Reading, Writing, and Digitizing

Reading, Writing, and Digitizing: Understanding Literacy in the Electronic Age

By

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To Deb and Amy: I've watched you go from *Hop on Pop* and *Frog and Toad*, to *Harry Potter*, to book clubs of your own, to recommending and buying books for me. From summer book bets to graduate school, your development from novice to expert readers and writers has been a source of intense personal as well as professional pleasure and parental pride.

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INTRODUCTION AND OVERVIEW

In the past few years, I've been invited to speak or lead workshops at several colleges and universities around the country, and I also present fairly often at conferences for faculty in higher education. I often begin my talks by reporting a common experience. I report that whenever I ask faculty in general conversation about the greatest single problem they face in the classroom today, in less than five minutes, the topic of reading comes up. Faculty members typically complain about what I have come to think of as the "don't, won't, can't" problem with students' reading. They report that students don't read assigned material, regardless of consequences and that students won't read it unless faculty use some inducement that will have a major impact on students' grades in the course; moreover, the faculty often observe that students *can't* read in the ways faculty expect, even if a carrot or stick is attached to the reading. When I report this experience, members of my audiences almost always start nodding in agreement.

The "don't, won't, can't" problem is pervasive and ubiquitous, despite the commonplace observation that students are doing more reading and writing now because of the Web and gizmos that allow widespread access to and use of it. Nevertheless, surveys of the students themselves and of employers who hire college graduates to work in a range of fields reflect the weak literacy skills students have; these studies will be discussed in more detail later in the book. It seems clear, in light of this set of reflections, that those working on literacy skill development at all levels need to understand the fundamental psycholinguistics of literacy and the best strategies for helping students move from novice toward expert status as readers and writers. I am confident that teachers in every discipline in higher education, as well as those working in community-based settings such as libraries, adult basic education, and English as a second language programs can benefit from understanding literacy in order to help their students/patrons/clients become expert meta-readers and writers. This phrase, meta-readers and writers, is a neologism I have created to reflect my argument that literacy experts understand and produce meaning in texts by working before, after, around and within them in specific ways. I am also confident that all students can and must become more effective

meta-readers and writers if they are to succeed in personal, educational, and professional venues and also as members of a democratic society.

Reading, Writing and Digitizing offers a new theoretical proposal concerning expert and novice readers and writers based on the psycholinguistics of literacy. It is intended for five audiences of teachers and others who work with students or clients who want or need to develop expert literacy. A first audience is literacy scholars. The book brings together research from a variety of disciplines not usually juxtaposed in support of the theory, along with case study research providing a potential new direction for further studies. Composition specialists who administer writing programs (members of the Council of Writing Program Administrators (WPA) in the United States and others doing WPA work) comprise a second audience; in my experience, these professionals may lack substantial background in the psycholinguistics of literacy. Third, fellows of the National Writing Project at its various sites around the US may find this volume a helpful introduction to the psycholinguistics of reading and writing, and to the nature of novice versus expert literacy. The fourth group is comprised of those in composition pedagogy courses, preparing to teach writing at the college level, and/or those integrating writing into courses in a variety of disciplines (usually known as Writing Across the Curriculum or Writing in the Disciplines). Finally, anyone who works to support the development of stronger literacy skills (parents, librarians, community education instructors) can also benefit from the discussion. All of these groups of readers may find the additional background in psycholinguistics useful to enhance their understanding of the nature and importance of expert literacy.

This book has five specific goals. First, it presents a theory of meta-reading and writing that describes what literacy experts are able to do in their interactions with written text. They do what the word "meta" describes: go before and after, into and around, beyond and beside written text to understand and create meaning. Second, the case studies that begin the book reveal the differences between literacy novices and experts in terms of their awarenesses about texts and their skills; these will become more clear as the discussion unfolds. As a third goal, the book provides an analysis of the mental abilities people have and the features that texts contain that make literacy possible. A fourth goal is to examine how experts understand and produce texts in both traditional and digital venues in order to argue that, despite the claims of those who work with new media, reading and writing are the same psycholinguistic processes on paper or screens. Finally, the book ends with a set of focused strategies for instruction that will be useful to any reader working with people engaged

in literacy development. Readers of this book will be better equipped to support the literacy development of others through their enhanced understanding of the psycholinguistics of reading and writing. They will be able to help novices move toward expertise through their understanding of the differences between literacy novices and experts.

This book is needed now more than ever, even though it appears that students and others are doing more reading and writing now because of the Internet where a deluge of information grows by the day. However, the vast majority of these students are literacy novices, lacking key skills urgently needed to function well in our increasingly complex and competitive contemporary society. Recent studies such as *To Read or Not to Read*, released in 2007 by the National Endowment for the Arts in the United States (NEA), suggest that there have been significant declines in the reading ability of all Americans, but especially teens and young adults, a problem that has "serious civic, social, cultural, and economic implications" (U.S. National Endowment for the Arts, 2007, p. 7).

