Montana ELA Standards Revision: Brief 5
Disciplinary Literacy Processes and Procedures

April 2024

Introduction

For the last of five briefs, REL Northwest summarized research and common theoretical frameworks to respond to the following question: *What processes and procedures for disciplinary literacy support building background knowledge, comprehension, and critical thinking skills?*

The set of briefs aims to provide the Montana Office of Public Instruction (OPI) with relevant research to help their English Language Arts (ELA) standards development team generate actionable, evidence-based state standards that will form the foundation for literacy instruction.

The brief is organized into three sections:

1. Overview of disciplinary literacy across content areas
2. Considerations for developing disciplinary literacy in the early grades
3. Considerations for promoting disciplinary literacy in the later grades

Throughout the brief, REL Northwest has defined key terms to establish shared understanding of relevant concepts and has embedded guided questions that prompt the reader to pause, reflect on what was read, and consider how the information presented can be used to inform the standards revision process.

As sources for evidence, this brief draws upon

- **Institute of Education Sciences (IES) practice guides** developed by the U.S. Department of Education to synthesize hundreds of individual studies and translate the available rigorous research evidence over the past few decades into actionable recommendations for practitioners.
- **IES fact sheets** developed by REL Northwest that summarize large meta-analyses of emergent literacy research curated by federally funded sources such as the Early Childhood Learning & Knowledge Center, the Center for Early Literacy Learning and the What Works Clearinghouse.
- **individual peer-reviewed research studies and research reviews** on underlying theoretical frameworks, extensions and considerations for reading instruction, and additional evidence identified by subject matter experts or included in other briefs within this series.

Overview of disciplinary literacy across content areas

This section defines and provides examples of disciplinary literacy. The section draws from two reviews of the research on disciplinary literacy and one IES practice guide entitled *Improving Adolescent Literacy: Effective Classroom and Intervention Practice* (Kamil et al., 2008). Of note, although disciplinary literacy is generally described in the context of adolescent literacy, disciplinary skills can be taught and integrated in classroom instruction starting in the early grades.

Understanding disciplinary literacy

Disciplinary literacy refers to reading and writing that is embedded within content area classes, such as math, science, and social studies (Shanahan & Shanahan, 2008). Disciplinary literacy is a sophisticated aspect of literacy development because it requires the reader to navigate discipline-specific text structure while applying vocabulary and background knowledge specific to the content area (e.g., asking students to write a "thesis" statement in an ELA class versus a science class or to find the "difference" in math versus social studies). It is also the least generalizable approach to literacy (i.e., not one approach fits all content areas), because specific disciplines require specialized literacy skills and content knowledge (Lee & Spratley, 2010; Shanahan & Shanahan, 2008). Nonetheless, the ability to read disciplinary texts is a skill that is crucial for success in school and important for navigating an information-rich world, and it may affect career prospects and advancement (Shanahan & Shanahan, 2008).

Understanding disciplinary texts involves the demands of a text and a learner's knowledge of particular content and the relevant skills needed to comprehend specific texts (Lee & Spratley, 2010). Content area experts read texts differently depending on their fields. For example, understanding science texts requires not only science background knowledge and domain-specific vocabulary (i.e., scientific terms) but also the ability to extrapolate relevant information from data presented in figures, tables, diagrams, and graphs. Working with historical texts, on the other hand, requires that learners differentiate between primary and secondary sources and develop critical thinking skills for making comparisons between political and ethical issues of the past and present (Lee & Spratley, 2010). Thus, learners need to be able to take advantage of and move seamlessly between different knowledge and skillsets to fully understand the discipline-specific texts they encounter throughout the school day (Kamil et al., 2008).

Despite the highly specialized nature of disciplinary literacy skills, these skills can be taught and integrated in classroom instruction within different disciplines and contexts, starting in the early grades and progressing into later grades. Several evidence-based strategies can be used to develop disciplinary literacy. The sections that follow summarize strategies for developing background knowledge, oral language, and vocabulary in the early grades as well as specific strategies that can be used to support disciplinary literacy in adolescence.

Pause and reflect

How does having the skills to engage with disciplinary texts support learners?

Considerations for developing disciplinary literacy in the early grades

This section defines background knowledge, oral language, and vocabulary that set the stage for later disciplinary literacy. It also presents recommendations for developing these skills in the early grades.

This section draws on two recent REL Northwest fact sheets and two IES practice guides: *Programs and Practices for Supporting Early Cognitive, Language, and Literacy Development Among Children Ages 0–3* (Regional Educational Laboratory [REL] Northwest, 2023a), which includes 22 separate research-based resources on emergent literacy development; *Resources to Support Best Practices for Literacy in Preschool through Grade 3* (Regional Educational Laboratory [REL] Northwest, 2023b), which includes 7 separate research-based resources on emergent literacy development; *Preparing Young Children for School* (Burchinal et al., 2022), which provides recommendations based on 49 causal studies around instructional practice; and *Foundational Skills to Support Reading for Understanding in Kindergarten through 3rd Grade* (Foorman et al., 2016) which includes evidence-based recommendations based on 56 causal studies on instructional practices for supporting foundational skills development in kindergarten through grade 3. Where appropriate, additional resources identified in IES fact sheets and by subject matter experts provide additional nuance when developing disciplinary literacy skills in different contexts.

