

A Sociocognitive Model of Biliteracy:

Integrating Cognitive and Socio-cultural Approaches to Second Language Reading

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Guiding Question:

While most early research on second language reading was primarily cognitive in its focus, more recently there has been a social turn in perspectives on L2 reading, or more broadly, L2 literacy. Describe what you see as the strengths and weaknesses of both the more cognitive and the more social approaches to L2 reading (or literacy) research and theory, and explain what can be gained by merging the two with a sociocognitive model of L2 reading. Provide a graphic representation of this model and discuss what its implications would be for those interested in the literacy needs of language learners in a specific context (e.g., the adult learner of a second language that has a writing system radically different from his/her L1 writing system).

Integrating Cognitive and Socio-cultural Approaches to Second Language Reading

What is reading? Any attempt to answer this deceptively simple question will inevitably open an array of more involved questions that lead into opposing camps in a long, ongoing debate about the nature of this skill. On one hand, reading can be understood as the ability to derive meaning from written text, a technical ability that resides in an individual's mind (Goswami, 2006; Grabe, 1991; Perfetti & Marron, 1998). On the other hand, reading can be understood as an important linguistic practice that allows an individual to interact with a discourse community of other literate individuals (Heath & Street, 2008; Street, 1995). Literacy likewise may signify the cognitive ability to read and write, decoding and encoding text, or it can invoke a range of practices relating to textual artifacts that enable, create, and are constrained by features of the socio-cultural contexts in which they take place. Street (1984, cited in Street & Lefstein, 2007) refers to these two views of reading and literacy as the "autonomous model" and the "ideological model," and even a brief perusal of the literature on reading in a second language reveals that these models are held and studied by distinct groups of scholars and researchers with distinct priorities who have engaged deeply with the workings of their own constructs but rarely engage with each other's views.

Not surprisingly, this division leads to conflicting messages regarding the most important and effective ways to promote reading and literacy in second language learners and bilingual contexts. As one prominent researcher has stated,

Reading is one of the most complex cognitive skills that humans can learn. It is supported by multi-modal networks uniting motor systems, language systems, semantic systems and reasoning systems. It seems inherently unlikely that a 'simple view' of

reading can provide a framework for teaching that is sufficiently rich to capture this complexity. (Goswami, 2008, p. 73)

The Simple View of reading is just one of a plethora of proposed models of second language (L2) reading as a constellation of skills and a process (Grabe, 2009) and as a set of practices embedded in context (Hornberger, 2003; Hornberger, 1989). Rather than replacing or refuting these existing models, the following paper suggests a model that incorporates the opposing views of reading as encapsulated in the learner's mind or engaged with a range of social variables and power structures into one heuristic tool. Drawing on both cognitive and socio-cultural¹ approaches to reading and literacy scholarship and research and also drawing on relatively recent attempts to propose a sociocognitive approach to second language acquisition (SLA) (Atkinson, 2002; Firth & Wagner, 1997; Gee, 2001; Tarone, 2007), this model attempts to coordinate the components of reading and the contextual influences on literacy into a system with some coherence and some usefulness for those who hope to draw on both ends of the L2 reading research continuum to inform further inquiry and instruction.

Cognitive Approaches to L1/L2 Reading

The cognitive approach to understanding what reading is and how it works includes the skills and processes that reside in the reader's mind. Although scholars who espouse a socio-cultural perspective insist that this approach ignores the contextual constraints on language and literacy that they consider essential, researchers seeking to answer cognitive questions consider the component skills of reading to be basic to the overall development of literacy. Moreover, they pursue these questions within paradigms that prioritize experimentation and large-scale

¹ The term socio-cultural as it is used here, with a hyphen, is intended to encompass the approaches to literacy that are often called social approaches and to emphasize the joint effects of social interactions and cultural environment on literacy without conflating this meaning with the use of "sociocultural" to refer to Vygotskian theories of learning.

correlational studies, which do not lend themselves easily to researching variables that are difficult to operationalize, such as the influence of diverse home-based literacy practices or the relationships of dominance between a learner's multiple languages within a given society. Instead, the emphasis here is on a relatively small set of constructs and the relationships between them, in research designs that include synchronous correlational studies comparing different groups of readers, pre-test/post-test studies of various interventions, the occasional longitudinal study of reading development, and some brain-imaging studies.

Component Skills of Reading

The Simple View and the Golden Triangle. As Goswami (2008) stated above, reading is far from simple, but from a cognitive perspective the process of reading has often been distilled to a few interconnected constructs: reading is the interaction of decoding text and comprehension, or $R = D \times C$ (Grabe, 2009). Complexity arises in the process of elaborating what decoding and comprehension entail. The DVC (or "Golden") Triangle presents a slightly more detailed model that summarizes a great deal of the research heretofore on the interactions among component processes of reading (Perfetti, 2010). This model includes decoding skills, vocabulary knowledge, and comprehension abilities as the three points of the triangle. It assumes a reciprocal relationship between decoding and vocabulary and between vocabulary and comprehension, while the connection between decoding and comprehension is not direct but mediated by vocabulary (see Figure 1).

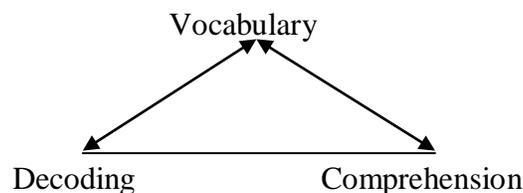


Figure 1. The DVC or Golden Triangle of Reading. (Reprinted from Perfetti, 2010.)

Decoding. The cognitive view of reading prioritizes the basic, technical skills of deriving meaning from text, and the most basic of these skills is the ability to accurately pronounce a word based on its orthographic representation, or decoding. If an individual can look at a series of graphemes, recognize them as meaningful print, identify the sounds that this print represents, and connect this phonological representation to a lexical item in their language system, then he or she can read in the most basic sense. The key ability here involves the understanding that “writing systems encode spoken language,” a principle that Perfetti (2003) has labeled “The Universal Grammar of Reading,” and the knowledge (at whatever level of implicit or explicit awareness) of the way that the target orthographic system encodes the phonology, morphology, and syntax of the spoken language into words, syllables, and phonemes (Cook & Bassetti, 2005; Perfetti, 2003). Perfetti (2003) considers this principle “universal” because studies have shown that even experienced readers of Chinese, who were previously believed to access meaning directly from print, access phonology when they read, though they may also recruit visual processes (Hu & Catts, 1998; Perfetti & Zhang, 1991).

The challenges of decoding graphemes vary depending on the orthographic system one is reading. The principle that relates graphemes to phonological units varies across languages. The possibilities include *alphabetic systems* (English, German, Russian, Korean) in which each grapheme represents a phoneme, *consonantal systems* (Arabic, Hebrew) in which vowels are not represented in typical text, *syllabic systems* (Japanese hiragana and katakana) in which graphemes represent larger units, and *logographic or morphemic systems* (Chinese) in which graphemes represent the smallest unit of meaning rather than the smallest meaningful unit of sound (Cook & Bassetti, 2005). Furthermore, languages can vary according to the depth of their

orthography. According to the Orthographic Depth Hypothesis, “differences in orthographic depth lead to processing differences for naming and lexical decision” (Katz & Frost, 1992).

No orthography is completely transparent; even a language such as Serbo-Croatian² requires learners to draw on stored lexical knowledge for accurate pronunciation of stress patterns. Nevertheless, when a learner with normally developing language abilities encounter a language with a shallow orthography, in which the relationship between the phonology of the language system and the graphic representation of this phonology in print is straightforward and consistent (Katz & Frost, 1992), they can usually decode text in a matter of weeks or months and continue to do so with a high level of accuracy (Goswami, Ziegler, Dalton, & Schneider, 2003; Koda, 2007). In contrast, decoding in a language with a deep orthography such as unvowelled Hebrew or Arabic tends to be much more challenging; in these languages, the same three-consonant root can signal a number of different related words and inflected forms, which requires the reader to draw on morphological and lexical knowledge to pronounce and identify the word correctly (Abu-Rabia, 2002; Katz & Frost, 1992; Ryan & Meara, 1991).

Phonological awareness. English is usually held up as an example of a deep alphabetic orthography, although Katz and Frost (1992) point out that English sacrifices phonological consistency for the sake of morphological consistency and many scholars have acknowledged the consistency of English spelling in units larger than individual phonemes, or larger “grain sizes” (Goswami, et al., 2003). The depth of orthography in English may largely explain the prevalence in cognitive research on reading of the metalinguistic construct known as *phonological awareness* (PA). This knowledge of the relationships between sounds and spelling, often measured with verbal and paper-and-pencil tasks involving rhyming judgments, phoneme

² Serbo-Croatian is the example used by Katz & Frost (1992). Today these are often considered separate languages, Serbian and Croatian, but the same point holds true for their orthographic systems.

deletion or reversal, syllable deletion or reversal, and pseudoword reading (which is intended to distinguish the ability to decode likely pronunciations from vocabulary knowledge) has been shown repeatedly over the past thirty years to correlate with proficient reading and to identify children with reading disabilities (Catts, Bridges, Little, & Tomblin, 2008; Wolf & Bowers, 1999). This correlation holds true so consistently for English that phonological awareness is considered “the critical construct” for reading (Goswami, 2008, p. 68) and recent literature reviews (Grabe, 2004; Perfetti, 2003) decline to summarize the support for this belief.

Although phonological awareness may not be as useful a predictor of reading development in languages with shallow orthographies (Wolf et al., 2002), PA does correlate with reading proficiency for learners of second languages and particularly second orthographic systems with a different principle such as Japanese learners of English (Shiotsu, 2009) and Hebrew-English bilinguals (Geva & Siegel, 2000). A number of studies have shown that difficulties with phonological awareness correlate with low reading proficiency across a variety of languages including Italian, Portuguese, and Arabic, but they have also shown that learning to read in a relatively shallow orthography benefits both normally developing children and children with reading disabilities, and that for biliterate children this benefit transfers to English (Abu-Rabia & Siegel, 2002; D'Angiulli, Siegel, & Serra, 2002; Da Fontoura & Siegel, 1995).

Researchers have called into question the preeminent role of PA, however, proposing that PA actually emerges as a consequence of reading rather than a cause of proficient reading. According to recent work with children and with illiterate adults learning English as a second language in the U.S., awareness of rhyme and even syllables may precede literacy, but learning to read itself allows learners to identify phonemes, to pull these “abstractions from the speech stream” (Goswami, 2008, p. 68). The associations between different sounds (such as allophones

of the phoneme /t/) and the letters that represent them need to be taught explicitly. Castles and Coltheart (2004) suggest that PA, at least at the phoneme level, does not lead to the development of reading ability, but rather that reading leads to PA. Alternatively, tasks that are intended to measure PA may actually be measuring orthographic awareness (which explains why a proficient reader might think that *pitch* has more phonemes than *rich*) or that both PA and reading may be related to a separate cognitive skill (Castles & Coltheart, 2004). In fact, Scarborough, Ehri, Olson, and Fowler (1998) report that older proficient readers of English actually have high levels of inaccuracy when they are faced with discrete measures of phonological awareness, which according to the authors may mean a) that they never developed high levels of PA or b) that they rely increasingly on orthographic awareness and lexical knowledge to identify words as their experience with reading grows. This shift of focus essentially allow their PA to atrophy. Also, Wade-Woolley (1999) found that L2 readers of English who spoke (and read) Russian and Japanese as their L1 were equally accurate in pseudoword reading, even though the Russians were much better than the Japanese at PA tasks such as phoneme deletion; the Japanese apparently drew on their awareness of orthographic patterns in English instead, and with equal success. These contentions will be discussed further below in an attempt to theorize the effects of reading on cognition as well as cognition on reading.

Word recognition and fluency. The underlying assumption that relates phonological awareness to reading proficiency is that a reader who can quickly and accurately identify the pronunciation for a given graphemic representation and associate this with a known lexical item will be able to read more efficiently and thus to comprehend the text more effectively. Thus not all readers who can demonstrate phonological awareness are able to read proficiently. Wolf and her colleagues have identified a subset of children with reading disabilities characterized by

strong phonological awareness but slow word recognition (Wolf, 1999; Wolf & Bowers, 1999). In second language reading, the ability to access words quickly is believed to free up cognitive resources that can then be used to focus on comprehension or acquisition of vocabulary and syntax (Han & D'Angelo, 2009; Pulido, 2009). Studies that have attempted to train participants in faster word recognition have not consistently shown lasting gains in comprehension, however, which underscores the complexity of factors that contribute to proficient reading (Fukking, Hulstijn, & Simis, 2005; Tan, Moore, Dixon, & Nicholson, 1994).

