APPLYING NEW VISIONS OF READING DEVELOPMENT IN TODAY'S CLASSROOMS

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Every now and then, I read an article that puts into words something that I only sense as a teacher. Sometimes, the research provides evidence for something that I suspect. At other times, an article may provide form to a constellation of my free-floating ideas. Back when explicit phonics instruction was frowned upon, I read "Saying the *P* Word: Nine Guidelines for Exemplary Phonics Instruction" (S.A. Stahl, 1992) and felt affirmed in explicitly teaching the code to my first graders. I recognized my students in Kintch's (1998) explanation of what makes math word problems challenging and used his work to help me refine my practice as a second-grade math teacher. I experienced the same sense of excitement and recognition the first time I read about constrained skills theory (Paris, 2005).

Constrained skills theory (Paris, 2005) is a reconceptualization of reading development that has important implications for classroom practice, curricula, and assessment. Paris (2005) discriminated between constrained and unconstrained reading abilities. Skills may be constrained developmentally, conceptually, and by measurement. The theory suggests that there is a continuum of skills, with some, such as letter knowledge and decoding abilities, more tightly constrained than others, such as phonological awareness and oral reading fluency (see Figure 1). Vocabulary and comprehension tend to be least constrained.

Constrained abilities consist of a limited number of items and thus can be mastered within a relatively short time frame. Unconstrained abilities are learned

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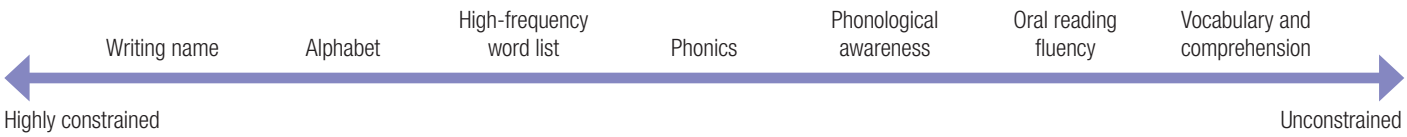
Figure 1 Continuum of Constraint



across a lifetime, broad in scope, variable among people, and may influence many cognitive and academic skills. These abilities are never fully mastered because proficiency varies by text difficulty, genre, task, and instructional context. Although Paris (2005; Paris & Luo, 2010) emphasized the impact that these differences have on the psychometric properties of assessments, statistical analyses, and research implications, the differences also have undeniable implications for classroom practice.

Highly Constrained Skills

Name writing, alphabet knowledge, concepts about print, high-frequency word lists, and phonics can be considered highly constrained abilities. First, they each consist of a finite number of items to be learned, so mastery occurs within a short time span. For example, name writing is the most highly constrained ability listed. Although some children may learn to write their names at age 3, and others may not learn to write their names until age 5, all children learn to write their names within a short time period contingent on complexity of name, level of instruction, and mastery criteria. Characteristic of highly constrained abilities, knowledge is universal.

Children only vary in their ability to perform highly constrained tasks within a short window of time. Both before and after the window, there is minimal variability. Consider phonics, a skill that is less constrained than letter knowledge but more constrained than oral reading fluency. In general, this finite set of high-utility letter–sound patterns grows from no knowledge to mastery between kindergarten and third grade (Bear, Invernizzi, Templeton, & Johnston, 2008; Ehri, 1998; National Institute of Child Health and Human Development [NICHD], 2000). Letter knowledge, phonics, spelling, and phonological awareness have strong relationships with each other but little relationship to oral language or broader academic knowledge. When word study moves from simple phonics patterns to advanced affixes and Latin and Greek derivations, it becomes less constrained because it has an extended learning span and impacts broad areas of academic knowledge.

Measurement of highly constrained skills is often a simple matter of blending and segmenting phonemes, counting words pronounced correctly, or counting words pronounced correctly within a minute. In the most tightly constrained skills, as in name writing, letter knowledge, and high-frequency words, the test deviates little or extends only minimally from practice format and items. The data are clear-cut, usually show improvements over time and practice, and provide evidence of growth. However, if school personnel are not cautious, then these easily quantifiable skills can tend to dominate school assessment systems. Tests of isolated skills reflect mastery of constrained abilities rather than making sense of texts. Curriculum-based measures, including nonsense word tests, are useful for measuring ongoing cumulative progress and as a cohort thermometer but are not useful for informing instruction or predicting an individual's long-term reading development (Kendeou, Bohn-Gettler, White, & van den Broek, 2008; Paris, 2005; Paris & Luo, 2010; Valencia et al., 2010). Dynamic Indicators of Basic Early Literacy Skills (DIBELS) is one example of a timed outcome-based measure used as a curriculum-based measure.

