

WILLIAM GRABE AND  
FREDRICKA L. STOLLER

# TEACHING AND RESEARCHING READING

Third Edition

Applied Linguistics in Action

ROUTLEDGE  


# Teaching and Researching Reading

Now in its third edition, *Teaching and Researching Reading* charts the field of reading (first and second language) systematically and coherently for the benefit of language teaching practitioners, students, and researchers. This volume provides background on how reading works and how reading differs for second language learners. The volume includes reading-curriculum principles, evidence-based teaching ideas, and a multi-step iterative process for conducting meaningful action research on reading-related topics. The volume outlines 14 projects for teacher adaptation and use, as well as numerous new and substantially expanded resource materials that can be used for both action research and classroom instruction.

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# Applied Linguistics in Action

Series Editor: Christopher N. Candlin

**Christopher N. Candlin** (1940–2015) was Senior Research Professor in the Department of Linguistics at Macquarie University, Australia, and Professor of Applied Linguistics at the Open University, UK. At Macquarie, he was Chair of the Department of Linguistics; established and was Executive Director of the National Centre for English Language Teaching & Research (NCELTR); and was first Director of the Centre for Language in Social Life (CLSL). He wrote and edited over 150 publications and co-edited the *Journal of Applied Linguistics*. From 1996 to 2002 he was President of the International Association of Applied Linguistics (AILA). He acted as a consultant in more than 35 countries and as external faculty assessor in 36 universities worldwide.

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# Teaching and Researching Reading

Third Edition

William Grabe and Fredricka L. Stoller

Third edition published 2020  
by Routledge  
52 Vanderbilt Avenue, New York, NY 10017

and by Routledge  
2 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

*Routledge is an imprint of the Taylor & Francis Group, an informa business*

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First edition published by Pearson Education Limited 2002

Second edition published by Pearson Education Limited 2011

*Library of Congress Cataloging-in-Publication Data*

Names: Grabe, William author. | Stoller, Fredricka L., author.

Title: Teaching and researching reading / by William Grabe and Fredricka L. Stoller.

Description: Third Edition. | New York: Routledge, 2019. |

Series: Applied linguistics in action | "Second edition published by Routledge 2011"—T.p. verso. | Includes bibliographical references and index.

Identifiers: LCCN 2019015582 | ISBN 9781138847934 (Hardback) |

ISBN 9781138847941 (Paperback) | ISBN 9781315726274 (ebook)

Subjects: LCSH: Reading. | Second language acquisition. |

Reading—Research.

Classification: LCC LB1050 .G668 2019 | DDC 428.4—dc23

LC record available at <https://lccn.loc.gov/2019015582>

ISBN: 978-1-138-84793-4 (hbk)

ISBN: 978-1-138-84794-1 (pbk)

ISBN: 978-1-315-72627-4 (ebk)

Typeset in Goudy

by Deanta Global Publishing Services, Chennai, India

We'd like to dedicate this volume to our siblings:  
Linda Hartmann and Dorothy Nolte  
David L. Stoller and Marshall L. Stoller



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# Series Editor Preface

**Note from Routledge:** *Christopher Candlin and David Hall were founding editors of the Applied Linguistics in Action series when Pearson Education Limited was the series' publisher. After David passed away in February 2014, Christopher continued as general editor of the series for Routledge until his passing in May 2015. To honor their invaluable work for and involvement in books that they commissioned for the series, we are retaining their original series preface for this volume.*

*Applied Linguistics in Action*, as its name suggests, is a series which focuses on the issues and challenges to teachers and researchers in a range of fields in Applied Linguistics and provides readers and users with the tools they need to carry out their own practice-related research.

The books in the series provide the reader with clear, up-to-date, accessible and authoritative accounts of their chosen field within applied linguistics. Starting from a map of the landscape of the field, each book provides information on its main ideas and concepts, competing issues, and unsolved questions. From there, readers can explore a range of practical applications of research into those issues and questions, and then take up the challenge of undertaking their own research, guided by the detailed and explicit research guides provided. Finally, each book has a section which provides a rich array of resources, information sources and further reading, as well as a key to the principal concepts of the field.

Questions the books in this innovative series ask are those familiar to all teachers and researchers, whether very experienced, or new to the fields of applied linguistics.

- What does research tell us, what doesn't it tell us, and what should it tell us about the field? How is the field mapped and landscaped? What is its geography?
- How has research been applied and what interesting research possibilities does practice raise? What are the issues we need to explore and explain?
- What are the key researchable topics that practitioners can undertake? How can the research be turned into practical action?
- Where are the important resources that teachers and researchers need? Who has the information? How can it be accessed?

Each book in the series has been carefully designed to be as accessible as possible, with built-in features to enable readers to find what they want quickly and to home in on the key issues and themes that concern them. The structure is to move from practice to theory and back to practice in a cycle of development of understanding of the field in question.

Each of the authors of books in the series is an acknowledged authority, able to bring broad knowledge and experience to engage teachers and researchers in following up their own ideas, working with them to build further on *their* own experience.

The 1st editions of books in this series have attracted widespread praise for their authorship, their design, and their content, and have been widely used to support practice and research. The success of the series, and the realization that it needs to stay relevant in a world where new research is being conducted and published at a rapid rate, have prompted the commissioning of this 3rd edition. This new edition has been thoroughly updated, with accounts of research that has appeared since the previous edition and with the addition of other relevant material. We trust that students, teachers, and researchers will continue to discover inspiration in these pages to underpin their own investigations.

