The research career of Chuck Perfetti has consisted of a core of work focused upon processes of reading and the construction of meaning. An early sign fore- shadowing future productivity came in 1972 when Chuck published a paper in the *Psychological Bulletin* in the developing field of psycholinguistics. It was entitled “Psychosemantics: Some Cognitive Aspects of Structural Meaning.” A few years after arriving in Pittsburgh, Chuck’s interests expanded into the exploration of why some children have trouble in reading and why some are better at reading than others. Much of the early research on this question is presented in the landmark book, *Reading Ability* (1985). This work provided some of the first evidence for the relationship between word recognition and comprehension and has become the bedrock of modern thought about reading.

Chuck’s early reading research depicts interests in topics such as decoding written words, phonological processing, lexical access, and comprehension; issues he would study throughout his career. Yet as with quality investigators, persisting interests do not result in studying more and more about less and less, but instead provide a grounding from which new research is launched. In Chuck’s case such work has included reading in Chinese, the study of brain function in reading including the use of ERP and fMRI techniques, and the study of comprehension in History as well as work in a broader educational context. At a more general level, Chuck’s research shows how, over time,
quality productivity consists not only of the interaction of developments in the field and in the investigator, but also in the ability of the investigator to be sufficiently astute to pursue fruitful issues. The chapters of this volume, written by students and colleagues of Chuck Perfetti, expand upon the topics mentioned above. Our comments on these contributions reflect upon the impressive breadth of the research and its relation to the important themes that underlie Chuck’s work.

In the initial chapters, the role of basic phonological processes underlying skilled reading is considered. The Berent chapter addresses the observation that reading, due to the fact that written words are represented in a visual form, could at first blush seem to be primarily a function of visual processing systems. Yet, it pursues the compelling argument that reading skill may be more fundamentally based in auditory processing. The chapter presents an evolutionary account suggesting that the areas of cortex responsible for modern reading and writing systems evolved not from visual processing areas, but emerged from an older modular core that is dedicated to the processing of linguistic phonological units.

The Landi chapter considers the role of phonological processes in how children learn to read new words, particularly outside the classroom. An interesting point is that although struggling readers may be able to use sentence or story context to help them to identify and pronounce new words, when they use context at the expense of engaging in phonetic processing, then learning of the new words is impoverished. Only when readers engage in generating phonological units by attending to the letters in the words are high-quality lexical entries created. Evidence from neural imaging studies also shows that the type of processing that readers engage in when faced with new words is critical for learning. Specific benefits on later naming tasks are seen only if readers engage in phonological processing when they are faced with new words (Sandak et al., 2004).

The translation between written letters and their sounds is particularly difficult for learners of an irregular language such as English. To appreciate the extent to which the phonological basis of written language processing may be universal, cross-linguistic comparisons are essential. The Verhoeven chapter provides just such an analysis of reading in another language, in this case, Dutch. Dutch is interesting because Dutch orthography is much more consistent than English, and indeed, word recognition and decoding skills among Dutch school children were found to be tightly linked.

The McCutchen chapter continues the focus on the critical role of phonemic awareness in developing skilled reading, but further shows the importance of helping teachers to understand the relation between linguistics and literacy. This intervention study is an example of translational research at its finest. It informs both educational practice as well as theory, by showing not only the significant effects that the intervention had on teacher knowledge and student
literacy, but also that students at all reading skill levels could benefit from more linguistically knowledgeable teachers.

These first four chapters focus on the primary role of phonology and phonemic awareness in skilled reading. The critical role of these processes has been well documented by Chuck as well as other reading researchers over the past several decades. Research has included compelling demonstrations of the importance of developing skills in phonology–orthography translation for skilled reading. It includes studies contrasting good and poor readers, studies on dyslexics and other special populations, studies making comparisons with languages other than English, studies on bilingual readers and second-language learners, and studies using neuroscience methods. Conclusions based on this body of work were central to the influential 2001 monograph, “How Psychological Science Informs the Teaching of Reading” by Rayner, Foorman, Perfetti, Pesetsky, and Seidenberg, laying out the argument for the need to explicitly instruct young children in phonemic awareness and exposing the dangers of expecting these critical skills to just happen naturally.

As one progresses through the book, the chapters move beyond phonological processes to the derivation of meaning from lexical processes. Several chapters in this middle portion are related to Chuck’s work on deriving meaning through lexical co-occurrence and the lexical quality hypothesis (Perfetti, 2007; Perfetti & Hart, 2002). The Andrews and Reynolds chapter considers how lexical access can be facilitated by previous sentence contexts. Although much prior work has failed to show evidence for semantic priming from previous words on early word-recognition processes, Andrews and Reynolds show that when a measure of the lexical co-occurrence of prior words in a sentence is employed, a relationship can be found between frequency of lexical co-occurrence and speed of identification.

