Aims and Criteria for Collaboration in Content-Area Classrooms

Roni Jo Draper, Paul Broomhead, Amy Petersen Jensen, Daniel Siebert

Reform efforts sparked by reports like *Reading Next* (Biancarosa & Snow, 2006) and *Time to Act* (Carnegie Council on Advancing Adolescent Literacy, 2010) have motivated state and district leaders to increase their efforts with regard to reading and writing instruction for adolescents. These documents advocate for increased attention to the decoding, fluency, vocabulary, and comprehension needs of all adolescents, particularly those who struggle to read and write. Educators working from these documents have striven to organize their curricula in such a way as to promote these general literacy skills. For example, secondary schools that have organized professional learning communities (PLCs) often focus their work almost entirely on adolescents' achievement as measured by reading and writing assessments (Hargreaves, 2007). On the surface, this focus seems both reasonable and necessary; after all, we need a literate citizenry. However, as adolescents confront increasingly complex texts both in and out of school, general print literacies may not be sufficient to enable them to make sense of nuanced disciplinary representations and arguments.

We worry that current reform efforts may lead to a literacy that is too narrow to allow adolescents to fully engage in exploration, self-expression, and problem solving. While learning to read and write general print texts consisting of words, sentences, and paragraphs is essential for participation in society, it is often not enough. Participation

also requires that people be steeped in ideas—ideas about the arts, the humanities, and the STEM disciplines (science, technology, engineering, and mathematics)—and have the literacy skills needed to read and write the specialized texts used to communicate and understand these ideas. Many of these ideas (as represented by a variety of specialized print and nonprint texts) and literacies are found in content-area classrooms. Consequently, content-area teachers can and should play an integral role in helping adolescents develop these literacies. This role, however, should not be to promote general print literacy by having students simply read and write general print texts to acquire content knowledge—i.e., reading and writing to learn. Instead, content-area teachers, with the help and support of literacy educators, should engage and support their students in reading and writing the full range of specialized texts typically used to create, express, negotiate, and understand disciplinary content—i.e., learning to read and write. Without these specialized literacies, students may be relegated to the position of reading and writing about what others are doing, rather than participating in the activities of creation, inquiry, expression, and problem solving.

Because students do not usually enter content-area classrooms knowing how to read and write the specialized print and nonprint texts of the various disciplines, teachers must provide literacy instruction in content-area classrooms. Providing students with the appropriate literacy instruction, however, may be extremely difficult. Often both literacy and content-area educators lack the knowledge and resources necessary to support students' development of these specialized disciplinary literacies. Furthermore, as we argue in Chapter 2, current conceptions of content-area literacy are inadequate for identifying and acknowledging the full range of texts students will encounter in the disciplines. We believe that content-area teachers and literacy specialists will need to work together to design literacy instruction that addresses both the literacy and content-learning needs of adolescents.

In this chapter we provide guidance for content-area teachers and literacy specialists as they collaborate to design this kind of instruction. First, we discuss the importance of imagination as a precursor to educational change. Then, we describe a set of common aims for adolescents that can serve as a guide for (re)imagining content-area literacy instruction. These common aims address the instructional goals of both literacy and content-area teachers, and can provide a shared

focus that both groups can subscribe to as they work together to design instruction that meets adolescents' discipline-specific literacy needs. Third, we discuss the unique strengths content-area teachers and literacy specialists bring to a collaboration that works toward those common aims. Fourth, we describe a set of criteria by which content-area teachers and literacy specialists can evaluate the instructional plans they devise during their collaboration. Finally, we end the chapter with a brief description of the collaboration in which the authors of this book have participated and an introduction to the content chapters, which constitute the majority of this book.

IMAGINATION AS A PRECURSOR TO EDUCATIONAL CHANGE

We believe that change begins with imagination. Just as the composition of a poem begins with the imagination of the author, change in classroom instruction must begin with the imagination of teachers. Indeed, we worry that the rush to implement changes in classrooms will remain hindered if educators do not allocate sufficient time and space to imagine. Therefore, our position is that content-area teachers and literacy specialists must initiate reform efforts by first taking time to imagine together.

