Section

Understanding L2 reading
Chapter 1

The nature of reading abilities

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

- an initial definition of reading
- a discussion of purposes for reading
- a definition of fluent reading comprehension
- an explanation of how reading works
- an introduction to frequently cited models of reading

A common way to begin a discussion of reading is to provide a definition of the concept. However, this strategy, 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 appropriately.’ 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 five 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 emphasises a somewhat different combination of skills and strategies.
- Second, it does not emphasise 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 highlight how the ability to draw and then interpret meaning from a text varies with the second language (L2) proficiency of the reader.

Fifth, it does not address the social context in which reading takes place nor the reasons why texts will be interpreted and used in differing ways.

These five issues are addressed in this chapter as a way to describe the nature of fluent reading abilities. The chapter closes with brief comments on various models of reading – models that synthesise what we know about reading 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 strategy. First, far more research has been carried out on reading in L1 contexts (especially in English as an L1) than in L2 contexts. Second, students learning to become readers in L1 contexts usually achieve a reasonable level of fluency in reading comprehension abilities, 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. Fourth, reading instruction in L1 contexts has been a source of many instructional innovations that have not yet been explored extensively in L2 contexts, either at the level of research or at the level of practical implementation. These factors suggest that we can describe the reading abilities of students learning to read in their L1s quite well. 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. However, at very advanced levels, L1 and L2 reading abilities tend to merge and appear to be quite similar. So, to understand the end-point of reading abilities, that of the fluent, critical reader, research on L1 reading development offers us a much more complete understanding.
1.1 Purposes for reading

When we begin to read, we actually have a number of initial decisions to make, and we usually make these decisions very quickly, almost unconsciously in most cases. 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 read partly for information, but we also read with a goal to finish the newspaper fairly rapidly, because few people try to read every line of a newspaper. 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 will decide that we have enough information and will either stop reading the article or skim the remainder to be sure that we do not miss some surprisingly informative part.

In other settings, typically academic or professional ones, we sometimes synthesise information from multiple reading sources, from different parts of a long and complex text, or from a prose text and accompanying diagram or chart. Such reading is quite different from searching, skimming, or reading for general comprehension (see Grabe, 2009). In

---

**Quote 1.1**

There are purportedly five basic processes involved in reading text, or passages…. [W]hen someone is reading paragraphs in a book, for example, one of five basically different processes is likely to be involved. These processes, or reading gears, are called scanning (Gear 5), skimming (Gear 4), rauding (Gear 3), learning (Gear 2), and memorizing (Gear 1)…. The rauding process [a general reading and listening rate], Gear 3, is the process most readers use regularly. It is the type of reading that is most typical; it is normal reading, ordinary reading, natural reading or simple reading. It is the process that is used most often when adults are reading something that is relatively easy for them to comprehend – that is, a magazine, a newspaper, a novel, a memo at work or a letter from a friend. Evidence that most of reading that goes on in the world involves rauding comes from Sharon (1973); he surveyed 5,067 adults in a national probability sample and found that less than 1% of their reading involved anything that was difficult to understand during their typical 2 hours of reading each day.

Carver (1997, pp. 5–6)
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, and construct a framework in which the information will be organised.

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 and/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 as appropriate.

**Quote 1.2**

On a very basic level, it is clear that knowledge of any text topic is essential for successful comprehension regardless of the language of the text being processed. Without basic knowledge it would be impossible to even approximate a writer’s intended message. However, the exact nature of the interaction is not clear. … Still considerations of background knowledge cannot be ignored when attempting to understand … reading comprehension.

Hudson (2007, p. 293)

All of these ways of reading, and a few others, have to be accounted for in a full explanation of reading (see Grabe, 2009; Linderholm and van den Broek, 2002). We believe that reading purposes can be classified under seven main headings (see Concept 1.1), while recognising that these headings are heuristic and many variations could be proposed (e.g. Khalifa and Weir, 2009). 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
1.1.1 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 that it is probably best seen as a type of reading ability. In reading to search, we typically scan the text for a specific word, or a specific piece of information, or a few representative phrases. As an example, we usually search through a telephone directory to find key information, either an address or a phone number. 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 on those segments of the text until a general idea is formed.

1.1.2 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. It requires abilities to:

- remember main ideas as well as a number of details that elaborate the main and supporting ideas in the text
- recognise and build rhetorical frames that organise the information in the text
- link the text to the reader’s knowledge base

Reading to learn is usually carried out at a reading rate somewhat slower than general reading comprehension (primarily due to rereading and reflection strategies to help remember information). 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).

1.1.3 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. 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. Both purposes represent common academic tasks that call upon the reading abilities needed to integrate information (see Enright, Grabe, Koda, Mosenthal and Mulcahy-Ernt, 2000; Perfetti, Rouet and Britt, 1999, for ways to interpret 'reading to integrate').

1.1.4 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 assumptions are addressed 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, be even 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, 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, syntactic processing). In most educational psychology discussions of skills, they are seen as general learning outcomes of goal-driven tasks, acquired gradually and eventually automatised (Anderson, 1995; Proctor and Dutta, 1995; Schunk, 2000). Strategies are often defined as a set of abilities under conscious control of the reader, though this common definition is not likely
to be entirely true (see Afflerbach, Pearson and Paris, 2008; 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, rereading to re-establish text meaning). 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). To be complete, the term reading processes refers to cognitive activity involving skills, strategies, attentional resources, knowledge resources, and their integration. The term abilities is used as a general term that covers comprehension skills, strategies and knowledge resources available to the reader.

**Quote 1.3**

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. finding main idea) 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. 295–6)

**Quote 1.4**

Paris and his colleagues (Paris, Wasik and 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.