Vocabulary. While PA can be assessed separately from vocabulary knowledge, word recognition and fluency assume that the reader is making accurate connections between decoded pronunciations (or, possibly, directly from the orthographic representation) and a known lexical item in the linguistic system. If the reader lacks vocabulary, then reading comprehension will be seriously impeded. In children who begin to read in their first language, vocabulary size in the early years of schooling serves as a predictor of later language development (Rescorla, 2000). The relationship between decoding and vocabulary is reciprocal as well, since learners who are less efficient decoders are slower to gain vocabulary in the course of their schooling and lack a rich awareness of multiple meanings (Catts, et al., 2008; Deeney, Wolf, & O'Rourke, 2001; Wolf, 1999). The issue of vocabulary becomes even more significant for second language learners and bilingual children. When they learn to read in a less-proficient language, the lack of lexical representations for words in their linguistic system makes it much more difficult for them to learn to decode the new orthographic system (Lervåg & Aukrust, 2010; Silvén & Rubinov, 2010).

While decoding abilities may play an important role in basic reading, the size and depth of a learner's vocabulary must continue to grow in order to support ongoing academic progress.

Though researchers rarely focus on first-language development past the early grades, Nippold (1998) highlights the importance of “the literate lexicon,” which includes more abstract and topic-specific terms and largely emerges as school-age children and adolescents interact with texts. Since vocabulary plays such an important role in reading proficiency, mediating between decoding and comprehension, it seems expedient to estimate how large this lexicon needs to be in order to support proficient reading. Cobb (2009) estimates that adult native speakers of English know 12,000 to 20,000 word families, though he also suggests that English language learners can benefit from learning a strategic core of 2000 high-frequency word families; in academic contexts, less than 600 additional families can allow readers to understand around 90% of the words in most texts. Of course, in order for knowledge of word families, and not just words, to be useful to the reader, he or she must also develop a certain level of morphological awareness in the target language system. This awareness may be in place to some extent thanks to experience with oral language use, but as the complexity of vocabulary grows the level of a reader’s morphological awareness contributes more to reading proficiency (Verhoeven & Perfetti, 2003).

Encouraging the development of vocabulary is a much larger preoccupation in second language reading research than in first-language research. Though researchers have investigated text modification, extensive reading, narrow reading within one author or topic, and other approaches, developing vocabulary remains an important area for research and instructional innovation (Horst, 2009; Leow, 2009).

Comprehension. In order to decode efficiently, readers need PA; for fluent word recognition, they need decoding skills and sufficient vocabulary; for comprehension, they need to be able to connect words and propositions into a coherent understanding of a given text.

Comprehension has proven far more complicated to analyze and model than the other components of proficient reading. Perfetti, Landi, and Oakhill (2005) include word recognition, meaning selection, syntactic parsing, inference making, text representation, and building a situation model (to be discussed further below) as interconnected processes in comprehension that all draw on, and impact, knowledge of the linguistic system as well as general knowledge. Because this process involves efficiently integrating new information with knowledge stored in long-term memory, working memory is believed to make an important contribution to comprehension (Daneman & Carpenter, 1980; Kormos & Sáfár, 2008; Perfetti, et al., 2005), as does the skill of comprehension monitoring in both normally developing and disabled readers (Mervis, 2009; Perfetti, et al., 2005).

Text models and situation models. Text and situation models do not refer to models of the reading process, but rather to models that take shape in the reader's mind within the process of comprehension. The *text model* is formulated from the specific message that a given text is trying to convey and requires high levels of language skill and comprehension at the word, sentence, and discourse level. The *situation model* draws on experience of similar texts and inferences about what a text is intended to convey in order to interpret its message. Grabe (2009) sees these as complementary elements of comprehension, while Perfetti, Landi, and Oakhill (2005) use situation model more broadly to refer to the reader's understanding of a text.

Metaphorical models of reading. One of the prevailing controversies in past reading research has been the suitability of two general models of reading that Grabe (2009) categorizes as "metaphorical models." These are the *bottom-up model*, which assumes that readers comprehend a text by focusing on each letter, word, and sentence with little use of background knowledge, and the *top-down model*, which assumes that readers bring certain expectations to a

text and sample strategically from it rather than paying attention to every detail of the text. This view is often associated with the “psycholinguistic guessing game” model of reading, attributed to Ken Goodman (Street & Lefstein, 2007), which predicts that reading will involve a constant series of hypotheses and inferences based on context (within the text, not the social context) more than the text itself in order to comprehend. This view has been repeatedly refuted with evidence that proficient readers still attend to each word rather than sampling from text, with proficient reading depending on automaticity in this process (Adams, 1993). A third possibility is the interactive model, which suggests that readers will depend on automatized processes of word recognition and syntactic parsing as well as drawing on background knowledge and making inferences about the text. Grabe (2009) goes on to describe no less than 11 specific models for reading comprehension that have attained varying levels of prominence in L2 reading research.

Background knowledge, schema theory, and the construction-integration model. The vast majority of these models of comprehension draw on background knowledge to some extent, but understandings of what background knowledge entails vary considerably. One still-influential view of the relationship between reading comprehension and background knowledge is *schema theory*, which is based on the idea that readers have stored representations, or schemata, for content areas and for text types in their minds, and that they comprehend a text by conforming the evidence from the text to these schemata. This perspective usefully exposes reasons why a given reader may not be able to comprehend a given text, or may impose the wrong meaning on it. Readers who lack familiarity with the content or who have developed a different set of content and text schemata through socialization in a culture different from the

author's may not be able to interpret the writer's intention or meaning (Carrell & Eisterhold, 1983).

Carrell and Eisterhold's emphasis on preparatory activities for learners that help them activate appropriate schemata for a given text still hold true. However, the strong definition of schema theory assumes that the reader has a repertoire of existing schemata that drive comprehension, whereas readers may in fact build their situation models through interactions between the text itself and their knowledge. This explanation is contained in the *construction-integration model* proposed by Kintsch (1988), which Nassaji (2002) advocates as a preferable conception of the comprehension process. In this model, a reader's situation model of the text emerges from his or her understanding of the "network of propositions" in the text itself (p. 90), while working memory draws on constant associations with long-term memory to make sense of these propositions. In addition to explaining how the reader can comprehend texts without a pre-existing schema and incorporating the role of working memory, Nassaji (2002) also addresses the issue of processing load that other researchers have mentioned in regard to less-proficient readers. If constructing a model of what the text says, word by word and sentence by sentence, requires too much effort, then the reader will not be able to integrate its propositions with background knowledge to build a situation model. For the purposes of the current discussion, this explanation for the role of knowledge brings our understanding of the cognitive aspects of reading close to the boundaries with the socio-cultural approach, in that a reader's experience of the world is vital to the reading process.

The effects of reading experience. As Grabe (1991) states succinctly at the end of his literature review, "students learn to read by reading" (p.396). Nippold (1998) points out in her discussion of later language development that the forms of language that distinguish an 8-year-

old from a 6-year-old and an 18-year-old from a 13-year-old have much to do with their experience of reading. In L2 readers, extensive reading can build vocabulary even without explicit attention to word meanings (Horst, 2009), and readers can acquire knowledge of lexical and syntactic patterns through reading, though they benefit from opportunities to focus on semantic content and syntactic content separately (Han & D'Angelo, 2009).

The literate brain. Perhaps even more convincingly, recent brain-imaging research has shown that the experience of reading changes the structure of the brain in perceptible ways. One study of late-literate adults used magnetic resonance imaging (MRI) to compare the brains of Colombian guerrillas who had learned to read after returning to mainstream society with others who had not yet learned to read, finding that these otherwise highly-comparable groups had significant differences in the corpus callosum, which connects the two hemispheres of the brain (Carreiras et al., 2009). Another brain-imaging study of culturally-matched participants, in this case sisters from a region in Portugal where it was once common practice to send younger children to school while older children worked at home and remained illiterate, found similar differences, with more white matter in the corpus callosum of the literate participants and also with greater density in the inferior parietal region, which is believed to support phonological memory (Pettersson, Silva, Castro-Caldas, Ingvar, & Reis, 2007). Further research suggests that the brain actually has multiple systems for reading that operate differently in relation to greater reading proficiency and separately from Broca's area, which is associated with speech articulation (Pugh et al., 2001). One network in the temporo-parietal (dorsal) region is more active in younger readers and readers with disabilities and when reading unfamiliar words; this region is believed to handle "rule-based analysis and learning...extracting the relations between orthography, phonological form, morphological, and lexical-semantic dimensions for printed

stimuli” (p. 245). The other network in the occipito-temporal (ventral) region is more active in older, more proficient readers, and “constitutes a linguistically structured, memory-based, word-identification system supporting fluent word identification” (p. 245-246). At risk of oversimplification, the proficient literate brain has one system for decoding and another system for automatized word recognition, and proficient readers rely on the latter more than the former. Pugh, et al. (2001) suggest that the experience with reading develops the efficient ventral system in normal readers. Additionally, Pugh, Sandak, Frost, Moore, and Mencl (2005) propose that proficient readers in multiple languages will use this rapid, efficient word-recognition system in similar ways, despite differences in orthographic depth.

Reciprocal relationships of reading and component skills. A few points remain to be made about the reciprocal relationships between reading and its purported component skills and between spoken language and written language. While decoding, vocabulary, and comprehension identify elements of a cognitive process that readers go through in order to interpret written text, in many ways interacting with written text may impact cognition and cognitive abilities. Olson (2002) claims that “writing is what introduces our speech to us, revealing our speech as having a particular structure” (p. 164), just as Castles and Coltheart (2004) explain that learning to read may be the source rather than the outcome of phonological awareness. In their model of “linguistic literacy,” Ravid and Tolchinsky (2002) refer to speech and writing as “the two major linguistic modalities” (p. 420). They propose that “the reciprocal character of speech and writing in a literate community makes it a synergistic system where certain features (e.g. basic syntax) originate in the spoken input, while others, such as complex syntax and advanced and domain-specific lexical items, originate in the written input” (p. 430). At a cognitive level, an individual’s experience of text constrains or supports their metacognitive

awareness of their own language's structure or a that of a target second language (Tarone & Bigelow, 2005). In highlighting the reciprocal relationships between cognitive abilities that relate to reading and experience of text, all of these scholars are moving toward a sociocognitive view of literacy. Their proposals regarding the role of socio-cultural context and sociolinguistic variation will be discussed further below.

The Inside-Out Model: Language System, Orthographic System, Knowledge

So far, this discussion has outlined the major preoccupations of reading researchers who work in a cognitive paradigm. The research focuses on the component processes of reading, the interactions of these component processes, and the ways in which they relate to spoken language and to knowledge. Although features of a reader's socio-cultural context may come into play in the selection of participants or as a variable and knowledge of words and of the world has been related to reading comprehension, the focus of these approaches tends to be the abilities that can be isolated and assessed in a given learner in a controlled setting, and the processes that can be attributed to a single individual's mind and brain. The following figure presents a simple model connecting the cognitive processes of reading. This model encompasses the preoccupations of cognitive researchers if we understand "spoken language system" to represent a given individual's language proficiency and vocabulary, "orthographic system" to encompass the principles that allow the individual to decode and encode text, and the arc between them to symbolize the metacognitive abilities that relate the two. Meanwhile, "knowledge" encompasses background knowledge as well as awareness of text types, while the arcs between knowledge, language system, and orthographic system represent processes of reading comprehension, much as the construction-integration model proposes. The arrows extending from this inner circle outward into the surrounding area labeled "experience of text" represents the access that these

abilities allow to language in written form, while the cognitive processes likewise develop within this experience of text.

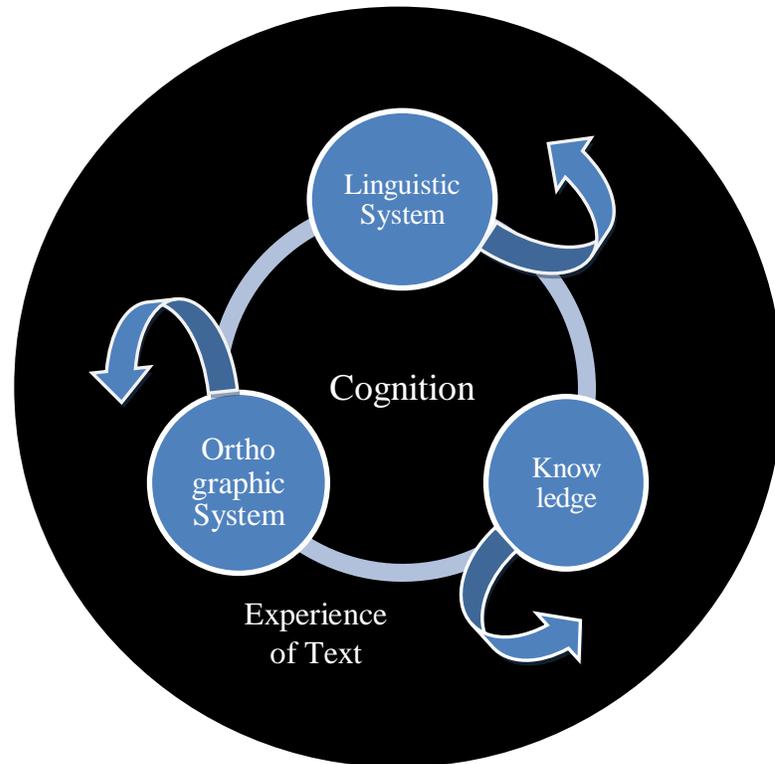


Figure 2. The Inside-Out Model: Cognitive components of reading.