Other studies in the United States by the American College Testing organization (2006), and by the federal government, support the NEA findings (U.S. Department of Education, 2006; 2007), as do findings of such international studies as the International Adult Literacy Survey (Murray, 1998) and the Adult Literacy and Life Skills survey (*Learning*, 2005). A study of critical thinking, reading and writing, published in 2011, suggests that students in colleges and universities in the United States may not improve these skills in their undergraduate work (Arum & Roksa, 2011). All of these studies have limitations of various kinds in methodology, in the lengths and types of texts, in the reliance on self-report data or timed tests. Still, teachers of literacy K-12, particularly in high schools, as well as college teachers of reading and writing are all too familiar with this problem. This book provides those working with literacy in schools, colleges, universities, libraries and community settings with a detailed framework for understanding expert contemporary literacy from a psycholinguistic perspective, and offers strategies for the development of the essential skills needed in our electronic age.

What makes the widespread decline in literacy according to these various tests and other measures all the more surprising and disappointing is that being a good reader is truly self-rewarding and provides so many wonderful experiences. Without conscious effort for the most part, good readers can handle an amazing array of different kinds of materials, reading at blinding speeds of several hundred words a minute. Achieving literacy is really a wonder: for most people its acquisition is simple and straightforward; once learned, it is never forgotten. Our literate capacity

can be transferred to other languages, and even variations in writing systems slow down reading only a little. The acquisition of writing takes a bit more effort, but for mature writers, similar claims about speed and transfer can be made. Word processing by computer and text messaging by any accomplished "texter" can be done at speeds of a hundred words a minute or more. In some ways, literacy seems like a trick, which is defined by the dictionary as a sleight of hand or eye, using quick, clever movements that entertain us. Like magic, it seems that the more carefully we try to look, the more the exact nature of the trick eludes us.

But literacy is not magic. It can be understood, enhanced and made more universal than it presently is through an examination and understanding of the awarenesses and skills of expert readers and writers. And such an understanding is more crucial now than ever before, not only because there is clear evidence that literacy, in general, is in decline, but also because literacy is now the province of perhaps the most important technological development of our age: the Web. Literacy is evolving through its use on the Web as well as through social media of various kinds. Understanding this evolution, and what it means for traditional reading and writing, is crucial because of the ever-widening use of the Web. Moreover, for individuals to function well in a democratic society, to be able to work and play successfully, and to be able to access, use, and contribute to the cornucopia of information on the Web efficiently and effectively, superior literacy skills are simply essential.

The following brief overview shows that this book has several parts; readers may find this condensed review or the more detailed one following of use in choosing relevant sections to read. The first part of the book gives some basic background and the data set that provides the origins of the theory of expert meta-reading and writing, along with some discussion of the mental abilities and language features that form the base for literacy. Then the theory itself is presented in two chapters dealing with meta-readers' and writers' awarenesses and skills. Implications of the theory for digital reading and writing appear toward the end of the book, followed by a chapter that offers practical approaches to teaching novices as they move toward expert meta-reading and writing.

After this Introduction, then, the first section of the book begins with a chapter which presents definitions of and distinctions among key terms relevant to literacy. The second chapter offers the case studies of expert and novice readers, working with extended passages of non-fiction prose in both print and electronic forms; these case studies provide a base for the proposed theory and are where the theory got its start. I began collecting the case studies before I had the theory. The data in the cases led me to

apply psycholinguistic principles and distinctive feature theory to construct my view of meta-reading and writing. Chapters 3 and 4 examine the mental capacities and distinctive features essential to expert literacy in detail. With this background in hand, the second section consists of Chapters 5 and 6, which provide the theory in two parts. Chapter 5 presents the proposal that expert readers and writers have specific awarenesses concerning written language. This chapter reviews schema theory and discusses the meaning of expertise as it has been studied in terms of literacy as well as in other fields. Chapter 6 provides the second part of the theory, an extended discussion of the skills expert readers and writers have when working with texts. These skills are essential to critical literacy in the electronic age and studies show that while novice readers can comprehend main ideas, they may lack some or all of these skills. A third portion, consisting of Chapters 7 and 8, takes up reading and writing respectively in both traditional print as well as electronic environments. Finally, Chapter 9 summarizes the theory of meta-reading and writing and provides three kinds of recommendations: for teachers themselves, for teaching and learning in all kinds of educational settings, and for classrooms in higher education specifically, where strategies for intensive and extensive work on reading and writing can help novices develop expert critical literacy skills as they become meta-readers and writers.

