LITERACY ACROSS ACADEMIC DISCIPLINES IN ADOLESCENCE: THE INTEGRATION OF SOCIAL AND EMOTIONAL LEARNING



AUTHOR

CAROL D. LEE, PH.D.

EDWINA S. TARRY PROFESSOR OF EDUCATION AND SOCIAL POLICY

NORTHWESTERN UNIVERSITY

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FOREWORD

This brief is the third in a series on social and emotional learning (SEL) and literacy. The series kicked off with Bridging Sciences: An Integrated Approach to Supporting Student Literacy Development, which urged policymakers to consider the full breadth of research on literacy to support strong reading development and rigorous instruction. It was followed by How Social and Emotional Learning Supports Literacy Pre K – Grade 5.

In this brief, the author addresses the specialized demands of academic disciplinary literacies in middle and high school, the developmental demands of adolescence, and the important role of SEL in navigating all these challenges—for students as well as for educators. It also explores the opportunities of middle and high school academic disciplinary literacies to support the holistic development of youth and the role of SEL and well-being.

KEY INSIGHTS

- Academic disciplines such as history, mathematics, science, and literature all require fluency relating to important key discipline-specific concepts, methods, terminology, and epistemology. These are new areas middle and high school students must master for the first time, and SEL offers an important strategy to help enable this learning, even while these disciplines provide opportunities to practice SEL skills.
- In middle school and high school, students also experience adolescence, a time of changes and challenges in their personal development and social and emotional well-being, which must be navigated alongside new academic challenges related to the greater demands of these core academic disciplines in these grade bands.
- As the work of the Science of Learning and Development (SoLD) field has found, effective teaching for these disciplines entails the engagement of academic, intellectual, social, and emotional development.
- By bringing together the findings and insights from the neurosciences, SoLD, and SEL, educators will be better equipped to support students during adolescence and find ways to integrate academic instruction and SEL in ways that are mutually productive.

INTRODUCTION

Social and emotional learning (SEL) has a crucial role to play in supporting adolescents' development of disciplinary literacies. As students move into middle and high school, literacy instruction becomes much more specialized, focusing on the demands of reading and writing within and across the core academic domains: literature, history/social studies, science and mathematics (C. D. Lee & Spratley, 2010). These specialized academic domains each have particular text genres, strategies for comprehension, and modes of reasoning that are taken up in texts students both read and write, particularly with regard to argumentation.

At the same time, teaching literacy in these domains takes place during a period of development—early and late adolescence—when young people are also wrestling with substantive changes in their bodies and their social relationships. There are also significant changes in cognition, the brain, and affective development (Steinberg, 2005; Immordino-Yang et al., 2019). These dual demands of specialized disciplinary literacies in tandem with the complex developmental demands of adolescence pose significant challenges for both students and teachers that entail the exercise of emotions and the management of relationships.

This brief addresses the specialized demands of disciplinary literacies in middle and high school, the developmental demands of adolescence, and the important role of SEL in navigating such challenges—for students as well as for teachers. In addition, it will explore the opportunities of middle and high school disciplinary literacies to support the holistic development of youth and the role of SEL and well-being.

DISCIPLINARY LITERACIES AND KNOWLEDGE CONSTRUCTION

Knowledge construction in any domain includes concepts, procedures, and epistemologies. For example, in learning to read literature in middle and high school, the reader must learn concepts such as irony or symbolism. In addition, readers must understand text structures or genres as concepts in terms of how they are typically organized—mysteries, fables, romance, satire. Understanding how such texts are organized is necessary to anticipate and examine how plots and characters unfold.

