1 Accelerating Literacy Learning

"Let us put our minds together and see what life we can make for our children."

—Chief Sitting Bull (1877)

ACADEMIC ACCOUNTABILITY

In the dark ages when we started teaching, we were not held accountable for much of anything related to student growth and achievement. Dialogue with the principal went something like this:

> Your students are sitting in their chairs and raising their hands. It is good that your lesson plans are ready for the substitute. Have you thought about the new deadline for getting your grades into the office?

Then we began to focus on the expectation that teachers would follow a process when instructing. The dialogue with the principal then went something like this:

> Your wait time is good and the ideas for initially engaging students at the start of the lesson seem to be working. You may want to write out two or three questions ahead of time to check for understanding.

But the 1990s brought us standards-based education, and the focus for accountability became student learning. The dialogue with the principal in many schools now goes something like this:

> If I walk through your classroom, will it be apparent to me that the students know what standard you are teaching? I like the performance assessment you created for that unit.

But given the proper excuses about home life, disability, or language limitations, we still didn't always mean real accountability for all students. The twenty-first-century accountability challenge, however, now says that we will not leave students behind, and more significantly, that we will close the learning gap for all groups of students.

CLOSING THE ACHIEVEMENT GAP

The first thing that many teaching texts tell us about the achievement gap is to quit making excuses and get on with it. That is a worthy mission, but it is harder than it looks. We have outstanding educators working hard in classrooms and schools all over the country. These are dedicated and innovative people. We have research that tells us about powerful and exciting strategies that work. But what we still need is to know where to start and which tools and strategies to employ for which students. When to use these topnotch strategies would be helpful information as well.

This means that the teacher-principal dialogue needs to shift to a discussion of what incremental growth looks like for each group of students and to careful consideration of how we articulate the curriculum through the expected level of student work and performance. The principal may need to join a lesson study group or a group of teachers who are using student work for evaluation and lesson planning. That could provide one of the best venues for effective dialogue that focuses on the academic growth of every student.

So what does our retrospective look at the recent history of education have to do with this book? We believe that the key to closing the achievement gap for any individual student or group of students lies in the acquisition of skills and demonstrations of learning that clearly reflect a high degree of literacy. Schoenbach, Braunger, Greenleaf, and Litman (2001) discuss reading in the content areas: "When middle and high school teachers reconceptualize students' classroom experience as a 'cognitive apprenticeship,' they begin to see the power of modeling their own strategies for reading and making sense of challenging texts in their disciplines" (p. 133). Students cannot experience profound learning in any academic discipline without literacy skills that include a depth of thinking and expression of thought. Without a focus on literacy, it is hard to imagine the acceleration of learning needed to demonstrate increased scores on high-stakes tests, let alone other worthy accomplishments appropriate for success in the twenty-first century.

DIVERSE LEARNERS AND BUSY TEACHERS

In the United States and in many other countries, teachers are currently held accountable for closing the learning gap for all racial and ethnic groups, for students identified as disabled, for gender groups, for students living in poverty, for students for whom English is not the primary language, and—in some states, regions, or districts—for students who may be identified as gifted and talented. In this book, we want to highlight literacy strategies that are likely to be useful with many different kinds of learners. But in addition to *useful,* we've added an additional criterion. We also want to focus on literacy strategies that show promise for *increasing student success* and, in some cases, increasing success *rapidly.*

We believe that is the way to help teachers make gap-closing choices. Teachers do not work the way doctors and lawyers do. We don't meet with most students one-on-one, and we don't have a team of folks to back us up with paperwork or by running diagnostic tests. We are teachers in classrooms working with multiple and diverse students. Or we are specialists, administrators, and leaders working to support multiple and diverse teachers and students in multiple and diverse classroom settings.

We need practical strategies that address the realities of classroom conditions. Those realities include issues such as the following:

- What do I do with twenty-eight students while I meet the ELL needs of five other students?
- I have seven students with IEPs, and each one is unique.
- I have five students from three countries; some speak a little English, and the two who arrived last week speak no English.
- I have twelve students who scored below proficient on the state reading and writing assessment and three who scored advanced.
- Which of my students ate a meal today, which is pregnant or on drugs, which are in a gang, and which have a home to go to this evening?