A More Detailed Look Ahead

Chapter 1 presents some key definitions and distinctions, beginning with the question of what, exactly, it means to be literate. This chapter takes up the matter of defining literacy and the many terms that go with it in current usage, such as critical literacy, digital literacy, Web literacy, functional literacy, and others. Personal literacy narratives such as those collected by Deborah Brandt (2001) provide some insights, especially across generations and into the electronic age, as does work with English language learners in Generation 1.5. The nature of academic expectations for literacy and how educators in school and community settings help students meet those expectations provide an essential perspective on contemporary literacy. The chapter's claims are supported with data from studies in the United States and from studies by the Organisation for Economic Cooperation and Development, UNESCO and other sources on literacy around the world, in school settings and elsewhere.

Chapter 2, Case Studies of Experts and Novices, presents case studies of experts and novices to demonstrate through extended discussion how the meta-reader and writer theory plays out when people work with texts.

The chapter includes studies of five adult expert readers, reading passages of non-fiction prose and writing brief summaries of them. The data also includes self-report background information on these readers' literacy autobiographies and their current reading practices. The expert readers all took the Reading portion of the ACT exam, to provide a baseline measure comparable to that of the novices. The eight novice readers are all students with varying levels of reading skill and an array of backgrounds who completed the same tasks as the experts. While some of the novices volunteered for the study through their developmental reading classes at the college level, others are Honors College students. One of the novices is not a native speaker of English, so his case offers a look at the challenges involved in developing expertise in reading and writing in a language with a different writing system.

The mental capacities of expert readers are discussed in Chapter 3, which explores and illustrates the human thinking abilities that make expert literacy possible. The data from the case studies made me realize that my readers and writers were tapping these abilities in the tasks I set. There are seven major mental abilities essential to literacy: a group of five general cognitive abilities, including identification or recognition, categorization, discrimination, prediction, and limited short-term memory, and two major linguistic abilities, the use of syntax, and the use of psycholinguistic redundancy. This chapter describes these mental capacities and synthesizes the research studies that have explored the nature of cognitive and linguistic processing. The goal is to help readers of the book understand the psychological and linguistic abilities people bring to bear when reading and writing. Exercises and other hands-on kinds of experiences illustrate these mechanisms, modeled after those used by Kenneth Goodman (1996) and Stephen Kucer (2005) in books on reading and literacy. These experiences here and in the following chapter provide the psycholinguistic evidence for meta-readers' and writers' awarenesses as they work with texts.

Chapter 4, on the distinctive features used by experts, explains the aspects of written language used by experts. The theory of meta-readers and writers proposes that experts apply their mental capacities as described in Chapter 3 to distinctive features of language per se. The features fall into four categories: first, rudimentary visual features necessary to reading the alphabet or other writing system and the marks of punctuation that are involved in visual processing; second, the basic categories of words and their meanings; third, the intermediate analysis of the types of sentences and texts as well as different kinds of discourse arrays, such as charts, tables, graphs and so on; and finally, the most complex category where the

conventional genres, rhetorical modes and forms of argumentation and schemata mark the peak of expert literacy. The basic mental abilities all play a role in experts' abilities with each category. Here again, paper and Internet exercises and examples show how the features are used by expert readers and writers.

At this point, in Chapter 5, readers of the book will have all of the basic background that led me to construct the theory of meta-reading and writing: key terms, case studies with novices and experts, an understanding of the mental abilities that make literacy possible, and the distinctive features of language that readers and writers use in literate activities. Using this background, this chapter and the next propose the theory in detail: experts are meta-readers and writers. This special term captures the idea that experts have an awareness of text structure, context and language as they interact with texts. These three different kinds of awareness overlap a bit; these categories as described sound more separate than they are in actual practice.

Meta-reading awareness includes, first of all, meta-textual awareness of the organization and structure of the text. This meta-textual awareness allows readers to see the organizational structure of the text or how the ideas are presented, developed and exemplified. Meta-readers also have a meta-contextual awareness of where the text comes from and how it fits into the larger scheme of things—topic, research, author, disciplinary issues, and related matters. These experts are able to see the text as part of an on-going conversation about key issues or ideas in a discipline, drawing on prior knowledge of the topic, the author's likely purpose and whatever else may bear on the text. Third, expert readers have a meta-linguistic awareness of language of the text. They have sufficient high level vocabulary to understand complex texts and get meaning. In particular, experts understand the implications of some words. Meta-linguistic awareness goes beyond individual words, though, to include various aspects of the language of the text, such as the sentence structures or patterns (parallel structure, for example), tone, register and other features of the language per se. Understanding these awarenesses of expert readers will help literacy teachers see the needs of novice readers and writers more clearly.

Beyond meta-reading awareness, experts have an array of essential skills that make it possible for them to read non-fiction prose efficiently and effectively. These skills, presented in Chapter 6, include analysis, synthesis, evaluation and application. In each area, the skills contribute to meta-readers' and writers' expertise with texts. Those working with novices can be more effective if they understand not only the awarenesses

described in Chapter 5, but also the specific skills that experts use, explored in detail in this chapter. These skills are sketched here briefly as they are essential features of experts' meta-reading and writing.

