The Progression of Reading Comprehension

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The question of how to foster reading comprehension is of central importance to education. Reading competence is strongly associated with K–12 academic success and with success in college and careers. As students advance through school and enter college and the workforce, the reading tasks they face typically become more demanding and the texts they read more complex in terms of both concepts and language.

It is useful to first address the question of what such development actually means so that we might more effectively help students develop their reading comprehension ability. To characterize that development, we must unpack and elaborate four key constructs and their tightly intertwined roles in reading comprehension:

1. Developing and maintaining a *standard for coherence* for evaluating our models of meaning
2. Employing *cognitive strategies* to repair comprehension when it breaks down
3. Building *models* of what we think texts say and mean
4. Using *knowledge* to propel and assess comprehension

In general, students make progress in comprehension as they travel through school. They can read and understand increasingly complex texts, and they can demonstrate their understanding by engaging in increasingly sophisticated thinking about the ideas they encounter in text. If we set aside for the moment the vital role that text itself plays, the ability to comprehend depends on two critical variables the reader brings to the task—knowledge and cognitive strategies. The knowledge that drives comprehension includes general world knowledge, knowledge from topics within specific disciplines, and knowledge about the nature of language, including the genres and conventions of written text.

When comprehension occurs optimally, it is driven by readers' knowledge and their highly automated processing skills; readers know that a text they are reading "makes sense" when their interpretation of the text (the *model of meaning* they are building for that text) is consistent with what they know to be true about the world and what they just read a moment ago. In this state of more or less automatic processing, reading and comprehension seem smooth and effortless. But when their *standard for coherence* is not met—when the text stops making sense to them –readers must take stock, reconsider options, and look for ways to achieve the coherence they seek. The processes they invoke when things don't make sense are what we call *cognitive* or *comprehension strategies*. These strategies are a set of deliberate mental procedures (corrective or "fix-up" routines) that students invoke when they sense that comprehension has broken down. In order for comprehension to grow sufficiently to meet increasing demands placed upon their reading skill, students must continue to develop both knowledge and comprehension strategies throughout their schooling. Both are necessary; neither is sufficient in itself.

A standard for coherence: Comprehension as ongoing monitoring

A key part of this ongoing comprehension process is maintaining a consistent *standard for coherence*. The term *standard for coherence* refers to a "reader's criteria or general sense of the importance of forming a coherent representation, especially of how different parts of a text are related to one another" (Magliano *et al*, in McNamara, 2007, p.121) and how the text maps onto a reader's prior knowledge. As text becomes more complex and as tasks become more demanding, students must develop and maintain an increasingly wide and rigorous standard for coherence if comprehension is to develop apace. The skilled reader monitors comprehension in accordance with this robust standard for coherence. When recognized, violations of the standard—inconsistency among the parts of a text, ambiguity about word meanings, or conflict with existing knowledge—call forth strategies needed to overcome these impediments. Thus, developing a high standard for coherence, learning to monitor comprehension actively, and learning to respond with appropriate corrective strategies all hold a central position in developing comprehension. Generally, these strategies include some mix of paraphrasing and self-explanation, rereading, generating questions, analyzing and using the structure of the text, visualizing, drawing bridging and elaborative inferences, close reading (this may itself overlap with and include a variety of strategies), and summarizing (including the use of graphic organizers to depict one's emerging understanding). Let's take a peek at some of these and how they come into play.

Cognitive strategies: repairing comprehension when it breaks down
Students need to learn how to match the right strategy to the right text and task. Thus, although strategies may be introduced singularly, instruction needs to move quickly to an emphasis on developing a "tool kit" of strategies from which they can pull the right strategy for a given text and task. However, if students are not presented with a variety of text types and tasks, the full panoply of these strategies will likely not emerge evenly, and breadth of comprehension will suffer. This, in fact, often happens in elementary schools, where most reading instruction centers on narrative text, with the net effect that they enter middle school ill-prepared to meet the challenge of informational texts in science, social studies, and mathematics. This situation has begun to change, albeit slowly.

Many of these strategies involve making inferences. Older and more proficient comprehenders make more inferences than younger or less proficient readers. However, students who are younger or less proficient *can* make the same sorts of inferences as their counterparts when directly prompted. So the issue here may be that skilled readers *expect* to understand what they read. They have a high coherence standard, and when they are confused, they start to do more vigilant monitoring of their understanding. Their less proficient peers are not as accustomed to understanding what they read, and don't therefore always do the work to insure comprehension. This may be the factor that separates the two types of students, rather than relative ability in making inferences.