Themes also embody concepts—coming of age, loss of innocence, good versus evil, and love. In addition to understanding these literary concepts, readers must develop expertise in procedures or heuristics for interrogating these concepts. Literary heuristics, for example, include detecting the signs that a character or a narrator is unreliable, that you cannot trust what that character tells you. Rabinowitz (1987) argues that literary comprehension is influenced by strategies or heuristics that expert readers bring before they open a text. He identifies the following rules that expert readers bring to interrogating literary texts:

- Rules of Notice—rhetorical moves that authors use to gain the attention of the reader
  - Privileged positions—titles, beginnings, endings
  - Repetitions
  - Ruptures
- Rules of signification—how readers draw on background knowledge and associations with details of the text (e.g., characters' names, how characters are described) and ethical and moral beliefs; whose point of view is represented (e.g., author, narrator, character), which are important elements for recognizing and interpreting irony and unreliable narration
- Rules of configuration—how readers piece together and test predictions about what is unfolding as they are reading
- Rules of coherence—after reading the whole text, how readers consolidate their understanding of the text as a whole

These heuristics can be explicitly taught, and they position the student as a reader by making visible how they are constructing meaning (Hillocks, 2016; Smagorinsky & Gevinson, 1989; Smagorinsky et al., 1987). This entails focusing on the processes of how we make sense of texts as opposed to simply the outcomes of comprehension. Teachers are best able to support learning when they have windows into how students are reasoning.

Disciplinary literacies in middle and high school also require extensive learning of language structures and vocabulary (Hiebert & Kamil, 2005; Snow, 2010; Uccelli et al., 2015). It is not uncommon that disciplinary texts in literature, science, and history use complex sentence structures. Deconstructing simple, compound, complex, and compound-complex sentences requires deep internalization of such structures. Examples include:

- Simple sentence—*I read the book.*
- Compound sentence—*I read the book, but I did not like it.*
- Complex sentence—*Although I tried, I could not continue reading.*
- Compound-complex sentence—*Although I tried, I could not continue reading and decided to give the book away.*

Further, simple words functioning as anaphora—e.g., words that refer back to other words—can be challenging to follow. This includes words like *it* and *that*, which, while simple at one level, can be very challenging to follow in compound, complex, and compound-complex sentences.

In addition, there are words in expository texts that signal text structures, e.g., the logical relations among ideas in the text. Such connecting words include *if, then, but*, and *however*. Recognizing the function of such words is an important tool in directing the reader to identify logical relationships among propositions in the text.

Vocabulary becomes highly specialized in texts related to specific disciplines, which use words uniquely in those disciplines:

- **History—**Conceptual terminology for historical periods; concepts regarding political, economic, and social systems; specialized terminology in geography.
- **Science—**Specialized terminology for scientific concepts and processes as well as words used in everyday contexts that have different specialized meanings in scientific fields (e.g., *force, energy, fruit*). These include words for scientific investigations (e.g., *hypothesis, prediction, experiment*) and words that represent scientific concepts (e.g., *photosynthesis, pH*).
- **Mathematics—**Specialized vocabulary for mathematical concepts such as numbers (e.g., *decimal, factor, exponent, quotient*), geometric shapes (e.g., *angle, quadrilateral, area*) and problem-solving processes (e.g., *multiply, divide, square, coefficient, function*).

Another issue is epistemology, or the theory of knowledge backing a field or discipline. In the case of literacy, epistemology involves the reader's expectations about the task of reading a text (Chinn et al., 2011; DiSessa, 1993; Hart, 2001; Hofer, 2000; Lee et al., 2016). For example, a reader might think that the task of reading is restricted to the classroom experience and fulfills a specific goal: to find out what the teacher wants to hear. In that case, the reader may not think that reading is about personal meaning-making. Another example is readers of literature who may think the task is only about figuring out the plot. In fact, through literature students can practice the SEL competency of social awareness by imagining others' circumstances and engaging empathy.

Epistemology can also be influenced by learners' perceptions of themselves as capable, and whether effort matters or ability is fixed and out of their control. Such perceptions of ability connect to the SEL competency of self-awareness and are captured in what Dweck (2002) calls a *growth mindset*, meaning that effort matters and leads to greater capability. Growth mindset has been well-documented to influence motivation and engagement in an activity that requires wrestling with challenge.

In a similar vein, literacy in middle and high school also entails writing, particularly composing essays as arguments (Hillocks, 2011). While conventions such as grammatical structures, spelling, paragraph structure, and transitions may be relatively common across disciplines, modes of argumentation (or what counts as evidence) differ substantively across content areas. Argumentation involves making claims, providing evidence to support claims, and providing warrants and backing (e.g., why someone should believe the evidence). In more sophisticated argumentation, it includes anticipating the counter claims that may be addressed in one's argument and rebutting those counter claims (Toulmin et al., 1984). This kind of argumentation creates opportunities to practice social awareness, as students consider what arguments will be persuasive to others.