Skills in analysis: To analyze means to be able to take something apart and see how it works. Expert meta-readers are able to analyze texts in part because they can read quickly, since one of the key findings of reading research is that readers who read too slowly lose track of the developing ideas of the text. They also read flexibly, drawing on their awarenesses of structure, context, and language. Experts often have had long experience with textbooks and other genres of non-fiction prose, and specific skills for dealing with the array of genres they read regularly.

Skills in synthesis: Experts can combine, compare, contrast or see the relationship of the text they are reading to other texts or sources of information to synthesize ideas and if needed, write about what they have learned or found in those texts. Expert readers know how to draw inferences and conclusions from a text. The writer's point may or may not be explicitly stated, but it is there to be drawn out by an expert reader. This skill relates to the "beyond" or "after" aspect of what makes experts *meta*-readers and writers. Expert readers can see the key points of more than one text, and mark those for their own purposes in writing or elsewhere, omitting details, examples, comparisons and other developmental techniques.

Skills in evaluation: Expert readers and writers build on these basic skills in order to conduct critical evaluations and apply what they glean from their reading. Their additional skills in evaluation entail reading for authority, currency, relevancy, accuracy, objectivity or bias, and appropriateness (Association for College and Research Libraries, 2008).

Skills in application: Finally, expert readers and writers have skills in application—knowing where and how to use information from reading in writing, speaking or just understanding. They can take whole ideas or arguments or lines of reasoning and use them in their own lives or work. They might use what they have read to answer a question or solve a problem, or they might integrate their reading of the work of others into their own writing. In short, meta-readers and writers can not only get ideas from extended non-fiction prose texts, synthesize different readings on the same issue or topic, and evaluate the material, but also these experts can make use of whatever they have read for their own purposes. The chapter includes a detailed illustration from the work of a student in one of my courses, on her way to developing expertise in reading and writing. The example shows the student's growth in both awarenesses and skills; while she is hardly an expert, her progress across two assignments shows how

both intensive and extensive work on reading can help novices on their way to expertise.

Chapter 7 considers reading in traditional and electronic environments. Expert literacy in the digital age builds on expert literacy as we have known it from centuries past, but goes beyond it in many ways, some of which are already clear. It will continue to draw on the mental capacities of experts, both cognitive and linguistic, along with the distinctive features of written language that make the feat of literacy possible at all. The case studies show us that experts use their mental capacities and distinctive features in combination with their awarenesses and skills as meta-readers and writers.

Meta-reading and writing are increasingly important in dealing with the Internet. There, the additional mental capacities of bricolage and juxtaposition are essential. Bricolage is a term drawn from art, referring to an ability to put together parts (Burbules, 1998, p. 107). Burbules defines bricolage as "*assembling* texts from pieces that can be represented in multiple relations to one another" (p. 107). The second mechanism needed to deal with the Internet in terms of both production and perception, is juxtaposition, the placing of items close to one another for comparison or contrast (Burbules, 1998, p. 107). In foregrounding the visual, a Web page asks readers to see elements and images as they are arrayed, next to each other for various specific purposes. Along with these mental capacities useful in a digital environment, the Web requires the additional distinctive features of image, sound, movement, and link which challenge human literate capacity, as they require hyperreading. In digital reading and writing, readers and writers must see, notice, and attend to how the various pieces of a Web page are related to each other by their position on the screen. Understanding these additional mental capacities and distinctive features that support experts' literacy reveals these abilities in an electronic context. Careful analysis of reading in the digital environment shows that while it makes use of bricolage and juxtaposition and while it works on the features of image, sound, movement and links, it is not fundamentally different than reading on paper. All the awarenesses and skills expert meta-readers use on paper are equally essential to reading in a digital environment. The chapter is illustrated with links to materials on the Internet to support the argument.

Chapter 8 takes up writing in traditional and electronic environments. Experts' reading abilities play a role in their writing, whether on paper or screen, because their reading creates for them what second language scholar Stephen Krashen (1983) calls the "din" of language. A more rigorous description of this process leads cognitive psychologists to call

the same phenomenon "implicit learning" (Reber, 1967), as discussed in Chapter 5. Experts know what written language sounds like and looks like; for many novices, written language and especially academic writing is like a foreign language (see my early book *Teaching writing as a second language* (1987) for a full discussion of this claim). Meta-reading equips writers to prepare effective texts in any environment, traditional, digital, social media, large screen or small. This chapter brings together the discussion of meta-reading and writing.

The distinctive features of Web pages, including links, are examined in detail, with some examples. The goal of the illustrations is twofold. First, close examination of pages and links demonstrate the fundamental mental abilities described through this book, as well as experts' awarenesses and their skills. Careful analysis shows that the psycholinguistic processes involved in writing are the same on both pages and screens. Here, the process of Web page creation is explored as a new manifestation of expert literacy. A case study examines writing for the Web in the creation of a simple website.