We could add another twenty-five modifiers to describe many urban and rural classrooms in our schools today. That means our goal must be to provide secondary teachers with the right strategies for the right students when time, resources, and support are limited.

SELECTING HIGH-PAYOFF INSTRUCTIONAL STRATEGIES

In this book, we use icons and descriptors to organize and differentiate learning and teaching strategies and to indicate their value or payoff for a particular type of learner. They are all great strategies for any teacher's

repertoire, but our particular goal here is to help busy teachers meet diverse learner needs in every lesson and every unit.

We also need to think about how to frame the questions regarding the systematic and productive instruction of various types of learners. This will yield better strategy selections for teachers with a higher payoff for students. For example, instead of asking how to manage special education students in general education classrooms, we can get more specific. We can ask questions such as these:

- How do we accommodate and advance the growth of students who have learning disabilities as well as linguistic difficulties?
- Which strategies are most useful for middle-level and high school males who struggle with narrative writing?
- How do we handle a learner who knows a little English but not enough to speak fluently?

This book will help you formulate the necessary questions and then provide you with some of the strategies shown by research to provide the most promise for student growth and achieving graduation requirements for the relevant individuals and learner subgroups. When discussing learner subgroups, it is not functional for a teacher to speak only of a student on an IEP. To select strategies that meet a particular student's needs, a teacher needs to know the type of disability and the expectations for accommodating that disability. What if that same student is twice exceptional, perhaps gifted in specific academic areas such as mathematics and science? Then identifying learner needs and selecting instructional strategies may become extraordinarily complex (see Table 1.1).

The extraordinary variety within learner subgroups is why Marzano, Pickering, and Pollack's (2001) nine strategies and Gardner's (1983) multiple intelligences are so attractive to teachers. It is easier for teachers to think about a small group of top-notch strategies than a hundred strategies of undetermined usefulness. But we would like to introduce another option as well: Teachers can learn a repertoire of top-notch instructional strategies that also meet specific types of learner needs.

For example, we could choose to discuss using graphic organizers rather than short pieces of expository writing. We know that using graphic organizers benefits adolescent learners in all content areas, increases critical thinking, reduces risk factors for English language learners, and helps males who are reluctant writers. But we also know that using graphic organizers may not be the best strategy for special education learners with visual/spatial processing difficulties or an advanced writer who is already proficient without modification. The bottom line in this book is that we will give you those indicators for the well-researched strategies we propose, identifying which types of learners may benefit from the strategy and which learners may not be as well served (see Table 1.2, p. 6).

Table 1.1 Variation within student subgroups

Special Education	Linguistic disability	Content area—specific processing difficulty	Physical	Emotional	Cognitive disability	Other: Autism Multicategorical	
English Language Learner	No English	Survival personal and social English	Survival content area English	Functional personal and social English	Functional content area English	Competent personal and social English	Competent content area English
Poverty	Homeless	Generational poverty	Temporary or situational poverty				
Gender	Male	Female					
Gifted	General giftedness	Specific-area giftedness	Specific-area talented				
Ethnic	Cultural influences	Racial influences	Geographic influences				

Table 1.2 Sample strategy format

Strategy: ***Graphic Organizer Use at the Middle and High School Levels***

Literacy competency: Content area literacy and functional literacy extension

Description: In graphic organizer use, students are given a graphic organizer that represents the type of thinking required to grasp specific content area problems or concepts.

Advantages: Takes advantage of students' natural visual organization, requires less writing, and orients students to higher-level thinking about content-specific issues and ideas.

How to use: Choose a graphic organizer that matches the desired thinking level about an issue or concept, and orient students to why you chose it and how to fill it out. Adjust time for activity by course-level appropriateness. Students could work individually or in small groups of three or fewer.

