$\mathcal{I}$ntroduction

The most important method of education always has consisted of that in which the pupil was urged to actual performance.

~Albert Einstein (1954, p. 60)

THE RATIONALE OF WRITING AS LEARNING

A major premise of this book is that by learning to write in their subject areas, students learn (more) about their subject areas. Here's a simple example of this premise, taken from *Write for Mathematics* (Rothstein, Rothstein, & Lauber, 2006). Early in the teaching of mathematics, the student learns that 4 + 4 = 8. Yet behind this basic addition fact lies a world of mathematical concepts that emerges as a student is taught to write an explanation of what this algorithm means. The example below, composed by a third grade student, shows the steps of awareness of accumulated knowledge. (The mathematical vocabulary that this student has had to learn to write this piece is shown in boldface.)

I now know that I know a lot about **mathematics** when I had 4 + 4. **First**, the **sum** is 8. But that's not all. I have **added two even numbers**, so I must get an even number as a sum. When I **add** two of the same numbers, the **amount** is **doubled**. My teacher told me that if I add **three** of the same numbers, the sum is **tripled**. I can write this problem in a **horizontal** way like 4 + 4 or in a **vertical** way like

$$\begin{array}{r} 4 \\ +\ 4 \\ \hline \end{array}$$

Both ways give me the same answer because if I have 4 and **count** 4 more, my sum is 8. I also know that the two numbers I have added are called **addends**.

You may be thinking that asking a student to write out such a lengthy explanation may take up too much time when you have to get on with mathematics (or social studies or science). The benefit, however, of writing is the improvement in student performance in "every academic area" (Reeves, 2002, p. 5). Additional research shows that learning how to write in all the content areas enhances thinking, creating, and communicating and increases the learning of the content itself (Langer & Applebee, 1987; Maxwell, 1996; Scarborough, 2001).

THE DISTINCTION OF WRITING AS LEARNING

In this book, we make a distinction between asking students to write and teaching them to write, so that writing truly becomes a way to learn. Many teachers assign writing as a means of assessing their students' knowledge of a subject or topic. Students are often asked to demonstrate their learning by writing an essay or summarizing a chapter or analyzing a character. Many state tests require students to demonstrate their knowledge in writing, especially in the content areas. Students may have to explain how they solved a mathematics problem, explain an historical event, or write a persuasive essay. Therefore, it is incumbent on teachers of all content to prepare students for the expectation that they will need to demonstrate their knowledge in written form.

Writing as Learning is designed to support teachers in developing systematic instruction that incorporates writing strategies into teaching a wide range of content. Therefore, it makes learning more efficient, builds mastery, and prepares students for assessments. It expands a teacher's repertoire of instructional strategies beyond demands for form and substance by giving students the means to organize their thinking and writing. This moves teaching beyond "inert knowledge" (Perkins, 1992) to active knowledge.

Writing as Learning helps students overcome obstacles to successful writing. Students are often challenged because they are unsure about such questions as, how do I start? What should I say? Who am I writing to? Is this what the teacher wants? How long should it be? How will it be graded?

WHAT IS TEACHING WRITING?

A writer must be fluent and organized. *Fluency* imparts the idea of an accomplished speaker and is used in a complimentary way. It implies a way with words and certainly a knowledge of words related to a specific topic or subject. Students who are learning English as a second language often struggle with fluency—not enough words or the right words or the best words.

Organization (in writing) means having progression, relatedness, and complete ideas. But there is an additional factor in the meaning of organized when it comes to writing. It means knowing the typical format or pattern of the genre in which one is writing—a letter, a poem, a biography, an essay, or something else. In fact, everyone who writes must know that all writing is genre-based and cannot be a haphazard collection of words or sentences. To achieve this essential fluency and organization, students need writing instruction.

The case for teaching writing is strengthened by the work of Gardner (1983, 1993) who defines intelligence as "the ability to solve problems or fashion products" (1983, p. x). Writing, specifically, draws upon and nurtures linguistic intelligence. Gardner cites writing as a means of building rhetorical ability that teaches students to persuade or convince others. Writing enhances linguistic knowledge through the "mnemonic capacity" or the mind's ability to remember information (1993, p. 92). Students who are taught to develop and maintain organized lists on specific topics (which we call taxonomies) get an essential tool for learning how to store and retrieve vast amounts of data lodged in their brains (Jensen, 1998).

By using writing as an expression of linguistic knowledge, students become aware of the writing of others—their style, vocabulary, humor, and information. Linguistic knowledge is essential to producing clear, lively, in-depth writing that is audience-friendly and that gives the writer confidence and a desire to write more.