For example, in a number of cases, skills may have been learned as strategies but have become thoroughly automatised (e.g. mentally summarising a newspaper story to tell a friend). Nonetheless, ‘strategies’ is still an important concept for reading abilities. Strategies, for definitional purposes, are best defined as abilities that are potentially open to conscious reflection, and reflect a reader’s intention to address a problem or a specific goal while reading (see Anderson, 2009) (see Concept 1.2 for some example strategies; see also model action research projects 8.1.1 to 8.1.3 in Chapter 8).

Concept 1.2 Sample reading strategies
- Specifying a purpose for reading
- Planning what to do/what steps to take
- Previewing the text
- Predicting the contents of the text or section of text
- Checking predictions
- Posing questions about the text
- Finding answers to posed questions
- Connecting text to background knowledge
- Summarising information
- Making inferences
- Connecting one part of the text to another
- Paying attention to text structure
- Rereading
- Guessing the meaning of a new word from context
- Using discourse markers to see relationships
- Checking comprehension
- Identifying difficulties
- Taking steps to repair faulty comprehension
- Critiquing the author
- Critiquing the text
- Judging how well purposes for reading were met
- Reflecting on what has been learned from the text
1.2 Defining fluent reading comprehension

Reading for general comprehension is, in its most obvious sense, the ability to understand information in a text and interpret it appropriately. However, comprehension abilities are much more complex than this definition suggests. To offer a more accurate picture of reading comprehension, we define it according to a set of necessary processes (see Concept 1.3). No one process defines reading comprehension by itself, but together they provide a fairly accurate account of the processes required for fluent reading. (See also Grabe, 2009; Hudson, 2007; Koda, 2005, for more detailed discussions.)

**Concept 1.3 Processes involved in fluent reading comprehension**

Fluent reading is:

1. a rapid process
2. an efficient process
3. an interactive process
4. a strategic process
5. a flexible process
6. an evaluating process
7. a purposeful process
8. a comprehending process
9. a learning 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 components are likely to operate. Thus, a good L1 reader will read almost all texts at rates somewhere between 200 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).

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 recognising words very rapidly and keeping them active in our **working memories** (Baddeley, 2007; Baddeley, Eysenck and Anderson, 2009; see Concept 1.4), we are also analysing the structure of sentences to assemble the most logical clause-level meanings, building a main-idea model of text comprehension in our heads, monitoring comprehension and so on. Combining these skills in an efficient manner makes general comprehension a time-consuming ability to master. Reading is also interactive in the sense that linguistic information from the text interacts with information activated by the reader from long-term...
Balancing the many skills needed for comprehension also requires that the reader be strategic. The reader needs to recognise processing difficulties, address imbalances between text information and reader knowledge, and make decisions for monitoring comprehension and shifting goals for reading (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 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) (Baker and Beall, 2009).

Reading is always purposeful not only in the sense that readers read in different ways based on differing reading purposes, but also in the sense 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 will be seen 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.

Concept 1.4 What is working 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 recognising 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 (2007) version, working memory comprises a central executive processor and three sub-components: the visual–spatial sketchpad, the episodic buffer and the phonological loop.
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 often downplayed (as is the visual aspect). It makes little sense to discuss or interpret a 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 system is similar) will quickly recognise the primacy of linguistic processes for reading comprehension. If we cannot understand any words, we are not going to comprehend the text.

### 1.3 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 underlying processes are activated as we read. In this section, we outline the way 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 sleep). (See Grabe, 2009; Perfetti, Landi and Oakhill, 2005; Pressley, 2006 for detailed descriptions and references of skilled reading processes.) For the sake of simplicity, we have divided this explanation of skilled reading into two parts: lower-level processes and higher-level processes (see Concept 1.5), common metaphorical designations that will be explained in the sections that follow. The lower-level processes represent the more automatic linguistic processes and are typically viewed as more skills-oriented. The higher-level processes generally represent comprehension processes that make much more use of the reader’s background knowledge and inferencing abilities. It should be noted that we do not assume lower-level processes to be in any way easier than higher-level processes.

#### 1.3.1 Working memory processes for reading

Working memory is best understood informally as the network of information and related processes that are being used at a given moment (*working memory activation*) (see Baddeley, Eysenck and Anderson, 2009). As we look at Concept 1.5, we see both lower-level and higher-level component processes as aspects of working memory processing...
The words that are accessed, the information that is cued grammatically, the emerging meanings of words, the formation of a text model of comprehension, inferencing and executive control processes are all active in working memory. In the case of lower-level processes, the activation is brief, one or two seconds, unless rehearsed or connected to new incoming information. In the case of higher-level processing, there is continual reactivation of main ideas as long as reading is continuing or the reader is reflecting on the text information. If new information is to be integrated so that an accurate update of meaning is formed, the information must be combined rapidly. Working memory keeps new information active for one to two seconds while it carries out the appropriate processes. For this reason, speed of processing is essential; it is not simply a nice additional aspect of comprehension abilities. If processing of active information is not done quickly enough, the information fades from memory and must be reactivated, taking more resources and making the reading process inefficient.

We can use a simple analogy to make the various component processes of reading easy to remember. We can think of reading comprehension (generally speaking, our purpose for reading) much like a car. Reading, like a car, gets us to our destination (it achieves text comprehension). In line with the car analogy, we can think of word recognition as the fuel for the car. Recognising words is not the same as reading comprehension, but reading comprehension needs words in order to work, much like a car needs fuel. If word recognition is the fuel, then the other lower-level processes are the engine that drives the car. The building up of semantic information to be used for comprehension (through both syntactic parsing and semantic proposition formation) is much like the car engine in that these processes drive comprehension development.
We would not, of course, want to suggest that a car is nothing more than the engine, since it is the car, and not just the engine, that gets us to our destination. But a car, if it is going to get us to our destination, must have an efficiently working engine. It is possible to envisage lower-level processes working memory as doing much the same for reading comprehension. In this way, the efficient coordination of information from rapid and automatic processes is a necessary component of fluent reading comprehension abilities. Finally, the higher-order processes take the basic information and build reading comprehension of the text, much like the car brings us to our destination.