Research/source: Marzano, Pickering, and Pollack (2001) – *Classroom Instruction That Works*

Bottom line examples:

⇑ This strategy works well for learners who need to increase their comprehension and use of content-specific concepts; it reduces the risk factor for English language learners since they do not have to produce complete sentences or paragraphs; it helps males who are reluctant writers.

⇓ This strategy does not work as well for special education learners with visual/spatial processing difficulties or an advanced science student and writer. However, it may work with additional modifications. Special education students could be oriented ahead of time to the graphic organizer and given models of completed organizers to follow. Advanced students could design their own organizer or choose from an appropriate selection that deepens or extends thinking.

STANDARDS-BASED CURRICULUM

What teachers should teach and what students should learn are critical questions. We have only so much time, and even with standards-based education, we cannot do it all well. In reading, writing, speaking, and listening, we still need to decide where to focus our attention and time.

Not all standards and content area benchmarks/indicators are created equally. Doug Reeves (2000), Larry Ainsworth (2003), and others talk about "power standards," those standards that are the most critical and on which we should focus much of our time. For literacy, most state standards commonly look like this: *"Students will read and write for a variety of purposes and audiences."* Entire courses and content area curricula could be written to define that standard. So many different instructional materials and approaches could work that it is difficult to rule out those that might not fit.

Deciding what is important to teach, and what to teach for which learners, remains challenging. Often, state or county or district departments of education define discrete skills for each content area that must be mastered for the state assessment, and although these definitions may help

a teacher plan time, they do not help students learn. So we must add a framework that makes sense in diverse classrooms of all academic disciplines. We must plan ahead for students if they are to be literate, lifelong learners in the twenty-first century.

FOUR CORE COMPETENCIES IN LITERACY

We cannot focus our literacy efforts only on early reading skills. We do regard and define a level of functional literacy as essential. Foundational use of phonics, demonstration of fluency, oral language use, early writing, and initial meaning creation are critical aspects of functional literacy. But our twenty-first-century learners need more than a functional literacy basis to plan for a future that will include new careers and technologies we cannot even imagine. Complex international influences, changing and emerging employment situations, and interpersonal and social conditions all require us to read, write, speak, and listen for a variety of purposes and then to take action based on the acquisition of that understanding. "Instruction in metacognitive strategies can improve reading comprehension. Good comprehenders read to purpose and actively monitor their own understanding of what they read" (RAND, 2002, p. 92).

In this book, we look at four major competencies in literacy that help us weave student learning strategies into the future:

1. Functional literacy
2. Content area literacy
3. Technological literacy
4. Innovative literacy

What do we need to know about these literacies, and how will they help us close the learning gap for diverse students? Table 1.3 (see p. 8) and Figure 1.1 (see p. 10) offer definitions and explanations of how these literacies can work together to help our students survive and thrive in the twenty-first century.

Standards and Curriculum

The four literacies act as a lens for the standards and curriculum for which teachers are accountable, and they can help us frame the critical elements for which we want to hold students accountable. Each of the four literacies is critical to the overall development of our students and their ability to access and process information at an accelerating rate in an ever-changing world. Although each one can be taught separately, most