While some general epistemological dispositions are well-documented (e.g., the disposition to value complexity or viewing knowledge as simple or complex), different academic disciplines incorporate distinct epistemological values. Here are some examples:

HISTORY

Historians view knowledge as contestable (Kuhn et al., 1994; Monte-Sano, 2010; Wineburg, 2002). That is, people can have different interpretations of the significance of historical events.

On the other hand, historians have clear expectations about how to evaluate the sources of information on which people draw to construct their interpretations of historical events. These include evaluating data sources (often as primary, secondary, or tertiary texts) with regard to what we understand about the source, how claims made are corroborated in the broader historical record, and the context in which the text or data source was created.

- **Primary sources** are created during their historical period (e.g., the Declaration of Independence, letters written by Abraham Lincoln to active stakeholders at the time). In addition to texts, they can include photographs, maps, and original artifacts. Primary sources, especially ones from the historical past, can be challenging for readers with regard to vocabulary, syntax, and text structures.
- **Secondary sources** are ones created to interpret primary texts (e.g., books that analyze the historical past, journal articles, documentaries, biographies).
- **Tertiary texts** summarize or pull together syntheses of primary and secondary texts. They include textbooks, handbooks, and encyclopedias. nt in themselves when approaching new challenges, and have a positive attitude about the world around them.

SCIENCE

While scientists write professionally to contest divergent propositions, more often than not the general public, when reading scientific texts, needs to bring epistemological dispositions or habits of thinking that value complexity. This is in large part because the technical demands of comprehending texts in science are great and require deep conceptual knowledge (Goldman & Bisanz, 2002; Linn et al., 1999; Moje & Dillon, 2006; Rosebery et al., 1992).

Since scientific misinformation abounds on the internet, it is important to carefully examine the source of textual information on the web. This requires students to apply critical thinking and responsible decision-making as they evaluate the credibility of sources, weigh evidence, and determine what information to trust and act on. Often, students in middle and high school are reading mainly to gain knowledge and less to critique. This is the case in disciplines like the study of literature, social studies and history, and even in the public domain in mathematics.

Students must develop multiple skills to read science texts with understanding. Goldman and Bisanz (2002) identify two broad categories of science texts—formative and integrative.

- **Formative texts** are ones developed by and typically read by scientists as they discuss and debate scientific understandings and evidence that are in process.
- **Integrative genres** are ones most likely to be read in the public domain and most certainly in middle and high schools. They tend to synthesize extant and accepted scientific knowledge and findings. Integrative texts include textbooks, journal/magazine articles, books written for a public audience, and websites.

Science texts can include multiple kinds of data displays (some involving mathematical data, some involving graphic representations of concepts and processes). Science texts often pose specific technical challenges, especially in terms of vocabulary. Words with Greek and Latin roots (e.g., *derm, bio, astro*) and suffixes that signal the function of words (e.g., *-tion, -ize*) are not part of everyday discourse. In addition, science texts can include words that are commonly used in everyday discourse (e.g., *fruit, power, organic*) but have specialized meaning in different scientific sub-disciplines (e.g., *biology, physics, astronomy*, etc.). This complexity calls for attention to context and social awareness, enabling students to navigate disciplinary differences and adapt their interpretations when familiar language is used in specialized ways.

Scientific texts across genres also often include complex syntax (e.g., long sentences—compound, complex, compound-complex), as well as markers of logical relations (e.g., *because, if—then, although*).

MATHEMATICS

While we tend not to think about reading in mathematics, there is an interesting body of research that calls for students to learn to read texts that recruit and explore mathematical ideas (Adams & Lowery, 2007; Barton & Heidema, 2002; C. D. Lee & Spratley, 2009; Siegel et al., 1989; Siegel & Fonzi, 1995).

