lenz et al. (1996); O'Connor et al. (2007); Woodruff et al. (2002)
6.2 Provide opportunities to practice making sense of stretch text to expose students to complex ideas and information	Emerging	Lupo et al. (2019); Vaughn et al. (2022)
6.3 Strategic Adolescent Reading Intervention (STARI)	Limited	Kim et al. (2017)

6.4 Computer Adapted Instruction (CAI)	Moderate	Goodwin et al. (2020); Kim & Xin (2022); Midila Ahmed & Musa Ahmed (2023); Rogayan et al. (2015); Snyder & Huber (2019); Twyman & Tindal (2006)
6.5 Teach students to use assistive technology (AT) to access printed material	Moderate	Lindeblad et al. (2017); Knoop-van Campen et al. (2022); Silvestri et al. (2022); Wood et al. (2018)
7.0 Motivation & Engagement		
7.1 Set a clear purpose for learning with content and process goals	Limited	Tuner & Paris (1995)
7.2 Provide opportunities for choice	Limited	Allred & Cena (2020); Schneider et al. (2018); Tegmark et al. (2022)
7.3 Make learning relevant	Limited	Ivey & Johnston (2013); Townsend al. (2020)
7.4 Include self-directed and collaborative learning	Limited	Guthrie & Klauda (2014)
7.5 Use a culturally sustaining approach to instruction	Limited	Dee & Penner (2017); Hogg (2011); Johnson & Johnson (2016)
8.0 Assessment		
8.1 Using data from comprehension assessments inform instruction for adolescents	N/A	Afflerbach (2016)

8.2 Identifying and using appropriate assessments for adolescent readers	N/A	Overton & Jordan (2024)