Our confidence in collaboration and imagination stems from our own participation in collaborative activities over the past 5 years. During this time the authors of this book have met frequently to discuss literacy and content instruction and to (re)imagine instruction for content-area classrooms. We, like other educators, have taken advantage of the imagination of others who have described the nature of literacy instruction for content-area classrooms (e.g., Carnegie Council on Advancing Adolescent Literacy, 2010; Cope & Kalantzis, 2000). However, we describe our work as (re)imagining because we have rethought or (re)imagined what has been written about content-area literacy instruction.

We believe that a (re)imagining of content-area literacy instruction is essential to meet adolescents' literacy needs. Generally, descriptions of content-area literacy either have focused narrowly on traditional print texts (which may be only tangentially related to the discipline) or have suggested interaction with particular disciplinary texts that is not

consistent with the way in which disciplinary experts would read or write the texts (see Siebert & Draper, 2008, for a more in-depth discussion of this criticism as it relates to mathematics). Consequently, the instruction described in much of the literature surrounding content-area literacy leads simply to a general form of literacy that is meaningful and applicable only while one is engaged in the activity of "doing school." This general school literacy may be useful neither within the various disciplines nor in adolescents' lives outside of school. Therefore, we have worked to (re)imagine content-area literacy so that it truly would prepare adolescents to negotiate and create texts central to the disciplines and enable them to address the problems they confront in their roles as citizens of various communities. This book represents both our attempt to (re)imagine together and our desire to encourage others to do the same.

COMMON AIMS OF INSTRUCTION

If literacy and content-area educators are to work together to (re)imagine content-area literacy, they must develop a shared purpose. A common point of confusion that thwarts the development of a shared purpose is the perception that instruction is either literacy-driven or content-driven (Draper, Hall, Smith, & Siebert, 2005). We believe that this literacy-content dualism is artificial and a direct result of adopting a narrow definition of the terms *text* and *literacy*. In Chapter 2, we develop this idea in detail and suggest alternative definitions for these terms that resolve the dualism and result in a description of content-area literacy that meets the instructional goals of both literacy specialists and content-area teachers. Briefly, we have found it useful to define text to include all objects that are imbued with meaning, and literacy as a discipline-appropriate way of interpreting or creating a text. These definitions place texts and literacies at the heart of any content learning activity, because one cannot access content or participate in disciplinary practices without interpreting or creating objects that are used to convey and negotiate meaning. Likewise, one cannot become literate without understanding content or participating in authentic activity in which the literacies are situated. The overwhelming implication is that the goals of developing discipline-specific literacies and learning content are inextricably connected, and that instruction that aims to accomplish one of these goals must address the other as well.

Once content-area and literacy educators resolve the content-literacy dualism, they can work together to create a common set of instructional aims. These, along with the shared expanded definitions of *text* and *literacy*, represent a common ground and serve as "something to pursue" together (Greene, 2000). Pursuit of common aims enables educators to feel that what they hold as important will be realized in the classroom (e.g., the ability to read and write for literacy specialists, and an understanding of the content and the ability to participate fully in disciplinary practices for content-area teachers). A set of common aims can enable both content-area teachers and literacy specialists to contribute to (re)imagining classroom instruction for adolescents.

Common aims can be developed by starting a conversation about a strongly held shared belief. From the very beginning of our own collaborative conversations, it became clear that each member of the group was committed to providing instruction that benefited the lives of adolescents both in and out of schools. In fact, our shared commitment to empowering the learners in our classrooms kept us from dismissing one another's beliefs, values, and instructional goals, even when there appeared to be serious disagreements. The aims that we eventually developed were constructed from this shared commitment to adolescents as we collaboratively constructed a response to the following question: What are we striving to make possible in the lives of adolescents (Greene, 1973)? In keeping with our definitions of text and literacy, we constructed four instructional aims. We present them here as a possible starting point for conversations between content-area and literacy educators.

- *Adolescents acquire knowledge and skills within the discipline.* The knowledge and skills associated with the disciplines generally are outlined in national, state, and district standards and curricula. Implicit in these curricula are the literacies needed to negotiate and create disciplinary texts.
- *Adolescents engage in authentic activities within the discipline.* Authentic activities within the discipline are those used by knowers of the discipline (e.g., mathematicians, artists, historians, musicians) as they participate in the discipline.
- *Adolescents use what they have learned in legitimate and useful ways in their lives.* In order for disciplinary knowledge and skills to be of ultimate value to adolescents, the knowledge and skills must be useful to adolescents in their lives outside of school.