1.3.2 Lower-level processes

The most fundamental requirement for fluent reading comprehension is rapid and automatic word recognition (or \textit{lexical access} – the calling up of the meaning of a word as it is recognised). Fluent L1 readers can recognise almost all of the words they encounter (98–100 per cent of all words in a text), at least at some basic meaning level. They also recognise four to five words per second, about 230 milliseconds per word on average (Pressley, 2006).

\begin{quote}
[\textit{W}]hen a reader is attempting to learn what is in text, reading is a word-by-word affair, with fixations on most of the individual words. For a skilled adult reader who is reading material carefully, each word is typically fixated for about a quarter of a second. That translates to about 200 words per minute when readers are reading to learn material. . . . Reading at a more relaxed pace occurs at a rate of between 250 and 300 words per minute.

Pressley (2006, p. 51)
\end{quote}

Amazing as it may seem, fluent readers can actually focus on a word and recognise it in less than a tenth of a second (less than 100 milliseconds). Thus, four to five words per second even allows good readers time for other processing operations. For fluent readers, lexical access is automatic. In addition to being very fast, it cannot be readily reflected on consciously, and it cannot be suppressed (a good definition of \textit{automaticity}); that is, when the eye sees a word, the reader cannot stop him- or herself from accessing its meaning. Both rapid processing and automaticity in word recognition (for a large number of words) typically require thousands of hours of practice in reading.
Many L1 researchers focus a lot of attention on word recognition abilities. They explore these aspects of reading not because they believe that word recognition is reading comprehension, but because reading comprehension cannot be carried out for an extended period of time without good word recognition skills (Perfetti, Landi and Oakhill, 2005; Stanovich, 2000). However, these skills are difficult to develop without exposure to print (through many hours of reading practice). In L2 reading contexts, much less discussion is devoted to this topic (cf. Birch, 2007; Eskey, 1988). This avoidance is partly due to a limited understanding of the role of rapid and automatic word recognition processes in reading. It is also due to the tremendous difficulties involved in providing L2 students with the time, resources and practice needed to develop a very large recognition vocabulary. However, word recognition abilities cannot be ignored in L2 contexts if a goal is to help students become fluent L2 readers.

In addition to word recognition, a fluent reader is able to take in and store words together so that basic grammatical information can be extracted (a process known as syntactic parsing) to support clause-level meaning. The ability to recognise phrasal groupings, word ordering information, and subordinate and superordinate relations among clauses quickly is what allows fluent readers to clarify how words are supposed to be understood. (For example, the word ‘book’, as in ‘the book fell’, will be recognised as a noun, rather than the verb ‘to book’, as in a hotel. It will also be recognised as the clause subject that will be described, and as an inanimate object that will be followed by an ‘event’ description, ‘fell’.) Syntactic parsing helps to disambiguate the meanings of words that have multiple meanings out of context (e.g. bank, cut, drop). Moreover, it helps a reader determine what pronouns and definite articles are referring to in prior text (Grabe, 2009).

**Quote 1.6**

Why does automaticity matter? . . . Decoding and comprehension compete for the available short-term [memory] capacity. When a reader slowly analyzes a word into component sounds and blends them, a great deal of capacity is consumed, with relatively little left over for comprehension of the word, let alone understanding the overall meaning of the sentence containing the word and the paragraph containing the sentence. In contrast, automatic word recognition (i.e. recognizing a word as a sight word) consumes very little capacity, and thus, frees short-term capacity for the task of comprehending the word and integrating the meaning of the word with the overall meaning of the sentence, paragraph, and text.

Pressley (2006, p. 68)
Strong evidence exists for the importance of syntactic parsing in reading comprehension. In L1 settings, Klauda and Guthrie (2008) found that syntactic processing correlated most strongly with reading comprehension among six component skills measured ($r = .75$) with 278 fifth-graders. In L2 settings, Alderson (1993) observed remarkably high correlations between syntactic knowledge and reading comprehension ($r = .80$), as did van Gelderen et al. (2004) ($r = .80$). There is also persuasive observational evidence for the strong relationship between grammar and reading for L2 learners (Urquhart & Weir, 1998).

**Quote 1.7**

To claim . . . that syntactic processing [or syntactic parsing] is not necessary is frankly unbelievable. This is easily demonstrated. The following string represents an English sentence from which most (not all) function words and all inflectional morphemes have been deleted. Moreover, since ordering plays a major part in English syntax, the order of the remaining words has been jumbled.