Socio-cultural Approaches to First and Second Language Reading

The approaches to reading and literacy that have been discussed so far are preoccupied with processes that are believed to take place within the contents of the individual's mind. Even though researchers in the cognitive tradition may take contextual factors into account in their participant selection (e.g., Carreiras, et al., 2009; Pugh, et al., 2001) and may explicitly profess a belief that prior instruction plays a role in current abilities (e.g., Wade-Woolley, 1999), the object of measurement and analysis in these studies is each subject's performance in a controlled, usually isolated setting. These approaches, while following the post-positivist

tradition of analysis based on the hard sciences that values controlled variables and maximally generalizable results have dissatisfied many literacy researchers for years. Nevertheless, these are the “apolitical” approaches that are most likely to receive funding for research (van Enk, Dagenais, & Toohey, 2005), and because the findings from these approaches are taken up by government agencies and educational policy makers, they promote the views of literacy that are most familiar to the general public: “Popular notions of reading and writing continue to conflate the type of reading and writing done at school with a single universal and uniform conception of literacy” (van Enk, et al., 2005, p. 496).

Over the past three decades, another body of research has emerged that analyzes reading from a completely different perspective: that of reading and literacy as a set of practices that emerge in specific social settings and through specific interactions, that cannot be neatly isolated in terms of an individual’s performance on psychological measures, and that vary considerably among individuals and among contexts. Often called the New Literacy Studies approach, this social perspective developed largely in opposition to the then-prevailing concepts of reading as a limited set of measurable competencies. As Brian Street, one of the leading proponents of this approach, explains, “it is approaching literacy as a social practice that provides a way of making sense of variations in the uses and meanings of literacy” in a wide range of contexts “rather than the barren notions of literacy skills, rates, [and] levels that dominate contemporary discourse about literacy” (Street, 2000, p. 23). Another advocate of the more socially situated or ideological view of literacy, David Barton, clearly defines the opposite end of the reading research continuum from the experimental studies mentioned above: “Instead of studying the separate skills which underlie reading and writing” his ecological approach “involves a shift to

studying literacy, a set of social practices associated with particular symbol systems and their related technologies” (Barton, 1994, p. 32).

These researchers and many others who have followed their lead and collaborated with them maintain an entirely different perception of what constitutes literacy from those who work within an experimental, cognitivist paradigm. For them, interactions with text are inseparable from interactions with other people around text, from the meanings of those texts and interactions in the reader’s larger context, and from the contextual factors that privilege certain texts and certain interactions with text over others. Although Shirley Brice Heath is known most widely for her 1983 analysis of literacy practices in two working-class communities in the Carolinas, *Ways with Words*, which provided a seminal example of ethnography of literacy, she offers two “postulates” regarding literacy and language development in an earlier summary of the study that still summarize the tensions between these two approaches to research:

- (1) Strict dichotomization between oral and literate traditions is a construct of researchers, not an accurate portrayal of reality across cultures.
- (2) A unilinear model of development in the acquisition of language structures and uses cannot adequately account for culturally diverse ways of acquiring knowledge or developing cognitive styles. (Heath, 1982/1986, p. 122)

While cognitivist researchers recognize that spoken language and written language interact with each other in their contribution to reading, the idea of oral and literate *traditions* (separate or interconnected) as an influence on literacy had not received much attention previously, and certainly the question of cultural diversity in the development of language and literacy has become the purview of the socio-cultural researchers. The following discussion will cover the primary concepts and concerns that drive researchers in this tradition and present and

propose ways of linking their emphasis on social, political, and historical context with the model presented so far.

Reading as Experience with Literacy Practices

The primary feature of the social approach is its definition of literacy as a set of practices. According to Barton and Hamilton (2000) “the first proposition of a social theory of literacy [is] that: *literacy is best understood as a set of social practices; these are observable in events which are mediated by written texts*” (p.9). Reading is a means of participating in these practices and events, as is writing, and as is spoken language. Reading and writing are rarely treated separately in the social approach to literacy, though one or the other may dominate a given event or practice. While the overall focus of this paper is on second language reading, distinguishing the two here would offer a false reflection of the literature: reading and writing are both ways of interacting with text, either with text created by someone else or self-created text.

Practices, events, and New Literacy Studies. The New Literacy Studies emerged as a coherent body of researchers and research studies in the 80’s and 90’s and is often traced back to a core group of publications, though these authors have continued to develop their theories, constructs, and methods (Street & Lefstein, 2007):

- Shirley Brice Heath’s 1983 *Ways with Words*,
- Brian Street’s 1984 *Literacy in Theory and Practice*,
- James Gee’s 1990 *Social Linguistics and Literacies: Ideology in Discourses*, and
- David Barton’s 1994 *Literacy: An Introduction to the Ecology of Written Language*.

Researchers in this tradition typically, but not exclusively, use ethnographic methods to analyze the role of literacy practices in a larger context, but one of the unifying characteristics of their work is a focus on two core units of analysis: rather than focusing on competencies

demonstrated by individuals, they observe and analyze *literacy events* and *literacy practices* in which these individuals engage. Literacy events are “occasions in which written language is integral to the nature of participants' interactions and their interpretive processes and strategies” (Heath, 1982/1986). Quite simply, they are activities that involve reading and writing.

However, they go beyond these activities. When analyzing events, researchers also attend to “how meanings are constructed” and to the “underlying conventions and assumptions” that accompany and direct these events (Street, 2000, p. 21). Events are the observable instances of practices, which are “patterns of activity around literacy” (Street, 2000, p. 21) that represent “the general cultural ways of utilizing written language which people draw upon in their lives” (Barton & Hamilton, 2000, p. 7). Importantly, practices are linked to broader cultural and social meanings, values, experiences, and constraints. Literacy practices include:

people's awareness of literacy, constructions of literacy and discourses of literacy, how people talk about and make sense of literacy. These are processes internal to the individual; at the same time, practices are the social processes which connect people with one another, and they include shared cognitions represented in ideologies and social identities. Practices are shaped by social rules which regulate the use and distribution of texts, prescribing who may produce and have access to them. They straddle the distinction between individual and social worlds, and literacy practices are more usefully understood as existing in the relations between people, within groups and communities, rather than a set of properties residing in individuals. (Barton & Hamilton, 2000, pp. 7-8)

Barton and Hamilton (2000) go on to emphasize that literacy practices “are purposeful and embedded in broader social goals and cultural practices” (p. 8), that they are usually a means to achieving or attaining something else. A further feature of the New Literacy Studies approach

is the concept of multiple literacies (Street & Lefstein, 2007). This multiplicity lies in the variety of distinct practices used in a community, the variety of communities that use sets of literacy practices, the variety of media that these practices may involve, and also the variety of languages (and combinations of languages) in which these literacy practices may take place (Martin-Jones & Jones, 2000). In Heath's classic study, she describes the profound differences in the literacy practices that children from working-class African-American families and working-class white families were exposed to prior to school, and establishes that both sets of practices varied from those most valued in the school context, though this was more immediately apparent among the African-American children (Heath, 1982/1986). In a more recent example, Martin and Stuart-Smith (1998) surveyed and interviewed children of Panjabi parents growing up in Britain who were faced with the challenges of literacy in English and in Panjabi using methods that included showing them photographs of literacy events in each language. Not only did the children engage in different practices with each of these languages, but their attitudes toward literacy varied in regard to each language. Strikingly, the children described their practices, attitudes, and values differently when they were interviewed in English than when they were interviewed in Panjabi. As these two studies show, the New Literacy Studies approach may address issues of schooling and literacy acquisition in more or less direct ways, but it always seeks to draw the surrounding context and its implications into the analysis.

Power and access in literacy research. The social approach to literacy often addresses issues of power and access that are related to reading and writing, though individual researchers vary in the intensity of their focus on these issues. For Barton, literacy is inextricable from issues of power: "Ultimately literacy reflects inequalities in society: inequalities of power, inequalities in the distribution of wealth, and inequalities in access to education" (Barton, 1994,

p. 218). The attempt to define literacy in and of itself can be seen as an instrument of power, in that it draws boundaries around those individuals who have achieved literacy and those who have not, often with little concern for the issues of inequality and difference that condition these circumstances (Heller, 2008). Drawing on Bourdieu's approach to the cultural politics of literacy, Albright and Luke (2008) draw attention to "the principal role of state, school, and corporation in the destructive, unequal, and symbolically violent construction of literacy in the interests of the dominant classes and the new corporate order" (p. 10).

Thus literacy researchers who take a social approach are concerned not only with the nature and diversity of literacy practices, but with the privileging of some forms of literacy over others and the ways that this privileging maintains the interests of those that hold political power in a given context and marginalizes other groups who belong to different socioeconomic classes and ethnicities and those who are bilingual, including immigrant communities and indigenous communities (Heller, 2008; Hornberger & Skilton-Sylvester, 2000).

The tradition of relating literacy to empowerment that is associated with Paulo Freire and critical pedagogy continues to play an important role in approaches to literacy research as well as instruction. As Norton (2007) explains in the inaugural issue of the journal *Critical Literacies*, "Educators who are interested in critical literacy are interested in written text, or, indeed, any other kind of representation of meaning as a site of struggle, negotiation, and change" (p. 6). She draws on examples of international aid at the level of Pakistani children helping Afghani refugee children succeed in school, of Canadian children engaging in alternative literacy practices around comic books that demonstrate more complex interactions with text than their school-sanctioned practices, and of college students in South Africa unpacking the implicit messages in a reading comprehension passage about monkeys that they were asked to pilot, though they only began to

criticize the passage when the researcher/test developer deliberately displaced her role of power in their classroom (Norton, 2007).

Essentially, critical literacy approaches strive not only to observe the inequalities of power and the issues of access to educational practices and positions in society that relate to literacy but also to address these issues through encouraging learners to take action as they achieve greater abilities and confidence in their abilities. However, scholars emphasize that these efforts must arise from the learners' own complex, embedded understandings of literacy: "Literacy work needs to start from people's own definitions of literacy, from their own purposes and from their current communication practices" (Barton, 1994, p. 217). In translating a critical perspective on the meaning of literacy to critical literacy instruction, the discourse of empowerment itself may not resonate with students; critical educators strive to attend not to their own priorities but to students' interests and understandings of literacy and the role of various literacies in their lives:

Critical literacy classrooms must endeavour to incorporate, provide access to, or invent cultural artefacts that resonate with students... Without careful attention to students' reactions to cultural artefacts, we cannot hope to stimulate the sort of critical identity work necessary to the authoring of new selves, new figured worlds, and new social relations. (Bartlett, 2005, p. 7)

Implications for educational policy.

Although it can be, and has been, argued that these issues of power are relevant for people of all ages and in all domains of life, they become particularly contentious when they intersect with children's access to literacy through school. In this context, cultural diversity is implicated as a risk factor rather than as a source of multiple understandings: "higher numbers

of ‘students of diverse backgrounds’ ... tend to be slated for remediation on the assumption that their literacy skills are lacking” whereas, as Heath (1982/1986) and Gee (2005) have demonstrated, this “lack” may actually be attributed to alternate practices and a different set of strengths. Nevertheless, as these children are “steered toward phonics and other ‘basic’ skills, they consequently have limited opportunities to develop the higher-level critical-thinking skills also taught at school” (van Enk, et al., 2005, p. 505).

In response to the influential report on *Preventing Reading Difficulties in Young Children* (Snow, Burns, & Griffin, 1998), which primarily draws on cognitivist approaches to defining, assessing, and teaching literacy, Gee (2000) suggests that issues of difference and inequality may impact children in ways that the research on early literacy acquisition has not managed to encompass:

If children who pass reading tests fall behind by fourth grade and fall further and further behind “regardless of their initial reading skill level,” how, then, can we help them by increasing their initial skill level at “real reading”?... The New Literacy Studies would argue that these children, in fact, never learned to read in the sense of being able to actively recruit distinctive oral and written social languages for learning within socio-culturally recognizable and meaningful academic Discourses. (p. 413)

Although the authors of the report might believe that these concerns are beyond the purview of “reading difficulties in young children,” which are the often the preoccupation of cognitivist researchers and their funding agencies, Gee points out that they are ignoring important factors in the larger development of literacy that affect ongoing educational development. He argues that the New Literacy Studies approach can and should be applied to school settings in ways that can impact policy, although these applications will require paradigm

shifts within a range of institutions. In regard to educational policy designed to promote literacy in the U.S., the U.K., and many other international contexts, the New Literacy Studies approach (and the social approach in general) seeks to establish the heterogeneity of contexts and practices and advocates focusing on local conditions rather than using monolithic/universal approaches to development (Street, 2000).