- *Adolescents use what they have learned to generate knowledge in a variety of settings.* Ultimately, communities, including disciplinary communities, benefit when participants can examine, evaluate, and critique the status quo and generate knowledge that will allow the communities to progress.

We argue below that these aims have the potential to help content-area teachers and literacy specialists achieve their instructional goals because they acknowledge and address what each group cares about. Furthermore, because content and literacy learning are inseparably intertwined within these aims, in order for both groups to achieve their respective instructional goals, they must recognize and address the instructional goals of the other group.

The Aims and Content-Area Teachers

The four aims above are acceptable to content-area teachers because they honor familiar disciplinary instructional and learning goals found in district, state, and national curricula and standards. While these documents vary from discipline to discipline in the specific goals for learners, they are consistent in describing instruction that allows adolescents to both learn content and develop the habits of mind associated with inquiry, problem solving, and creative activities within the disciplines. These recommendations are made with the belief that content instruction should prepare students for continued study within the discipline and for enhanced quality of life, promoting personal well-being and empowering individuals to participate in society.

At the same time, these aims also force content-area teachers to recognize the essential role that literacy plays in learning in the content areas. In order for adolescents to achieve these aims, they must acquire what literacy specialists often describe as tools' skills, or skills associated with reading and writing, to learn (see Fisher & Ivey, 2005). At the same time, they also must learn the multiple literacies that are required for participation in disciplinary activities and practices. Literacy specialists will recognize that many of these practices—reporting the results and conclusions of a scientific inquiry, performing a monologue, writing a mathematical proof, marshaling proper evidence as part of an historical argument, and reading technical schematics—clearly

include literacy. These skills occur in conjunction with a variety of texts, and complete understanding or access to the content cannot occur without facility with those texts.

The Aims and Literacy Specialists

Because realizing each of the above aims requires attention to literacy instruction, literacy specialists also can embrace these aims. Like content-area teachers, literacy specialists work from district, state, and national curricula and standards to guide their work with other teachers. These documents point out that the literacy demands placed on individuals continue to increase, particularly in light of the explosion of texts and information available to people through digital media and the multiple literacies required in order to participate in modern society (Cope & Kalantzis, 2000). Likely no one can imagine the literacy demands that will face humanity in the next 40 years. Despite the enormity and imprecise nature of the task, literacy specialists seek to prepare adolescents for these increased literacy demands. Like content-area teaching, literacy instruction is promoted with the belief that it will help adolescents achieve increased competence in their personal lives and allow them to participate fully in society.

At the same time, these aims force literacy specialists to acknowledge and attend to the unique nature of each discipline when making recommendations for content-area literacy instruction. For students to learn content and participate in disciplinary practices, they must learn to read and write the specialized print and nonprint texts that are being used to create, convey, and negotiate meaning. Moreover, these texts must be written and read in discipline-appropriate ways in order for the appropriate meanings to be communicated and understood. For literacy specialists to meet the above aims, they must help adolescents become fluent in the multiliteracies found in the disciplines.

A Shared Focus

In summary, the instructional aims listed above can serve as an acceptable shared focus for both content-area teachers and literacy specialists. Not only do the above aims address the goals of both content-area teachers and literacy specialists, but they also require that both groups of educators acknowledge and address the goals of the

other group. Thus, the aims simultaneously legitimize the instructional goals of both groups of educators. But perhaps more importantly, the aims acknowledge the value and importance that both groups place on helping adolescents live full lives, and show how the efforts of both groups of educators can be combined to empower adolescents. As such, we believe that they can serve as a rallying point about which content-area teachers and literacy specialists can form collaborations, or at the very least a starting point for collaborators to develop their own shared instructional aims.

UNIQUE STRENGTHS THAT CONTENT-AREA TEACHERS AND LITERACY SPECIALISTS BRING TO COLLABORATIONS

To achieve the instructional aims above, or a similar set of aims that attends to both the content and the literacy needs of adolescents, requires the expertise of both content-area teachers and literacy specialists. Content-area teachers bring expertise as individuals steeped in disciplinary discourses (Gee, 1996) as well as knowledge of disciplinary instruction. Literacy specialists bring an understanding of how to create instruction that supports adolescents as they develop their literacy skills and facility with texts. Both of these areas of expertise are explored below, as well as how educators might use them to create content-area literacy instruction.