`begin several it recogniser module machine digital pass record speech`

We challenge anyone, whether expert in the content area (artificial language) or not, to process this string. Things begin to be a bit better if we restore the original ordering:

`Machine begin digital record speech pass it several recogniser module`

However, it is only when we restore function words and inflections that the message becomes easy to extract:

`The machine begins by digitally recording the speech and passing it to several recogniser modules.`

Urquhart and Weir (1998, pp. 60–1)

Perhaps most importantly, parsing is done very rapidly without much effort or conscious attention (unless something does not work right; then the process becomes less automatic). So once again, rapid and automatic processing – at the level of initial syntactic parsing – is a necessary ability. The subconscious automaticity of syntactic parsing processes should be obvious to anyone who has taught high school or undergraduate university students in L1 settings; many L1 students can read fluently, but, in many cases, they have difficulty completing a grammar exercise at a conscious level (very prevalent in the US). So these L1 students ‘know’ grammar
tacitly but not explicitly. This example shows that we can have automatic processing without having overt metalinguistic knowledge of grammar. In L2 settings, the need for rapid and automatic syntactic processing appears to be less obvious, because most L2 students develop an overt knowledge of L2 grammatical structures before they become fluent L2 readers. With L2 students, what is often overlooked is not the fact that L2 students need grammar knowledge to be readers but rather that, like developing L1 readers, they need countless hours of exposure to print (that they are capable of comprehending successfully) if they are to develop automaticity in using information from grammatical structures to assist them in reading.

A third basic process that starts up automatically as we begin any reading task is the process of combining word meanings and structural information into basic clause-level meaning units (semantic proposition formation). Words that are recognised and kept active for one to two seconds, along with grammatical cueing, give the fluent reader time to integrate information in a way that makes sense in relation to what has been read before. As meaning elements are introduced and then connected, they become more active in memory and become central ideas if they are repeated or reactivated multiple times.

This process is depicted in Concept 1.6 (where bolding signifies repetition or reactivation). As each sentence from a text is read (on the left-hand side of the diagram), a semantic proposition of that information is constructed (as shown on the right-hand side). Each semantic proposition reflects the key elements of the input (word and structure) and also highlights linkages across important units (in this case, verbs), where relevant. The reactivated concepts of ‘man’ and ‘camera’ reflect the main idea of this small text; that is, something happened that involved a man and a camera.

In the sentences in Concept 1.6, there are cause–effect relations between the first action and the second action, and between the third action and the fourth action. In the semantic proposition network that is generated, these relations are incorporated as well (as indicated by the brackets from the first verbal predicate to the second verbal predicate, and the third verbal predicate to the fourth verbal predicate). The third sentence of the grammatical input actually has two propositions. One is signalled by ‘however’, and it indicates a larger relation between sets of propositions; the other proposition reflects the new information presented in the sentence. Semantic propositions are formed in this way and a propositional network of text meaning is created. It is worth noting that this process of semantic network building anticipates the discussion in the next section (on building a text model of comprehension).

The process of ongoing semantic proposition formation, as described here, is not easily controllable in any conscious way (much like fluent word recognition and syntactic parsing). Only when some aspect of comprehension
does not work right, or the meaning does not seem to fit, might a reader pause to consider consciously how to extract the most appropriate meaning from the text being read. In such circumstances, we have time to become aware of the problem and address it more consciously.

The three processes discussed up to this point—lexical access or word recognition, syntactic parsing and semantic proposition formation—are typically seen as lower-level processes that occur relatively automatically for the fluent reader. When they are functioning well, they work together effortlessly in working memory. When they are not functioning fluently in combination, the reading comprehension process slows down considerably and comprehension becomes more difficult to maintain.

### 1.3.3 Higher-level processes

Added to these lower-level processes is a set of higher-level comprehension processes that more closely represent what we typically think of as reading comprehension. As fluent readers, we form a summary model of what the text is likely to mean. We also construct a more elaborated interpretation of how we want to understand text meaning. Beyond understanding and interpreting the ideas represented by the text, we establish purposes for reading, combine reading strategies as needed, make inferences of many types, draw extensively on background knowledge, monitor comprehension, form attitudes about the text and author, adjust goals as appropriate, and critically evaluate the information being read. Returning briefly to the car analogy, all of these higher-level processes, together, represent the car (and a skilled driver) that will take readers to their destinations, assuming of course, that the car has an engine and fuel.
The most fundamental higher-level comprehension process is the coordination of ideas from a text that represent the main points and supporting ideas to form a meaning representation of the text (a text model of reading comprehension, not to be confused with general models of reading, discussed later in the chapter) (see Kintsch and Rawson, 2005). As clause-level meaning units are formed (drawing on information from syntactic parsing and semantic proposition formation), they are added to a growing network of ideas from the text. The new clauses may be hooked into the network in a number of ways: through the repetition of an idea, event, object or character; by reference to the same thing, but in different words; and through simple inferences that create a way to link a new meaning unit to the appropriate places in the network (e.g. part–whole, subordinate–superordinate; refer back to Concept 1.6). As the reader continues processing text information, and new meaning units are added, those ideas that are used repeatedly and that form usable linkages to other information begin to be viewed as the main ideas of the text. More technically, they become, and remain, more active in the network. Ideas that do not play any further roles in connecting new information (i.e. ideas that are no longer named nor referred to indirectly), or that do not support connecting inferences, lose their activity quickly and fade from the network. In this way, less important ideas tend to get pruned from the network, and only the more useful and important ideas remain active.

**Quote 1.8**

What people remember is the gist.... For example, suppose you are beginning a paragraph-long text. The first sentence contains a number of ideas, with the reader coding the main idea of the sentence. This idea is held in active memory as the next sentence in the paragraph is read. Attempts are made to link the main idea from the first sentence to the ideas of the second sentence, with another main idea emerging from this synthesis, integrating the meanings expressed in the first two sentences of the paragraph. Sometimes there will be a need for bridging inferences to reconcile the meaning of the previous sentences with the ideas in the new sentences. ... Good readers do not make inferences willy-nilly, however.

In summary, during normal beginning-to-end reading of a text, such as a story, the reader processes the individual ideas but remembers the gist. In processing the text and constructing the gist, prior knowledge plays an important role, permitting the generation of inferences required to understand the text.