The final chapter addresses the issue of what teachers might do with novices on Monday morning, presenting a sampling of strategies for helping novices become meta-readers and writers. The analysis of expert readers and writers discussed in the book is summarized in the opening part of this chapter. Knowing how meta-readers and writers work with texts, those who work with novices in any setting can benefit from the basic understanding of the psycholinguistics of reading and writing presented here. General approaches are offered for all kinds of teaching and learning situations, such as community education programs. However, Monday morning strategies for helping novice readers and writers in post-secondary classes across the curriculum are also needed. This chapter presents strategies for teaching intensive reading that can work with any kind of material, whether the texts being read are for courses across the curriculum or for personal interest or other reasons, and whether these texts appear on paper or on a screen.

Novice readers and writers can learn to go beyond reading the text for main ideas, to develop and apply the awarenesses and skills of experts for deeper analysis, synthesis, evaluation and application. An array of approaches to helping readers and writers build expert skills is provided. This final chapter also explores the use of extensive reading as a means of helping novice readers and writers build expertise. The work involves having novices read extended non-fiction prose texts in a particular subject area, to develop meta-textual, meta-contextual and meta-linguistic awareness. Extensive reading of pages and screens can help novices develop expert

writing abilities because it helps create Krashen's "din" (1983) in their heads when they write. Expert meta-readers and writers have the ability to comprehend and create written language and make use of texts for a variety of purposes. This final chapter reviews the discussion of the nature of expertise in literacy and the awarenesses and skills on which it is based. This chapter suggests ways that teachers and learners can move from novice toward expert literacy in a variety of venues by building the awarenesses and skills of meta-reading and writing.

CHAPTER ONE

DEFINITIONS AND DISTINCTIONS

Introduction

Definitions of literacy are essential to opening the discussion but also a real challenge. Readers of this book who guide literacy learners through direct teaching, mentoring or other kinds of support want students to be successful; achieving that goal is difficult without an explicit definition. Some scholars argue that the definition of literacy has become complicated, less because of its primary meaning related to reading and writing, and more because of its use as a term to describe skill or expertise in any subject area or discipline such as "computer literacy" or "music literacy." Indeed, Open University literacy scholar David Vincent has suggested we use the phrase "literacy literacy" to capture the need for a tighter focus on reading and writing (2003). So a clear definition provides an essential basis for the rest of the discussion.

But defining literacy is not so easy. I've been studying literacy, one way or another, for about thirty years and really thought I knew something about it. I am a reasonably literate person: I read many different kinds of materials, have good comprehension and a large vocabulary, seldom have difficulty understanding a writer's point, can easily compare and contrast two articles on the same topic and have no difficulty assessing texts I read for accuracy, currency, authority and so forth. These skills are all parts of what many scholars define as critical literacy. Of course, I have all these skills in my native language. In the languages with which I have some familiarity, French, German and Hebrew, my literacy skills are much weaker. Although I can call words off the printed page accurately in all three languages, I would hardly describe myself as literate in any of them.

A few years ago, I had contact with Hebrew while traveling in Israel revealing just how complex and challenging literacy is, even at a minimal level like being able to read a menu. I know letter-sound relationships in Hebrew, have a limited vocabulary and marginal grammar knowledge. Confronted with signs, I'm stuck. For example, I learned the word for rest room (kind of essential), but then, on one occasion followed that sign to

stand in front of two doors labeled with Hebrew words but lacking the international pictures for men and women. I could sound them out, but had no idea what the words meant. Sounding out the words, a slow and difficult, albeit possible process, still left me stuck for want of vocabulary. I was flummoxed by the language. Even reading a fast food menu was beyond me. It's a good thing the McDonald's menu had pictures, that the teenager behind the counter had a little English, and that the restaurant accepted credit cards. Otherwise, I would have been very hungry.

It would be fair to say I am a literacy novice in Hebrew, given these experiences. Reading a daily newspaper is completely out of reach; books are not remotely possible. And yet, I do know something and can follow a text being read out loud if it is printed in standard block print with the vowel markings included. It is hard to describe the sense of isolation and disorientation that results from this situation. However, my experiences with Hebrew have provided me with a different kind of understanding what it means to be literate. Even though I can call words off the printed page, and follow a text read aloud, the lack of real reading ability left me feeling cut off from the world around me. If I had to use Hebrew, I would not be successful in college, could not apply for a job, and it would be impossible for me to make an informed decision in an election. I want to argue that my limited experience with Hebrew shares some features with the experience of those who lack strong literacy skills in their native language.

While my situation with Hebrew is in only some ways like the situation of people who are speakers of a language they cannot read, it is in at least one way like the problem I want to address in this chapter. My status as someone who recognizes the letters and can render a text aloud in Hebrew is somewhat like that of American college students who can "read" English. Like them, though, I cannot get meaning from print at the level expected in college-level classes. That is, like me with Hebrew, American college students lack the kind of critical literacy ability described above. These students are upset if they are placed in a developmental reading course in college because they *can* read, if reading is defined as calling words off the page. But in fact, for the purposes of college work in reading and writing, with textbooks, Web resources, scholarly journals and other kinds of materials, they and many other college students are literacy novices. That is, I suggest, they lack the critical literacy skills needed for success in college and for their personal and professional lives beyond higher education.