Background knowledge, oral language, and vocabulary

Background knowledge, oral language, and vocabulary are key components of emergent literacy that set the stage for later disciplinary literacy (Shanahan & Shanahan, 2008). Specifically, background knowledge refers to the information that learners acquire and store into memory, including information about themselves, other people, objects, and the world around them (National Center on Early Childhood Development, Teaching, and Learning [NCECDTL], n.d.-a), while oral language and vocabulary refers to spoken language knowledge and skills (NCECDTL, n.d.-b). Learners draw on their background knowledge to learn new words, comprehend new information that they hear or read, share what they know, engage in learning new things, and integrate what they have learned back into their knowledge base (Neuman et al., 2014; Moll et al., 1992). They also use oral language and vocabulary to understand, process, and use spoken language to classify and categorize objects and experiences (e.g., recognizing the difference between big and little objects or understanding that ants and beetles are both types of bugs; NCECDTL, n.d.-b).

⇒ To learn more about the development of emergent literacy skills, see Brief 3, entitled *Stages of Emergent Literacy and Language Development*, in this series.

Recommendations for developing background knowledge, oral language, and vocabulary

Many recommendations, supported by research, can be effective in developing background knowledge, oral language, and vocabulary in younger children. These recommendations are listed below:

- **Align literacy activities with topics that affirm and reflect the cultural, racial, and linguistic backgrounds** of learners (Burchinal et al., 2022; Dunst et al., 2011; Foorman et al., 2016; National Institute for Literacy, n.d.; Rowe, 2022; Salmerón, 2022; Schickedanz & Collins, 2013).
- **Explicitly teach academic vocabulary** that is found across disciplines including terms and concepts such as *compare*, *contrast*, *predict*, *hypothesize*, and *summarize* (Foorman et al., 2016; National Institute for Literacy, n.d.).

- **Prepare children for listening to and discussing the content of a book** before a read-aloud by asking what learners already know about this topic; introducing vocabulary words that are relevant to a specific topic in which children have expressed interest; or using aids such as pictures, video clips, toys, movements, and experiments to introduce new topics, words, and concepts (Burchinal et al., 2022; Elley, 1989; Foorman et al., 2016; National Institute for Literacy, n.d.; Rosenkoetter & Wanless, 2006; Sénéchal et al., 1995; Stockall & Dennis, 2012).
- **Provide multiple opportunities for children to hear, use, and demonstrate deep understanding of new vocabulary and concepts** through shared book reading and small- and whole-group activities (Burchinal et al., 2022; Cervetti et al., 2007; Dickinson & Tabors, 2001; Foorman et al., 2016; National Institute for Literacy, n.d.; Wasik et al., 2006).
- **Engage in interactive conversations** such as asking questions that encourage multiword answers, multiturn conversations, and inferential or narrative language usage to reinforce or solidity understandings of certain topics, vocabulary words, or concepts in different contexts (Burchinal et al., 2022; Crain-Thorenson & Dale, 1992; Dickinson, 2011; Foorman et al., 2016; National Institute for Literacy, n.d.; Peterson & French, 2008).
- **Select informational and narrative books on topics of interest** to children, topics that relate to something they may have experienced, or topics that align with the literacy lesson for the day (Burchinal et al., 2022; Dunst et al., 2011; National Institute for Literacy, n.d.; Schickedanz and Collins, 2013). Consider reading books about the same topic in succession (e.g., the fiction book *The Rainbow Fish* and a nonfiction text about sea life) to reinforce learning about a topic (Burchinal et al., 2022; National Institute for Literacy, n.d.).
- **Embed stopping points during shared book reading** during which educators can pause the read-aloud to discuss something or ask a question about the content of a book (Burchinal et al., 2022; Whitehurst et al., 1988).

Pause and reflect

How would these practices support learners' future understanding of disciplinary texts?

Considerations for promoting disciplinary literacy in the later grades

This section summarizes the research on strategies for developing disciplinary literacy across content areas in adolescence. It draws primarily from two reviews of the research on disciplinary literacy in adolescence and one IES practice guide entitled *Improving Adolescent Literacy: Effective Classroom and Intervention Practice* (Kamil et al., 2008) which includes recommendations based on 29 causal studies on effective literacy practices in upper elementary (grades 4 and 5), middle, and high school.

Disciplinary literacy is a core focus of middle and secondary school instruction as students begin taking freestanding, focused courses such as American history and chemistry (Shanahan & Shanahan, 2008). Disciplinary literacy development in adolescence is particularly dynamic and complex because it requires learners to integrate and construct meaning from a range of increasingly complex digital and traditional texts in many academic disciplines (Kamil, et. al, 2008). Concepts across content areas such as science, social sciences, and mathematics require specialized literacy strategies for learners to effectively consume and produce content knowledge and effectively communicate about diverse academic and digital texts. In addition, adolescent learners can be seen as navigating learning as they move throughout the school day, with different literacy skills and practices needed for different subject areas and learning goals (Alvermann & Moje, 2013).