Pressley (2006, pp. 53–4)
As the reader continues to build an understanding of the text, the set of main ideas that the reader forms is the text model of comprehension. The text model amounts to an internal summary of main ideas (which is one reason why summary tasks for learning purposes are reasonable tasks to practise). The inferencing required of a reader to support this text model is typically not extensive unless the text information is so new that the reader has comprehension difficulties, or unless the reader's language-proficiency level is impeding comprehension. Background knowledge (whether understood as linked networks of reconstructed knowledge, instances of memory, schema theory or mental models) plays a supporting role and helps the reader anticipate the discourse organisation of the text as well as disambiguate word-level and clausal meanings as new information is incorporated into the text model. (See Grabe, 2009, for a more detailed description of text model construction and references.)

At the same time that the text model of comprehension is being built by the reader, the reader begins to project a likely direction that the reading will take. This projection is influenced by background knowledge, inferences, reader goals, reader motivation, task, text difficulty, and reader attitudes toward the text, task and author. So, almost immediately, the reader begins to interpret the information from the text in terms of his or her own goals, feelings and background expectations. This reader interpretation (the situation model of reader interpretation) is built on and around the emerging text model. The reader is likely to interpret the text (and begin to create a situation model) differently if he or she

---

**Quote 1.9**

What counts [as text comprehension] is how the reader comes to construct mental models of the text and the situations described in the text.

Two classes of mental models are needed, a model of what the text says (the text base) and a model of what the text is about (the situation model). … The text base is a mental representation of the propositions of the text, as extracted from the reading of successive sentences, supplemented only by inferences necessary to make the text coherent. The reader builds a situation model from the text base by combining knowledge sources through additional inference processes. Thus, a text base is essentially linguistic, consisting of propositions derived from sentences, whereas a situation model is essentially agnostic in its form of representation. …

The main difference between a text base and a situation model is assumed to be one of inferences, with text bases inferentially poor and situation models inferentially rich.

Perfetti, Van Dyke and Hart (2001, pp. 133–4)
knows that the text is the beginning of a good mystery novel, a biography of a well-known photographer or a social statement on waste in society.

For the fluent reader who has no great difficulties in understanding the text, the developing situation model of reader interpretation is the likely goal for reading comprehension. The situation model integrates text information with a well-developed network of ideas from the reader's background knowledge, and it interprets new information in the light of reader background knowledge, attitudes, motivations, goals and task purposes (Kintsch, 1998). The ability of fluent readers to integrate text and background information appropriately and efficiently is the hallmark of expert reading in a topical domain (e.g. history, biology, psychology).

The situation model of reader interpretation accounts for how a reader can understand both what an author is trying to say (as the text model) and how the reader can interpret that information for his or her own purposes (the situation model). This duality of understanding explains how a reader can provide a summary of a text but also offer a critique of the text's position. It also explains how a reader can read a text (or a particular genre) to emphasise either what the author most likely means or what the reader wants the text to mean. Thus, a poem is usually read with the goal of creating a reader interpretation, but a technical manual is usually read with the assumption that there is a preferred author interpretation of its contents. In this way, we can see how different genres both signal and lead to different ways of reading (in a sense, then, providing some of the justification for the existence of different genres).

This description of two higher-level processes reveals where background knowledge takes on the most importance and when inferencing abilities play a greater role in reading. As the reader transforms information from clause-level meaning units to the text model of comprehension, and then to the elaborated situation model of reader interpretation, both background knowledge and inferencing take on greater importance. Interestingly, it is at the point when the reader is interpreting the text (the situation model of reader interpretation) that wrong or incomplete background knowledge, or faulty inferences, can lead a reader, even a fluent reader, astray.

Text-model and situation-model construction require the abilities to oversee, or monitor, comprehension, use strategies as needed, reassess and re-establish goals, and repair comprehension problems. How such an attentional monitor (as an aspect of executive control processing in working memory) might operate cognitively is not entirely clear (see Baddeley, 2007; Baddeley, Eysenck and Anderson, 2009), but a large body of research has established the centrality of attentional processing (see Robinson, 2003; Styles, 2006). Despite the lack of details, we know that an executive control processor (or monitor) represents the way that we focus selective attention while comprehending, assess our understanding.
of a text and evaluate our success. Thus, our evaluation of the text information itself, or how we feel about the text, is typically part of our developing situation model (of reader interpretation). Our evaluation of how well we comprehend the text is dependent on an executive control processor.

In summary, the higher-level cognitive processes outlined here, in combination with the lower-level processes discussed earlier, form the cognitive processing resources that let us carry out reading for various purposes (see Grabe, 2009). Usually, a specific reading purpose will lead to greater or lesser emphases on different reading processes. So, reading to find simple information will emphasise word recognition abilities and some background knowledge anticipation of what items (e.g. words, numbers) to look for. Reading for general comprehension will use a balanced combination of text-model comprehension and situation-model interpretation. Reading to learn will first emphasise the building of an accurate text model of comprehension, and then a strong interpretive situation model that integrates well with existing or revised background knowledge.

Reading comprehension processes, seen in this way, highlight the seemingly miraculous nature of reading comprehension. Reading comprehension is an extraordinary feat of balancing and coordinating many abilities in a very complex and rapid set of processes that makes comprehension a seemingly effortless and enjoyable activity for fluent readers. In fact, the many processes described here all occur in working memory, and they happen very quickly unless there are comprehension problems. So, roughly, in the space of any two seconds of reading time, fluent readers accomplish numerous operations (see Concept 1.7).