*Chris Candlin  
David Hall*

# Authors' Acknowledgments

We would like to thank Routledge for the opportunity to update our thinking about L1 and L2 reading research, instruction, and action research in this 3rd volume. We would also like to thank Takako Huang and colleague Xiangying Jiang for their valuable feedback on various parts of the book. And, of course, we want to thank our MA TESL and PhD in applied linguistics students at Northern Arizona University who have helped us think through reading from various perspectives over the years.

# Publisher's Acknowledgments

We are grateful to the following for permission to reproduce copyright material:  
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# Introduction to the 3rd Edition

In this introduction to the 3rd edition of *Teaching and Researching Reading*, we begin by identifying the changes we have made in this edition, and we provide an overview of the volume and its five major sections. We then situate the contents of the book with introductory comments about contexts of L2 reading, connections between reading research and reading instruction, and first- and second-language reading abilities. Finally, we comment on reading-related action research.

## Writing a 3rd Edition

We are pleased to have been given the opportunity to write this 3rd edition of *Teaching and Researching Reading*. In writing this new edition, we have thoroughly revised and updated the 2nd edition (much like we did from the 1st edition to the 2nd edition). The first two chapters still provide the theoretical foundation for a description of reading abilities, but we have completely updated research resources and made some significant changes to our descriptions of reading. We are happy to say, however, that our explanation of reading theory provided in this 3rd edition is essentially the same in broad strokes as that presented in the 2nd edition. (It is good to know that our view of reading, articulated in our 2nd edition ten years ago, continues to be firmly grounded in research in this 3rd edition.) Our views on the relationship between first language (L1) reading and second language (L2) reading also remain essentially the same, although the notion that L2 reading involves a dual-language system has been sharpened. Chapters 3 and 4 are completely new. Chapter 3 comprises a long research story and 10 new exemplary L1 reading research studies. Chapter 4 highlights exemplary L2 research studies, and all 10 studies are new to this 3rd edition. It is worth noting that we liked the studies presented in both the 1st and 2nd editions (and encourage readers to refer to them), but the last decade has brought to light many new research studies that have expanded our views on reading research and highlight important implications for instruction. We have listed the research studies reviewed in both the 1st and 2nd editions in Chapter 10. They continue to be remarkable stories.

Chapter 5 is new to this edition. It describes how we translate the research findings, and their implications, into a set of guiding curricular principles that

can organize, or enhance, reading instruction. In a sense, this chapter provides a blueprint for how to move from research to instructional applications by first considering and prioritizing a set of organizing curricular principles. Chapter 6 makes the transition from organizing ideas and learning goals to actual evidence-based teaching practices; the teaching ideas and resources presented in the chapter can be adopted and adapted by teachers to enhance their reading instruction. We have felt, for some time now, that a third edition of the book would be greatly enhanced by a curriculum chapter. The new Chapter 5 situates the specific teaching practices in Chapter 6 and provides rationales for engaging students in various reading and reading-related activities. In both Chapters 5 and 6, we have also given consideration to digital reading contexts and what they entail for students learning to read English for academic purposes.

Chapters 7–9 again introduce readers to action research and outline reading-related action-research projects that teachers can easily adapt for their own instructional contexts. Our many years of experience training teachers to engage in action research have helped us refine our depiction of the action research process in Chapter 7. Chapters 8 and 9 comprise numerous model action research projects, many of them new to this edition, that showcase the varied ways teachers can explore reading topics through action research. We remain firmly committed to the idea that teachers benefit from examining their own teaching practices and their own students' learning in order to become more effective reading teachers. The resources provided throughout (in the forms of charts, tables, sample materials, checklists, and so forth) are either new or updated for this edition. These resources can be used as guides for action research and, importantly, as additional teaching ideas adaptable for immediate use in the classroom, whether teachers are engaging in action research or not. We feel that our revisions have greatly strengthened these chapters, and we believe that teachers will profit from them in many ways. Finally, in Chapter 10, we have slimmed down some of the resources but retain the ones that we believe are essential.

## **The Contexts of L2 Reading**

Ten years after the 2nd edition, we can report that approximately 89% of the world's population is reportedly able to read, even if only at a basic level. While numbers on such a large scale can be misleading, it is safe to say that the majority of humans are able to read in their first language at some basic level. An unknown percentage of these readers is also able to read, at varying ability levels, in one or more additional languages. The extent of basic literacy around the world should not be surprising because literacy (reading and writing, but here the focus is on reading) is seen as necessary (but not sufficient) for improving earning potential and quality of life. At the same time, a bit of reflection reveals that reading, and literacy more generally, provides no special entry to a better standard of living. All we know is that, without it, opportunities for improving one's life are limited. As we begin a new decade in the 21st century, productive and educated citizens will require even stronger literacy abilities (including both reading and writing)

in an increasingly broad range of societal settings. Likewise, the age of technology growth is likely to make greater, rather than lesser, demands on people's reading abilities.