Evidence-based recommendations for developing disciplinary literacy

Several evidence-based practices can promote disciplinary literacy among adolescent learners, listed below:

- **Develop cross-disciplinary reading strategies** in which generic reading strategies are used to comprehend a variety of types of texts across content areas (Lee & Spratley, 2010). Examples of cross-disciplinary reading strategies include pre-reading, goal setting, accessing prior knowledge, asking questions, making and testing predictions, re-reading, and summarizing. Developing these strategies can have a ripple effect on disciplinary literacy across content areas. Specifically, the development of cross-disciplinary reading strategies can aid students in developing discipline-specific knowledge and specialized vocabulary, deconstructing complex sentences, using knowledge of text structures and genres to predict main and subordinate ideas, mapping graphic and mathematical representations against explanations in the text, posing discipline-relevant questions, comparing claims and propositions across texts, and using norms for reasoning within the discipline (i.e., deciding what counts as evidence within the text) to evaluate claims (Lee & Spratley, 2010).
- **Develop discipline-specific reading strategies** that reflect the literacy demands of each discipline. The literacy demands on learners are unique, depending on the discipline they are studying, because each discipline has different intellectual values and methods for creating and making sense of the content. Although cross-disciplinary reading strategies are helpful in developing disciplinary literacy, teachers also should explicitly teach discipline-specific reading strategies (Shanahan & Shanahan, 2008).
- **Teach content knowledge and discipline-specific reading strategies in tandem**. Content area teachers should be supported in understanding the ways in which intentional attention to literacy can deepen learner comprehension of content, thereby increasing instructional efficiency rather than taking away from time to present content (Kamil et al., 2008). To successfully develop literacy in content area lessons and classrooms, teachers can design knowledge-building activities that do not require extensive reading initially and then gradually introduce texts of increasing complexity to build disciplinary literacy and knowledge, answer disciplinary questions, and tackle discipline-related problems. Increasing text complexity may look like presenting more complex information on a topic via text, including texts that assume learners have a certain level of knowledge on a topic, or introducing more complex text structures (e.g., tables of contents, graphs, equations; Lee & Spratley, 2010).
- **Implement instructional routines that build learners' self-efficacy**. Teachers can also create instructional routines in which they provide guided support through authentic tasks that shift responsibility for thinking and making sense of texts from the teacher to the learner. These routines not only build a culture of high expectations but also help reinforce learners' self-efficacy as readers and learners (Lee & Spratley, 2010). Specific instructional routines may include a teacher modeling how they make sense of a text to both demonstrate that expert readers also use strategies to make sense of texts and that specific strategies can be deployed purposefully to understand a text. Instructional routines may include providing learners with guides, annotated texts, graphic organizers, or journals to make sense of what they know, want to learn, or have learned (Lee & Spratley, 2010).

Pause and reflect

What strategies should be considered for all disciplines?
What strategies should be considered within specific disciplines?

- **Make instruction relevant to learners' experience**. Learners bring their unique contexts, identities, knowledge, and experiences to the classroom and to texts (Alvermann & Moje, 2013). Beyond teaching general literacy strategies, teachers should aim to develop discipline-specific literacy skills and habits of mind situated in learner experience (Alvermann & Moje, 2013). For example, teachers should discover their learners' interests and build lessons around topics that are related to learners' everyday lives (Kamil et al., 2008). These lessons can then include activities that bridge and reinforce learning inside and outside the classroom. Lessons can also tie conceptual themes to real-world applications that cross content and skill areas, such as integrating reading, writing, and speaking activities into broader discussions of current events that affect learners (Kamil et al., 2008).
- **Integrate reading and writing across disciplines**. Writing leads learners to think critically about content to make and communicate meaning (Graham et al., 2016). In addition to improving reading comprehension and critical thinking skills, writing can deepen disciplinary content knowledge (Graham et al., 2016). Learners should have opportunities to practice writing strategies within different disciplines and to evaluate and reflect on that writing (Graham et al., 2016). Reading and writing should be combined within a discipline. For example, learners could write science experiment observations for science lessons. They could use writing to improve and verify their mathematical reasoning, such as writing an explanation of their problem-solving. Teachers can work in teams across disciplines to tailor literacy instruction based on assessment data, selecting skills to focus on and reinforce across content areas. They can also collaborate to identify further ways to use writing assignments and formative assessments of writing to support learners in deepening content knowledge (Graham et al., 2016).

  ⇒ To learn more about the relationship between reading and writing, see Brief 2, entitled *Relationship Between Reading and Writing,* in this series.

Pause and reflect

What opportunities should be considered to support deepening content knowledge?

This brief was prepared under Contract ED-IES-22-C-0009 by Regional Educational Laboratory Northwest, administered by WestEd. The content does not necessarily reflect the views or policies of IES or the U.S. Department of Education, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. government.

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