<table>
<thead>
<tr>
<th>Concept 1.7</th>
<th>Reading processes occurring each and every two seconds we read</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. focus on and access eight to ten word meanings</td>
<td></td>
</tr>
<tr>
<td>2. parse a clause for information and form a meaning unit</td>
<td></td>
</tr>
<tr>
<td>3. figure out how to connect a new meaning unit into the growing text model</td>
<td></td>
</tr>
<tr>
<td>4. check interpretation of the information according to their purposes, feelings, attitudes and background expectations, as needed</td>
<td></td>
</tr>
<tr>
<td>5. monitor their comprehension, make appropriate inferences as needed, shift strategies and repair misunderstanding, as needed</td>
<td></td>
</tr>
<tr>
<td>6. resolve ambiguities, address difficulties and critique text information, as needed</td>
<td></td>
</tr>
</tbody>
</table>
Three conclusions become clear when we consider the number of reading processes occurring each and every two seconds:

1. Reading comprehension processes work in parallel when some skills are relatively automatic.
2. Some processes need to be relatively automatic if reading is going to work efficiently.
3. Fast and efficient processing is the hallmark of fluent reading comprehension abilities.

It is important to emphasise, at this point, that these processes do not operate efficiently or effortlessly when readers encounter texts (and accompanying tasks) that are too difficult for them. Difficulties may arise when readers do not have adequate background information, do not have the necessary linguistic resources or have not read enough in the language to have developed efficiencies in reading. Readers, especially L2 readers, who encounter such difficulties can try to understand the text by using a slow mechanical translation process; alternatively, they can make an effort to form a situation model from past experiences and try to force the text to fit preconceived notions. In the first case, working memory efficiencies cannot operate well; in the latter case, a situation model unconnected to text information is imposed on reading comprehension, activating inappropriate background information and leading to poor comprehension. In either case, successful reading comprehension is not likely to occur.

In L2 reading contexts, where such problems commonly arise, readers resort to coping strategies by translating or by guessing to form a coherent account of the text, whether that account matches the text or not. If this experience is repeated on a continual basis, it is not hard to see why these learners would lose motivation to become fluent readers. Yet, this problem also suggests a likely long-range solution. Students need to engage in reading for many hours at text- and task-levels appropriate to their abilities. It is only through extended exposure to meaningful print that texts can be processed efficiently and that students will develop as fluent readers.

1.4 Synthesising research perspectives: Models of reading

Many researchers and teachers attempt to create a general understanding of the reading comprehension process by means of some reasonable mental framework. So we often read about general models of reading.
(not to be confused with the text-model and situation-model concepts for comprehension processes that were discussed earlier). General models of reading serve useful purposes, most commonly by providing a metaphorical interpretation of the many processes involved in reading comprehension (cf. Grabe, 2009; Hudson, 2007; Urquhart and Weir, 1998). Other models are more specific in nature, trying to account for, and interpret, the results of much research. In this section, we comment briefly on general metaphorical models and then discuss a few of the models of reading that are grounded in more specific research syntheses (see Concept 1.8).

### Concept 1.8  **Two ways of viewing models of reading**

<table>
<thead>
<tr>
<th>Metaphorical models of reading</th>
<th>Specific models of reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bottom-up models</td>
<td>1. Interactive Compensatory Model</td>
</tr>
<tr>
<td>2. Top-down models</td>
<td>2. Word Recognition Model</td>
</tr>
<tr>
<td>3. Interactive models</td>
<td>3. Simple View of Reading Model</td>
</tr>
<tr>
<td></td>
<td>4. Dual-Coding Model</td>
</tr>
<tr>
<td></td>
<td>5. Psycholinguistic Guessing Game Model</td>
</tr>
</tbody>
</table>

#### 1.4.1 Metaphorical models of reading

We typically hear about bottom-up, top-down and interactive models of reading, particularly in L2 discussions. These models represent metaphorical generalisations that stem from comprehension research conducted over the past four decades. As an initiation into thinking about reading comprehension, these models serve useful purposes; however, they do not clarify more recent research advances. Metaphorically, **bottom-up models** suggest that all reading follows a mechanical pattern in which the reader creates a piece-by-piece mental translation of the information in the text, with little interference from the reader’s own background knowledge. In the extreme view, the reader processes each word letter-by-letter, each sentence word-by-word and each text sentence-by-sentence in a strictly linear fashion. We know that such an extreme view is not entirely accurate. At the same time, aspects of this view (e.g. lower-level processes such as word recognition abilities and syntactic parsing) are reflected in the overview of the reading process presented in this chapter.

**Top-down models** assume that reading is primarily directed by reader goals and expectations. Again, such a view is general and metaphorical. Top-down models characterise the reader as someone who has a set
of expectations about text information and samples enough information from the text to confirm or reject these expectations. To accomplish this sampling efficiently, the reader directs the eyes to the most likely places in the text to find useful information. The mechanism by which a reader would generate expectations is not clear, but these expectations might be created by a general monitoring mechanism (i.e. an executive control processor). Inferencing is a prominent feature of top-down models, as is the importance of a reader’s background knowledge. Top-down views highlight the potential interaction of all processes (lower- and higher-level processes) with each other under the general control of a central monitor. In extreme interpretations, there is a question about what a reader can learn from a text if the reader must first have expectations about all the information in the text. In fact, few reading researchers actually support strong top-down views.

**Quote 1.10**

Two decades of empirical research have largely resolved... debates in favour of the bottom-up models. A greater use of context cues to aid word recognition is not a characteristic of good readers; developing phonological sensitivity is critical for early success in reading acquisition; and instructional programmes that emphasize spelling-sound decoding skills result in better reading outcomes because alphabetic coding is the critical subprocess that supports fluent reading.