The role of reading in society is quite complex, so a few comments are needed to situate the role of reading and student learning. A major goal for many educational institutions around the world is to promote literacy abilities, and we often hear of efforts to eliminate illiteracy altogether. Many of us take this perspective for granted and seldom consider critically the role of literacy in societies around the world. In fact, the universal-eradication view is somewhat simplistic. As much as we would like to believe that all societies value the same educational goals, some people do not need literacy to function well in their societal contexts. Others achieve societal success with relatively minimal levels of literacy. Finally, literacy itself is not a singular notion that operates uniformly in all societies. There are many types of literacy abilities (e.g., reading, writing, reading and writing together, interpreting documents, integrating visual representations with prose text, working with multiple texts), just as there are many types of reading abilities and ways of reading. However, having made these comments, it is nevertheless true that the large majority of individuals need literacy to further their goals and better their lives.

Within this larger context, reading in L2 settings continues to take on increasing importance. The overwhelming majority of societies and countries around the world are multilingual, and citizens are expected to function well in more than one language. L2 reading ability, particularly with English as the L2, is already in great demand as English continues to spread, not only as a global language but also as the language of science, technology, and advanced research. Many people in multilingual settings need to read in an L2 (and not only English as the L2) at reasonably high levels of proficiency to achieve personal, occupational, and professional goals. But reading proficiency in an L2 does not develop as completely or as "easily" as it apparently does in one's L1. Actually, the development of L1 reading also takes a considerable amount of time, and it is one of the primary goals of K–6 education. As adults, we often overlook the intense time and resource commitments made by educational systems to teach L1 reading. Seldom are L2 students given as much time to develop strong reading abilities, despite similarly demanding expectations for success.

We actually know relatively less about how people become good L2 readers, but we do know that there are significant differences between learning to read in L1 and L2 settings. It is also true that connections between research and reading instruction in L2 contexts are not well supported for a variety of reasons. In some cases, there are too many diverse types of L2 learners to generalize from the limited number of existing research studies that have been done well; in other cases, differing student L1s may limit general assertions from research; and, in yet other cases, great differences in L2 proficiency levels among student groups limit the generalizability of claims. Several of these issues in connecting research and teaching practice are explored throughout this volume.

Because there is not a single consensus view from L2 reading research of how best to help students become more skilled readers, a major goal of this volume is

to persuade teachers to carry out small-scale research projects on different aspects of reading that can strengthen the connection between research assertions and effective teaching practices. This building of linkages between research and teaching practices involves action research, a form of teacher-initiated inquiry in which teachers look systematically and critically at their own classrooms to get an insider's view of the teaching and learning process. By means of action research, we can learn about our own teaching practices and improve student learning. The outcomes of action research can also influence more formal research, making the information flow a two-way enterprise.

## **Reading Research and Reading Instruction**

The ability to benefit from formal reading research studies, and to inform research in turn (via action research), requires that we have a grasp of the fundamental issues that motivate research into reading and its development. When we develop our conceptions of what is important in reading research, we tend to create mental images of the overall reading process (something like a conceptual map of the “terrain” of reading) into which we can incorporate new findings and assess the value of new claims. This sort of map is essential to understanding the competing assertions that are often made about reading and their implications for teaching. And it is such a map that we benefit from as we critically assess how students learn and how students can learn more effectively through instructional innovations. The knowledge associated with these mental maps of the reading research territory offers us ways to evaluate the assertions made by others who may be engaged in curriculum planning, course design, materials development, or adaptation projects. Thus, a second major goal of this volume is to help build a conceptual map of the reading research landscape and use this information for our own purposes.

The difficulty with building an effective conceptual map is that the field of reading has evolved remarkably in the past 35 years. (For an example, see the long research story in Chapter 3.) The ways that reading is now examined in L1 settings are quite different from the standard assumptions of 25 years ago and, for some practitioners, different even from their beliefs 5–10 years ago. So, we see this edition as filling a need to highlight the major issues and research findings of the past decade, mapping out the “territory” of reading as it is currently understood by reading researchers. To do so, we describe reading and reading instruction in ways that may not be entirely familiar to some applied linguists and L2 teachers, but there are strong arguments for these views of reading and reading instruction. These perspectives, we believe, will help develop more informed instruction, greater teacher awareness, more meaningful teacher inquiry, and more effective learning for L2 students.

## **A Preliminary Notion of Reading Abilities**

Reading can be thought of as a way to draw information from a text and to form a coherent interpretation of that information. However, this “definition”

does not really tell us much about what happens when we read and how we comprehend a text. Actually, as the first chapter of the book shows, reading comprehension is remarkably complex, involving many processing skills that are coordinated in very efficient combinations. Because we also read for different purposes, there are many ways to read a text, further complicating any definition. Seen in this light, the ability to read is a remarkable type of expertise that most humans develop; it is not generally well understood, nor is its development widely recognized for the significant cognitive achievement that it is. We hope that readers of this volume develop a greater respect for the expertise required with any sustained effort at reading comprehension, because skilled reading surely is a type of cognitive expertise. We also hope to share our fascination with research efforts, and associated instructional practices, that help clarify the abilities involved in reading comprehension and their development over time.

One of the logical places to begin a discussion of reading is to define this ability as it is used by the fluent L1 reader (as we do in Chapter 1). One needs to understand *skilled* reading in order to explore how it is learned and what can be done to teach such abilities to learners. The same logic applies equally well whether the goal is to understand how a person learns to read in his or her L1, or L2 or, for that matter, L3. And while the path of development and the rate of progress may vary for different L2 readers, the end goal of highly skilled fluent reading looks quite similar for both L1 and L2 learners when advanced expertise emerges. At the same time, many research studies, as well as teaching and teacher-training resources, highlight the difficulties involved in describing the nature of reading abilities and how they are learned. These difficulties reveal the need for all of us to develop our own investigative practices in our classrooms. A principled set of ways to observe and analyze student learning will help us understand competing research claims and draw conclusions that will make us all more effective teachers.