Like the Andrews and Reynolds chapter, the Kintsch chapter also considers how lexical co-occurrence may be leveraged in language processing. These chapters harken back to Chuck’s first lines of research on cognitive aspects of structural meaning—how word meaning is derived from associations. These topics are enjoying a resurgence in the literature due to cutting-edge advances in systems that can handle complex and extensive computations of co-occurrence such as Latent Semantic Analysis (LSA), and the excitement and promise that such systems hold for advancing natural language-processing systems that can capture meaning. The modern approach that Kintsch describes in his chapter is consistent with some longstanding concerns about how far associations alone can get us, and demonstrates the need to address the issue of syntax.

Whereas the Kintsch chapter does a nice job of showing how LSA-type analyses must be expanded to capture more than lexical co-occurrence, the theme of the Oakhill, Cain, McCarthy, and Nightingale chapter is in taking the opposite tack, and exploring how far associations can get you in reading. It
explores the interaction between low-level reading skills and higher-order inferencing or reasoning skills. In this model, lexical quality improves both the ability to decode or encode words, but in addition deeper knowledge of possible relations or associations between words also helps readers to make inferences. This supports broader levels of comprehension.

The Van Dyke and Shankweiler chapter also investigates the relation between lexical access and higher-order comprehension, but does so from a processing perspective. It is generally agreed that lexical access is a more automatic process than comprehension, which is seen as a more effortful process. Some theories suggest that limits in comprehension are due to processing bottlenecks. However, this chapter builds a case that it is lexical quality that determines automaticity, which in turn supports more complex processing.

The final four chapters move to broader issues of discourse-level comprehension. The van den Broek, Helder, and Van Leijenhorst chapter and the Mason and Just chapter are concerned with passage- level or story- level comprehension, and interactions among basic and discourse-level processes.

The van den Broek, Helder, and Van Leijenhorst chapter provides a developmental and individual differences perspective on what good comprehenders do or, alternatively, what poor comprehenders fail to do, which complements the emphasis seen in many of the other chapters of this book. It is argued that the more skilled comprehenders have a greater sensitivity to the structured centrality of the discourse, that is, its focal theme. The reader’s knowledge of story genre and its elements increases with experience and the expectations subsequently provided are responsible for the ability to detect relations while reading. The chapter also provides evidence supporting the almost independent development of more basic reading skills and some higher-level comprehension skills such as generating inferences. The chapter acknowledges the important role of basic word-recognition skills in reading comprehension, but also demonstrates that there may be other differences in skill development between good and poor comprehenders.

The Mason and Just chapter also examines relations among different reading processes but their analysis is in terms of brain function. In particular, the authors articulate a novel factor- analytic approach for the interpretation of the timecourse of particular patterns of neural activity related to story comprehension. For example, when a person begins reading a story, components and areas pertaining to more basic reading processes that serve to create a textbase are relatively more active, but as reading continues, components and areas pertaining to intentional and inferential processes called for by the story become more important, as indicated by factor loadings.

The final chapters move beyond single text-comprehension contexts and consider learning from multiple documents. The chapter by Britt, Rouet, and Braasch has its roots in the work of Britt, Perfetti, Sandak, and Rouet (1999)
and Perfetti, Rouet, and Britt (1999) which focused upon learning from multiple historical documents. Beginning with the idea of the document as a unit, the authors provide an analysis of the structures and processes that may enable individuals to construct an integrated representation across multiple texts. One point of emphasis is how a document representation is a function of the goals of the reader, affecting information selection and integration. Another point of emphasis is how the boundaries of a given document must be relaxed in order to develop a representation containing information from more than one document. One process hypothesized to accomplish such an act is termed embedding, that is, information from one document is embedded and integrated into the representation of another document. This new approach captures the continual modification of goal-directed representations that seems necessary in multiple document reading contexts.

Similar to Britt, Rouet, and Braasch, Goldman, Lawless, and Manning are concerned with the question of how a reader extracts information from multiple texts under particular task or goal conditions. This work also can be seen as an extension of that of Britt et al. (1999) and Perfetti et al. (1999). In this case, performance in the writing of an essay is essentially compared to a competence model that has been derived in relation to a particular goal for reading a set of three texts. Student performance was observed to fall into three performance levels, providing some information pertaining to students’ strengths and weaknesses. This approach may have value as it provides a means for the diagnosis of students’ current skill levels with respect to using multiple sources to answer an inquiry question, which may also serve to provide foci for instructional emphasis.

Overall, the chapters provide a broad landscape of research ranging from decoding to multiple document comprehension. In the 115 years since Huey (1908) planted the seeds for reading research, at least two related examples of growth stand out, the rather amazing number of techniques and research procedures that have been developed and the unearthing of component processes found in the reading and comprehension literature. The chapters of this volume span a substantial portion of the landscape, covering the ground from lower-level phonological skills to complex issues of neuropsychological data analysis to understanding the interplay of processes that underlie comprehension.

The reading landscape contains a number of streams, with each, at least on the surface, providing an opportunity to study reading in a particular way. One may cast into a particular stream and find theories, research findings, speculative ideas, and if one is skillful and a bit lucky, one may hook into some insight or finding that helps in the generation of worthwhile research. You may further discover that in a large number of cases what you find was spawned by Chuck Perfetti.
References