If students maintain a high standard for coherence and continue to monitor comprehension, their once-effortful strategies over time will be transformed into skills—that is, less effortful, more automatic, and more likely to be retained. Therefore, the transition from effortful strategy to automatic skill is another aspect of progress of comprehension. It should be kept in mind that more demanding tasks or texts will require reversion to more effortful strategic reading, beginning the transition anew. Over time, this cycle of conscious effort transforming to automatic habit scaffolds the emergence of highly proficient readers.

Just as breadth of comprehension develops with breadth of texts and tasks, depth of comprehension develops as students read, with instructional support, a progression of increasingly demanding texts requiring active use of strategies, including making inferences, as well as more profound and multidimensional tasks.

Models: Building levels of representation
Another key part of the comprehension process is model building. In fact, it can be (and has been) plausibly argued that comprehension is nothing but building representations (models) of the meaning of text. One key level of meaning is what Kintsch has dubbed the *textbase*. It involves an accurate reading of the text for the purpose of getting the key ideas (what psychologists call *propositions*) into working memory. It also involves using knowledge of language and text to make all the local inferences required to connect the sentences to one another (e.g., inferring that the pronoun *she* refers to the woman just mentioned in the preceding sentence). It is what the common core standards refer to when the demand is made to "read closely to determine what the text says explicitly (reading standard 1)." A second level of representation is the *situation model*—that coherent mental representation of the events, actions, and conditions in the text that represents the integration of the *textbase* with relevant prior knowledge from long-term memory. To develop satisfactory situation models (ones that meet the standard for coherence already outlined), readers must successfully integrate information from the *textbase* (the words, sentences, and paragraphs) with available and relevant prior knowledge retrieved from long-term memory and fold it all into their emerging models of the meaning of the text.

Constructing a situation model is central to reading comprehension. It is the mechanism that allows readers to integrate what they already know with what they read in the service of building new knowledge structures in response to reading. These new structures feed back into memory where readers use them to reinforce, modify, or replace those currently stored in memory. Just as knowledge drives comprehension, so does comprehension provide the reader with new knowledge to modify the existing knowledge structures in long-term memory. In other words, knowledge begets comprehension begets knowledge in just the sort of beneficial cycle we would like students to experience.

Central to the development of any satisfactory situation model are the inferences a reader must employ in order to fill in what the textbase leaves undefined, uncertain, or ambiguous. For example, the statement "Despite repeated efforts, cloud seeding over deserts has failed to produce rain" requires a skilled reader the logical inference that clouds, at least under some circumstances, are capable of producing rain. At a simpler level, a first-grader reading the sentence "Henry dug a hole" will infer that Henry used a shovel—unless, of course, there is something in the text to block such an inference, such as an earlier statement that Henry had no tools or that Henry is a dog, and assuming that the young student knows what a shovel is.

Skilled readers have two advantages over less skilled readers when it comes to model building. One is greater facility with text processing and the other is more knowledge. Thus, skilled readers are more readily able to integrate broader arrays of relevant elements from the textbase and to bring wider and deeper knowledge to the task of constructing a situation model.

Knowledge: Propelling and assessing comprehension

Finally, we focus on what has already emerged as a critical factor in this whole process—knowledge. Development of comprehension requires knowledge as well as procedural tools (skills and strategies). Background knowledge influences comprehension, especially the understanding of expository text. It plays a key role in the construction of the two critical representational models, the textbase and the situation model. As suggested earlier, virtually all forms of knowledge boost comprehension of text, but these in particular are crucial:

- General world knowledge
  This is knowledge of all of the mundane things that make everyday life manageable.
- Knowledge of relations among people
  This is particularly relevant to understanding literature since most literature focuses on themes that involve the stuff of human experience.
- Disciplinary knowledge
  This is knowledge of how ideas are organized and how arguments are made in various disciplines. This is the stuff of academic discourse. Also included in disciplinary knowledge is knowledge of the particular topics that comprise the disciplines (e.g., character development in literature, photosynthesis in biology, or the structure of revolutions in history). Knowledge of specific topics is especially important for reading informational texts, and the wider and deeper this knowledge the deeper and more precise our comprehension.
- Knowledge of language
  This includes, of course, the all-important aspects of printed language, including knowledge of the cipher—how letters map onto sound—as well as the conventions of writing and the most common rhetorical structures.