## **A Closing Note on Action Research and Teaching**

One of the primary goals of this book is to help teachers add basic research inquiry to their expertise as reading teachers. Good reading teachers are well informed and able to critically assess the claims made by others in journals, teacher-reference materials, and conference presentations. In particular, teachers can “test” these claims through systematic observation, data collection, data analysis, and critical reflection using their own classrooms and students to understand learning processes and teaching practices better. Guided inquiry of this type may not lead to major research breakthroughs, but it will certainly lead to a heightened awareness of teaching and learning practices in L2 reading classrooms. Moreover, in light of both a strong research foundation and personal experiences with classroom inquiry, teachers will be better equipped to evaluate and critique materials, curricular innovations, and new teaching practices. Another goal of the volume is to introduce teachers to evidence-based teaching practices

that they can easily adapt and integrate into their reading lessons, the materials that they develop for their classes, and the reading-related tasks that they devise for their students and their overall reading curricula. The final outcome, we hope, will be more confident teachers, better-informed instruction, and more skilled student readers.

Pleasant reading!

## Part I

# Understanding L2 Reading

### Quote

Reading comprehension is widely agreed to be not one, but many things. [At a minimum, it entails] cognitive processes that operate on many different kinds of knowledge to achieve many different kinds of reading tasks. Emerging from the apparent complexity, however, is a central idea: comprehension occurs as a reader builds one or more mental representations of a text message. ... Among these representations, an accurate model of the situation described by the text ... is the product of successful deep comprehension.

Perfetti and Adlof (2012, p. 3)

### Quote

In any domain that one can identify—whether it be medical diagnosis, flying an aircraft, or programming computers—it would be absurd to think that someone becomes proficient without participating extensively in the activity. ... When it comes to teaching students to read in schools, however, little attention is paid to the amount that students read texts.

Hiebert and Martin (2009, pp. 3–4)



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# 1 The Nature of Reading Abilities

This chapter sketches out an exploratory map of reading by providing the following:

- A description of the miracle of reading (Part I).
- An initial definition of reading.
- A discussion of purposes for reading.
- A definition of fluent reading comprehension.
- An explanation of how reading works.
  - Lower-level processing.
  - Higher-level processing.
  - Cognitive and neurolinguistic processing.
- A description of the miracle of reading (Part II).
- An introduction to frequently cited models of reading.

## 1.1 A Description of the Miracle of Reading (Part I)

This volume starts off from a somewhat unusual vantage point, but it is one that should be quite persuasive by the end of the chapter. Stated simply, the ability to read fluently is extraordinary; in fact, it is miraculous. Reading silently and individually became possible only about 500 years ago for a large number of people in Europe (Manguel, 1996; Pearson & Hamm, 2005). More broadly, it is only in the past 100 years or so that school expectations for many students included abilities to read a fairly large amount of text materials for content learning purposes (Pearson & Goodin, 2010). The recency of what we know as fluent reading for comprehension can mean only that reading for comprehension is an ability that is culturally transmitted from one generation to the next.

Humans are not biologically predisposed to become readers (Andrews, 2015; Perfetti & Stafura, 2014; Seidenberg, 2017). We do, however, learn to speak and listen to a language variety, no matter who the learner is, assuming normal environmental support and normal cognitive development in early childhood. We can say that humans are hard-wired to learn to speak a language variety. But reading comprehension abilities are not natural because they are not a part of automatic human maturation processes; instead, skilled reading must be taught

#### 4 Understanding L2 Reading

by some person or persons because our brains are not designed naturally to be reading brains. We know this to be true at a basic level because approximately 14% of all humans aged 25–64 (690 million people) are not considered to be literate.<sup>1</sup> These non-literate humans are not somehow unnatural; rather, they just have not been taught to read.

##### Quote 1.1

Recent worldwide census data show ... that the adult literacy rate has increased from 83% in 1990 to 89% in 2012. In the population aged 15–24, 87% of females and 92% of males now have basic reading skills. Despite these gains, more than 700 million adults throughout the world are still unable to read, with almost two-thirds being female (United Nations, 2014).

Verhoeven and Perfetti (2017b, p. 2)

Over the past 20 years, additional evidence has shown that reading is a culturally learned ability. As readers, we all learn to take visible graphic forms on a page and mentally interpret them into our own language, no matter what language we speak. We now know that part of the brain (the occipital cortex, at the back of the brain, that is used for visual form recognition) develops specific pathways for automatic word recognition that are not genetically hard-wired in human brains but must be learned (Dehaene, 2009; Seidenberg, 2017). Because the brain is flexible and can incorporate new uses into specific brain regions, we are able to expand the brain region for visual form recognition and facial recognition to also become a region for visual *word* form recognition (Schwanenflugel & Knapp, 2016; Ullman, 2015). This word form recognition region also begins a brain pathway through the lower temporal cortex region that allows for direct word recognition processes (e.g., sight word reading, from word form directly to word meaning, generating the phonological form at the same time).

##### Quote 1.2

Reusing structures to solve new problems occurs not only evolutionarily, but also developmentally, as we grow up. For example, reading seems to depend on previously existing brain circuitry that is coopted for this function as we learn to read.