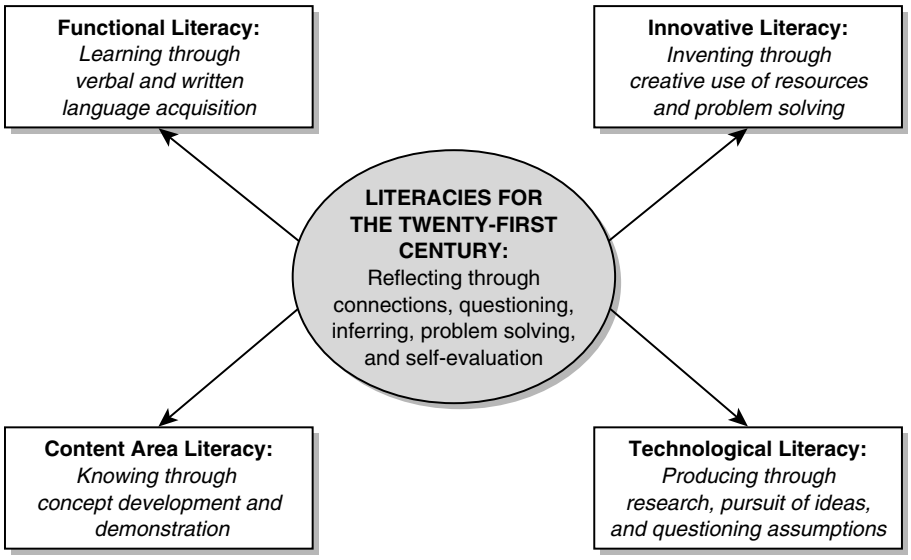
(Text continues on page 10)

Table 1.3 Factors critical to development of the four types of literacy

TYPE OF LITERACY	CRITICAL FACTORS
1. Functional Literacy	
Defined as: Learning to read, write, speak, and listen **Purpose:** To teach students how to read and write to a basic level of functioning by the end of third grade or, for those just learning English, by the third to fifth year of learning the language **Sources:** McEwan, (2002); U.S. Department of Health and Human Services (2000) *They will need to acquire an intimate knowledge of the code: the conventionally accepted way in which letters or groups of letters correspond to spoken sounds in our language.* (McEwan, 2002, p. 32)	• ***Oral language development:*** Including speaking and listening • ***Phonological awareness:*** Sounds and their differences • ***Phonemics:*** Translating sounds into symbols, learning the symbols • ***Spelling/early writing*:** Translating symbols into written words to convey meaning • ***Fluency*:** Rate of reading; flow of sounds, without the interference of errors • ***Creating meaning*:** Constructing what the written words are about; main ideas; literal information; details noted from words, pictures, speech, and other sources; easily getting the "gist" of a passage of print or graphic • ***Narrative writing and descriptive:*** Telling a story; making comparisons; detailed descriptions; other forms of creative writing
2. Content Area Literacy	
Defined as: Reading, writing, speaking, and listening to demonstrate content area learning **Purpose:** Understanding and use of content area-specific knowledge and skills directed toward a specific result or demonstration of skill through a variety of means **Sources:** Vacca and Vacca (2002), Harvey and Goudvis (1998, 2000), Miller (2003), Burke (2000), Benjamin (2002) *Academic literacy differs from the literacy that is required to read fiction. When we read fiction, we usually do so for pleasure, looking to lose ourselves in the beauty of the language and the story. With academic readings, we need to employ strategies of reading that are directed more toward finding specific information and remembering it.* (Benjamin, 2002, p. 29)	• ***Vocabulary acquisition:*** Gateway to using content area knowledge; development and interconnection of concepts in a content area • ***Questioning:*** Formulating questions to understand and inquire further about a content area skill or concept • ***Text orientation:*** Understanding the construction and factors that aid meaning in text or material construction for a particular content area including graphical or visual representations as well as book parts and text clues • ***Expository writing:*** Factual information to recount or inform or direct a reader; convey thinking about a content area topic or problem; note patterns or trends; and demonstrate usefulness of the content area • ***Presentation and product creation:*** Performance-based summative demonstration of the integration of information and skills when given a topic or problem