In terms of everyday practices, Paulos (1990; 1995) argues that the general population needs to have sufficient mathematical understanding to detect misuses of mathematics to make claims in the public arena. For example, in his book *A Mathematician Reads the Newspaper* (1995), Paulos illustrates examples of editorials in a newspaper making claims using mathematical data where the logic of the mathematics is incorrect. His website offers numerous examples of the uses of mathematical data and reasoning in the public domain, presumed to be authentic because numbers are involved, but which are mathematically incorrect; the data does not indeed support the claims. This kind of analysis calls for critical thinking and responsible decision-making, as individuals must evaluate the validity of quantitative claims, weigh evidence, and determine how such information should inform their beliefs and actions.

An epistemological disposition to value foundational mathematical reasoning is essential in such cases. For example, in making claims about the distribution of some phenomenon, understanding the difference between *average* and *mean* is important. The distribution represented in an average can be interpreted as representing some relatively equal distribution, but can be distorted in one direction or another if there are significant contributing values at one end or another of the distribution.

Most reading in middle and high school mathematics classes entail word problems and textbooks. Text structures in math textbooks can serve as guidelines for the function of the information students are reading: "general statements, use of bold print, definitions, examples, explanations, summaries, margin notes, diagrams—in order to know what kind of information they are reading to understand" (Lee & Spratley, 2009, p. 12). Navigating these features effectively draws on the SEL competency of self-management and metacognitive skills, as students must regulate their attention and strategically approach different types of information.

The vocabulary demands of reading in mathematics, particularly in textbooks, include not only words that include conceptual knowledge, but also non-verbal representations (e.g., Greek alphabet representations of mathematical concepts). See table.

Vocabulary in mathematics also includes words that have specialized conceptual meanings (e.g., sum, product, difference).

MATH SYMBOLS		
∂	A	Alpha
β	B	Beta
χ	X	Chi
π	pi	
Σ	sum	

Another feature that makes this complex array of literacy skills challenging in middle and high school is that, in high school, disciplinary literacies will most certainly be taught by different content area teachers. In middle school, it is unlikely that the full breadth of disciplinary literacies will be taught by one teacher.

This situation is all the more complex because it is likely that only the English language arts teacher will be teaching generic reading skills, vocabulary, and writing. It is not unusual, even for high school content area teachers, to be highly skilled readers of texts in their field, but not necessarily metacognitive about the strategies they use to interrogate such texts. Additionally, many teachers are not familiar with the concept of integrating SEL with academic subject matter and have not been trained how. Without demonstrating the metacognition that occurs while making sense of disciplinary texts, teachers will less likely be able to encourage students to think like a historian or think like a scientist in interrogating texts, for example.

In addition, outside of ELA classes, students are less likely to engage in writing or extensive study of what is called academic language (Uccelli et al., 2015). Academic language is used almost exclusively in academic disciplines. Outside of these academic disciplines, students need not master academic language; indeed, academic language is often ineffective when used for broader audiences.

It is simply not the case that ordinary people cannot and should not learn such academic language. For example, during the COVID-19 pandemic, it was particularly important for the public to understand what a virus is, what viral mutation is, and the language of mathematical displays of transmissions. In everyday life, as people develop specialized interests—e.g., Hip-Hop, Pokémon, football, cooking—they learn the specialized language of these areas of expertise, how to use them, how to understand when football coaches and commentators on the media explain the logic of plays made by the quarterback, or on cooking shows, how chefs and commentators explain the logic of their techniques using specialized language.

To create a climate in which students feel efficacious and see the relevance of such skills to them personally, teachers must make the thinking visible behind all of these literacy practices and skills (Perkins & Ritchhart, 2003; Ritchhart et al., 2011). Therefore, it is important to design and implement pedagogical strategies in which students are invited and supported in how they reason about complex disciplinary texts and how they reason in making disciplinary specific arguments—both orally and in writing.

DEVELOPMENTAL DIMENSIONS OF LEARNING IN MIDDLE AND HIGH SCHOOL

Adolescence is among the most consequential of challenges in the life course (Eccles et al., 1993; Pintrich et al., 1994; Spencer et al., 1988; Swanson et al., 2010). It is a period in which youths' bodies and minds are preparing for adulthood.