Strengths of Content-Area Teachers

Content-area teachers are expert learners and doers in their disciplines. Most of them have completed advanced coursework and can engage in disciplinary practices with facility. As such, they have acquired a rich knowledge of the content and developed many of the literacies required for successful participation in their disciplines. Indeed, not only do content-area teachers know how to decode words like *ohm*, *tableau*, *null set*, *timbre*, *gamete*, *tariff*, and *stipple*—words that likely would not present decoding problems for skilled readers—they also possess sufficient disciplinary knowledge to understand or comprehend these words. Moreover, content-area teachers can use these words in conjunction with other words associated with their disciplines

at appropriate times and for appropriate purposes. Without this content knowledge, decoding words actually would be useless, and knowing how to string them together to create coherent representations of ideas would be impossible. Likewise, content-area teachers know how to create and interpret a wide array of objects used to convey meaning, including paintings, schematic drawings, equations, costumes, musical performances, photographs, diagrams, and maps, to name just a few. This knowledge represents more than simply content knowledge, and is also more than just a type of general literacy knowledge. Rather, it is a form of discipline-specific literacy that allows content-area teachers to read and write specialized texts so they can participate legitimately in disciplinary activities. This content-specific literacy knowledge is precisely the knowledge that content-area teachers possess and, thus, bring to collaborations for content-area literacy instruction.

Because of content-area educators' expertise as learners, doers, and teachers in the discipline, they are uniquely positioned to make valuable contributions to collaborations with literacy specialists. They can recognize the specialized texts of the discipline and know how these texts should be read and written. They can reflect on their own reading and writing of disciplinary texts to identify important ways of interacting with texts that students should learn. This expertise places content-area teachers in a position to know if a particular literacy activity supports students' disciplinary literacy needs while remaining true to disciplinary norms and practices. In fact, literacy specialists should allow content-area teachers to pass final judgment as to whether or not a particular literacy activity is appropriate. This will reduce the risk of introducing instruction that is not congruent with the norms, practices, and literacies of the discipline. Lastly, content-area teachers are the most qualified to deliver content literacy instruction, because they are fluent in the literacies being taught and understand the content being communicated with the texts that students are learning to read and write.

Strengths of Literacy Specialists

While literacy specialists recognize that multiple literacies are required in order to negotiate and create the various texts particular to the disciplines, they likely do not know those literacies. Indeed, it is unrealistic to expect literacy specialists to be fluent in all the literacies

that are found across the disciplines. In fact, because they often lack fluency in disciplinary literacies, they cannot dictate what literacy instruction should take place in content-area classrooms. Instead, literacy specialists must be prepared to develop literacy instructional activities *with* content-area teachers, rather than *for* content-area teachers. They can do this by helping content-area teachers identify disciplinary literacies and by sharing their knowledge of instructional frameworks for literacy.

To help content-area teachers identify literacies, literacy specialists can ask content-area teachers some of the following questions: What do you think about in order to make sense of this text? What do you need to know in order to create this text? What conventions do you adhere to when creating this text? What questions do you pose as a reader while interacting with this text? Often, the literacies inherent in disciplinary discourses (Gee, 1996) and practices may not appear obvious because it is not clear that those activities—solving an equation for a particular variable, preparing agar for a Petri dish, choosing and preparing media for a canvas, editing digital video, gathering and preserving historical artifacts, and so on—require participants to interact with texts. In these cases, literacy specialists can help content-area teachers identify the texts needed to carry out these practices, and then encourage content-area teachers to reflect on the accompanying literacies.

In addition to helping identify literacies, literacy specialists also can share their knowledge of literacy instructional frameworks. Literacy specialists know many literacy instructional frameworks that can serve as useful scaffolds for designing content-area literacy instruction. For example, the before–during–after framework, as described by authors like Vacca and Vacca (2008), can help content-area teachers consider ways they can prepare adolescents for negotiating and creating texts, how they can support adolescents while they negotiate and create texts, and how they can extend adolescents' thinking after negotiating and creating texts. Likewise, the instructional framework described by the New London Group (see Cope & Kalantzis, 2000) can help content-area teachers consider how they can engage adolescents in the situated practices in which texts and literacies are used, provide adolescents with overt instruction of the literacies under study, support adolescents as they strive to transform or transfer their literacy knowledge to other texts within and outside the discipline, and provide instruction that allows adolescents to critique disciplinary texts. Therefore,

while literacy specialists are not in a position to prescribe instruction for content-area classrooms, they are in a position to help content-area teachers (re)imagine instruction for content-area classrooms.