TYPE OF LITERACY	CRITICAL FACTORS
3. Technological Literacy	
Defined as: Using reading, writing, speaking, and listening in multimedia venues to create products and demonstrations of learning **Purpose:** Multidimensional thinking and production through access, use, and creation employing technology-based tools and strategies **Sources:** Thornburg (1991), Bruce (2003) *As a user of personal computers, you can help others understand the benefit of this technology in extending students' ability to explore the space of concepts and ideas.* (Thornberg, 1991, p. 13)	• ***Questioning authenticity:*** Applying criteria to establish author and Web site credibility; detecting assumptions, purpose, and clarity • ***Searching for information:*** Using the nature and structure of Web-based information to find what is needed; demonstrate dimensional or embedded thinking and solve problems • ***Media orientation:*** Determining the best method of conveying meaning and presenting the product • ***Production:*** Using computer-based and other multimedia production to demonstrate literacy competencies and produce products to convey meaning, solutions, and adaptations • ***Demystifying directions:*** Understanding and using directions in multiple forms and verbal or written construction of sequential steps for use of technological and other tools and processes
4. Innovative Literacy	
Defined as: Reading, writing, speaking, and listening to do or solve something complex, invent something unique, or produce something innovative **Purpose:** Develop the adaptability and orientation to work and life inside and outside of the school setting to survive and thrive amid rapid change and expansion of knowledge **Sources:** Barton (2003); Manzo (1998); Manzo, Barnhill, Land, Manzo, and Thomas (1997); Manzo, Manzo, and Albee (2002); Manzo, Manzo, Barnhill, and Thomas (2000); Manzo, Manzo, and Estes (2001); Sternberg (1996) *Successfully intelligent people are flexible in adapting to the roles they need to fulfill. They recognize that they will have to change the way they work to fit the task and situation at hand, and then they analyze what these changes will have to be and make them.* (Sternberg, 1996, p. 153)	• ***Innovation and creativity:*** Entrepreneurial sense of thinking and acting; fluid and flexible in use of information and transformation of knowledge into new things, attitudes, solutions, products, and/or actions • ***Lifelong learner orientation:*** Acquiring marketable skills over time, responding to anticipated need, and creating ways to assimilate and accommodate to change, regardless of speed of the change • ***Practical and adaptive thinking:*** Scenario-based thinking and responses to real-life situations; interpreting new information; inquiry; consumer skills that are self-selected based on desired result; adapting the information or interactions to make decisions or plans for the present and the future • ***Influential communication:*** Communicating to convince others of a point of view; applying rational, ethical, and congruent logic that supports creative, positive solutions and conclusions

Figure 1.1 Four types of literacy critical to the future success of our students



learning will lend itself to a combination of literacies. This will help us select key standards-based concepts and strategies that help students focus on skills to demonstrate content learned in many ways.

Critical Thinking

The idea of critical thinking is embedded in each of the literacies:

- **Schema development:** Summarizing and generalizing concepts and ideas, making connections from the known to the unknown
- **Inferential thinking:** Discovering the meaning behind the obvious; using cause-and-effect analysis; determining point of view, voice, and congruence in thinking
- **Questioning:** Formulating questions that determine assumptions, allow self-evaluation, and establish purpose and clarity
- **Problem solving:** Analyzing a problem and developing solutions that make sense, then speaking, writing, or producing to convey solutions and methods

Instructional Strategies

Which instructional strategies have the highest payoff? Marzano, Pickering, et al. (2001) looked at the research carefully and did a metacognitive study of strategies that resulted in increased performance for students. Table 1.4

(Text continues on page 13)

Table 1.4 Research-based literacy tactics and percentile gains in student performance

Strategy	%ile Gain	Connections to Brain Research	Literacy Tactics
Using similarities and differences, analogies and metaphors	45	The brain is a pattern-seeking device. It naturally looks for connections and relationships between and among prior and new learning.	• Classifying • Compare/contrast • Venn • Synectics • Concept attainment • Concept formation
Summarizing and note taking	34	Relevance and meaning are important to the brain. It deletes what is not useful.	• Mind maps • Concept webs • Jigsaw • Reciprocal learning • Templates and advance organizers
Reinforcing effort and providing recognition	29	The brain responds positively to challenge and negatively to threat. Emotions enhance or negate learning.	• Goal setting and feedback/reflection • Journals • Portfolios
Assigning homework and practice	28	Practice and rehearsal are necessary to put new information into long-term memory. Marzano et al. (2001) suggest that learners need 24 practice trials to reach 80% mastery.	• Extension of application • Four squares • Book bags • Puppets • Five-finger writing
Generating nonlinguistic representations	27	The brain is a parallel processor. Visual stimuli are recalled with 90% accuracy.	• Mind maps • Graphic organizers • Models
Using cooperative learning	27	The brain is social and desires opportunities to process and make meaning through interaction and dialogue.	• Shared reading • Guided reading • Reciprocal learning • Peer editing