On the one hand, we know that youths' brains and bodies are still developing during adolescence as they prepare for the social roles they will be expected to navigate as adults (Steinberg, 2005; Immordino-Yang et al., 2019). This includes the ways that social relationships become very salient during adolescence, in part because teens begin to establish and navigate social relationships with others as adults. Because of the salience of social relationships, both experienced and anticipated, emotions are deeply intertwined with all activity in adolescence. This means that even when students are in class, there are always competing demands on their attention, which requires the SEL competency of self-management (Ernst & Mueller, 2008; Perlman et al., 2014; Ernst et al., 2011).

Adolescence is also a period of enhanced social cognition. Social cognition (Flavell & Miller, 1998) is a lifelong task to learn or attempt to understand the internal states and intentions of others. We are social animals who run in packs. These packs always involve navigating relationships with other humans and indeed with the natural world. Such navigations entail understanding our own wants and needs, as well as the wants and needs of others, especially those with whom we seek to have meaningful social relationships. Such navigations always involve emotions. Social cognition always involves relationships, ones we want to pursue as well as those we want to avoid. How we feel fuels our efforts to connect, to persist, or to resist.

While social cognition entails relationships with others, adolescence is equally a consequential period of development when youth are learning more about themselves as individuals. How personality traits unfold and evolve during adolescence is another pivotal life course task during this period of development. This is a period in which understanding your emotions, your life goals, and your relationships with others are deeply consequential tasks (Eccles & Roeser, 2013).

Because of the organization of middle and high schools, students must learn to navigate their relationships not only with multiple groups of students (e.g., high school students may be with very different students in a math class than an ELA class) but also with multiple adults (e.g., different teachers for different content area classes, security guards, lunchroom personnel, counselors, office staff, principals, instructional coaches, etc.).

Indeed, this makes social navigation for adolescent youth more challenging than in primary grades. The emotional demands of navigating relationships with multiple adults who play pivotal roles in how you experience different spaces within the school, and sometimes outside of the school, are great and complex.

These multiple challenges of adolescence pose significant and complex challenges for adults: parents, extended family, siblings, teachers, and other school personnel in a given school site. Adults must learn how to both manage and organize learning environments that facilitate such complex development.

For example, parents of adolescents, particularly in later adolescence, wrestle with relationships between autonomy and accountability. This is equally challenging for school personnel, as adolescents will resist the expectations of adults. At the same time, adults are responsible for figuring out the balance between autonomy and accountability as the risks—physical and emotional—can be great in ways that are different than for younger children. While younger children also need to experience some balance between autonomy and accountability, toddlers and children ages 5 to 10 are less likely to be out in public on their own.

SCIENCE OF LEARNING AND DEVELOPMENT

We can learn lessons from the science of learning and development (SoLD) (Cantorn et al., 2018; Darling-Hammond et al., 2019; Lee et al., 2023; Nasir et al., 2020; Osher et al., 2018). The goal is "deep learning," defined as "pedagogical practices that foster critical thinking, mastery, and the application of knowledge, rather than rote memorization" (Darling-Hammond, et al., 2022). SoLD outlines features of learning environments—in- and out-of-school—that are most likely to support deep learning because such features take into account how we have evolved to navigate the spaces we occupy.

The point here is that **there is empirical scientific evidence of how thinking, emotions, perceptions of the self, others, and tasks matter and how they interact in dialogic interdependent relationships.**

We know that emotions are essential to human development across the life span (Immordino-Yang, 2015). In years past, we have thought about learning as primarily a cognitive activity that is driven by processes within

particular specialized regions of the brain. In this vein, we viewed learning as largely an individual act of cognition.

However, more recent work in the neurosciences, in particular advances in both the technology and contexts under which neuroimaging takes place, has demonstrated that regions of the brain do not operate in isolation but rather operate in dialogic relationships across regions (Immordino-Yang et al., 2019; Immordino-Yang & Damasio, 2007). This dialogic system of processes within our brains operates not only when we detect, for example, that we have a fever, are in pain, or are hungry, but also when we experience activity in the world and decide what it means and how to respond.

In addition, we know that genes do not determine outcomes. Rather, genes follow and respond to experiences in the world (Bidell & Fischer, 1997; Cloud, 2010). Such experiences in the world, particularly those that are routine, are indeed cultural. Thus, participation in cultural practices, within and across settings, is essential to understand how and what people learn.