As important as knowledge is to the development of comprehension, active strategic reading is equally important. Nowhere has this been better demonstrated than in the work of Cain and her colleagues who show that even when less able readers possessed knowledge of a topic equal to that of skilled readers (in this case, knowledge of an artificial world for which all readers had been taught to the same criterion level of knowledge), better readers were still able to draw inferences that the less able readers could not. In the cloud seeding example above, a student reading about the persistent failure of cloud seeding over a period of decades might also infer that there are no known methods to produce rain from clouds. Similarly, in the earlier example about Henry digging the hole, a first-grade student reading that water came from the hole Henry dug could infer that at least in some locations water can be found underground. These inferences would not be available to students struggling just to establish a rudimentary textbase.

A Word about word knowledge

Knowledge of words themselves is also important to the development of skilled reading—not just because reading obviously involves words but also because words are windows into our knowledge; words name our ideas. Word knowledge entails many codes—phonological, orthographic, morphological, and semantic—but it is the semantic aspect of word knowledge that is most central to comprehension. As Walter Kintsch puts it, "Vocabulary growth is not just a question of knowing a word, but knowing the right things about it (nuances

of meaning in different contexts). We don't learn words; we learn semantic networks." That is, we learn words in a web of relationships to other words. A progression of comprehension therefore entails expansion of that network—learning more words, learning more about those words, learning what other words and ideas those words are like and unlike, and experiencing those words in enough settings and contexts to begin to differentiate the various definitions of any given word.

Strengthening what is known about each word, however, involves more than the word's meanings. Knowing a word indeed means knowing as much as possible about it semantically, but also phonologically, morphologically, and orthographically. The greater students' knowledge in each of these areas, the greater their reading comprehension and the greater their ability to learn new words rapidly and to retain them.

Before entering college students learn about five thousand words a year. Even if a smaller figure that bases its count on unique roots alone is used, it is clear that most words inevitably must be learned in the context of reading rather than through direct instruction. The deeper and wider students' knowledge of words, the more efficient and effective their learning of new words and the better their general reading comprehension.

Knowledge of words, like knowledge more generally, bears a reciprocal relationship to comprehension: knowledge of words begets comprehension, and comprehension, in turn, begets new knowledge of words.

A final word

Four key constructs—a standard for coherence, strategies, model building, and knowledge—are the infrastructure of comprehension. Together, they form a tightly woven framework, with each element necessary for the development of the others. These elements all work together to produce and refine greater knowledge of words, the world, disciplines, and language. This enhanced knowledge yields greater comprehension, which fuels the ability to comprehend increasingly challenging text in the future. If all these elements are in place, actively reinforcing one another, comprehension will progress appropriately across the grades.

Notes for the Progression of Reading Comprehension

A standard for coherence: Comprehension as ongoing monitoring
The term *standard for coherence:* van den Broek, P., Risden, K., Husebye-Hartman, E. (1995). The role of readers' standards for coherence in the generation of inferences during reading. In R. F. Lorch, Jr. and E. J. O'Brien (Eds.), *Sources of coherence in reading.* Hillsdale, N.J.: Erlbaum.
"reader's criteria or general sense of the importance of forming a coherent representation, especially of how different parts of a text are related to one another": Magliano, J. P., Millis, K. K., Ozuru, Y., & McNamara, D.S. (2007). A multidimensional framework to evaluate reading assessment tools. In D. S. McNamara (Ed.), *Reading comprehension strategies: Theories, interventions, and technologies* (pp. 107-136). Mahwah, NJ: Erlbaum.

students must develop and maintain an increasingly encompassing and rigorous standard for coherence if comprehension is to develop apace..: Perfetti, C. A., Landi, N., & Oakhill, J. (2005). The acquisition of reading comprehension skill. In M. J. Snowling & C. Hulme (Eds.), *The science of reading: A handbook*. (pp. 227-247). Oxford: Blackwell.

…call forth strategies needed to overcome these impediments: McNamara, D. S. (Ed.). (2007). *Reading comprehension strategies: Theory, interventions, and technologies*. Mahwah, NJ: Erlbaum; National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel. Teaching children to read: an evidence-based assessment of the scientific research literature on reading and its implications for reading instruction.* Retrieved 1.21.2010, from http://www.nichd.nih.gov/publications/nrp/smallbook.htm; Perfetti, C. A., Landi, N., & Oakhill, J. (2005). The acquisition of reading comprehension skill. In M. J. Snowling & C. Hulme (Eds.), *The science of reading: A handbook*. (pp. 227-247). Oxford: Blackwell.