I want to begin with a proposed definition of this academic critical literacy, and then examine an array of sources to see whether the basis for

this definition is sound, as it provides the foundation for the rest of the discussion. So, here is the starting point:

> Academic critical literacy is best defined as the psycholinguistic processes of getting meaning from or putting meaning into print and/or sound, images, and movement, on a page or screen, used for the purposes of analysis, synthesis, evaluation and application; these processes develop through formal schooling and beyond it, at home and at work, in childhood and across the lifespan and are essential to human functioning in a democratic society.

The definition is meant to capture several key points. First, it implies the notion that literacy is not a single thing, but a set of processes and that people do not have it or lack it, but may develop it over the lifespan through schooling and outside of school. The definition is also meant to capture the fact that the nature of literacy is in a state of change as digital environments continue to grow and develop. However, as the rest of the book makes clear, the fundamental processes of reading and writing are the same in print as they are on a screen. This version of the definition of critical literacy is meant as a starting point for discussion.

The difficulty with this definition and all that will be discussed here is summarized well in the 2002 *Literacy in America* encyclopedia (Kazemek & Rigg, 2002, p. 313). These scholars point out that the US is becoming an increasingly "multilingual society and a multi-literate society" (p. 313). The multilingualism arises from immigration and population patterns that are bringing increasing numbers of speakers of other languages into the country; these people may or may not be literate in their native languages and may or may not learn English. The multi-literacy arises from the growth of "critical multiliteracies that involve the ability to use a wide range of print and nonprint texts in an ever-expanding and increasingly sophisticated world of information, entertainment and advertisement" (p. 313). Any definition of literacy is going to have to address these matters.

I'm interested in the meaning of the word literacy applied to college students for a number of reasons. First, among my colleagues who are college writing teachers, I often hear the claim that students are "illiterate," with varied meanings. In my own experience, I often see among the under-prepared students I work with significant struggles with written text. The inability to work with written text, both understanding and producing it, is a real problem. Moreover, a number of the definitions are quite unsatisfactory since they describe fairly rudimentary abilities with written text like being able to write one's name. Finally, literacy is not precisely all-or-nothing phenomenon that pertains only to students, but

is a continuum of abilities that requires thorough and careful definition. And as a corollary point, these issues are also relevant for learners of English who speak other languages. Second language scholar Ilona Leki has noted that

> [i]n view of the place of English in the world today and the role it sometimes plays in both empowering and dramatically constraining the lives and futures of people from different L1 backgrounds, I feel an interrogation of the characteristics of L1 English literacy and its place among the other literacies in the world is a task that L1 English literates are morally and ethically obliged to undertake. (2004, p. 127)

My goal in this chapter and in the book as a whole is to take up Leki's challenge.

In order to do so, a detailed review of the proposed definitions of and approaches to literacy, as well as other related terms that have been suggested is essential. What is needed now is a full definition of these terms in the current print and electronic context of adult American society in school and out of school, and also in the context of adult learners of English as a second language. My proposed explicit definition of literacy and related terms like multi-literacy not only provide the basis for the theoretical proposal offered in this book, but also create the basis for practical recommendations for teaching and learning.

Definitions from the Dictionary: A Starting Point

So, ordinarily, if you want a definition, the first place to look is in the dictionary, either an unabridged, or to really pursue words back to their sources in English, the *Oxford English Dictionary*. After I had been working on this project for a while, I turned first to the unabridged dictionary and what I found there surprised me. I looked at both literacy and illiteracy and saw that the writers of my dictionary, the *Random House Unabridged* (Stein, 1966) did a nice job of tying literacy and illiteracy together in a clear and consistent way. Here are the definitions:

> Literacy: 1. the quality or state of being literate, esp. the ability to read and write. 2. possession of education. (Literacy, 1966, p. 836)
> Literate: adj… 1. able to read and write. 2. having an education; educated. 3. having or showing knowledge of literature, writing, etc.; literary; well-read. 4. characterized by skill, lucidity, polish, or the like. … n.:5. a person who can read and write. 6. a learned person. (Literate, 1966, p. 836)

> Illiteracy: 1. lack of ability to read and write. 2. state of being illiterate; lack of education. 3. a mistake in writing or speaking, felt to be characteristic of an illiterate person…. (Illiteracy, 1966, p. 710)
> Illiterate: 1. unable to read and write. 2. lacking education. 3. showing lack of culture, esp. in language and literature. 4. displaying a marked lack of knowledge in a particular field: *He is musically illiterate*. (Illiterate, 1966, p. 710)

These various definitions are surprising in two particular ways. First, they mention ability in reading and writing without detail or embellishment. It's not clear if reading and writing means being able to read or record one's name in a first or a second language, or call words off a printed page, or get meaning from print, or analyze, synthesize, evaluate and apply written material, or just what is meant by ability to read and write.