These cultural practices—within and across cultural-historical time—are in response to where we are in the life course. It is also important to recognize that the meaning and functions or expectations for life course participation are impacted not only by the biology of our bodies, but also shaped by the demands of economic participation and the artifacts and organization of social communities at different points in time.

We learn from SoLD that all of the following matter for learning—among children, adolescents and adults—and that they connect to the **SEL focal constructs** defined through transformative SEL:

- Perceptions of the self along multiple dimensions
  - **Identity** as an individual, as members of multiple social and cultural communities (nuclear family, extended family, social networks, ethnicities/race, age cohorts)
  - Self-efficacy (**agency**) within tasks and settings
- Sense of relevance (**curiosity**)
- Emotional salience attributed to experiences (**identity**)
- Social relationships (**belonging**)

Among the findings from SoLD is the role of perceptions of relevance and self-efficacy in learning. Perceptions of relevance and self-efficacy evoke emotions that are recruited in motivation and engagement. In terms of literacies across the academic disciplines, there are significant bodies of research that document how to recruit language and knowledge repertoires as well as epistemologies rooted in cultural communities of practice as resources to support disciplinary learning and their literacies.

Research on Supporting Disciplinary Learning

As indicated in the sidebar, there is ample research representing a breadth of work on teaching literacies in the academic disciplines in ways that recruit cultural resources that students develop within and across the multiple routine communities of practice. Full citations appear in the references at the end of this brief.

Literature

Ball, A., 1992; Ball, A. & Heath, 1993; Ball, D. L. & Cohen, 1999; Duncan-Andrade & Morrell, 2005; Lee, 1991, 2004, 2005, 2006, 2007; Lyiscott et al., 2020; Majors, 2003, 2015; Majors & Ansari, 2009; Morrell, 2004; Morrell & Duncan-Andrade, 2002, among others

Mathematics

Gutiérrez et al., 2009; Gutstein, 2005; Moschkovich, 1999, 2002; Nasir, 2000, 2005; Nasir et al., 2008; Taylor, 2009, 2013

Science

Bang & Medin, 2010; Bang et al., 2010; Bang et al., 2012; Brown, 2008; Brown, et al., 2019; Brown & Kloser, 2009; Marin & Bang, 2018

History

Carruthers, 1997; Clarke, 1993; Hoyer, 2022; King et al., 2016; Paris, 2012; Reisman et al., 2020; Watson-Vandiver & Wiggan, 2018

DISCIPLINARY LITERACIES AND WORKFORCE PREPARATION + CIVIC PARTICIPATION

Other opportunities to employ disciplinary literacies to support students' holistic development, including social and emotional competency and well-being, extend to workforce and civic participation.

Adolescence is a particularly important period in preparing youth for their expected roles and responsibilities as adults. These adult roles entail:

- Navigating family relationships (even for adults who do not marry or decide not to have children)
- Sustaining long-term relationships with other adults across the life course
- Participating in the workforce
- Developing and pursuing personal goals
- Engaging in civic participation
- Maintaining resilience in the face of life's challenges

Workforce Preparation

Disciplinary literacies certainly play a role in preparing youth for eventual workforce participation and the ability to make a living wage. This goal has a technocratic end, ideally preparing young people for some post-high school training, whether college or specialized training in the trades. Whatever path a youth decides to pursue, learning to read more complex texts, wanting to read to continue to learn across the life course, and learning to write to convey ideas as well as to write personally to wrestle with ideas on one's own, literacy plays an essential role.

Civic Participation

Broadly speaking, literacies and reading in particular also offer expansive opportunities for people across the life course, and particularly during adolescence, to navigate the social contract of the various communities in which people participate and of which people seek to be members.