(Continued)

Table 1.4 (Continued)

Strategy	%ile Gain	Connections to Brain Research	Literacy Tactics
			• Buddy reading • Choral reading • Progressive writing • Jigsaw • Literature circles
Setting objectives and providing feedback	23	Relaxed alertness is important for the brain. High challenge and low threat are optimal for learners. The brain likes to have purpose and know where the learner is going. This provides safety, clarity, and structure.	• Goal setting • Rubrics • Clear criteria • High expectations • Appropriate challenge and choice
Generating and testing hypothesis	23	The brain is curious and seeks meaning and clarity. It establishes schemas for future use and makes meaning through patterns.	• Research papers • Investigations • Debates • Persuasive writing
Providing questions, cues, and advance organizers	23	The brain appreciates wholes and parts. The brain has to have schemas and mental constructs on which to hook new learning.	• Levels of Bloom's taxonomy (Sousa, 2001) • Paul and Elder (2001) standards for questions • Agenda maps • Guided reading • Diagrams and charts • Graphic organizers

Source: Adapted with permission from Parry and Gregory (2003).

Note: For a fuller discussion of this topic, see Marzano, Pickering, et al. (2001).

summarizes the literacy tactics shown to have resulted in percentile gains when used to teach thinking, reflecting, and literacy skills that connect to what we know about the brain. We will refer to and use these and other research-based strategies throughout this book. We will also look at each of the four literacies in more detail and then show you the natural connections and advantages in planning units for various content areas.

ASSESSMENT DATA

We will highlight numerous strategies in this book that work equally well for gathering data, instructing, and for demonstrating learning. Data-driven decisions are critically important to choosing the most valuable instructional strategies for diverse learners in a variety of circumstances. This type of thinking will help us make the numerous adjustments that diverse student growth requires (Gregory & Kuzmich, 2004).

Painless Diagnostic Assessment for Middle School and High School Students

In a Colorado high school, teachers in the science department develop and design a unit for each science course to begin the school year. The entire unit is a preassessment of students' science and literacy skills. Throughout the unit, students do the following:

- Report on new discoveries in science using computer-based research
- Listen to other students and provide feedback
- Conduct and write up a science experiment
- Use a rubric for writing up experiments and short, constructed responses
- Use text orientation and interpretation strategies to better comprehend resource materials in the science classroom
- Solve problems using graphical displays, math strategies, and other resources

What kind of data will teachers have when the unit is complete? Will it help them plan for future instruction, homework, and learning throughout the course?

The teachers will know the following, and more, about their students:

- Scientific awareness
- Application of scientific methods and strategies

- Fluency of thinking with science concepts
- Sense of meaning and thinking
- Sense of purpose
- Skill with equipment for experiments and other scientific projects
- Social interaction skills
- Communication skills both oral and written
- Ability to use text, computerized resources, and other nonprint resources
- Technology skills
- Creativity
- Problem-solving skills and initiative
- Ability to cooperate in a group

What a high-payoff process! Clearly, one effective way to preassess is through the use of an engaging unit of study that integrates literacy and content area skills.

Ongoing Formative Assessment

Not all assessments need to be individual or formally written and recorded. The collection of the right kind of informal data can be invaluable in helping teachers plot out next steps. From a unit like this, a science teacher could flexibly group students for projects and experiments, provide or seek out appropriate-level materials to enhance comprehension, determine the next steps for scientific writing and oral presentation, plan to encourage the thinking strategies that will advance the use of newly learned concepts, and much more.