A second surprise, though, is that these definitions expand the notion of literacy to the way it is often used now, referring to education and knowledge in a particular area. So, the dictionary's example is "musically illiterate" but it could well be "computer illiterate" or some other similar phrase. The use of literacy in this sense of education and knowledge is widespread. It is what people often mean in conventional uses of the word literacy. They don't really mean reading and writing ability in any sense, but are instead referring to the kind of expertise, background and training that often arise from education; they may also use literacy to mean an ability to perform in a specific area, like with computers or technology or music and so on.

The other basic source to consult for definitions is the *Oxford English Dictionary*. Like my unabridged, the *OED* takes up both literacy and illiteracy as follows:

> Literacy: The quality or state of being literate; knowledge of letters; condition in respect to education, *esp*. ability to read and write. (Simpson & Weiner, 1989, Vol. 8, p. 1026)
> Illiteracy: a. The quality or condition of being illiterate; ignorance of letters, unlearnedness, absence of education; *esp*. inability to read and write. Also used more generally in sense: ignorance, lack of understanding (of any pursuit, activity, etc.). b. An error due to want of learning. (Simpson & Weiner, 1989, Vol. 9, p. 656)
> Illiterate: A. adj. 1. a. Of persons: Ignorant of letters or literature; without book-learning or education; unlettered, unlearned; …Also, more generally, characterized by ignorance or lack of learning or subtlety (in any sphere of activity). … b. Of things: Characterized by or showing ignorance of letters, or absence of learning or education; unlearned, unpolished. (Simpson & Weiner, 1989, Vol. 9, p. 656)

Like the unabridged, then, the *OED* presents two senses of literacy and illiteracy. One of these has to do with abilities in reading and writing, albeit unspecified, and the other, more general knowledge or understanding or ability in, as the *OED* says, "any sphere of activity." Often in current usage, these two meanings get conflated, but they need to be kept distinct if we are to understand them in terms of how people comprehend and use written language. For the purposes of exploring what people need to be able to do with reading and writing, I focus in this chapter exclusively on abilities to understand and produce written language.

About "illiteracy"

Before continuing with other approaches to the definition problem, a discussion of the use of the word "illiteracy" is in order. Readers might think that an investigation of illiteracy *per se* would be quite a straightforward topic. But one of the surprises is that it is NOT straightforward at all, partly because the word has various pejorative connotations. Conventional dictionary definitions like those discussed above make illiteracy seem simple: lack of ability to read and write, or more generally, lack of education. There are a number of other definitions beyond lack of ability to read and write that have been offered. To address this problem, Blake and Blake (2002, p. 8-11) review the history of the word 'literacy' from Greek times to the present. They come to the conclusion that literacy should be simply defined as the ability to read and write. Discussing the pejorative connotations of "illiteracy," Blake and Blake note that other terms like "nonliterate" or "preliterate" (2002, p. 8), drawn from classical studies, may be more neutral. However, they do not change the essential character of illiteracy, an inability to read and write, and they do not remove the pejorative connotations of the word.

The Blakes expand their definitions to include the phrase "functional literacy" by which they mean "an acceptable grasp of the skills of reading and writing for functioning in the society as a young adult" (Blake & Blake, 2002, p. 13). Functional literacy has been widely described and is often what is measured in surveys of literacy discussed later in this chapter. These surveys entail measurement of the performance by a sample population on a variety of literacy and numeracy tasks. One result of these surveys and other measures of literacy is a clear description of those who are functionally illiterate:

> They are able to read a recipe, follow a map, and work the keys of a McDonald's cash register. On the other hand, they have trouble filling out a job application, typing data into a computer, using standard punctuation

> in a paragraph, getting their checkbooks to balance, or taking a written test for a driver's license. (Blake & Blake, 2002, p. 2)

Thus, those who are functionally illiterate cannot, as I have suggested, perceive or produce meaning in written form whether on paper or on a screen and use that information as a basis for analysis, synthesis, evaluation, and application. The dictionary also offers a specific definition of the functional illiterate: "a person whose ability to read or write is inadequate for the needs of his job, the demands of a situation, or the like" (Functional illiterate, 1966, p. 574).

Because of the conflation of the definitions, the word "illiteracy" has come to have a strong pejorative implication. Its negative overtones do not arise from the simple lack of ability to read and write, but from the notion that illiterates are uneducated in some way or in many ways. Because of the negative implications of this term and because this book offers a theory of literacy intended to treat it as an array of abilities that can be developed and expanded through education and through experience beyond schooling, I choose not use this term in the rest of the book. The phrase "literacy novices" describes those who are developing literacy.