CRITERIA FOR EVALUATING INSTRUCTION

Although common aims serve as a good beginning for a collaborative (re)imagining of content-area literacy, additional structure is required to ensure that the product of the collaboration is ultimately useful in meeting adolescents' literacy and content-area needs. In any collaboration, there is always the risk that participants may engage in compromise or collusion, processes that can lead to products that do not meet the needs of the collaborators or the populations they represent or serve (Reason, 1994). Criteria are needed to evaluate the products of collaboration to ensure that they achieve the initial aims. In terms of collaborations between content-area and literacy educators, we are particularly concerned that criteria be established to ensure that instructional approaches do not simply *fit* the various disciplines from the standpoint of the literacy specialist, but be found *essential* by experts within those disciplines. We suggest that the following criteria are useful in determining whether instructional ideas meet the four aims above:

> *Authenticity:* Instructional ideas should be consistent with disciplinary norms and perspectives and promote both correct content knowledge and authentic disciplinary practices.
> *Literacy:* Instructional ideas should enable content-area teachers to teach their students the literacies that are essential to learning content and engaging in disciplinary practices both in and out of school.

We describe below how both of these criteria must be met in order to achieve each of the four aims listed above.

At first glance, it may seem that the authenticity criterion is sufficient to ensure that both of the first two aims are met, namely, that students develop content-area knowledge and skills and that they learn to participate in disciplinary practices. Certainly instruction that is designed to promote correct disciplinary norms, perspectives,

knowledge, and practices cannot help but support the first two aims. However, by itself this instruction may not be sufficient for achieving these aims. As noted earlier, in order for students to learn content and engage in disciplinary practices, they must be literate in the texts of the discipline. Moreover, while the immersive experiences in the discipline that are required by the authenticity criterion provide essential exposure to discipline-specific literacies, typically this exposure by itself is insufficient for students to develop these literacies (Gee, 1989, 2002). Consequently, these immersive experiences also must be coupled with sound instructional activities that teach learners how the texts of the discipline should be read and written. Thus, for the first two aims to be met, instructional ideas also must conform to the literacy criterion, which requires teachers to consciously teach the literacies of the discipline to their students.

On the other hand, attempting to address the first two aims without attending to the authenticity criterion is equally problematic. Educators might be tempted to ease students' struggles with learning content and participating in disciplinary activities by first teaching students to read and write the texts of the discipline *before* they are required to engage in content-area learning. There are two dangers associated with this practice. First, there is the very real possibility that learning to read and write the texts of the discipline outside of authentic disciplinary activities will lead students to develop artificial literacies that may not support, and may even prevent, students' learning in the discipline. Second, many of the literacies of the discipline are not apparent outside of disciplinary practices, because until students actually engage in disciplinary activity and learning, it is often unclear which objects are to be used as texts and how those objects must be read and written. In fact, educators may become aware of important disciplinary literacies only after they observe students struggle to engage in authentic activities that require those particular literacies. For these reasons, we believe that content-area literacy instruction must be situated within the context of authentic disciplinary activities.

As for the last two instructional aims, the authenticity and literacy criteria we describe should guide content-area teachers and literacy specialists to (re)imagine content-area instruction that empowers adolescents both in and outside of school. Indeed, this is really the purpose of these aims. The authenticity and literacy criteria ensure that adolescents experience the discipline in such a way as to enable them to use

their newly acquired knowledge and literacies to solve problems and generate knowledge in new settings within the discipline. This happens, for example, when students apply their new literacies associated with literary critique to additional literary texts, or when they link what they have learned about writing mathematical explanations for multiplying fractions to their writing of explanations for solving systems of equations, or when they use ideas about the composition of a painting to help them compose a photograph. Additionally, the authenticity and literacy criteria suggest adolescents must be able to use their understandings of content and literacy outside the discipline. This occurs when students can use their knowledge of mathematics to critique scientific arguments, or when they use their understanding of history to create a compelling stage performance, or when they incorporate their understanding of visual design into their design of a building.