When students are taught writing strategies, they build fluency and organization. Students in our Writing as Learning program receive frequent, guided opportunities to apply and practice these strategies in every curriculum area throughout their school years. Teaching writing should not be a haphazard activity but rather a continuous process for learning. To enable you to create a writing program that teaches students to learn deeply, meaningfully, intelligently, and actively, we offer the following recommendations, detailed in the chapters of this book.

Make writing a curriculum unifier. Writing draws together multiple subjects and helps students understand the unity or interrelatedness of subject matter. For example, in the mathematics class, students write about problems related to economics, geography, or history. In the English or language arts class, students may need to use the vocabulary of mathematics, geography, or sports. Implement a systematic approach to teaching every student to use writing as a tool for learning by all teachers in every grade and subject. Build and extend from what students write best. When you work from the students' comfort zone, they acquire the confidence to write in many other genres.

So now, imagine students who have been taught to write systematically and developmentally from kindergarten through twelfth grade. Each year, they have created their own personal thesauruses; written biographies and autobiographies; expressed a wealth of knowledge; created fables, myths, and folk tales; and developed opinions in personal, persuasive, and explanatory essays and articles. Furthermore, as they created all of this writing, they understood and applied the appropriate conventions of written grammar and spelling. This vision can be achieved for almost all students.
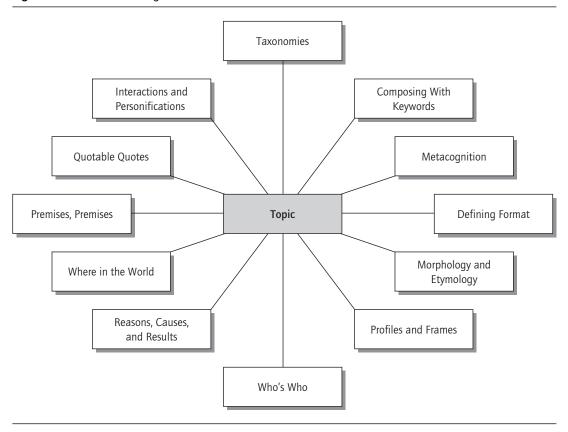
HOW TO USE THIS BOOK

This book presents 12 specific strategies for students of all ages. They learn how to gather the words they need to write and how to use the appropriate organizing formats for saying what they need to say. To visualize this approach to teaching writing, refer to the Planning Wheel in Figure 0.1. It illustrates the relation of a subject or topic to the writing strategies and shows the concept of an integrated approach to teaching any subject or topic.

For example, the rectangle in the center might represent the 13 colonies or animals of the African jungle. Each spoke of the wheel represents a different writing

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Figure 0.1   The Planning Wheel

strategy that may stand alone or be used in combination with other strategies to write about the topic. Table 0.1 shows the learning extensions and writing genres associated with each spoke of the wheel.

The book is arranged in a sequence we recommend for teaching the strategies. Each strategy must eventually become part of an integrated approach so that within a school year, the students have been introduced to all or most of the strategies and have made them part of their writing repertoire. Once students know all of the strategies, they can select strategies appropriate to the task. By following this arrangement, you will guide your students in developing a powerful vocabulary (fluency) and introduce them to the appropriate genres or formats (organization).

There are two categories of strategies in the Writing as Learning program, those that build fluency through student vocabulary and those that build fluency through organization. Vocabulary and organization must be fully integrated; otherwise, students will not develop fluency. Chapters 8–13 demonstrate how to integrate the initial strategies in a variety of curriculum areas and genres.

Go slowly in introducing the strategies, making sure the students have extensive modeling and practice.

The list below shows how this book is organized. Every strategy has a chapter and a slogan. There are suggested Internet links for each strategy. The bibliography provides excellent information on writing and teaching, and there are several templates in each of the different chapters to get your students started.

Table 0.1   Definitions, Extensions, and Genres for the Strategies in the Planning Wheel

Strategy and Definition	Learning Extensions	Genre Focus
Taxonomies—Alphabetical lists of terms related to the subject or topic (e.g., *algebra, borrow, calculate, divide* is the beginning of a Taxonomy for mathematics)	• Fluency and organization • Vocabulary building • Advance organizing • Note taking • Pre- and postassessment	• ABC books • Personal thesauruses • Personal dictionaries
Composing With Keywords—Using the words from the Taxonomies to compose sentences and paragraphs	• Sentence composing • Paragraphing • Focusing on topic	• Response logs • Journals • Poetry and acronyms
Metacognition—Thinking about thinking by building self-awareness of knowledge and writing with starters such as "I know that I know"	• Questioning • Research • Response to learning • Higher order thinking	• Explanation of factual knowledge • Inquiry into new knowledge • Note taking and reflection
Defining Format—A three-part template to define a term (e.g., *triangle*) that consists of the question (e.g., what is a triangle?), the category, and the characteristics	• Questioning • Categorizing • Detailing • Vocabulary building • Paragraph development	• Explanation of factual knowledge • Descriptive writing • Research writing • Compare and contrast
Morphology and Etymology—The study of the formation and history of selected words related to the subject or topic (e.g. *add, additional, addend*, etc.)	• Grammatical accuracy • Spelling patterns • Expanded vocabulary • Language history	• Word stories • Alliteration • Myths and legends • Poetic forms
Profiles and Frames—Templates for outlining information in a broad spectrum of topics and subjects	• Biographic research • Subject area research • Paraphrasing • Outlining and recreating	• Report writing • Oral presentations • Research writing