Definitions: Literacy in the brain

Reading scholar Stanislas Dehaene (2009) sheds some additional light on the defining characteristics of literacy in his report of a variety of brain imaging studies. These studies reveal the impact of literacy on the human brain in ways that suggest some defining characteristics. Dehaene points out that there are a number of reasons why the brains of people who can work with written language and those who can't might appear different on MRI scans and other tests. These differences might be the result of "social exclusion or of genetic or neurological disease, conditions which in and of themselves can cause profound changes in brain activity" (2009, p. 208).

However, when the brains of people who do not have these problems and who are otherwise similar in terms of their education, socio-economic status and other characteristics are compared, it is very clear that literacy changes the brain in marked ways. Studies reported by Dehaene show that there is much more activity among literate individuals in the anterior insula, a part of the brain close to Broca's area, essential to comprehension (2009, p. 209). The left hemisphere of the brain is overall more highly active in literate research participants. Moreover,

> …literacy did not only alter brain activity during language listening tasks, but also affected the anatomy of the brain. The rear part of the corpus

> callosum, which links the parietal regions of both hemispheres, had thickened in the literate subjects. This macroscopic finding implies a massive increase in the exchange of information across the two hemispheres—perhaps explaining the remarkable increase in verbal memory span in literates. (Dehaene, 2009, p. 209)

This work suggests that a literate person can be defined or described as someone who has these specific brain changes or capabilities. Morevoer, there is much work going on to understand the brain's ability to change, from birth and across the lifespan that reflects its plasticity (Malabou, 2008); literacy is only one of many experiences that leads to brain development.

Definitions: College students

As noted in the Introduction, my colleagues often complain about students' reading problems in terms of a variety of concerns. First, they note that students generally do not choose reading as a leisure, school or work activity. Many or perhaps most typical undergraduate students are not aware of the amount of reading they do as the surf the World Wide Web. Moreover, they are generally uncritical if and when they do read, especially screens, so that simply locating information on a topic via a Google search provides them with the "research" needed to support an idea or create a paper. This concern is just one of those I often hear from college writing teachers. This view is held by these teachers despite the fact that students read and write many text messages, and often these messages are written like Hebrew, in the sense that vowels are commonly omitted. Interestingly, the absence of vowels does not seem to interfere with comprehension, a result of the psycholinguistic phenomenon of redundancy in language. This point has been made by both reading specialist Frank Smith (2004) and linguist Steven Pinker (Pinker, 1994, p. 181). Still, teachers commonly think that students lack literacy skills.

The second concern my colleagues have, though, is really about students' limited critical literacy. The issue is not so much that students can't read (i.e., call words off the printed page) or don't get meaning from print but rather that they are not critically literate. That is, they cannot summarize a text accurately, but more importantly, they cannot go beyond summary to analysis, synthesis, evaluation and application. They have no sense about appraising a piece of written text for authority, currency, relevancy, accuracy, objectivity and appropriateness. They cannot do these things with printed material like books and journals, and they cannot and do not do it with sources they find on the Internet.

In addition, they cannot even look critically at the kinds of materials they might find through search strategies: Wikipedia is just as good as a specialized encyclopedia in a subject area as far as many students are concerned. A thoughtful review of the authority and validity of Wikipedia as a source by historian Randall Stross (2006) raises the questions about authority, accuracy and related issues; students I gave this report to recently did understand why Wikipedia is not an appropriate choice as a scholarly source in research, but were greatly surprised by the article's points about the anonymity of Wiki authors, the lack of editorial supervision, and so on. And they were surprised despite the fact that they had already received detailed bibliographic instruction from a library faculty member; the instruction specifically addresses the criteria by which sources should be appraised. Critical literacy is elusive even in the face of direct instruction.

College reading as defined by the ACT exam

Another concern sometimes raised by my colleagues applies to college students generally, but looks specifically at students who are not fully prepared for college, based often on some standardized exam like the ACT. The ACT measures students' reading ability by testing their comprehension of short passages of text in a timed multiple choice format, producing a score from 1 to 36 on the reading portion of this college entrance examination, widely used in the United States for admissions and placement decisions by colleges and universities. At my institution, a fairly typical medium-sized state institution in the Carnegie Doctoral Research category, we currently recommend a developmental college reading course for students whose ACT Reading test score is at 19 or below. The ACT organization has looked at this issue in some detail, and there has recently been a National Survey of America's College Students (NSACS), done by the Pew Charitable Trusts (2006), using the same instrument as the national survey of the adult population to be discussed below. These measures all hinge on various definitions of literacy, whether they are stated explicitly or not.

The report on United States national data drawn from administration of the ACT test of high school students presents useful findings on some aspects of these students' reading (American, 2006). The ACT analysis shows quite precisely the kinds of abilities students lack as they enter college, as discussed in this report, which can be found at the ACT website: http://www.act.org/research/policymakers/reports/reading.html. The ACT exam has an entire section devoted to reading; its questions