…all hold a central position in developing comprehension: Cain, K .(2009). Making sense of text: skills that support text comprehension and its development. *Perspectives on Language and Literacy, 35,* 11-14; Cain, K., & Oakhill, J. (Eds.) (2007). *Children's comprehension problems in oral and written language: A cognitive perspective.* New York: Guilford Press; McNamara, D. S. (Ed.). (2007). *Reading comprehension strategies: Theory, interventions, and technologies*. Mahwah, NJ: Erlbaum.

Cognitive strategies: repairing comprehension when it breaks down
Students need to learn how to match the right strategy to the right text and task: McNamara, D. S. (Ed.). (2007). *Reading comprehension strategies: Theory, interventions, and technologies*. Mahwah, NJ: Erlbaum; National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel. Teaching children to read: an evidence-based assessment of the scientific research literature on reading and its implications for reading instruction.* Retrieved 1.21.2010, from http://www.nichd.nih.gov/publications/nrp/smallbook.htm; Pressley, M. (2000). Explicit and implicit instruction in comprehension. In B. M. Taylor, M. F. Graves, & P. van den Broek (Eds.), *Reading for meaning : fostering comprehension in the middle grades*. New York: Teachers College Press; Pressley, M., & Afflerbach, P. (1992, June). Researcher-educator collaborative interview study of transactional comprehension strategies instruction. *Journal of Educational Psychology, 84(2),* 231-46.

most reading instruction centers on narrative text: Duke, N. K., Bennett-Armistead, S., Roberts, E. M. (2003, Spring). Filling the nonfiction void: Why we should bring nonfiction into the early-grade classroom. *American Educator, 27(1),* 30-34, 46; Hirsch, E. D. (2003, Spring). Reading comprehension requires knowledge--Of words and the world. *American Educator, 27(1),* 10-13, 16-22, 28-29, 48. Retrieved 1.22.2010 from: http://archive.aft.org/pubs-reports/american_educator/spring2003/AE_SPRNG.pdf.

students' ability to read nonnarrative text is correspondingly less developed: Best, R. M., Floyd, R. G.; McNamara, D. S. (2008, March). Differential competencies contributing to children's comprehension of narrative and expository texts. *Reading Psychology 29(2),* 137-164; RAND Reading Study Group (2002). *Reading for understanding: Toward a R&D program in reading comprehension*. Science & Technology Policy Institute, Santa Monica, CA: RAND; Biancarosa, G. & Snow, C. (2003). *Adolescent literacy and the achievement gap: What do we know and where do we go from here?* New York: Carnegie Corporation.

This situation has begun to change: Moss, B. (2005, September). Making a case and a place for effective content area literacy instruction in the elementary grades. *Reading Teacher*, *59(1),* 46-55; Shanahan, T., Shanahan, C. (2008, Spring). Teaching disciplinary literacy to adolescents: Rethinking content-area literacy. *Harvard Educational Review, 78(1),* 40-59; Read, S., Reutzel, D. R., Fawson, P. C. (2008, December). Do you want to know what I learned? Using informational trade books as models to teach text structure. *Early Childhood Education Journal, 36(3),* 213-219; Vitale, M. R., & Romance, N. R. (2007). A knowledge-based framework for unifying content-area reading comprehension and reading comprehension strategies. In D. McNamara (Ed.), *Reading comprehension strategies: theory, interventions, and technologies.* (pp. 73-104). New York: Erlbaum.

It is significant to note that older students and more proficient comprehenders: Cain, K. (2009). Making sense of text: skills that support text comprehension and its development. *Perspectives on Language and Literacy, 35,* 11-14; McNamara, D. S., & McDaniel, M. A. (2004). Suppressing irrelevant information: Knowledge activation or inhibition? *Journal of Experimental Psychology: Learning, Memory, & Cognition, 30*, 465-482; Yuill, N. M. and Oakhill, J.V. (1991). *Children's Problems in Text Comprehension: An Experimental Investigation.* Cambridge University Press; Perfetti, C. A., Landi, N., & Oakhill, J. (2005). The acquisition of reading comprehension skill. In M. J. Snowling & C. Hulme (Eds.), *The science of reading: A handbook* . (pp. 227-247). Oxford: Blackwell.