Moreover, creating instruction that adheres to the criteria that we have described ensures that adolescents will be prepared to use their knowledge and literacies in their lived worlds. While the lived worlds of adolescents certainly include their futures after schooling, they also include students' immediate out-of-school lives. It may be a challenge, for example, to demonstrate how adolescents might use their new understandings of molecular bonding outside of school settings, even though science teachers agree to its importance. However, authentic practice dictates that science teachers engage adolescents in critical discussions about how their community responds to chemical spills, because this is also central to scientific discourses. Moreover, engaging in those discussions requires particular literacy skills, skills that are best developed in science classrooms. Ultimately, teachers must assist adolescents in using their newly acquired literacies as part of authentic practices surrounding understanding, critiquing, and challenging the status quo, both within the disciplines and within society. This requires teachers to support adolescents as they question and critique the texts they encounter in the classroom and outside the classroom, and develop skills that allow them to create their own texts—texts that represent adolescents' imaginations of a better world.

We recognize that our aims are lofty and our criteria challenging to meet. Some might even say they are too idealistic and unattainable. However, we feel these aims and criteria, or similar aims and criteria

that acknowledge and address the content and literacy needs of adolescents, must guide our work together as educators if we hope to prepare adolescents with the knowledge, skills, and dispositions they need to participate fully in the various communities in which they find themselves and to make those communities better (Dewey, 1916). Collaboration between content-area teachers and literacy specialists offers the most hope in achieving these instructional aims.

AN INTRODUCTION TO (RE)IMAGINING LITERACIES FOR CONTENT-AREA CLASSROOMS

The remainder of this chapter serves as an introduction to the book. We describe our own collaboration, which has made this book possible, followed by a brief introduction to the content chapters.

Our Collaboration

The various authors in this book have been involved in collaborative activities as members of the Brigham Young University Literacy Study Group (BYU LSG). Our (re)imagining occurred as we read and discussed the literature surrounding content-area literacy and wondered aloud what instruction might look like that supports both content and literacy learning. We have interrogated one another and have listened patiently to one another as we have struggled to articulate burgeoning ideas. These discussions continued until the ideas met the criteria we have outlined here.

In fact, this book represents a collaborative effort and our (re)imagining of literacies for content-area classrooms. The framing chapters (Chapters 1, 2, and 11) are authored by the various book editors. The ideas presented in these framing chapters represent the ideas that developed over the course of our collaboration. The authors collaborated in writing the chapters (serving as equal authors) and checked their ideas with the other members of the BYU LSG, to ensure that the ideas presented were truly representative of the ideas that grew out of the collaboration.

Content-area educators who have participated in our collaboration (some of whom also served as book editors) wrote the remaining chapters of the book. Everyone has carefully explored the habits of

mind and creative activity associated with literacy and inquiry in the given area of study. This exploration has occurred as each of them has engaged in study of the discipline along with the pedagogy associated with the discipline. Experiences associated with teaching in public school settings, preparing preservice teachers in the university setting, and continued conversations with classroom teachers have provided each of the authors with significant time in educational settings where discipline-specific content was taught and/or discussed. Indeed, the authors have thought deeply about the ways in which educators might help adolescents to negotiate and create print and nonprint texts. These experiences have supported all of the writers as they have worked to (re)imagine instruction for adolescents in their disciplines that is designed to realize the aims we have described here.

Finally, each chapter has been read by all the participants and discussed at collaboration meetings of the BYU LSG. These group discussions provided authors with ideas for revisions to their chapters. The chapter authors also have worked directly with one of the book editors to refine ideas, sharpen arguments, and ensure that the ideas presented across the chapters are coherent without being overly redundant.

Introduction to the Content Chapters

The intent of each content chapter is to illustrate what literacy instruction might look like within the specific disciplines without being prescriptive. The use of vignettes throughout the chapters represents (re)imagined content-area classrooms from the perspectives of the authors. In fact, the contexts of the vignettes—the teachers, students, and interactions—were drawn from the imaginations of the authors as they considered what instruction that promotes both content and literacy learning can look like. In most cases the instructional units described in the vignettes represent a (re)imagining of units they have created and used with adolescents to learn content that now reflect a mindful attention to literacy. We will highlight here some of the ways in which the authors illustrate how content-area teachers—with assistance from literacy specialists—can help adolescents achieve the aims we have described in this chapter.