The report Educating for Civic Reasoning and Discourse (Lee et al., 2021) argues that preparation for civic reasoning, discourse, and indeed engagement requires more than technical knowledge of constitutional structures. This is particularly the case in democratic societies and the complex democratic experiment that is the United States. The report argues that civic reasoning and discourse require:

- Knowledge of governmental structures: how economic and political systems operate, the role of geography in political and economic systems, but also concepts in mathematics, science, and the arts that play a role in the problems and opportunities with which we wrestle in the public/civic domain
- An epistemological orientation to value complexity, to weigh competing evidence, and to reject simplistic solutions to complex problems
- Ethics: empathy for others, to value listening to others who differ from ourselves, to value the needs not only of ourselves but of others

The report further argues that this range of knowledge, epistemological orientations, and ethics can and should be taught explicitly within and across the content areas.

Because such learning is difficult and complex, it is essential to attend to how in- and out-of-school learning environments are organized to support a sense of social and emotional safety, relevance, and relationships with others, particularly when these environments involve multiple literacies.

Identity Development and Personal Meaning-Making

Reading in the disciplines can also serve as a resource for personal meaning-making, especially during this pivotal period of adolescent development. Adolescents are learning to wrestle with complex social relationships with peers and adults, understand their own goals and indeed their own personalities, and make sense of conundrums in the public or civic domain that impact them and others they care about. Reading across the content areas makes available to them knowledge—conceptual, procedural, ethical, philosophical—that can help them make their own sense of the vast array of societal and personal challenges in their lives.

Opportunities to read and deeply value literature are particularly impactful for promoting civic participation. (Hynds, 1989; Lee, 2011; Lee & Nasir, 2025; Morrell & Morrell, 2012; Smagorinsky & Phelan, 1990). Literature is always about interrogating the conundrums of the human experience. Some conundrums are unique to particular moments in historical time, but others are endemic to the human species. Great literature—across time and space, literature for children, for adolescents and adults—lasts because it speaks to conundrums that do not have easy answers.

Unfortunately, in the United States, the tendency has historically been to privilege literature from the European tradition in schooling, particularly in middle and high school (Applebee, 1991). There is no question that Europe has produced a profound and beautiful corpus of literature. But it is equally the case that great literatures emerge and persist across time within and across geographic spaces.

When students experience great literature from across time periods and geographical spaces, they have the opportunity to enter worlds different from their own and also to understand commonalities across human communities, develop empathy for others, and understand their connections to others. In addition, great literature interrogates conundrums of the human experience and wrestles with the complexity of human activity. There are many canonical exemplars of literary texts that invite students to wrestle with complexity.

Public education has a responsibility to prepare young people for their participation in civic life, including topics about which we debate and wrestle in the public domain. One example is how we understand violence, racism, and other ideologies that pit people against one another, including the moral warrants for engaging in violence.

Youth, regardless of social class, experience violence in their homes, neighborhoods, and schools, with an array of complex contributions to such violence. Both moral and historical reasoning are essential to wrestling with the long and complex history of racism in its myriad forms and targets. These are clearly issues that need substantive, thoughtful and ethical reasoning.

The National Academy of Education offers several reports for practitioners illustrating how civic reasoning and discourse can be incorporated in teaching in the academic content areas. This breadth of competencies cannot be developed in a single course or during one or two semesters across the K-12 sector, but must be reinforced and socialized across the Pre-K-12 spectrum; and the supports for such knowledge, epistemological orientation and ethics must be developmentally appropriate. That is, there are specialized opportunities and demands for such socialization during adolescence. It is important to be explicit that the development of such competencies is not partisan, nor is it about favoring any particular political orientation (e.g., conservative or progressive, Republican, Democratic, or Independent). One can be knowledgeable, value complexity, and be empathetic no matter one's particular political party.

Literature offers windows into the moral and ethical dimensions: How have people experienced and continue to experience racism? How can they be and how have they been resilient living in systems where racism is deeply embedded? History and historical reasoning offer conceptual tools for interrogating how societies and communities of people and institutions create structures that constrain life course opportunities for particular groups of people.

SEL and Navigating Complex Life Experiences

From the interconnection of SEL, SoLD, and the neurosciences, we know that cognition does not operate in isolation. Our brains, indeed our bodies in conversation with our brains, operate such that cognition, emotions, and perceptions operate in tandem, in dialogic relationships with one another. Thinking, feelings (e.g., the emotional salience we attribute to experiences), and perceptions (of the self along multiple dimensions, of others, of tasks, of settings, of safety, of self-efficacy, of relevance) all matter and are in coordination with one another. It makes perfect sense that perceptions of safety, self-efficacy, and relevance will be especially important when exploring such highly contested topics.