Diagnostic thinking is an essential element in a successful literacy program that meets and accelerates the learning of diverse students. In many classrooms, we have data about student learning, and teachers have a repertoire of strategies to help students learn. We must connect what we learn about student performance with our selection of strategies. We will accelerate learning if we choose strategies that make sense given current student demonstrations of literacy. This is an ongoing process. We must collect classroom data frequently so that we can adjust our strategies to reflect student speed of learning and success with learning (see Table 1.5). Waiting three months to discover that a student did not make the expected progress won't work to close a learning gap. Continuous strategy adjustment and monitoring will increase the accuracy of our instruction and thereby increase the probability that students will demonstrate growth in literacy skills.

Table 1.5 Selected methods for collecting assessment data about literacy skills

Type of Literacy	Selected Data Collection Methods
Functional Literacy	• Writing sample • Verbal report, description or story or analogy • Retell a written or oral sequence of events • Write a question or two with the answer • Identify the main idea or big idea • Miscue analysis (noting phonological and phonemic errors)—applies to secondary literacy teachers or ELL teachers • Draw a picture to represent an idea or concept • Create a content-specific word list for writing • Students correct a short writing sample for conventional spelling, grammar, punctuation, capitalization • Narrative or descriptive writing that tells a story, makes comparisons, gives details, and is creative—depending on content area
Content Area Literacy	• Graphic organizer completion • Note taking • Homework • Develop questions for investigation of a topic or issue • Choose a topic or problem to investigate • Expository writing samples—both short and long • Presentation of a project or solution • Explanation of a process or solution • Interpretation of a visual or graphic piece of information • Correct a writing sample for word choice accuracy and variety • Create a written or verbal summary • Cause-and-effect analysis • Analyze a problem and develop solutions • Writing to test a premise, determine a point of view, express voice, report, draw conclusions • Correct a writing sample for voice, details, evidence, and conclusions • Predict outcomes or effects • Generalizing concepts through application-oriented activities such as role-playing or simulations
Technological Literacy	• Scavenger hunt for sources on the Internet • Question an assumption • Self-evaluate work • Create a flowchart for a search for information • Map a complex idea • Choose the best product or resources for the desired results • Computer-generated writing samples • Graphic organizer generation or other visual representation such as PowerPoint or draw programs • Generate directions or implement action based on complex directions • Teach others a process, program, or product using various media • Correct a writing sample for format, graphics, color, and other media

(Continued)

Table 1.5 (Continued)

Type of Literacy	Selected Data Collection Methods
Innovative Literacy	• Use a "4 Squares for Creativity" organizer • Anticipate a need or develop a solution to a possible problem • Create a budget or graph data based on self-generated data • Respond to a scenario, participate in a simulation • Self-select method of learning and justify the choice • Persuasive writing sample • Detect errors and describe how to fix them • Generate multiple and creative uses for an object • Anticipate the needs of self and others in completing a complex task, listing necessary resources or assistance • Correct a writing sample for innovative ideas, point of view, adequacy of a claim and evidence to back it up, creativity of conclusions

A COMPREHENSIVE LITERACY PROGRAM

Comprehensive literacy instruction should include the four literacies in two distinct ways. First, strengthening these areas of literacy gives us tools and support for the traditional literacy skills of reading, writing, speaking, and listening. But also important for learners are the emerging literacy skills that will support successful lifelong learning in the twenty-first century.

In the first example, technology can be a tool that helps learners with special needs who struggle with fluidity in writing. It can provide a more effective means of getting thoughts down than handwritten work would allow. In the second arena, learning to search for information in a Web-based environment is a distinct form of literacy that is recent and evolving. A project that is enterprising and real-life oriented may engage an otherwise reluctant tenth-grade male student in ways that haven't engaged him before. Added payoff comes as adaptive reasoning using multiple sources of information becomes an essential and highly valued literacy skill in the work world.

This type of approach goes beyond deep thinking and higher-order skills to the combination of information assimilation, creative use of products or process, and a transformative goal such as the invention of a product or creation of a Web-based business. In this book, we will apply these literacies to the growth of diverse learners and to identify tools to assist struggling, functional, and advanced learners.