Stanovich and Stanovich (1999, p. 29)

The seeming compromise to satisfy everyone is to propose interactive models of reading, again as a general metaphorical explanation. The simple idea behind this view is that one can take useful ideas from a bottom-up perspective and combine them with key ideas from a top-down view. So, word recognition needs to be fast and efficient; and background knowledge serves as a major contributor to text understanding, as does inferencing and predicting what will come next in the text. Unfortunately, using this logic leads to a self-contradictory model. As it turns out, the key processing aspects of bottom-up approaches, that is, efficiently coordinated automatic processing in working memory such as automatic word recognition, are incompatible with strong top-down controls on reading comprehension. The automatic processing aspects of comprehension, by definition, need to be able to operate without a lot of interference from the moment-to-moment information gained from background knowledge or massive amounts of inferencing. These top-down aspects of comprehension must be reserved primarily for higher-level processing.
More accurate ways to understand reading comprehension, even metaphorically, require ‘modified’ interactive models that highlight the number of processes, particularly automatic processes, being carried out primarily in a bottom-up manner with little interference from other processing levels or knowledge resources. So, word recognition may involve interactions of information from letters, letter-shapes, phonology and whole-word orthography. But fluent word recognition does not usually involve information from context or background knowledge (because activating such supporting information, to be useful, would take too much time, greatly slowing down processing efficiency). Similarly, first efforts to activate grammatical knowledge seem to be carried out relatively automatically by fluent readers. For the most part, the fluent reader is not misled by the structural information that is quickly assembled (e.g. subject, verb, object = doer, action, recipient), and it would be inefficient to wait for confirming information from inferencing or from context clues. On occasion, readers do use context to disambiguate word meaning (e.g. ‘bank’, ‘bug’, ‘dope’). In these cases, context information supports one possible word meaning over another for the word form already activated. Sometimes readers find themselves being led down a wrong path with a complex sentence, and then the structure of the sentence emerges to a conscious level for a dose of problem solving (and much slower processing).

Asserting that a modified interactive model of reading may be useful does create complications when we consider the various purposes for reading noted at the outset of the chapter. If a reader is trying to understand a text as part of integrating information across multiple texts, then background knowledge and inferences play greater roles in developing text comprehension. Similarly, skimming a text for the main idea is likely to involve processing that appears to be much more top-down in nature because the reader supplies a lot of background knowledge. Keeping these caveats in mind, it is still possible to refer to a modified interactive model, or a hybrid bottom-up/top-down model, as a useful interpretation of general reading comprehension processes.

1.4.2 Specific models of reading as research syntheses

An alternative approach to generalised metaphorical models of reading is to consider recent accounts of reading comprehension to determine which ones, at least for the present, provide good explanations for what we know about reading from research. In the past 20 years, a number of such models have been proposed. We introduce, in turn, five (types of) models of reading that have achieved some prominence and that figure in many discussions of reading: the Interactive Compensatory Model, the Word Recognition Model, the Simple View of Reading Model, the Dual-Coding Model and the Psycholinguistic Guessing Game Model.
A model of reading that was first proposed in the late 1970s and is still relevant from the point of view of reading researchers is the Interactive Compensatory Model (Stanovich, 2000). This model argues that (a) readers develop efficient reading processes, (b) less-automatic processes interact regularly, (c) automatic processes operate relatively independently and (d) reading difficulties lead to increased interaction and compensation, even among processes that would otherwise be more automatic. For example, using context clues to understand a text better or to decide what a word means is a compensatory strategy when normally expected abilities break down, or have not yet been developed. In these cases, the reading processes slow down to accommodate the time needed to use context information effectively. Thus, the reader compensates for limitations in automatic processing of the text by slowing down and using additional attentional resources. Over the past three decades, a number of studies have validated the basic arguments underlying this model (see Stanovich, 2000).

The Word Recognition Model of Seidenberg and McClelland (1989) provides a now widely recognised explanation for word recognition processing as it is likely to occur in fluent reading (but see also Coltheart, 2005 for a well-recognised alternative view). Word recognition models, and there are several, are not seen as models of reading comprehension in themselves, but rather as a depiction of the major input for efficient reading comprehension (without accounting for higher-level processing) (Harm and Seidenberg, 2004; Plaut, 2005). Most current versions of word recognition models are based on connectionist theories of how the mind organises information and learns from exposure to text. That is, information in our brains is composed of millions of bits of neuron networks that create larger neural networks representing a given lexical item, or a given concept, or non-verbal information. As we encounter words with similar meaning and use multiple times, the neuron network reassembles itself again with slightly greater facility. In this way, we develop automaticity in recognising word forms based on prior input and experience. The key point is that these models are fundamentally bottom-up in orientation, and they account for a considerable amount of what we currently know about word recognition processes under time constraints.

A third major account of reading comprehension abilities and reading development that has grown in popularity is known as the Simple View of Reading Model (Hoover and Gough, 1990). This model argues that reading comprehension is composed of a combination of word recognition abilities and general comprehension abilities (typically measured by listening comprehension). The basic idea is that when a decoding-skill measure and a (listening) comprehension-skill measure (both as percentage scores) are multiplied, the resulting score is an accurate measure of reading comprehension. This view, compatible with word recognition models and
the Interactive Compensatory Model, provides a reasonable account of individual differences in reading abilities and has generated much discussion among reading researchers over the past decade. At issue is how exactly should decoding and comprehension be measured, how should scores for decoding and comprehension be combined, and what other factors might be added for an improved explanation of reading abilities (passage reading fluency, motivation, background knowledge, metacognitive awareness, etc.) (see Adlof, Catts and Little, 2006; Kirby and Savage, 2008). At present, the Simple View of Reading is among the most influential views of reading abilities among reading researchers.