Investigating Literacy and Biliteracy

In their efforts to analyze literacy events and practices in a variety of contexts and to analyze the links between these practices, their social context, and their meanings and implications for the participants, researchers use a range of methods. Primarily qualitative, with some quantitative elements, these methods reflect the field's close kinship to cultural anthropology and sociology as well as linguistics (Baynham, 2004). The list of methods used in their edited volume on multilingual literacies that Martin-Jones and Jones (2000) provide demonstrates the variety of available methods: participant observation, semi-structured interviews, gathering of literacy materials, diary work, still photography, sociolinguistic surveys, audio- or video-recording, analyses of talk using conversation analysis or quantitative analysis, text-focused research including attention to "orthographic conventions and innovations" (p. 4).

Although the specific data collection methods that social literacy researchers use may vary widely, their efforts fall into three broad categories: ethnography of literacy, continua of biliteracy, and ecological approaches. These categories certainly can overlap and use similar methods, but they designate different sets of concerns and different starting places for research.

Ethnographies of literacy. Among the best-known examples of ethnography of literacy as a research method is *Ways with Words*, Shirley Brice Heath's 1983 study of the intersections of home and school literacy practices in working-class communities in North Carolina, a white

community she calls Roadville and a black community she calls Trackton (Heath, 1982/1986). One of the most remarkable features of her description and analysis of literacy practices in these communities is not only that she manages to portray the differences between these two communities but also their differences from the middle-class practices she associates with the community of “Maintown” in a vivid and detailed way, but that she also presents these portrayals in ways that subvert and counteract the prevailing mainstream views that would judge their practices negatively in comparison with standard school-based views. Instead, she presents the literacy practices of these communities in terms of their emergence and value within their own circles as well as their distinct implications for the development of children’s interactions with text.

In addition to providing a groundbreaking example of the ethnography of literacy, Heath (Heath, 1982/1986) also calls for greater use of such ethnography to illuminate the role of literacy in communities:

ethnography must describe literacy events in their socio-cultural contexts, so we may come to understand how such patterns as time and space usage, caregiving roles, and age and sex segregation are interdependent with the types and features of literacy events a community develops. It is only on the basis of such thoroughgoing ethnography that further progress is possible toward understanding cross-cultural patterns, oral and written language uses, and paths of development of communicative competence. (p. 122)

According to Heath and Street (2008), ethnographers build “theories of explanation for events and practices” (p. 24) based on a variety of data collection procedures that shed light on the ways that participants view their own practices and the reasons for their behaviors that may fall outside their own awareness or ability to articulate them. They connect individuals’ identity

construction with the emergence and development of group practices. Particularly in regards to literacy, they distinguish between the formally sanctioned methods of acquiring literacy and practices around literacy from the learning processes developed and maintained by local communities. While all ethnographic approaches do not deal explicitly with issues of power and efforts address imbalances of power, Baynham (2004) stresses that ethnographers “need to relate situated literacy activity to macro relations of social power and dominance” (p. 286). Likewise, Street (2004) suggests that portrayals such as Heath’s of alternative literacy practices should not only increase their legitimacy but “challenge the framing discourses that marginalise them in the first place” (p. 327).

One of the most salient aspects of ethnography in relation to the other two general approaches discussed below may be the source of the study: ethnography emerges out of curiosity about a given practice or community, and it progresses in ways that may be difficult or impossible to anticipate in pursuit of this curiosity. Particularly in developing international contexts and presumably in the face of the increasing multimodality of literacy and the ways that communication media enable contact among widely dispersed communities, “a heuristic to be built into any research... is precisely to expect the unexpected” (Baynham, 2004, p. 288).

This willingness to pursue curiosity and to pursue new methods for engaging with a given community based on that curiosity are exemplified by Saxena’s (2000) study of multilingual adults in community of immigrants from India living in the United Kingdom. Although she intended to draw her data from small-scale sociological surveys and structured interviews, she moved toward ethnography because she recognized that she needed to encompass the heterogeneity of this Panjabi-British community more fully. Through personal interactions with many different families, including adults and children, she observed literacy practices that

combined languages and scripts in ways that were sensitive to context and audience, and she related these practices to the larger social and historical context including the value of literacy in the Hindu and Panjabi scripts and the history of diaspora from the Panjab region to the UK and other nations. This study also exemplifies the special significance of the researcher's insider status and competencies as a speaker of Hindi, Panjabi, and English raised in Delhi, which would be irrelevant in a traditional cognitivist study but here enhances the depth of Saxena's access to this community and the richness of her analysis.

Continua of biliteracy. Hornberger's (1989) *continua of biliteracy* represent a framework for research, a heuristic for developing questions to be asked in regard to literacy practices and those who practice them, rather than a set of methods for addressing these questions. In their revised form, the continua are grouped into four areas of three continua that are presented in three-dimensional, intersecting forms. The structure of this model as a series of biliterate continua is intended to provide a coherent basis for studies carried out in diverse contexts so that they can be related to one another and also to make the important point that each continuum is in fact a continuum and not a dichotomy between two opposing possibilities for a given learner or a given context. Both in research and in instruction, Hornberger (2003) asserts that "the more their learning contexts allow learners and users to draw from across the whole of each and every continuum, the greater are the chances for their full biliterate development and expression" (p. xv). Although the implications of this model for individual learners in the process of achieving biliteracy are fairly straightforward, it has typically been applied to investigate and analyze the impact of language policy in various settings.

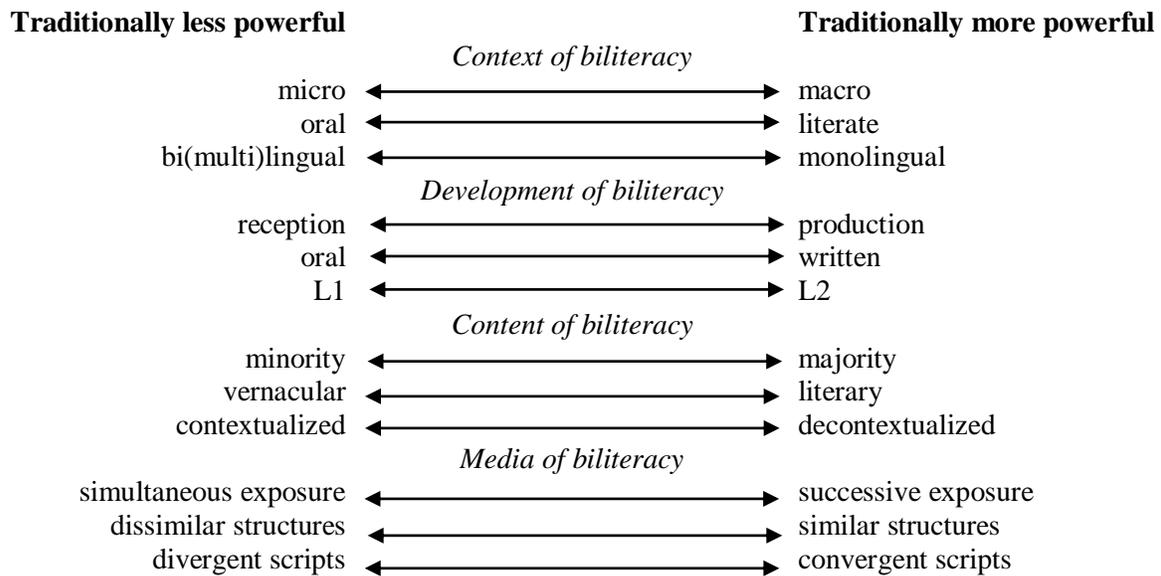


Figure 3. The continua of biliteracy. (Reprinted from Hornberger and Skilton-Sylvester, 2000.)

Hornberger's (2003) own edited volume provides a wide range of studies in settings ranging from Welsh language revitalization to bilingual schools in India to Korean heritage language schools in the U.S. In a volume dedicated specifically to the development of adult biliteracy in the U.S., Rivera and Huerta-Macías (2008) and the other contributors focus on examples that demonstrate the range of each continuum, primarily in regard to Latino populations, many of whom need to develop greater literacy levels in their L1 as well as their L2. In this collection, Skilton-Sylvester (2008) uses the continua to analyze two initiatives at a university in the U.S. that are designed to support biliteracy and attitude shifts regarding its role and possibilities. One involves a program to encourage high schoolers from bilingual communities to consider aiming for careers in teaching, and the other encourages Korean-American tutors in the university writing center to develop and engage in biliterate practices with their tutees.

Ecological approaches to literacy. The ecological approach is not separate from ethnography in terms of its data collection methods, but rather in terms of its strong underlying

metaphor and its applications. For Barton (1994), the ecological metaphor relates to the ideas of interactive biological systems and the ways in which they sustain themselves, the idea of diversity as a positive component of such systems, the ecology of language maintenance and loss, and also the concept of ecological validity in research, which considers whether studies conducted in controlled settings reflect the conditions and processes in “natural” settings. Again setting up an implicit comparison with the cognitivist approach to literacy research, Barton (1994) explains the focus of this approach: "Rather than isolating literacy activities from everything else in order to understand them, an ecological approach aims to understand how literacy is embedded in other human activity, its embeddedness in social life and in thought, and its position in history, language and learning" (p. 32).

The studies of classroom language ecologies in Creese and Martin's (2003) collection consistently explore “the relationship of languages to each other and to the society in which these languages exist” (p. 3) by focusing on classroom interactions in their social, political, historical context. Thus Jaffe's (2003) study of biliteracy in a Corsican elementary school includes substantial excerpts of teacher-student dialogue in the classroom around the re-telling of a French-language fable in Corsican language with recognizable Corsican characters, but it also embeds this discussion in Corsican language policy, attempts at revitalization, Corsican language use in the home and community, and the possible influence on the students' perception of the language in relation to their emerging Corsican identities.

Relevant contexts in literacy studies. All of these approaches share the assumption that literacy practices are embedded in context, and that the essential task of investigating literacy practices involves analyzing their relationship to their context. The variety of contexts in which multilingual practices have been investigated is long and, arguably, unlimited: homes, local

neighborhoods, community classes, early schooling, adult education, workplace education, “adult life worlds,” and academic institutions are all considered in Martin-Jones and Jones (2000). That said, these are not fully separate and distinct settings. In fact, ethnographic methods and particularly ecological approaches insist that researchers seek connections among these different contexts. The brief overview of contexts and examples below is categorized by settings, but in nearly every case there are considerable overlaps among contexts, even if data is only collected in one setting.

Home. A number of studies make assumptions about the literacy practices that children are exposed to prior to formal schooling, when the home context is their primary source of ideas about how reading and writing work and how people make use of text. The most widely-cited activity is that of reading stories to children, especially as part of a bedtime routine (Barton, 1994; Gee, 2001). Activities like this, which are taken for granted in many homes and communities and totally absent in others, convey to children concepts of print, the discourse structure of stories, and ways of interacting around print that are believed to provide an important foundation for later literacy development. Heath (Heath, 1982/1986) uses examples from her Maintown, Roadville, and Trackton observations to explain that children’s exposure to text and interactions around text can vary widely and predispose them to varying levels of success when faced with the literacy practices of formal schooling. Whereas the Maintown children were asked to respond to the stories and storybook pictures and to connect these stories to other objects and events in their lives as well as making up their own stories, Roadville parents read to their children but did not encourage them to connect the stories to other contexts or create their own fictional accounts. These children learned how to answer questions in controlled settings, but struggled later when school asked for them to apply higher thinking skills to their

interactions with text. Trackton children were not read to, but they observed literacy events taking place among adults and older children constantly, and came to school with the abilities to analyze stories and draw analogies from them as well as creating their own stories in ways that could serve them well in later years of schooling but did not fit the literacy practices of early schooling. Thus neither Roadville nor Trackton children received preparation for schooled literacy practices that could support their early development as well as Maintown children, and their alternative strengths went unrecognized.

While all three of the communities Heath discusses are monolingual in English, researchers have begun to focus on bilingual homes and particularly on children developing literacy in multiple writing systems. Kenner (2004) conducted an ethnography of six-year-olds learning Chinese, Arabic, and Spanish as well as English in London. Although her data come from home, public school, and community school environments, some of the most striking observations describe how these biliterate children articulate their understanding of their multiple scripts through interactions with their siblings at home as they “play school” or sit together at the family table.