…that separates the two types of students rather than relative ability in making inferences: McNamara, D. S. (Ed.). (2007). *Reading comprehension strategies: Theory, interventions, and technologies*. Mahwah, NJ: Erlbaum; Oakhill, personal communication, 2009; Perfetti, C. A., Landi, N., & Oakhill, J. (2005). The acquisition of reading comprehension skill. In M. J. Snowling & C. Hulme (Eds.), *The science of reading: A handbook* . (pp. 227-247). Oxford: Blackwell.

less effortful, more automatic, and more likely to be retained: Afflerbach, P., Pearson, P. D., Paris, S. G. (2008, February). Clarifying differences between reading skills and reading strategies. *Reading Teacher*, *61(5),* 364-373.

a progression of increasingly demanding texts requiring active use of strategies, including making inferences: Ericsson, K. A., & Kintsch, W. (1995). Long-term working memory. *Psychological Review, 102,* 211-245; Ericsson, K. A., Patel, V. L., & Kintsch, W. (2000). How experts' adaptations to representative task demands account for the expertise effect in memory recall: Comment on Vicente and Wang. (1998). *Psychological Review, 107,* 578-592; McNamara, D. S. (2001). Reading both high-coherence and low-coherence texts: Effects of text sequence and prior knowledge. *Canadian Journal of Experimental Psychology, 55*, 51-62; McNamara, D. S., & Kintsch, W. (1996). Learning from text: Effects of prior knowledge and text coherence. *Discourse Processes, 22*, 247-288; McNamara, D. S., & Kintsch, W. (1996). Working memory in text comprehension: Interrupting difficult text. In G.W. Cottrell (Ed.), *Proceedings of the Eighteenth Annual Conference of the Cognitive Science Society* (pp. 104-109). Hillsdale, NJ: Erlbaum; McNamara, D.S., Kintsch, E., Songer, N.B., & Kintsch, W. (1996). Are good texts always better? Interactions of text coherence, background knowledge, and levels of understanding in learning from text. *Cognition and Instruction, 14*, 1-43.

Models: Building levels of representation

…comprehension is nothing but building representations (models) of the meaning of text: Kintsch, W. (1998) *Comprehension: A paradigm for cognition*. New York: Cambridge University Press; Perfetti, C. A., Landi, N., & Oakhill, J. (2005). The acquisition of reading comprehension skill. In M. J. Snowling & C. Hulme (Eds.), *The science of reading: A handbook* (pp. 227-247). Oxford: Blackwell; van den Broek, P., Young, M., Tzeng, Y., & Linderholm, T. (1999). The landscape model of reading: Inferences and the on-line construction of a memory representation. In H. van Oostendorp & S. R. Goldman (Eds.), *The construction of mental representations during reading* (pp. 71-98). Mahwah, NJ: Erlbaum.

the *situation model*—that coherent mental representation of the events, actions, and conditions in the text: Cain, K .(2009). Making sense of text: skills that support text comprehension and its development. *Perspectives on Language and Literacy, 35,* 11-14; Graesser, A.C., Singer, M., & Trabasso, T. (1994).

Constructing inferences during narrative text comprehension. *Psychological Review, 101(3),* 371-395. doi: 10.1037/0033-295X.101.3.371; Kintsch, W. (1998) *Comprehension: A paradigm for cognition*. New York: Cambridge University Press.

Knowledge: Propelling and assessing comprehension

Background knowledge influences comprehension: Kintsch, W. (1998) *Comprehension: A paradigm for cognition*. New York: Cambridge University Press; McNamara, D. S. (Ed.). (2007). *Reading comprehension strategies: Theory, interventions, and technologies*. Mahwah, NJ: Erlbaum; Pearson, P. D., Hansen, J., & Gordon, C. (1979). The effect of background knowledge on young children's comprehension of explicit and implicit information. *Journal of Reading Behavior, 11,* 201-210; Cain, K., Oakhill, J. V., Barnes, M. A., & Bryant, P. E. (2001). Comprehension skill, inference making ability and their relation to knowledge. *Memory and Cognition, 29*, 850-859; ..: Perfetti, C. A., Landi, N., & Oakhill, J. (2005). The acquisition of reading comprehension skill. In M. J. Snowling & C. Hulme (Eds.), *The science of reading: A handbook*. (pp. 227-247). Oxford: Blackwell; Shapiro, E.S. (2004). *Academic skills problems: Direct assessment and intervention* (3rd edition). New York: Guilford Press.

…especially the understanding of expository text: Chiesi, H., Spilich, G., Voss, J. (1979). Acquisition of domain-related information in relation to high and low domain knowledge. *Journal of Verbal Learning and Verbal Behavior*, *18,*,257-273.