Ullman (2015, p. 135)

As fluent readers, we engage in automatic word recognition without having to think about it, and we do it at a rate that is even faster than our fluent listening abilities. And we do this increasingly, as we read, to add more and more vocabulary words to our lexicon, including those that are not part of our speaking vocabulary (Seidenberg, 2017). We also then connect this very fast processing

to comprehension skills (as explained below) for understanding information in texts (and using the resulting information for various academic and professional purposes). So, what is it that we do when we read, and how do we do this?

## 1.2 An Initial Definition of Reading

A common way to begin a discussion of reading is to provide a definition of the concept. However, this approach, while important for clarifying later discussions, is not so easy. We noted in the introduction that it is possible to present a single-sentence definition of reading such as the following: Reading is the ability to draw meaning from the printed page and interpret this information coherently, one of many possible variants. However, without quibbling over the exact wording of such a definition, it is nonetheless insufficient as a way to understand the true nature of reading abilities. There are four important reasons why this simple definition is inadequate:

- First, it does not convey the idea that there are a number of ways to engage in reading. A reader has several possible purposes for reading, and each purpose emphasizes a somewhat different combination of skills and strategies.
- Second, it does not emphasize the many criteria that define the nature of fluent reading abilities; it does not reveal the many skills, processes, and knowledge bases that act in combination, and often in parallel, to create the overall reading comprehension abilities that we commonly think of as reading.
- Third, it does not explain how reading is carried out as a cognitive process that operates under intense time constraints, yet these very rapid time-processing constraints are essential to understanding how reading comprehension works for the fluent reader.
- Fourth, it does not address the social context in which reading takes place or the reasons why texts will be interpreted and used in differing ways.

These four issues are addressed in this chapter as a way to describe the nature of fluent reading abilities. The chapter closes with brief comments on certain influential models of reading—models that try to synthesize what we know about reading (or some subset of reading abilities) and account for reading performance and reading development.

We would like to point out, at this time, that this chapter focuses primarily on the fluent first language (L1) reading process. One might ask why a book on L2 reading begins with a discussion of the fluent L1 reading process; there are a number of good reasons for adopting this approach. First, far more research has been carried out on reading in L1 contexts (especially in English as an L1; cf. Verhoeven & Perfetti, 2017a) than in L2 contexts. Second, students learning to become readers in L1 contexts usually achieve a reasonable level of reading fluency, usually by 5th grade in English (and earlier in several other alphabetic

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languages), but the same claim cannot be made for students learning to read in L2 contexts. Third, the ability to draw implications for instruction from research—including training studies that demonstrate the effectiveness of numerous instructional techniques and practices—is much more developed in L1 contexts than it is in L2 contexts. These factors suggest that we have become increasingly better at describing the reading abilities of students learning to read in their L1s. Even if many L2 students will never become fluent L2 readers, they can be taught in ways that lead them in the right direction and help them make as much progress as possible. This direction toward a successful end-point is what L1 reading research can offer us.

Our position on the value of L1 reading research is not meant to suggest that we ignore the significant differences between L1 and L2 reading contexts; in fact, these differences are addressed in Chapter 2. It is also the case that L2 reading research has expanded considerably in the past decade, so there is much new territory to discuss. However, at very advanced levels, it is still true that L1 and L2 reading abilities tend to merge and appear to be quite similar (Dronjic & Bitan, 2016; Verhoeven, 2017). So, to understand the endpoint of reading abilities, that of the fluent critical reader, research on L1 reading development offers us a much more complete understanding.

### 1.3 Purposes for Reading

#### Quote 1.3

Strategic readers begin with a purpose for reading and recognize that different goals require different types of reading.

Schwanenflugel and Knapp (2016, p. 219)

When we begin to read, we actually have a number of initial decisions to make, among them why we are reading and for what purpose (or purposes) (Britt, Rouet, & Durik, 2018; Schwanenflugel & Knapp, 2016; van den Broek & Kendeou, 2017). We usually make these decisions very quickly and, in most cases, unconsciously. For example, when we pick up a newspaper, we usually read the front page with some combination of search processing, general reading comprehension, and skimming. We may initially search the front page for a particular story that we expect to be there. If the headlines cue us in the right way, we may check quickly for the length of the article, and we may then read through a number of paragraphs for comprehension (appropriately influenced by the newspaper-story genre, a reporting of what, who, when, where, why, and how). At some point, we decide that we have enough information and either stop reading the article or skim the remainder to be sure that we do not miss some surprisingly informative part.

Alternatively, for many of us, we might pick up our cell phone, laptop, or tablet to look at news electronically or to check social sites. With the newspaper, we read partly for information, but we also read with a goal to finish the newspaper fairly rapidly. When we look online at social media platforms, we are maintaining social networks. We might move very quickly across media outlets to see who is out there and what they are saying. Our purpose is to stay connected. In other settings, typically academic or professional ones, we sometimes synthesize information from multiple reading sources, from both online and print sources, from different parts of a long and complex text, or from a prose text and accompanying diagram or chart.

#### Quote 1.4

A comprehensive theory of reading should account for the flexibility of reading behaviors as a function of the readers' goals and purposes ... Researchers recognized early on that people read for many reasons and began investigating how people adapt their reading for these goals ... Researchers found that instructions to read for a more general or more specific purpose produced differences in the way people read and what information they acquired.