School. Just as cognitive studies of literacy have most often focused on the development of reading in young school-age children, considering developmental markers and predictors of reading difficulties, school-based literacy practices have dominated many social literacy studies, as well. Although children are expected to learn specific school-sanctioned literacy practices, they may also engage in alternative interactions with print while at school. Martin and Stuart-Smith’s (1998) study of Panjabi-British children, mentioned above, distinguishes school-based practices around English literacy from home and community school practices related to Panjabi. In a study of Pakistani-British children in the UK, Robertson (2006) also contrasts students’

experiences and attitudes in regard to emergent literacy in English and their other languages, Urdu and Qur'anic Arabic, and describes literacy practices and talk around text in greater depth. She finds that the children have absorbed a sense of the "proper" way to read from their highly-structured, fast-moving classes in English at school, while their Urdu classes draw more on their socio-cultural backgrounds and involve higher levels of reflection on language, and their Qur'anic classes, which might be considered "rigid" or "formal" actually offer the greatest opportunities for self-directed, self-motivated learning.

Particularly in regard to younger learners, Barton (1994) emphasizes that the relationship between home-based literacy and school-based literacy plays an important role in children's development. He offers two directions in which these practices may be interconnected: home practices may or may not reflect the practices at school, which impacts children's preparation for "school-based ways of knowing" (p. 185). On the other hand, schools may or may not recognize the value and usefulness of practices that children bring from home. While it may seem risky if not impossible to allow students to bring their home languages and literacies into an English-medium school environment, García, Skutnabb-Kangas, and Torres-Guzmán (2006) have proposed that the integration of students' multiple languages and literacies can, does, and should occur in a variety of ways in a variety of settings, from the level of classroom projects to informal language classes held at the school to bilingual programs to national language education policy. The study of bilingual policy in Corsica described above (Jaffe, 2003) is one of several examples described in Creese and Martin (2003).

Issues of literacy development, divergent school and out-of-school literacy practices, and biliteracy or multiliteracy certainly do not end in the early years of schooling. The two projects that Skilton-Sylvester (2008) describes offer examples of a university implementing bilingual

policies and practices not only at the level of course content and curriculum design but also in developing programs and modifying the affordances of existing programs. While the teaching of foreign languages to university students who have already attained high levels of L1 literacy has not received the same attention as other contexts, Kern and Schultz (2005) point out that these learners may gain valuable insights through their experience with texts in their target language: “How students come to terms with and appropriate difference, how they are changed through their textual interactions both on an individual basis and within the interpretive communities of their classrooms” become primary considerations accessible through ethnographic methods (p. 388). Taking a critical, Bourdieusian approach to the university teaching of Arabic in Israel, Uhlmann argues that the treatment of Arabic in relation to Hebrew and English in universities, which involves a less-communicative, less relevant language teaching approach, reflects and perpetuates societal imbalances in regard to these languages and particularly those Arabs (both Muslims and Arab Jews) who speak Arabic as a first language.

Community and adult life. The role of community in literacy impacts children and schools as well as adults in their jobs and other activities. Literacy practices emerge in communities of various sizes, with various purposes and principles of inclusion or exclusion, including communities that stretch across national boundaries, as recent work incorporating transnational theory has shown: “local practices and literacies are profoundly rooted in processes of globalization” (Hornberger, 2007, p. 325). Whatever the nature of a given community, “each community has rules for socially interacting and sharing knowledge in literacy events” and its members “follow socially established rules for verbalizing what they know from and about the written material” (Heath, 1982/1986). Robertson’s (2006) study illuminates the intersections of school-based language learning and literacy development through schools sponsored by local

communities, while Saxena (2000) delves more deeply into the practices of multiliterate adults, whose literacy practices linked them to both religious and secular communities and to the “wider diaspora” of Panjabi Indians as well as local communities.

Society and power. Issues of power, dominance, and the privileging of some literacies and literacy practices over others have been discussed above, but they form an important consideration in studies of context, particularly in critical approaches and when applying the continua of biliteracy. The continua from micro to macro approaches to studying literacy and from minority to majority content for literacy reflect this most directly, but as the representation of the continua above shows, one end of each continuum is associated with greater power. Thus written practices are valued more highly than oral, literary over vernacular, and (particularly in the U.S.) monolingual over bi- or multilingual practices. These differentials are supported by those who hold power in a given society as a way of maintaining and standardizing educational provision and public policies, though the marginalization of other groups may not be immediately apparent to those in power or may be implicitly subsumed under the rhetoric of assuring basic skills for the masses (Albright & Luke, 2008; Heller, 2008). The studies collected by Rivera & Huerta-Macías (2008) vividly demonstrate the effects of the hegemony of monolingualism in the U.S., particularly as it pertains to adult lifeworlds.

Social class is often cited as a descriptor for individuals or groups both in cognitive and social approaches to literacy. Gee (2000) speaks of social class as a factor that impacts teenagers’ relationships with their communities and their aspirations, in that upper class teens in a recent study “seemed to speak out of a ‘lifeworld’ that had been deeply interpenetrated by the social languages and discourses of professional families, schools, and public sphere institutions” while the working class teens were more “oriented toward dialogic interaction and much less

penetrated by school-based and public sphere Discourses” (p. 419). This comparison speaks to the importance of different literacy practices and literacy-based achievement measures for students from different backgrounds as a result of the intersections of home, school, community, and society. However, it must be remembered that the analysis of social class as a contextual factor involves a number of assumptions about the meaning of income, educational attainment, occupation, community, and other related factors for the development and use of literacy practices.

Identity construction, individuality, and media. Drawing on the example of a minimally-literate Brazilian woman struggling to sign her name as she registered to vote, Bartlett (2005) argues “that the lifelong process of literacy learning relies, in part, on symbolic self-making through the use of cultural artefacts” such as writing, the pen, the signature, and the registration process, and that “in studying literacy, we would be wise to attend to the cultural artefacts made available by literacy classrooms or programmes, and the ways in which students do or do not take up those resources in their identity work” (p. 4-5). While an individual’s participation in various literacy practices may be based in and developed by home or school influences and may be constrained or afforded by community and society influences, individuals still have agency in their decisions about which literacy practices to appropriate and enact and how to make use of them. Although they will not be discussed at length here, issues of motivation and agency, or the sense that one has control over one’s own actions, impact individuals’ development as well.

Language learners and users construct identity through the use of certain literacy practices, and they may also be constrained from making use of their literacy practices in ways that affect them uniquely as individuals, as in the case described by Mahiri & Godley (1998) of a

university student who lost her ability to write due to serious carpal-tunnel syndrome and found that, while she could still read, her participation in home, school, and ethnic community environments was profoundly limited and changed by this loss.

Furthermore, particularly in the last decade the growth of the Internet and digital means of communication have enabled individuals to engage with an increasing range of literacy practices (Burniske, 2008). This engagement takes place in a self-directed way that intersects with identity construction and language and literacy development. Children from Arabic-speaking families in Australia may use the internet to connect with other Arabic speakers and Arabic language resources around the world (Cruickshank, 2004). Also, Yi's work with adolescent heritage learners and users of Korean in the U.S. demonstrates their selection and use of internet- and computer-mediated literacy practices as a means of language maintenance and literacy development. These practices are in many ways doubly marginalized because they emerge outside school and they are bilingual practices, but Yi (2005, 2009) documents the powerful learning processes and identity construction that take place through these types of events.

The Outside-In Model: Contexts of Reading and Literacy

The emphasis here on the major concerns of social literacy researchers, the approaches to investigating literacy from a social perspective, and particularly the focus on contexts of literacy development has brought us to the second major component of the sociocognitive model of second language reading that this paper is proposing. This new circle represents the influences that may impact the individual's experience of text. Again, they can be analyzed separately, but they are deeply interconnected.

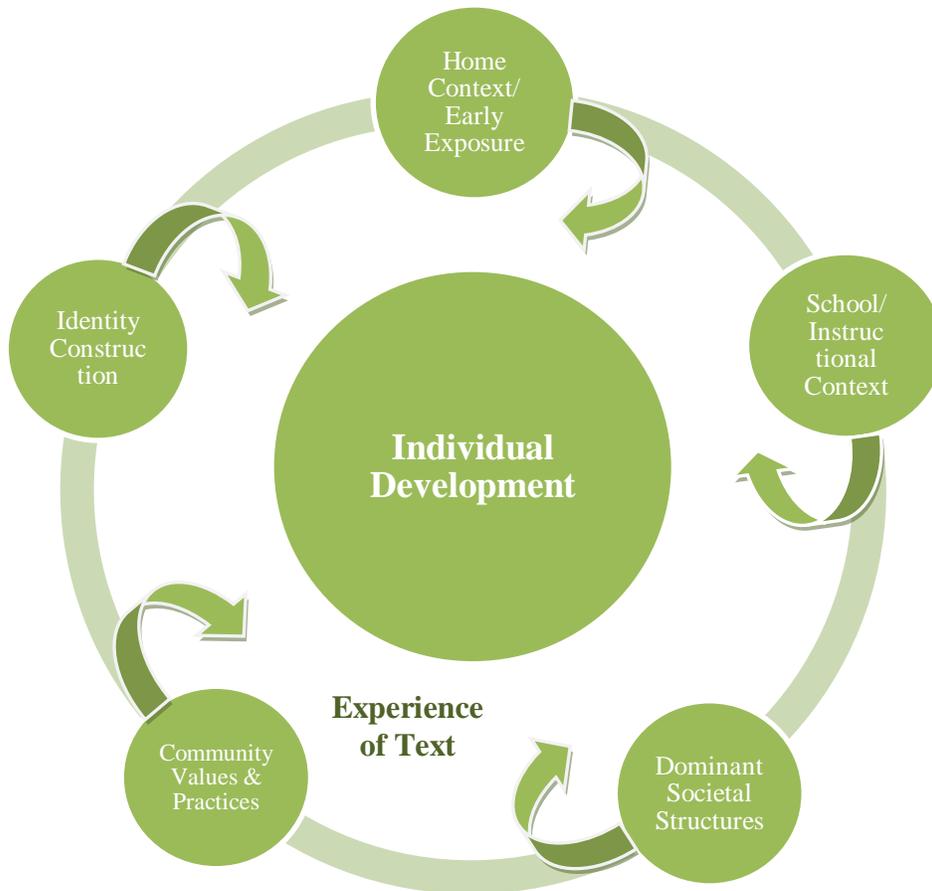


Figure 4. The Outside-In Model. This model demonstrates the impact of socio-cultural context on individual development of literacy. Experiences of, with, and around text mediate this impact.

Sociocognitive Approaches to Reading

Clearly the cognitive or “autonomous” and social or “ideological” approaches to studying reading and literacy discussed so far are differentiated by their definitions of reading and literacy, their concerns, their methods, their goals, and their attention to relevant factors in the development of reading and literacy. Given that these are such different approaches, is it possible to propose a sociocognitive model of reading that integrates them in ways that will serve to enrich investigations of literacy and their applications for instruction? In order to do so, it will be necessary to address the larger debate among “the cognitivists” and “the socioculturalists” in the field of SLA (Zuengler & Miller, 2006). As many of the scholars who have discussed this

debate do, the following discussion will discuss the role of context in language acquisition and the social view of cognition proposed in Vygotskian sociocultural theory as well as, briefly, theories of situated learning.

Cognitive and Social Approaches to SLA

The ongoing debate regarding a social or sociocultural approach to SLA emerged in its current form in response to Firth and Wagner's (1997) call for greater awareness of the effects of context on the language proficiency of individuals. According to Zuengler and Miller (2006), these two sides differ in their understanding of what learning entails and in their concepts of theory construction. In regard to learning, the cognitivists insist that their object of study is language as it exists in the individual mind, while socioculturalists assert that language is acquired through interaction. In regard to theory construction, the cognitivists take the positivist stance that universal truths can be discovered through principled scientific inquiry, whereas the socioculturalists embrace a relativist approach that allows for multiple interpretations and theories to co-exist. Even from a socioculturalist perspective in SLA, both "social (learners' roles and relationships, with whom they identify, how they deploy their agency, the amount and type of mediation that occurs" and "cognitive (the attentional resources brought to bear, the perceptual salience of forms used, their probabilistic frequency, the limitations of short-term memory, etc.) factors" may play a role in language acquisition (Larsen-Freeman, 2007, p. 783).

Context and variation in SLA. How, then, is the role of context understood in SLA? For Tarone (2007), the key feature of a social or sociolinguistic approach to SLA is that it allows for variation in the "L2 forms, rules, or systems" that may be learned and the ways in which language users may demonstrate their competence in regard to these forms, rules, and systems depending on factors in the social or linguistic context (p. 845). She contends further that the

sequence of learning and the rate of learning may be impacted significantly by contextual factors.