Nowhere has this been better demonstrated than in the work of Cain *et al* (2001)
Cain, K., Oakhill, J. V., Barnes, M. A., & Bryant, P. E. (2001). Comprehension skill, inference making ability and their relation to knowledge. *Memory and Cognition, 29*, 850-859.

A Word about word knowledge

In a series of studies, Perfetti and his colleagues…: Hart, L., & Perfetti, C. A. (2008). Learning words in Zekkish: Implications for understanding lexical representation. In E. L. Grigorenko & A. J. Naples (Eds.), *Single word reading: Behavioral and biological perspectives* (pp. 107-128). New York: Taylor & Francis. Retrieved 1/21/2010 from: http://www.pitt.edu/~perfetti/PDF/Learning Zekkish (chapt)- Hart.pdf; Landi, N., Perfetti, C. A., Bolger, D. J., Dunlap, S., & Foorman, B. R. (2006). The role of discourse context in developing word form representations: A paradoxical relationship between reading and learning. *Journal of Experimental Child Psychology, 94*(2), 114-133. doi:10.1016/j.doi:10.1016/j.jecp.2005.12.004; Perfetti, C. A. (2007). Reading ability: Lexical quality to comprehension. *Scientific Studies of Reading, 11*(4), 357-383. Retrieved 1.22.2010 from: http://www.pitt.edu/~perfetti/PDF/Reading Ability (SSR) scanned.pdf; Perfetti, C. A., Yang, C-L., & Schmalhofer, F. (2008). Comprehension skill and word-to-text processes. *Applied Cognitive Psychology, 22*(3), 303-318. Retrieved 1.21.2010 from: http://www.pitt.edu/~perfetti/PDF/Comprehension skill and word-Yang, Schmalhofer.pdf; Perfetti, C. A., & Bolger, D. J. (2004). The brain might read that way. *Scientific Studies of Reading, 8(3),* 293-304; Yang, C. L., Perfetti, C. A., & Schmalhofer, F. (2005). Less skilled comprehenders' ERPs show sluggish word-to-text integration process. *Written Language & Literacy, 8(2),* 233-257. Retrieved 1.19.2010 from: http://www.pitt.edu/~perfetti/PDF/Less skilled comprehenders.pdf.

Before entering college students learn about five thousand words a year: Nagy, W.E. & Scott, J.A. (2000). Vocabulary Processes. In M.L. Kamil, P. Mosenthal, P.D. Pearson, & R. Barr (Eds.) *Handbook of reading research* (Vol. III. pp. 269-284). Mahwah, NJ: Earlbaum; Nagy W. & Anderson, R.C. (1984). How many words are there in printed school English? *Reading Research Quarterly, 19*, 304-330; Sternberg, R.B. (1987). Most vocabulary is learned from context. In M.G. McKeown & M.E. Curtis, Eds.). *The nature of vocabulary acquisition* (pp. 89-105). Hillsdale, NJ: Erlbaum; Nagy, W.E., Herman, P.A., & Anderson, R.C. (1985). Learning words from context. *Reading Research Quarterly, 20,* 233–253. doi:10.2307/747758.

The greater students' knowledge in each of these areas, the greater their reading comprehension: Perfetti, C.A, & Hart, L. (2001). The lexical bases of comprehension skill. In D. Gorfien (Ed.), *On the consequences of*

meaning selection (pp. 67-86). Washington, D.C.: American Psychological Association. Retrieved 1.20.2010 from: http://www.pitt.edu/~perfetti/PDF/Lexical bases of comprehension skill- Hart.pdf.

…and the greater their ability to learn new words rapidly and to retain them: Perfetti, C. A. (2007). Reading ability: Lexical quality to comprehension. *Scientific Studies of Reading, 11*(4), 357-383. Retrieved 1.22.2010 from: http://www.pitt.edu/~perfetti/PDF/Reading Ability (SSR) scanned.pdf.
Research on the number of words learned before college..: Nagy, W. E., & Anderson, R. C. (1984). How many words are there in printed school English? *Reading Research Quarterly, 19,* 304-330. doi:10.2307/747823; Nagy, W. E., Herman, P. A., & Anderson, R.C. (1985). Learning words from context. *Reading Research Quarterly, 20,* 233-253. doi:10.2307/747758.

…it is clear that most words inevitably must be learned in the context of reading: Nagy, W. E., Herman, P. A., & Anderson, R.C. (1985). Learning words from context. *Reading Research Quarterly, 20,* 233-253. doi:10.2307/747758.