Britt, Rouet, and Durik (2018, pp. 22, 23, 25)

Finally, and most commonly in L1 settings, people read for general comprehension (whether for information or for pleasure). Here we might read a novel, a short story, a newspaper article, or a report of some type to understand the information in the text, to be entertained, or to use the information for a particular purpose. The overall goal is not to remember most of the specific details but to have a good grasp of the main ideas and supporting ideas, and to relate those main ideas to **background knowledge**<sup>2</sup> as appropriate.

#### Quote 1.5

In the context of reading comprehension, several forms of prior (or background) knowledge are particularly relevant: domain knowledge about the specific field or area of the discourse (e.g., science, medieval history); topic knowledge relevant to the content of a particular discourse; general world knowledge that captures information assumed to be known by the general population; vocabulary knowledge about the meanings of words ... ; and genre knowledge about the specific purposes, structures, and audiences of different texts.

van den Broek and Kendeou (2017, p. 286)

We believe that common reading purposes can be classified under seven general headings (see Concept 1.1) while recognizing that these headings are heuristic

and many variations could be proposed (e.g., Alderson et al., 2015). Each purpose for reading is explained further in the upcoming sections of the chapter.

**Concept 1.1: Purposes for Reading**

1. Reading to search for simple information
2. Reading to skim quickly
3. Reading to learn from texts
4. Reading to integrate information
5. Reading to write (or search for information needed for writing)
6. Reading to critique texts
7. Reading for general comprehension

**1.3.1 Reading to Search for Simple Information and Reading to Skim**

**Reading to search** for simple information is a common reading ability, though some researchers see it as a relatively independent cognitive process (Guthrie & Kirsch, 1987). It is used so often in reading, and especially in digital reading, that it needs to be classified as a type of reading ability. In reading to search, we typically **scan** the text or a digital screen for a specific word, a specific piece of information, or a few representative phrases. As an example, we usually search through a Google results page to find key information, either in a title or a source header. In prose texts, we sometimes slow down to process the meaning of a sentence or a phrase in search of clues to indicate that we are at the right page, section, or chapter. Similarly, reading to **skim** (i.e., sampling segments of the text for a general understanding) is a common part of many reading tasks and a useful skill in its own right. It involves, in essence, a combination of strategies for guessing where important information might be located in the text and then using basic reading comprehension skills (and background knowledge) on those text segments until a general idea is formed.

**1.3.2 Reading to Learn from Texts**

**Reading to learn** typically occurs in academic and professional contexts in which a person needs to learn a considerable amount of information from a text. Often there is an assigned task that directs the reader's goals. It requires abilities to

- Remember main ideas as well as details that elaborate the main and supporting ideas in the text
- Recognize or build relevant **rhetorical frames** that organize the information in the text (e.g., problem–solution, cause–effect)
- Link the text strongly to the reader's knowledge base
- Take a learner's stance or a critical evaluative stance

Reading to learn is usually carried out at a reading rate somewhat slower than general reading comprehension. In addition, it makes stronger **inferencing** demands than general comprehension to connect text information with background knowledge (e.g., connecting a character, event, or concept to other known characters, events, or concepts; or connecting possible causes to known events). It also requires enhanced **comprehension monitoring** skills.

### 1.3.3 Reading to Integrate Information, Write, and Critique Texts

**Reading to integrate information** requires additional decisions about the relative importance of complementary, mutually supporting, or conflicting information and the likely restructuring of a rhetorical frame to accommodate information from multiple sources. In these circumstances, a more critical set of goals must be established for an effective synthesis: the reader needs to remember points of comparison or opposition, assess the relative importance of the information, construct a framework in which the information will be organized, and establish the main theme(s). These skills inevitably require critical evaluation of the information being read so that the reader can decide what information to integrate and how to integrate it for the reader's goal. In this respect, both *reading to write* and *reading to critique texts* may be task variants of reading to integrate information. Both require abilities to select, critique, and compose information from a text. The increasing uses of digital media for information greatly expand the importance of these specific abilities (and others). Both of the latter purposes also represent common academic and professional tasks that call upon the reading abilities needed to integrate information (see Enright, Grabe, Koda, Mosenthal, & Mulcahy-Ernt, 2000; Perfetti, Rouet, & Britt, 1999; van den Broek & Kendeou, 2017).

### 1.3.4 Reading for General Comprehension

The notion of general reading comprehension has been intentionally saved for last in this discussion for two reasons. First, it is the most basic purpose for reading, underlying and supporting most other purposes for reading. Second, general reading comprehension is actually more complex than commonly assumed. (Note that the term *general* does not mean “simple” or “easy.”) These assertions are treated in detail in the next two sections of this chapter. Reading for general comprehension, when accomplished by a skilled fluent reader, requires very rapid and automatic processing of words, strong skills in forming a general meaning representation of main ideas, and efficient coordination of many processes under very limited time constraints.

These abilities are often taken for granted by fluent readers because they usually occur automatically; that is, we make use of these abilities without giving them much thought if we are fluent readers. In L2 contexts, however, the difficulties that students have in becoming fluent readers of longer texts under time constraints reveal the complexities of reading for general comprehension. Because

of its demands for processing efficiency, reading for general understanding may, at times, even be more difficult to master than reading to learn, an ability that is often assumed to be a more difficult extension of general comprehension abilities. (This misperception is most likely due to the ways in which reading comprehension and reading to learn are commonly tested in schools.)