Few scholars have actually used the term “sociocognitive” in regard to SLA, and fewer still have applied this term to the study of reading. Without diverging considerably from the socioculturalist positions described above, Atkinson (2002) argues that language and literacy are both social tools that are constantly both social and cognitive:

although language may perhaps be seen from some points of view as more or less internalized and self-regulated—as the property of an individual, cognitive self—in actuality it always and everywhere exists in an integrated sociocognitive space... it is always mutually, simultaneously, and co-constitutively in the head and in the world. (p. 538)

As a result of its sociocognitive nature, then, language users should be considered as “real people, doing something they naturally do” and the methodologies used to investigate their language use should not “denature phenomena by removing them from their natural environments and breaking them down into countable component parts” (Atkinson, 2002, p.539). Clearly the practice of asking young or beginning readers to pronounce a list of pseudowords as a way of measuring their awareness of the phonology and orthographic conventions of written English would fall into this category of methods.

Vygotskian sociocultural approaches to language and literacy. The proponents of sociocultural or sociocognitive SLA draw heavily on Vygotskian sociocultural theory, and while they do not often attend explicitly to issues in literacy as well as language learning, he did (Bodrova & Leong, 2006). Sociocultural theory is based on the idea that higher cognition emerges through social interaction, not as a result of the maturation of pre-existing abilities in an

individual's mind. Scholars in this tradition assume "the interdependence of social and individual processes in the coconstruction of knowledge" (John-Steiner & Mahn, 1996, p. 191). Through the control and assistance first of objects and then of other individuals such as parents, teachers, or peers, learners pass through three stages of learning as activities that are beyond their initial abilities come under their control. These stages are object-regulation, other-regulation, and self-regulation (Lantolf, 2000). Through this process, learners internalize processes that previously required "the assistance of material artifacts and of other individuals" until they can carry them out "mentally without any apparent external assistance" (p.14). For example, a child may need to sing the alphabet song (a tool) in order to remember the order of the letters (Bodrova & Leong, 2006). An adult learning to write his or her name in a new script might at first have to consult a chart containing graphemes and some kind of phonemic representation and receive considerable guidance from a tutor about the formation of each letter; later, the adult may do this without a physical chart but by visualizing the chart internally. Of course, this process increases in complexity as the complexity of the task increases, but essentially the learning process still involves relying on scaffolding from tools or other people through social interaction until an individual can carry out a task alone, based on his own cognitive mediation.

Learning as legitimate peripheral participation. Closely connected to sociocultural theory and in fact derived from it is the idea that learning and participation are one and the same. The concept of legitimate peripheral participation articulated by Lave and Wenger (1991) proposes that learners gain proficiency in a given practice if they are provided with legitimate opportunities to engage in the authentic tasks of a community, gradually moving from an apprenticeship stage of limited involvement to complete participation in the community's activities and mastery of its practices as well as the language around them. This view

emphasizes the role of legitimacy and access for learners. If they are not given opportunities to participate in the target activities, then they will not be able to master the target skills. In Norton's (2000) study of immigrant women learning English in Canada, for example, these women's prior competence in language and literacy and their desire to learn was irrelevant until they managed to negotiate enough legitimacy to participate in the practices of their new communities at work and at their children's schools. Until they were allowed participate, their learning was severely constrained.

Cognition, Interaction, Social Context, and Literacy

These perspectives on language learning as variable, affected and enabled by social context, proceeding through internalization of external activities and tools, and dependent on legitimacy and access should apply directly to literacy, but the connections may not be immediately obvious. First, literacy may be seen as a tool that enables language learning and higher cognition, as a means to an end rather than an end itself. Second, the approaches above insist on the importance of language use in response to interlocutors (Atkinson, 2002; Tarone, 2007). Who are the learner's interlocutors during the reading process? If reading is viewed as an individual process that can be isolated from other activities, then the reader's interlocutor is the unseen author, though this may or may not be apparent. Taking a literacy practices perspective, however, there are often interlocutors involved in a given literacy event who play a role in mediating the reader's interaction with the text. In fact, a sociocognitivist perspective on reading explicitly entails learning not only to derive meaning from print but also to participate in context-appropriate activities around text:

If embodied action and social activity are crucially connected to the situated meanings oral or written language convey, then reading instruction must move well beyond

relations internal to texts. Reading instruction must be rooted in the connections of texts to engagement in and simulations of actions, activities, and interactions—to real and imagined material and social worlds. (Gee, 2001, p. 716)

For young learners, the process of acquiring literacy may begin with play, as they learn to associate symbols with referents (i.e. by pretending that one object, such as a cardboard tube, signifies another, such as a sword), and through activities that help them practice focused attention (Bodrova & Leong, 2006). Children can also learn the communicative and instrumental purposes of reading and writing before they learn the specific techniques. One approach described by Bodrova and Leong (2006) involves encouraging young children to compose a plan for their play at interesting activity centers by using whatever symbolic resources they can utilize at their current level of development, from using the color of the station on their paper to drawing to words or sentences (that may or may not be recognizable to adults), to establish what they want to do and to communicate this plan to others. At a much different level of social, cognitive, and literacy development, Kern and Schultz (2005) suggest that interactions with authentic literary texts in the target foreign language can reveal “how learners attempt to deal (sometimes successfully, sometimes less so) with specific communicative situations and with the linguistic, cognitive, social, and material resources available to them” and encourage them to stretch these capacities, not just to demonstrate “who has or has not met a set of conventional standards” (p. 389).

Combining the Models: A Sociocognitive System

A sociocognitive approach to reading, then, must include attention to the contexts of learning to read as well as the contexts of reading practices in order to fully understand how the apparently internal process of reading takes place. This emphasis on context seems synonymous

with the social literacy approach that emphasizes the learning of literacy practices in different communities and analyzes the links between these activities and the social patterns, histories, and power relations that impact their development and use.

Scholars have already proposed models of literacy that include both cognitive and sociocultural components. Ravid and Tolchinsky (2002) emphasize that advanced linguistic literacy, as they call it, involves control over variation in literacy practices depending on the user and depending on the context, and that written language should be viewed both as a notational system (connecting graphemes to phonemes, written form to spoken form) and as a discourse system (that follows and responds to the rules and conventions of specific discourse communities). Responding to Ravid and Tolchinsky's (2002) proposal, Verhoeven (2002) emphasizes that there are both cognitive and sociocultural constraints on learners' acquisition of literacy. In his view, a coherent analysis of literacy development needs to consider the following factors:

- Grammatical competence
- Discourse competence
- (De)coding competence
- Strategic competence
- Sociolinguistic competence.

What, then, is the difference between a social or socio-cultural model of literacy and a sociocognitive model? The main differences may be the unit of analysis and the recognition of cognitive factors that impact the development of literacy as well as sociocultural factors. Whereas a socio-cultural model may focus on a given community, context, or practice, a sociocognitive model would still center on individuals and theorize their development of literacy

within these contextual factors. Also, a sociocognitive model might take into account the ways that individuals' minds do differ in regard to factors such as working memory and visual processing, though these factors definitely interact with features of exposure to text and instruction. More importantly, a sociocognitive model realizes that learners internalize activities and gain control over them in ways that differ from individual to individual, though again these are contextually constrained. At any given moment we can in fact analyze the way that an individual interacts with text, perhaps through think-aloud protocols or stimulated recall, but we should also consider the sources of these ways of interacting with text in the individual's home, school, community, society, and mediated environment.

The model proposed here follows Verhoeven's (2002) lead in that it takes into account the role of sociocultural factors (discourse, strategic, and sociolinguistic competence in his model) as well as the development of competencies that may seem to reside in the learner's mind, though they are still attuned to and impacted by context (grammatical competence and (de)coding competence). This model should not be seen as both (but separately) cognitive and socio-cultural, but sociocognitive in the sense that it attempts to encompass the impact of contextual factors on individual cognitions.

In this model, the individual's experience of text mediates between the cognitive factors or internalized activities and the contextual factors that impact literacy development. Without this element, this model would not be precisely a theory of reading. Although the learner's development of awareness of and control over the language system will also be affected by context, in this reading model the act of actually reading connects the external world to the internal. Practice with text shapes the cognitive processes necessary for rapid, automatized decoding and comprehension of further texts, and contextual factors constrain the texts and the

practices around them to which the learner has legitimate access as well as supporting the development of his or her cognitive control over reading. As Atkinson (2002) proposes, this view involves many components that are “massively interactive” throughout the learner’s life.

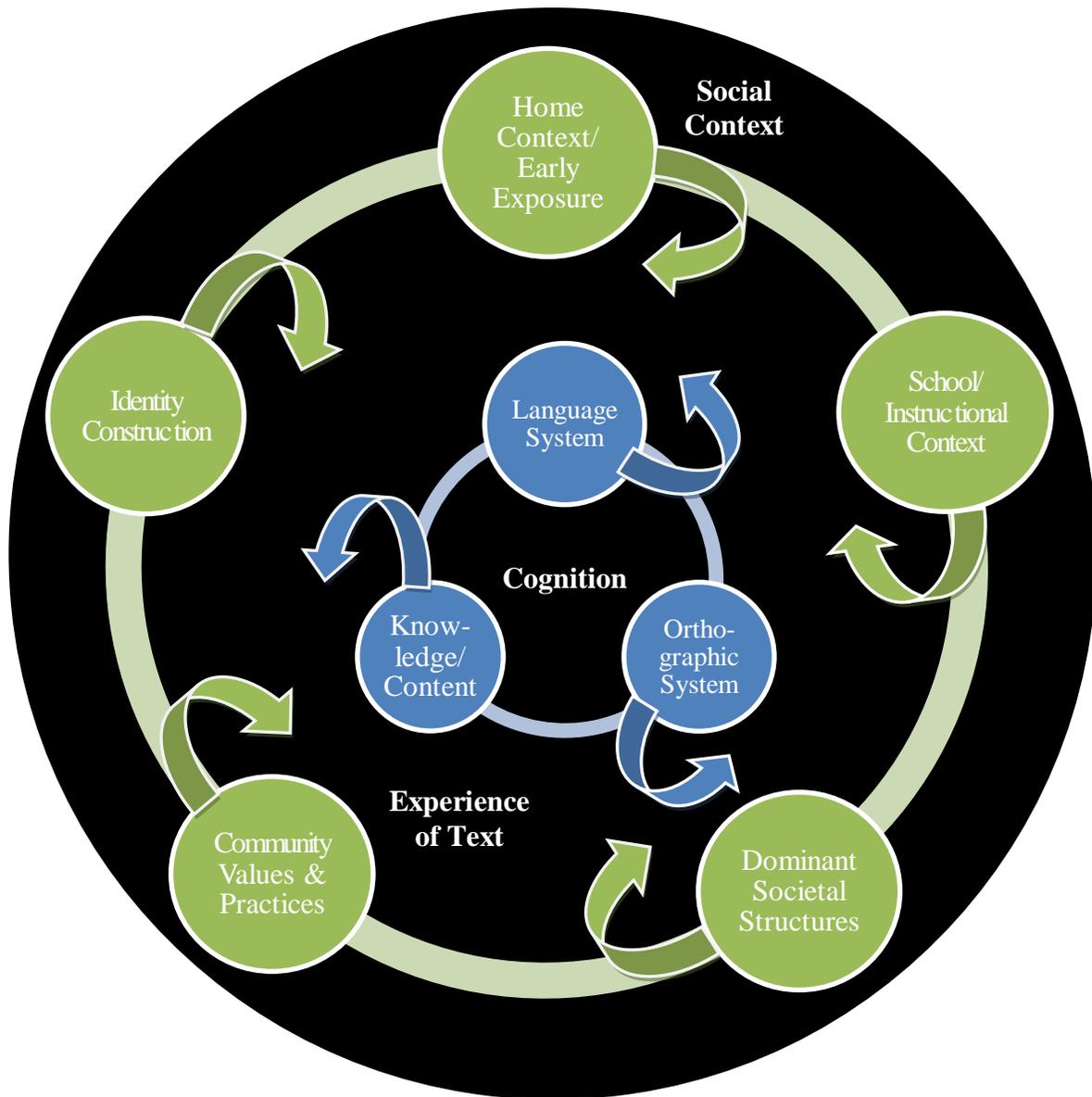


Figure 5. The Sociocognitive Model of Reading: Both inside-out and outside-in.