The authors demonstrate how content-area teachers can support adolescents as they acquire knowledge and skills within the disciplines—our first instructional aim. Indeed, they describe literacy instruction

for content-area classrooms that more fully supports students' comprehensive understanding of the discipline. For example, Siebert and Hendrickson illustrate how content instruction is incomplete without thoughtful consideration and implementation of the multiple literacies in mathematics classrooms. In fact, they make it clear that literacy and content are inextricably linked in such a way that when mathematics teachers attend to the multiple literacies required in order to learn, communicate, and participate in mathematics, they help students understand the nature of mathematics. Similarly, Nokes describes history teaching that attends keenly to discipline-specific literacies. He asserts that by identifying history-specific literacy strategies, educators can help adolescents think and read like historians. Additionally, Nokes emphasizes the necessity of implementing both explicit and implicit literacy instruction to help students engage in authentic historical inquiry experiences. By doing so, history teachers can help their students learn history as they acquire the skills used to negotiate and create historical texts.

The authors also illustrate the second aim we describe—that adolescents engage in authentic disciplinary activities. For example, Broomhead declares that while music classrooms are primarily nonprint spaces, they are text-rich environments nonetheless. He encourages music educators to explore the variety of texts and their accompanying literacies available within music classrooms. By so doing, music educators can engage adolescents in the full range of musical interactions, rather than continue to focus narrowly on performance literacies. Likewise, Shumway and Wright demonstrate how literacy instruction can be infused into the technology design cycle to better engage students in the design process. They demonstrate how teaching the multiple literacies associated with technology allows adolescents access to the design cycle and how engaging in the design cycle provides a legitimate purpose for adolescents to engage with a variety of technology texts. Furthermore, they contend that technology teachers can provide rich opportunities for helping adolescents develop print and nonprint literacies essential to participating in genuine technology processes in secondary classrooms.

Another purpose of the content chapters is to demonstrate that teachers must help adolescents use what they have learned in legitimate and useful ways in their lives—our third instructional aim. Jensen does this by suggesting that theatre teachers (re)imagine ways that

literacy instruction can provide students with the tools to respond purposefully to both written and performed texts in theatre classrooms. Jensen demonstrates that by focusing literacy instruction on the modes of inquiry particular to theatre, teachers can help adolescents acquire a range of literacies that can be immediately useful in their lives outside of school. She advocates perspective-taking and contextualization for deep disciplinary understanding that has the potential to help adolescents make sense of human activity in general and their own lives in particular.

Continuing a focus on the human experience, Grierson and Nokes describe English language arts (ELA) instruction that allows adolescents to use their literacies in legitimate ways in their immediate lives. They point out that while all ELA teachers may not have a strong background in or inclination toward literacy instruction, they generally seek to engage adolescents in literature that can help them understand the human condition and make sense of their lived worlds. The authors describe how ELA teachers can combine comprehension strategy instruction and a process approach with an expanded view of the literary canon that relates to adolescents' lives outside of school. In this way, ELA teachers can provide access to a range of important literary texts.

Finally, in keeping with the fourth instructional aim, the authors of the content chapters describe content-area classrooms in which adolescents use what they have learned to generate knowledge in a variety of settings. For instance, Draper and Adair describe a unit of instruction that allows adolescents to generate knowledge about organisms by comparing and contrasting a range of issues related to a particular pair of organisms and the environments in which they live. Draper and Adair suggest that adolescents use various scientific literacies to generate knowledge in the same way as they are used by scientists—namely, generating questions, performing careful observations, collecting and analyzing data, and creating viable scientific arguments. Similarly, Jensen, Asay, and Gray describe how students in visual arts can use their multiple literacies to generate ideas about visual culture and expression. In this way, they, along with the other content authors, challenge notions of what counts as knowledge for the various disciplines.

Each chapter represents our own first steps at (re)imagining content-area literacy instruction. The vignettes that we include in the various chapters represent a fusion of both excellent content instruction and

our own (re)imagining of those classrooms when literacy instruction has been infused into the curriculum. Our (re)imagining is grounded in the belief that all educators can be, should be, and probably are to some degree already literacy educators.

Ultimately, we suggest a process of investigating content-specific literacies. We realize that identification of the multiple literacies associated with the range of texts central to the disciplines continues to expand though technologies, increased access, and creativity. Our own process of engagement and recognition of the variety and potential of crucial content-area texts, and the new literacies that are required in order to fully comprehend and employ them, has come through collaborative effort and investigation. We have enjoyed the difference that discussions of literacy have made in our own understandings of the disciplines and disciplinary instruction, and we invite you into our circle of collaboration in hopes that you might benefit from a new way of looking at the things you are already skilled at and, more important, how you might do things even better.

Authors' note: The authors of this chapter contributed equally to its authorship.

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