Before defining fluent reading in more detail, we would like to comment on two terms commonly used to describe the activity of reading: **skills** and **strategies**. For us, *skills* represent linguistic processing abilities that are relatively automatic in their use and their combinations (e.g., word recognition, lexical access, syntactic processing). In most educational psychology discussions of skills, they are seen as general learning outcomes of goal-driven tasks, acquired gradually and eventually automatized (Afflerbach, Pearson, & Paris, 2008; Alexander & Jetton, 2000; Anderson, 2015; Proctor & Dutta, 1995; Schunk, 2000). *Strategies* are often defined as a set of abilities under potentially conscious control of the reader, though this common definition is not likely to be entirely true (Anderson, 2009). In fact, many abilities that are commonly identified as strategies are relatively automatic in their use by fluent readers (e.g., skipping an unknown word while reading, re-reading to reestablish text meaning, mentally summarizing a newspaper story quickly to tell a friend) (van den Broek & Kendeou, 2017). Thus, the distinction between skills and strategies is not entirely clear precisely because of the very nature of reading, not because of a definitional problem (cf. Anderson, 2009). Nonetheless, the strategies concept is important when considering reading abilities. Reading strategies are most evident and important when readers look for ways to address a problem or a specific goal while reading (usually with more advanced and more challenging texts).

### Quote 1.6

During the 1970s, when it first dotted the reading landscape, the term *strategies* signified a form of mental processing that deviated from traditional skills-based reading. However, any distinctions between skills and strategies that seemed apparent then have begun to fade, leaving many to wonder where skills end and strategies begin. As a way to unearth those contrasts, we propose two differences between skillful and strategic processing relevant to text-based learning: automaticity and intentionality.... Skills are, in essence, essential academic habits. They are the routinized, automatic procedures we employ when we engage in any nontrivial task. Thus, skilled readers, like skilled cooks or skilled accountants, have honed essential domain procedures to a level of automaticity....

The same procedures (e.g., identifying main ideas) can fit under both the skill and strategy categories. The appropriate label rests on whether the reader consciously evokes the procedure or is simply functioning in a typical, automatic way.

Alexander and Jetton (2000, pp. 295–296)

**Quote 1.7**

Paris and his colleagues (Paris, Wasik, & Turner, 1991) described reading strategies as “skills under consideration” to denote that the same actions could be either a skill or a strategy, depending on the reader’s awareness, control, intention, and the specific reading situation.

Afflerbach, Pearson, and Paris (2008, p. 17)

Some example strategies include previewing a text, posing questions about the text, connecting text to background knowledge, summarizing, making inferences, and re-reading. In Appendix 5-B, we list a more comprehensive set of the most commonly noted strategies seen as important for reading comprehension. Many have been validated by research studies, either directly or indirectly (as part of a set of strategies in a training program; see Anderson, 2009; Cho & Afflerbach, 2017). To be complete with terminology, the term **reading processes** here refers to cognitive activity involving skills, strategies, attentional resources, knowledge resources, and their integration. The term *abilities* is used here as a general term that covers comprehension skills, strategies, and knowledge resources available to the reader.

#### 1.4 Defining Fluent Reading Comprehension

Reading for general comprehension is, in its most obvious sense, the ability to understand and interpret information from a text appropriately. However, comprehension abilities are much more complex than this definition suggests. To offer a more accurate picture of reading comprehension, we first define it according to a set of necessary general processes (Concept 1.2). No one process defines reading comprehension by itself, but together these processes provide a fairly accurate account of the processes required for fluent reading (see Grabe, 2009; Stafura & Perfetti, 2017b).

##### Concept 1.2: Processes Involved in Fluent Reading Comprehension

Fluent reading is:

- |                           |                            |
|---------------------------|----------------------------|
| 1. a rapid process        | 6. an evaluating process   |
| 2. an efficient process   | 7. a purposeful process    |
| 3. an interactive process | 8. a comprehending process |
| 4. a strategic process    | 9. a learning process      |
| 5. a flexible process     | 10. a linguistic process   |

Fluent reading must occur *rapidly* in almost any purposeful context, and the more rapidly a text is (successfully) read the better the various processing

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components are likely to operate. Thus, a good L1 reader reads most texts at rates somewhere between 240 and 300 words per minute, depending on reading purpose. Related to rate is the notion that specific processes must be carried out *efficiently* in combination if comprehension is to take place. That is, the various processes involved in comprehension must be coordinated, and certain processes need to be carried out automatically (Breznitz, 2006; Segalowitz, 2010; Verhoeven & Perfetti, 2017b).

### Quote 1.8

Highly fluent word reading is an effortless perceptual response that can include the automatization of word decoding, familiarity-based memory retrieval, and the attainment of fluent skilled reading. Moreover, these developments allow cognitive resources to be redirected to comprehension.

Verhoeven and Perfetti (2017b, p. 18)

Reading is also an *interactive* process in at least two ways. First, the various processes involved in reading are carried out virtually simultaneously. While we are recognizing words very rapidly and keeping them active in our **working memories** (Baddeley, 2015; Baddeley, Eysenck, & Anderson, 2015), we are also analyzing the structure of sentences to assemble the most logical clause-level meaning units, building a main-idea model of text comprehension in our heads, monitoring our comprehension, and so on. Combining these skills in an efficient manner makes general comprehension a time-consuming ability to master (Stafura & Perfetti, 2017). Reading is also interactive in the sense that linguistic information from the text interacts with information activated by the reader from **long-term memory**, as background knowledge. These two knowledge sources (linguistic and background) are essential for building the reader's interpretation of the text (see Concept 1.3).