Illustrating the Biliterate Sociocognitive Model

As pictured here, this model is intended to evoke two different scientific metaphors visually. On one hand, it should be seen not as a static unit with specific orders of interaction but as one much like the images of atoms in physics and chemistry textbooks: illustrators can depict the locations of electrons standing still in a flat plane, but in fact electrons move around the nucleus constantly in various directions, and this action gives the atom its volume and structure. The same is true, theoretically, for the components of this model. On the other hand, this model should resemble an ecological system, in which many different factors play important and interconnected roles in the success of the system as a whole. Researchers can focus primarily on one element of the system at a time, but this element still influences and is influenced by the others.

The model is now visible as a whole, but as a monoliterate model. In order to make it biliterate, we need to envision another layer or dimension representing an additional language with connections drawn between each element of the model in each language. These elements can all interact in different ways. As the continua of biliteracy suggest, the degree to which any given element is bilingual varies from individual to individual. A heritage learner of Korean growing up with two languages in the home, schooling in English only, and access to Korean-speaking peers through the internet will have a far different experience of literacy from a child in India raised in a home where only one language is spoken but schooled in two or three and socialized in a community where his or her languages and many others are used, though their status varies in all these contexts.

The remaining question is how this model can be applied to analyzing development, processes, and practices in reading. For that purpose, one of the most useful examples may be

the adult language learner who is attempting to become literate in a new orthographic system. All languages have different writing systems, but not all second languages require the learner to transfer his or her competencies to a new alphabet or a new orthographic principle altogether (Cook & Bassetti, 2005). Although the relationships between English, Chinese, Japanese, Korean, Hebrew, Arabic, and other languages with different orthographies have been analyzed in various ways, for now we will consider a learner facing one pairing: the user of English as a first language who is acquiring literacy in Modern Standard Arabic (MSA). The numbers of learners who fit this description in the U.S. have grown considerably over the past ten years, but still little research has been conducted to understand their learning process in a coherent way that focuses on literacy. Thus our ethnographic curiosity about this learner and his or her peers might emerge from their sheer numbers or from a recognition that they are struggling to develop reading skills in their target language.

Arabic presents a number of challenges to the English-dominant learner at a cognitive level and at a sociocultural level. First of all, the orthographic system is consonantal. Not only does it lack letters for short vowels (long vowels are represented by three letters that also represent consonants), but each letter may take on up to four different shapes as it connects to other letters before and after it. Short vowels can be represented by diacritic symbols that may appear above or below the word. The phoneme-grapheme correspondence in Arabic is much greater than in English, and as the learner develops a base of vocabulary many new words can be recognized or guessed thanks to the morphological system of Arabic, which is based on a series of three- or four-consonant roots that take on different prefixes, suffixes, and vowel patterns based on part of speech and inflection. This morphological pattern also means that a large number of related words may have the same orthographic representation in unvowelled text,

which means that reading and comprehending connected text can be a challenge even for advanced readers, who must rely heavily on linguistic context to identify words. Reading isolated words out loud may be as imprecise as a guessing game (Abu-Rabia, 2002).

These features of the orthography itself mean that reading Arabic, particularly for a learner with a low level of familiarity with the spoken language, involves a high level of cognitive load. However, the challenges to comprehension and learning the language through reading go beyond this due to the issue of diglossia in Arabic. Around the Arab world and among communities of Arab immigrants in the U.S., spoken varieties of Arabic all differ from the variety that is used for literate practices both as a first language and in foreign language classrooms, MSA, and from each other. As a result, knowledge of the spoken language system may actually hinder the development of literacy in comparison with this relationship in other languages, since these are different varieties with different lexical, morphological, and syntactic patterns (Ayari, 1996).

This knowledge about the target language and comparisons with English may serve as a basis for our sociocognitive analysis of the individual reader, but how does the model guide the process of data collection and analysis? The starting place here is observing the learner's interactions with text. What happens when he or she reads? How does he or she describe this process? We may attend to errors, confusion, or other indicators of difficulty, or we may maintain a neutral stance here. Also, what kinds of texts are available to the learner? Who are they written by and for? Are they vowelled or not? Are they accompanied by other materials to support comprehension (e.g., illustrations, a bilingual glossary, guiding questions)? From here, the investigation can turn inward or outward. If we turn inward, we can consider decoding ability including letter recognition and accuracy of phoneme representations, vocabulary size,

models of text that the learner is applying to the reading task at hand, and knowledge of content that may or may not facilitate this reading. Turning outward, we would then also ask how the context of learning has impacted these cognitive features. Why does the learner have or not have accurate phoneme representations or the necessary vocabulary (school/instruction)? Where might he or she have acquired the text models being applied (home, school, community)? What content knowledge seems necessary to understand this text, and why does the learner have or not have it? Furthermore, we should also consider the importance of Arabic to this learner and its sources (society, identity construction), which in turn, moving inward again, may impact the amount of focused attention that the learner will apply to the effort of reading the given text. Moving back into the experience of text, how does prior experience with reading Arabic texts impact the current effort to read?

The questions that arise as we move from one part of this model to another are many and deeply interconnected. Within the confines of a given study, we can choose to focus on one area or another, but these should be slices that extend from the middle to the outside, not rings that consider one level or another. For example, we can connect school-based practices and experience to the learner's metacognitions about the writing system, or we can consider the challenges for a student studying abroad of connecting the spoken and written systems while living in a diglossic society.

The point here in illustrating the model, and particularly in illustrating the model with an example of an older learner acquiring literacy in a different writing system, is that neither a cognitive approach nor a socio-cultural approach would encompass the many factors that impact this process. The adult learner may have high levels of sensitivity to the relationships between context and language use, extensive experience with text types and a range of content

knowledge, high levels of motivation, and well-inculcated practices of learning through interacting with people and texts, but he or she may not be able to consistently distinguish one grapheme from another in connected Arabic text, and the interactions around text in the classroom may not support learning in ways that the adult learner recognizes and can benefit from. The implications have to do with cognitive load and comprehension, but they also have to do with the ongoing process of learning, additional experience of text, and the chances that this learner will ultimately develop the skill to engage with this text in ways that can enable higher levels of thinking about the text and expose him or her to community and society literacy practices through the text.

Conclusion

This discussion and sociocognitive model of reading represent an attempt to integrate cognitive and socio-cultural approaches to reading into a coherent sociocognitive model that may be able to guide research and instruction. This attempt can hardly be expected to fully address or ameliorate the discord between these different approaches or to provide a highly-detailed guide to future analyses of reading. However, this sociocognitive model is intended to be used, and should have some efficacy, as a heuristic for designing research that deals with reading in its full complexity. Researchers should consider paths of inquiry that extend from the outer edge of social context to the center of cognition and back again, assuming that factors are interacting at every level that facilitate and constrain the proficiencies and practices that characterize readers' interactions with text.

References

- Abu-Rabia, S., & Siegel, L. S. (2002). Reading, syntactic, orthographic, and working memory skills of bilingual Arabic-English speaking Canadian children. *Journal of Psycholinguistic Research, 31*(6), 661-678.
- Abu-Rabia, S. (2002). Reading in a root-based-morphology language: the case of Arabic. *Journal of Research in Reading, 25*(3), 299-309.
- Adams, M. J. (1993). Beginning to read: An overview. In R. Beard (Ed.), *Teaching literacy, balancing perspectives* (pp. 204-215). London: Hodder and Stoughton.
- Albright, J., & Luke, A. (2008). Introduction: Renewing the cultural politics of literacy education. In J. Albright & A. Luke (Eds.), *Pierre Bourdieu and literacy education* (pp. 3-10). New York: Routledge.
- Atkinson, D. (2002). Toward a sociocognitive approach to second Llanguage acquisition. *The Modern Language Journal, 86*(4), 525-545.
- Ayari, S. (1996). Diglossia and illiteracy in the Arab world. *Language, Culture and Curriculum, 9*(3), 243-253.
- Bartlett, L. (2005). Identity work and cultural artefacts in literacy learning and use: a sociocultural analysis. *Language and Education, 19*(1), 1-9.
- Barton, D. (1994). *Literacy: An introduction to the ecology of written language*. Malden, MA: Blackwell Publishing.
- Barton, D., & Hamilton, M. (2000). Literacy practices. In D. Barton, M. Hamilton & R. Ivanic (Eds.), *Situated literacies: Reading and writing in context* (pp. 7-15). New York: Routledge.

- Baynham, M. (2004). Ethnographies of literacy: Introduction. *Language and Education*, 18(4), 285-290.
- Bodrova, E., & Leong, D. J. (2006). Vygotskian perspectives on teaching and learning early literacy. In D. K. Dickinson & S. B. Neuman (Eds.), *Handbook of early literacy research* (Vol. 2, pp. 243-256). New York: Guilford Press.
- Burniske, R. (2008). *Literacy in the digital age*. Thousand Oaks, CA: Corwin Press.
- Carreiras, M., Seghier, M., Baquero, S., Estévez, A., Lozano, A., Devlin, J., et al. (2009). An anatomical signature for literacy. *Nature*, 461(7266), 983-986.
- Carrell, P., & Eisterhold, J. (1983). Schema theory and ESL reading pedagogy. *TESOL Quarterly*, 17(4), 553-573.
- Castles, A., & Coltheart, M. (2004). Is there a causal link from phonological awareness to success in learning to read? *Cognition*, 91(1), 77-111.
- Catts, H., Bridges, M., Little, T., & Tomblin, J. (2008). Reading achievement growth in children with language impairments. *Journal of Speech, Language, and Hearing Research*, 51(6), 1569-1579.
- Cobb, T. (2009). Necessary or nice? computers in second language learning. In Z. Han & N. J. Anderson (Eds.), *Second language reading research and instruction: Crossing the boundaries* (pp. 144-172). Ann Arbor: University of Michigan Press.
- Cook, V., & Bassetti, B. (2005). Introduction to researching second language writing systems. In V. Cook & B. Bassetti (Eds.), *Second language writing systems* (pp. 1-70). Clevedon, UK: Multilingual Matters Ltd.
- Creese, A., & Martin, P. (Eds.). (2003). *Multilingual classroom ecologies: Inter-relationships, interactions and ideologies*. Clevedon, UK: Multilingual Matters Ltd.

- Cruickshank, K. (2004). Literacy in multilingual contexts: change in teenagers' reading and writing. *Language and Education, 18*(6), 459-473.
- D'Angiulli, A., Siegel, L. S., & Serra, E. (2002). The development of reading in English and Italian in bilingual children. *Applied Psycholinguistics, 22*(04), 479-507.
- Da Fontoura, H., & Siegel, L. S. (1995). Reading, syntactic, and working memory skills of bilingual Portuguese-English Canadian children. *Reading and Writing, 7*(1), 139-153.
- Daneman, M., & Carpenter, P. (1980). Individual differences in working memory and reading. *Journal of verbal learning and verbal behavior, 19*(4), 450-466.
- Deeney, T., Wolf, M., & O'Rourke, A. (2001). I like to take my own sweet time. *The Journal of Special Education, 35*(3), 145-155.
- Firth, A., & Wagner, J. (1997). On discourse, communication, and (some) fundamental concepts in SLA research. *Modern Language Journal, 81*(3), 285-300.
- Fukkink, R., Hulstijn, J., & Simis, A. (2005). Does training in second-language word recognition skills affect reading comprehension? An experimental study. *The Modern Language Journal, 89*(1), 54-75.
- García, O., Skutnabb-Kangas, T., & Torres-Guzmán, M. (2006). *Imagining multilingual schools: Languages in education and glocalization*. Clevedon: Multilingual Matters Ltd.
- Gee, J. (2000). Teenagers in new times: A new literacy studies perspective. *Journal of Adolescent & Adult Literacy, 43*(5), 412-420.
- Gee, J. (2001). Reading as situated language: A sociocognitive perspective. *Journal of Adolescent & Adult Literacy, 44*(8), 714-725.

- Gee, J. (2005). Literacies, schools, and kinds of people in the new capitalism. In T. McCarty (Ed.), *Language, literacy, and power in schooling* (pp. 223-239). Mahwah, NJ: Lawrence Erlbaum.
- Geva, E., & Siegel, L. (2000). The role of orthography and cognitive factors in the concurrent development of basic reading skills in bilingual children. *Reading and Writing: An Interdisciplinary Journal*, 12, 1-30.
- Goswami, U. (2006). Reading and its development: insights from brain science. *Literacy Today*(March 2006), 28-29.
- Goswami, U. (2008). Reading, complexity and the brain. *Literacy*, 42(2), 67-74.
- Goswami, U., Ziegler, J., Dalton, L., & Schneider, W. (2003). Nonword reading across orthographies: How flexible is the choice of reading units? *Applied Psycholinguistics*, 24(02), 235-247.
- Grabe, W. (1991). Current developments in second language reading research. *TESOL Quarterly*, 25(3), 375-406.
- Grabe, W. (2004). Research on teaching reading. *Annual Review of Applied Linguistics*, 24, 44-69.
- Grabe, W. (2009). *Reading in a second language: Moving from theory to practice*. Cambridge: Cambridge Univ Pr.
- Han, Z., & D'Angelo, A. (2009). Balancing between comprehension and acquisition: Proposing a dual approach. In Z. Han & N. J. Anderson (Eds.), *Second language reading research and instruction: Crossing the boundaries* (pp. 173-191). Ann Arbor: University of Michigan Press.