Adolescence is a particularly interesting point in the life course to wrestle with such complexities because this is a period of heightened social cognition (the ability to read in more complex ways the internal states of others), a period when adolescents are able to understand more complex constructs (e.g., more complex social, political, economic, and moral systems), and a period in which anticipating the adult roles and challenges for which they are preparing is a high priority.

THE DESIGN OF LITERACY INSTRUCTION

We must design instruction in ways that support students in feeling efficacious, seeing the relevance of this kind of academic work, and feeling safe when others contest their readings of texts. Let's explore what such instruction looks like in the disciplines of literature and history.

As we consider the importance of disciplinary literacies in adolescent development, the work of Mary Helen Immordino-Yang is informative (Immordino-Yang, 2015; Immordino-Yang et al., 2019; Immordino-Yang, 2011; Immordino-Yang & Damasio, 2007). Development entails how we grow over time: physically, socially, emotionally, cognitively. How we think about the goals of development is important, particularly in the context of formal schooling.

Disciplinary literacies are among the central work of Grades 6-12 and play a special role in preparing students to both engage with complexity and develop conceptual knowledge relevant to complex problems in the civic domain. This capacity to contend with complexity has particularly relevance for issues of governance and civic participation, as exemplified in the U.S. governmental system.

From the start, the U.S. system of governance has explicitly sought to accommodate difference through structures designed to accommodate dissent and pathways that consider majority authorities as well as the rights of minorities and the rights of the individual. These structures include:

- Distinctions in the legislative branch between the Senate representing states and the House representing districts within states, with the role of the legislative branch to ideally safeguard activity consistent with the U.S. Constitution
- Both the legislative and judicial branches placing limits on the executive branch
- Distinctions between the authorities of the federal government versus state governments (as in the case of education, where there is a federal role in education, but curricular decisions are the purview of states)

This complex system of governance requires that citizens be knowledgeable, embrace complexity, resist simplistic solutions to complex problems, and honor democratic values that respect the rights of individuals while constraining those rights to activity that does not harm others.

Dr. Immordino-Yang (Immordino-Yang et al., 2019) has designed and carried out longitudinal studies of what is called transcendent thinking in adolescence and its long term impacts. Transcendent thinking involves explanations of phenomena that go beyond what literally happened and involves explanations of phenomena that extrapolate a broader principle or conceptual understanding. As discussed earlier, disciplinary reasoning also goes beyond the literal (e.g., the plot in a literary narrative, the events in a historical moment, the specific findings of a scientific experiment).

Dr. Immordino-Yang has documented the positive impacts of learning to engage in transcendent thinking. In longitudinal studies of adolescents from diverse ethnic and economic backgrounds, she asked students to view a video of a real situation in which people were placed in challenging circumstances. After viewing, students re-viewed it while the research team monitored their brain activity through neuro-imaging.

Dr. Immordino-Yang distinguished between youth who showed empathy but whose explanations were constrained to the event itself. In contrast, other youth both showed empathy for what they observed but also explained the significance of the events by situating the phenomenon in broader explanatory principles. She then interviewed these young people as they moved into young adulthood. She found that those who engaged in transcendent thinking had developed positive resiliencies in the face of violence and life course challenges and had denser synapses across regions of the brain.

CONCLUSION

As we have explored, SEL serves a critical role in supporting adolescents' development of disciplinary literacies, and vice versa. Disciplinary literacies entail conceptual explanatory resources for interrogating complexities. As such, attending to the development of rich disciplinary literacies—conceptual and procedural knowledge as well as epistemologies—engages students in what is essentially higher-level thinking.

The opportunity to engage in such learning across academic disciplines and across middle and high school provides rich and abundant situations that can prepare young people to wrestle with the complexities of life and civic engagement.

Creating learning environments that are organized to support cognitive, social, and emotional development requires understanding that these developmental processes operate and develop in tandem and not separately. This is a consequential goal, both for personal development and for the needs of civic engagement and reasoning in our society, and indeed to prepare young people as citizens of the world.

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