### Concept 1.3: What Is Working Memory? What Is Long-Term Memory?

The term *working memory* is now generally preferred to *short-term memory*. Working memory refers to the information that is activated, or given mental stimulation, for immediate storage *and* processing. Working memory for reading involves the active use of cognitive processes such as recognizing and storing word information, using syntactic information, connecting pronoun references, building overall text structure, integrating and restructuring information, establishing main ideas, assessing inferences, and adapting reader goals. In Baddeley's (2015) version, working memory is composed of a central executive processor and three sub-components: the visual-spatial sketchpad, the episodic buffer, and the phonological loop. Cowan (2015)

provides an interesting alternative version of working memory that is more aligned with neurolinguistic processing and less with sub-components of processing, but not so different in other respects. Other interpretations of working memory have also been proposed but go beyond the scope of this introduction.

The term *long-term memory* is the more technical term for *background knowledge*. All of the knowledge we have of the world, of our experiences, of our learning in specific disciplines, of our lexicon, of our tacit (implicit) knowledge, and of our internalized procedures and habits we have in navigating our world are aspects of long-term memory (Cowan, 2015; Eysenck & Keane, 2015; Kendeou & O'Brien, 2016).

Balancing the many skills needed for comprehension also requires that the reader be *strategic*. The reader needs to recognize processing difficulties, address imbalances between text information and reader knowledge, and make decisions for monitoring comprehension and shifting goals for reading (Almasi & Fullerton, 2012; Pressley, 2006). Being a strategic reader means being able to read *flexibly* in line with changing purposes and the ongoing monitoring of comprehension. Similarly, reading is an *evaluating* process in that the reader must decide if the information being read is coherent, is reliable, and matches the purpose for reading. This evaluation also extends to the reader's motivations for reading, the reader's attitudes toward the text and topic, the reader's feelings of likely success or failure with text comprehension, and the reader's expectation that the information from the text will be useful (or interesting, or enjoyable) (Guthrie & Taboada Barber, 2019; Schwanenflugel & Knapp, 2016).

Reading is always *purposeful* in the sense not only that readers read in different ways based on differing reading purposes but also that any motivation to read a given text is triggered by some individual purpose or task, whether imposed internally or externally. Reading is also a *comprehending* process. The notion of comprehending is both obvious and subtle. It is obvious in that any person could say that understanding a text is the purpose for reading; it is less obvious with respect to the ways that such understanding might be carried out by the reader, as is discussed in the next section. One outcome of reading being a purposeful and comprehending process is that it is also a *learning* process. This aspect of reading should be evident to anyone who works in academic settings where the most common way for students to learn new information is through reading.

Lastly, reading is fundamentally a *linguistic* process (rather than a reasoning process, a common perspective in the 1980s and 1990s), though this aspect of reading is still sometimes downplayed (as is the visual/orthographic aspect). It makes little sense to discuss or interpret text without engaging with it linguistically.

For example, anyone who has tried to read a text on political policy written in Chinese (without knowing any Chinese characters) or in Finnish (without knowing Finnish, even though the writing script is similar) will quickly recognize the primacy of linguistic processes for reading comprehension. If we cannot understand any words, we are not going to comprehend the text.

## 1.5 Describing How Reading Works: Components of Reading Abilities

To this point, we hope to have persuaded readers that reading comprehension abilities are quite complex and that they vary in numerous ways depending on tasks, motivations, goals, and language abilities. One might even get the impression that large differences exist among the various ways of reading. However, a set of common reading comprehension processes are activated as we read. In this section, we outline the ways that reading comprehension processes are likely to work for skilled readers, assuming a purpose of general comprehension of a longer text (like when we read a book at night before going to bed). (See Grabe, 2009; Seidenberg, 2017; Stafura & Perfetti, 2017; Willingham, 2017 for detailed descriptions of skilled reading processes.) For the sake of simplicity, we have divided this explanation of skilled reading into three parts: lower-level processes, higher-level processes, and **underlying general cognitive processes**. The first two sets of processes are common metaphorical designations that are explained in the sections that follow. Lower-level processes represent the more automatic linguistic processes and are typically viewed as more skills orientated. Higher-level processes generally represent comprehension processes that make much more use of the reader's background knowledge and inferencing abilities.

General cognitive processes (and knowledge storage resources) are those genetically wired abilities for mental processing of all types, and most can be viewed as parts of humans' more primal survival mechanisms. In fact, cognitive abilities underlie the development of all learning, including fluent reading. These underlying cognitive abilities are consistently used across all languages during reading and reading development. (Concept 1.4 provides an extensive, but likely partial, listing.) Some of these cognitive processes and resources are well known to impact reading comprehension abilities, such as working memory and background knowledge (or long-term memory). Some are often described as reading strategies even though they are larger cognitive skills also used for many non-reading purposes (inferencing, comprehension monitoring). Some are less commonly discussed but are essential cognitive skills for thinking, reasoning, and language use (e.g., inhibitory control, speed of processing, self-regulation, selective attention and attention shifting, cognitive flexibility, goal setting, consolidation). One outcome of these many processes is a system of **implicit learning**, which will draw centrally on some combination of **statistical learning**, **associative learning**, and **chunking** abilities. All of these abilities are key component