- Heath, S. B. (1982/1986). What no bedtime story means: Narrative skills at home and school. In B. Schieffelin & E. Ochs (Eds.), *Language socialization across cultures* (pp. 97-126). Cambridge: Cambridge Univ Press.
- Heath, S. B., & Street, B. (2008). *On ethnography: approaches to language and literacy research*. New York: Teachers College Press.
- Heller, M. (2008). Bourdieu and "literacy education". In J. Albright & A. Luke (Eds.), *Pierre Bourdieu and literacy education* (pp. 50-67). New York: Routledge.
- Hornberger, N. H. (Ed.). (2003). *Continua of biliteracy: An ecological framework for educational policy, research, and practice in multilingual settings*. Clevedon, UK: Multilingual Matters Ltd.
- Hornberger, N. H. (1989). The continua of biliteracy. *Review of Educational Research*, 59(3), 271-296.
- Hornberger, N. H. (2007). Biliteracy, transnationalism, multimodality, and identity: Trajectories across time and space. *Linguistics and Education*, 18(3-4), 325-334.
- Hornberger, N. H. (Ed.). (2003). *Continua of biliteracy : an ecological framework for educational policy, research, and practice in multilingual settings*. Clevedon, UK: Multilingual Matters.
- Hornberger, N. H., & Skilton-Sylvester, E. (2000). Revisiting the Continua of Biliteracy: International and Critical Perspectives. *Language and Education*, 14(2), 96-122.
- Horst, M. (2009). Developing definitional vocabulary knowledge and lexical access speed through extensive reading. In Z. Han & N. J. Anderson (Eds.), *Second language reading research and instruction: Crossing the boundaries* (pp. 40-64). Ann Arbor: University of Michigan Press.

- Hu, C., & Catts, H. (1998). The role of phonological processing in early reading ability: What we can learn from Chinese. *Scientific Studies of Reading*, 2(1), 55-79.
- Jaffe, A. (2003). Talk around text: Literacy practices, cultural identity, and authority in a Corsican bilingual classroom. In A. Creese & P. Martin (Eds.), *Multilingual classroom ecologies: Inter-relationships, interactions and ideologies*. Clevedon, UK: Multilingual Matters Ltd.
- John-Steiner, V., & Mahn, H. (1996). Sociocultural approaches to learning and development: A Vygotskian framework. *Educational Psychologist*, 31(3), 191-206.
- Katz, L., & Frost, R. (1992). The reading process is different for different orthographies: The orthographic depth hypothesis. In R. Frost & L. Katz (Eds.), *Orthography, phonology, morphology, and meaning* (pp. 67–84). Amsterdam: North Holland (Elsevier Science).
- Kenner, C. (2004). *Becoming biliterate: Young children learning different writing systems*. Sterling, VA: Trentham Books Ltd.
- Kern, R., & Schultz, J. M. (2005). Beyond orality: Investigating literacy and the literary in second and foreign language instruction. *Modern Language Journal*, 89(3), 381-392.
- Kintsch, W. (1988). The role of knowledge in discourse comprehension. *Psychological Review*, 95(2), 163-182.
- Koda, K. (2007). Reading and language learning: Crosslinguistic constraints on second language reading development. *Language Learning*, 57(Suppl. 1), 1-44.
- Kormos, J., & Sáfár, A. (2008). Phonological short-term memory, working memory and foreign language performance in intensive language learning. *Bilingualism: Language and Cognition*, 11(02), 261-271.

- Lantolf, J. (2000). Introducing sociocultural theory. In J. Lantolf (Ed.), *Sociocultural theory and second language learning* (pp. 1-26). Oxford: Oxford University Press.
- Larsen-Freeman, D. (2007). Reflecting on the cognitive–social debate in second language acquisition. *The Modern Language Journal*, 91(5), 773-787.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- Leow, R. (2009). Modifying the L2 reading text for improved comprehension and acquisition: Does it work? In Z. Han & N. J. Anderson (Eds.), *Second language reading research and instruction: Crossing the boundaries* (pp. 83-100). Ann Arbor: University of Michigan Press.
- Lervåg, A., & Aukrust, V. (2010). Vocabulary knowledge is a critical determinant of the difference in reading comprehension growth between first and second language learners. *Journal of Child Psychology and Psychiatry*, 51(5), 612-620.
- Mahiri, J., & Godley, A. (1998). Rewriting identity: Social meanings of literacy and "re-visions" of self. *Reading Research Quarterly*, 33(4), 416-433.
- Martin-Jones, M., & Jones, K. (2000). Multilingual literacies. In M. Martin-Jones & K. Jones (Eds.), *Multilingual literacies: reading and writing different worlds* (pp. 1-16). Amsterdam: John Benjamins Pub.
- Martin, D., & Stuart-Smith, J. (1998). Exploring bilingual children's perceptions of being bilingual and biliterate: Implications for educational provision. *British Journal of Sociology of Education*, 19(2), 237-254.
- Mervis, C. (2009). Language and literacy development of children with Williams syndrome. *Topics in Language Disorders*, 29(2), 149-169.

- Nassaji, H. (2002). Schema theory and knowledge-based processes in second language reading comprehension: A need for alternative perspectives. *Language Learning*, 52(2), 439-481.
- Nippold, M. A. (1998). *Later language development: The school-age and adolescent years* (2nd ed.). Austin, TX: Pro-Ed.
- Norton, B. (2000). *Identity and language learning: Gender, ethnicity, and educational change*. Harlow, England: Longman.
- Norton, B. (2007). Critical literacy and international development. *Critical Literacy: Theories and Practices*, 1(1), 6-15.
- Olson, D. (2002). What writing does to the mind. In E. Amsel & J. Byrnes (Eds.), *Language, literacy, and cognitive development: The development and consequences of symbolic communication* (pp. 153–166). Mahwah, NJ: Lawrence Erlbaum Associates.
- Perfetti, C. (2003). The universal grammar of reading. *Scientific Studies of Reading*, 7(1), 3-24.
- Perfetti, C. (2010). Decoding, vocabulary, and comprehension: The golden triangle of reading skill. In M. McKeown & L. Kucan (Eds.), *Bringing reading research to life* (pp. 291-303). New York: Guilford Press.
- Perfetti, C., 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.
- Perfetti, C., & Marron, M. (1998). Learning to read: Literacy acquisition by children and adults. In D. Wagner (Ed.), *Advances in adult literacy research and development* (pp. 89–138): Hampton Press.
- Perfetti, C., & Zhang, S. (1991). Phonological processes in reading Chinese characters. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 17(4), 633-643.

- Petersson, K., Silva, C., Castro-Caldas, A., Ingvar, M., & Reis, A. (2007). Literacy: a cultural influence on functional left–right differences in the inferior parietal cortex. *European Journal of Neuroscience*, 26(3), 791-799.
- Pugh, K., Mencl, W., Jenner, A., Lee, J., Katz, L., Frost, S., et al. (2001). Neuroimaging studies of reading development and reading disability. *Learning Disabilities Research & Practice*, 16(4), 240-249.
- Pugh, K., Sandak, R., Frost, S., Moore, D., & Mencl, W. (2005). Examining reading development and reading disability in English language learners: Potential contributions from functional neuroimaging. *Learning Disabilities Research & Practice*, 20(1), 24-30.
- Pulido, D. (2009). Vocabulary processing and acquisition through reading: Evidence for the rich getting richer. In Z. Han & N. J. Anderson (Eds.), *Second language reading research and instruction: Crossing the boundaries* (pp. 65-82). Ann Arbor: University of Michigan Press.
- Ravid, D., & Tolchinsky, L. (2002). Developing linguistic literacy: A comprehensive model. *Journal of Child Language*, 29(2), 417-447.
- Rescorla, L. (2000). Do late-talking toddlers turn out to have reading difficulties a decade later? *Annals of Dyslexia*, 50(1), 85-102.
- Rivera, K., & Huerta-Macías, A. (Eds.). (2008). *Adult biliteracy: sociocultural and programmatic responses*. New York: Lawrence Erlbaum.
- Robertson, L. (2006). Learning to read ‘properly’ by moving between parallel literacy classes. *Language and Education*, 20(1), 44-61.
- Ryan, A., & Meara, P. (1991). The case of the invisible vowels: Arabic speakers reading English words. *Reading in a foreign language*, 7(2), 531-540.

- Saxena, M. (2000). Taking account of history and culture in community-based research on multilingual literacy. In M. Martin-Jones & K. Jones (Eds.), *Multilingual literacies: reading and writing different worlds* (pp. 274-298). Amsterdam: John Benjamins Pub.
- Scarborough, H., Ehri, L., Olson, R., & Fowler, A. (1998). The fate of phonemic awareness beyond the elementary school years. *Scientific Studies of Reading*, 2(2), 115-142.
- Shiotsu, T. (2009). Reading ability and components of word recognition speed: The case of L1-Japanese EFL learners. In Z. Han & N. J. Anderson (Eds.), *Second language reading research and instruction: Crossing the boundaries* (pp. 15-39). Ann Arbor: University of Michigan Press.
- Silvén, M., & Rubinov, E. (2010). Language and preliteracy skills in bilinguals and monolinguals at preschool age: effects of exposure to richly inflected speech from birth. *Reading and Writing*, 23(3), 385-414.
- Skilton-Sylvester, E. (2008). Academic biliteracies for adults in the U.S. In K. Rivera & A. Huerta-Macías (Eds.), *Adult biliteracy: sociocultural and programmatic responses* (pp. 131-154). New York: Lawrence Erlbaum.
- Street, B. V. (1995). *Social literacies: Critical approaches to literacy in development, ethnography and education*. London and New York: Longman.
- Street, B. V. (2000). Literacy events and literacy practices: theory and practice in the New Literacy Studies. In M. Martin-Jones & K. Jones (Eds.), *Multilingual literacies: reading and writing different worlds* (pp. 17-30). Amsterdam: John Benjamins Pub.
- Street, B. V. (2004). Futures of the ethnography of literacy? *Language and Education*, 18(4), 326-330.

- Street, B. V., & Lefstein, A. (2007). *Literacy: An advanced resource book for students*. London: Routledge.
- Tan, A., Moore, D., Dixon, R., & Nicholson, T. (1994). Effects of training in rapid decoding on the reading comprehension of adult ESL learners. *Journal of Behavioral Education, 4*(2), 177-189.
- Tarone, E. (2007). Sociolinguistic approaches to second language acquisition research—1997–2007. *The Modern Language Journal, 91*(s1), 837-848.
- Tarone, E., & Bigelow, M. (2005). Impact of literacy on oral language processing: Implications for second language acquisition research. *Annual Review of Applied Linguistics, 25*, 77-97.
- van Enk, A., Dagenais, D., & Toohey, K. (2005). A Socio-cultural Perspective on School-based Literacy Research: Some Emerging Considerations. *Language & Education: An International Journal, 19*(6), 496-512.
- Verhoeven, L. (2002). Sociocultural and cognitive constraints on literacy development. *Journal of child Language, 29*(2), 484-488.
- Verhoeven, L., & Perfetti, C. (2003). Introduction to this special issue: The role of morphology in learning to read. *Scientific Studies of Reading, 7*(3), 209-217.
- Wade-Woolley, L. (1999). First language influences on second language word reading: All roads lead to Rome. *Language Learning, 49*(3), 447-471.
- Wolf, M. (1999). What time may tell: Towards a new conceptualization of developmental dyslexia. *Annals of Dyslexia, 49*(1), 3-28.
- Wolf, M., & Bowers, P. (1999). The double-deficit hypothesis for the developmental dyslexias. *Journal of Educational Psychology, 91*(3), 415-438.

Wolf, M., O'Rourke, A., Gidney, C., Lovett, M., Cirino, P., & Morris, R. (2002). The second deficit: An investigation of the independence of phonological and naming-speed deficits in developmental dyslexia. *Reading and Writing, 15*(1), 43-72.

Yi, Y. (2005). Asian adolescents' out-of-school encounters with English and Korean literacy. *Journal of Asian Pacific Communication, 15*(1), 57-77.

Yi, Y. (2009). Adolescent literacy and identity construction among 1.5 generation students: From a transnational perspective. *Journal of Asian Pacific Communication, 19*(1), 100-129.

Zuengler, J., & Miller, E. R. (2006). Cognitive and sociological perspectives: Two parallel SLA worlds. *TESOL Quarterly, 40*(1), 35-58.