**Quote 1.12**

An increasingly common view in the research literature is that reading is essentially divided into two components: decoding (word recognition) and comprehension. The latter is often described as consisting of parsing sentences, understanding sentences in discourse, building a discourse structure, and then integrating this understanding with what one already knows. This comprehension process, however, is not seen as unique to reading, but also describes the process of listening.

Alderson (2000, p. 12)

**Quote 1.11**

Skilled reading clearly requires skill in both decoding and comprehension.... A child who cannot decode cannot read; a child who cannot comprehend cannot read either. Literacy – reading ability – can be found only in the presence of both decoding and comprehension. Both skills are necessary; neither is sufficient.

Gough, Hoover and Peterson (1996, p. 3)

A fourth important model of reading is the Dual-Coding Model (Sadoski, 2009; Sadoski and Paivio, 2001, 2007). This model has been growing in popularity among researchers in the last decade. It draws on several key concepts from other reading models, including the Interactive Compensatory Model, Simple View of Reading Model and Verbal Efficiency Model (Perfetti, 1999). But it also highlights the idea that verbal and
visual information represent two linked but separable cognitive processing systems that reinforce each other (thus, learning effectiveness is improved when visual representations for key information match and support prose information from a text). Both visual and verbal processing of reading input (e.g. through imagery, visual representations, action responses to show comprehension, as well as generally recognised component skills for reading) work together to improve reading comprehension abilities (Sadoski, 2009). A large amount of evidence for this view of separable but supportive sub-systems of cognition to support comprehension is presented in Paivio (2007) and is directly supported by decades of research on multimedia learning (Mayer 2009). The model also suggests, based on Paivio (1986, 2007), that abstract representations of meaning information and text model networks are not necessary (e.g. semantic propositions, conceptual schemata); rather, comprehension is built directly from linguistic and visual input.

Finally, the Psycholinguistic Guessing Game Model of Reading (Goodman, 1986, 1996) is well known among applied linguists; it is also recognised today among reading researchers as being fundamentally wrong (Gough and Wren, 1999; Pressley, 2006; Stanovich, 2000). This model portrays reading comprehension as a universally applicable iterative process of (a) hypothesising, (b) sampling and (c) confirming information based on background knowledge, expectations about the text, a sampling of surface features of the text and the deriving of context information from the text. It is, despite protestations by Ken Goodman, a classic example of a top-down approach to reading comprehension. Proponents of this strongly top-down-oriented model have used it to support suggestions for reading instruction that have not been particularly beneficial for students’ reading development, despite the continuing popularity of the model. Good readers typically do not guess what words will appear next in the text and good readers make less use of context than poor readers while they are engaged in fluent reading (see Pressley, 2006; Stanovich, 2000).

Moreover, the Guessing Game Model claims that all instances of reading are the same, across all proficiency levels and across all languages, and that all reading abilities transfer automatically across languages. However, it is clear that reading development is not universally the same across languages or proficiency levels, nor are all reading abilities easily transferred from one language to another (as we will see in the next chapter). Related models of reading, commonly referred to as constructivist models and transactional models, typically presume that readers are able to carry out basic reading comprehension processes rather than explain how these processes operate or how they develop (see Quote 1.13). In some respects, the Guessing Game Model provides a useful interpretation of an early stage of reading development, but representing just one stage of reading development has never been Goodman’s intention.
1.5 Conclusion

In this chapter, we have outlined a view of reading that is well supported by current research in English L1 contexts and is compatible with L2 reading research of the past 20 years. Beginning with our discussion of purposes for reading and our extended definition of reading comprehension, we have sought to describe current research views on reading comprehension while also providing explanations that have real implications for instructional contexts. We have also developed an account that focuses on individual reader processing. This emphasis on individual processes is not intended to deny the relevance of social factors on reading development (e.g. family literacy experiences, social group experiences, primary schooling, peer and sibling interaction around literacy events; see Grabe, 2009) or the relevance of social contexts on purpose and processes themselves (see Chapter 2). Rather, our intention is to highlight information that is not well known among reading teachers, and raise awareness of issues that curriculum planners and teachers should consider if reading instruction is to be appropriate for student needs and institutional expectations. Our view of reading, as summarised in Figure 1.1, reveals the complex nature of reading and the many factors that must be taken into account when assessing students’ needs and planning meaningful reading instruction.
As we pointed out earlier, much of the research that supports the views presented in this chapter is drawn from L1 contexts. In the next chapter, we explore the differences between L1 and L2 reading. These differences should influence our interpretation of L2 reading comprehension abilities, the development of L2 abilities and implications for reading instruction.
Further reading

Citations that appear frequently in the chapter represent key references for further details. For additional readings on a number of key issues in this chapter, see Chapter 10 (mainly 10.1 and 10.2) and refer to the following. For:

- alternative views on *purposes for reading*, see Carver (1992)
- variations on the *reading-to-learn* concept, see Enright *et al.* (2000), Khalifa and Weir (2009)
- comprehensive overviews of *general reading comprehension*, see Grabe (2009), Pressley (2006), Snow, Griffin and Burns (2005)
- information on *working memory activation*, see Baddeley, Eysenck and Anderson (2009), Gathercole and Alloway (2008), Pickering (2006)
- specific models of reading that are similar in nature to the *Interactive Compensatory Model*, see Kintsch (1998), Perfetti (1999)
- a discussion of a wide *range of reading models*, see Grabe (2009), Hudson (2007)
- specifics on the *Simple View of Reading Model*, see Gough, Hoover and Peterson (1996), Kirby and Savage (2008)
- specifics on the *Dual Coding Model* of reading, see Sadoski (2004, 2009)