(Continued)

Table 0.1 (Continued)

Strategy and Definition	Learning Extensions	Genre Focus
Who's Who—Formats for writing about a person's accomplishments: biographies, autobiographies, and memoirs	• Biographic research • Literary interpretation • Character development • Personal writing	• Autobiography and memoir • Biography • Literary analysis • Book review
Reasons, Causes, Results—An organizational format for essays in various genres; it includes reasons, causes, results, and procedures	• Outlining • Detailing • Paragraphing • Focusing on topic	• Personal expression • Persuasion • Explanation • Information
Where in the World—Organizers for writing about geography, settings, places, maps and charts, and other aspects of the world and universe	• Geographic and historic research • Map and globe interpretation • Use of charts and graphs	• Geographic and historical issues • Social issues • Explanatory and factual writing
Premises, Premises—Organizational templates for making books into films, plays, and other dramatic material	• Innovating on literary structure • Writing dialogues • Interpreting characters • Detailing	• Play and film writing • Monologues and dialogues • Fiction and nonfiction formats • Character development
Quotable Quotes—Using notable quotations to include in writing or as responses to ideas and beliefs	• Response to ideas of others • Making inferences • Writing succinctly • Making literary connections	• Social and moral issues • Research • Opinions and beliefs
Personifications and Interactions—Strategies for writing assuming the persona of a person, animal, or object in order to write from a different perspective	• Research • Audience and voice • Imagination and creativity • Insight and empathy	• Letters in different formats • Humor • Reality and fantasy • Research

- Chapter 1: "The Elements of Writing as Learning" provides an overview of the book and defines the purposes of teaching specific strategies.
- Chapter 2: "Building Vocabulary With Taxonomies" provides students with the means for collecting vocabulary words so that each can build a personal thesaurus for writing.
- Chapter 3: "Composing With Keywords" gives students practice with their Taxonomies and other sources to develop sentence-building skills in a variety of genres.
- Chapter 4: "Metacognition" provides students with an organized format for thinking and writing about what they know, need to know, or want to know to build reflection and the ability to share their knowledge.
- Chapter 5: "Defining Format" guides students to define terms by asking a question, stating the category to which the term belongs, and adding the characteristics that distinguish it.
- Chapter 6: "Morphology, Etymology, and Grammar" focuses on analyzing the structural components of the words and learning the history of words. Students learn not only the meaning of the words but also the depth of the word meanings. The purpose of the chapter is to teach expansion of word meanings and the application of grammar for clarity and accuracy.
- Chapter 7: "Profiles and Frames" builds on the strategies introduced in the previous chapters by concentrating on organizational templates that can be used across subject areas. These templates help students structure and organize their writing, while still allowing student originality and creativity.
- Chapter 8: "Who's Who" provides integrated strategies for writing about people, including the genres of biography, autobiography, and memoir.
- Chapter 9: "Reasons, Causes, Results—The Basis for the Essay" teaches students the structure and format for writing personal, persuasive, and explanatory essays.
- Chapter 10: "Where in the World" gives the students templates and other organizers for writing about places of geographical significance. Geography receives special focus in this book because it is part of many genres and serves as a curriculum unifier.
- Chapter 11: "Premises, Premises" shows students how to transform a book or story into a "movie" to dramatically present events. This strategy offers the student a creative process for writing Premise Statements, a story treatment, scripts, and dialogue.
- Chapter 12: "Quotable Quotes" helps students connect their own writing with the words of literary characters and famous (or infamous) people. Through this connection, students gain a fuller understanding of significant statements to enrich and support their own writings.
- Chapter 13: "Personifications and Interactions" provides a strategy that teaches students to assume a persona and write from that persona's point of view. This is a creative form of writing that is vivid and exciting, requiring in-depth knowledge.
- Chapter 14: "Writing as Editing" recognizes that writing and editing are essential to each other. Procedures for revising and editing are included as well as a variety of rubrics for different purposes and different grade levels.
- Chapter 15: "Writing—A Curriculum Unifier" is an illustration of a lesson plan for applying all of the strategies to one topic.

We believe that *Writing as Learning* will provide you with concrete and practical ways of helping your students learn how to write and learn from their writing. We also expect students will learn to love what they have written.