Constrained skills need to be taught to levels of automaticity because they are necessary but insufficient for the development of more sophisticated, complex reading abilities. Formative, criterion

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measures, such as phonics and spelling inventories, are useful for informing instruction (Bear et al., 2008; McKenna & K.A.D. Stahl, 2009). Linear developmental trajectories (i.e., stages) are most often associated with highly constrained abilities. Instruction of constrained abilities is most effective and time efficient when it is explicit, systematic, intense, short in duration, and targeted to where students are developmentally (National Early Literacy Panel [NELP], 2008; NICHD, 2000). However, teachers' efforts to ensure fidelity to research-based programs may result in providing time-consuming, one-size-fits-all instruction that is not matched to each student's developmental zone for maximal learning. If phonics dominates early literacy instruction, the massed time required for unconstrained abilities is compromised. This creates a particularly vulnerable situation for English learners and is likely to result in a higher price at the upper levels in more general reading abilities.

Moderately Constrained Skills

The development of phonological awareness and fluency are less constrained than alphabet knowledge and phonics but more constrained than comprehension and conceptual vocabulary development. Both phonological awareness and fluency present good examples of codependency as a developmental constraint.

The interplay between letter knowledge, the relationship between onset–rime manipulation and basic word recognition, and word reading and the ability to segment the individual sounds in a word is well documented (NICHD, 2000; S.A. Stahl & Murray, 1994). Children's phonological awareness tends to develop by task (e.g., deletion, blending, segmentation) and linguistic complexity (e.g., single consonant onset, cluster onset, cluster coda) but occurs codependently with reading and spelling. That means these skills do not develop independently but rather are reliant on each other. In other words, it is likely that if a first grader's phoneme segmentation DIBELS score places the student in the high-risk category for reading difficulty, then that student is also likely to be in the high-risk category on the nonsense words task because the two abilities are codependent. This reciprocity predominates in early reading among these constrained skills but disappears in the intermediate grades when mastery has been achieved.

Similarly, the correlation between measures of reading fluency and comprehension decline as students move into intermediate-grade levels (Paris, 2005; Valencia et al., 2010). Over a period of approximately five years, fluency growth is initially rapid but slows down in intermediate grades until a reading rate ranging between 125 and 150 words correct per minute is achieved (Hasbrouck & Tindal, 2006). Typically, in the primary grades, comprehension obstacles arise when novice readers hit decodability thresholds rather than conceptual thresholds (Chall, 1996; Paris & Hamilton, 2009). Therefore, measures of accuracy and rate, such as DIBELS oral reading fluency, are more likely to be correlated with comprehension in the primary grades than in the intermediate grades. As texts become more complex and reading rates move above 110 words correct per minute, automatic word recognition is necessary but insufficient for comprehension. Even good decoders may struggle with comprehension for any number of reasons, including background knowledge, text structure difficulties, idea density, or unfamiliarity with vocabulary. As a result, it is alarming to think about the ways that measures of reading rate are being used to make decisions related to teacher accountability, general student reading ability, and instruction.

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Unconstrained Skills

Unlike constrained abilities that are taught to universal, easily measured levels of mastery, unconstrained abilities are difficult to quantify, and knowledge increases over time but not to levels of simplistic mastery. This makes both teaching and assessing unconstrained abilities more complex and time consuming.

For example, vocabulary knowledge is acquired across a lifetime. Word knowledge is not known or unknown as a letter name is; rather, knowledge about words and one's ability to use vocabulary is acquired incrementally. Rather than applying intense teaching for

automaticity and accuracy, repeated and varied opportunities for reading, writing, and incorporating the words in speech are required, which result in increasingly refined use of the target vocabulary (S.A. Stahl & Fairbanks, 1986). Standardized vocabulary measures lack sensitivity and provide a baseline measure of global vocabulary knowledge for comparison to a norm, but they are not useful for informing instruction (NICHD, 2000). The National Reading Panel recommended teacher-constructed assessments that match the instructional context. Teacher-constructed assessments are more likely to be constrained around a narrow set of curriculum-based vocabulary and sensitive to incremental growth that is typical within an instructional time frame (K.A.D. Stahl & Bravo, 2010).

Constrained abilities are confined conceptually, so they can be effectively taught in short, intense time blocks to small groups of students who are at a common developmental level and poised to learn that particular skill. This form of differentiated instruction might also be called for as we move across the continuum to less constrained skills, such as vocabulary derivations, summary writing, and story grammar elements. These are the types of skills likely to be found on summative assessments (Afflerbach, Pearson, & Paris, 2008). Although developmentally, conceptually, and methodologically less constrained than fluency and phonological awareness, these less constrained skills are more constrained than many high-level comprehension abilities that we want students to learn that are more difficult to quantify.

The least constrained skills are not bound to such finite limits and structures; they typically call for cognitive flexibility, critical analyses, and contextual variation. Opportunities for direct strategy instruction, reflection, writing, and discussion are instructional practices that promote high levels of thinking. Comprehension instruction requires teachers to slide up and down the scale of shared responsibility with their students, beginning with direct instruction, then moving to guided practice and student independence, only to begin the process again with a more difficult text or a different text genre. Collaborative learning should occur among students with different ability levels, background knowledge, and skill sets. This is the curricular area where engagement, student choice, and authenticity seem to play important roles in growth and literacy achievement (Purcell-Gates, Duke, & Martineau, 2007; Shanahan et al., 2010). Because of the multidimensional quality of the least constrained skills, assessment must incorporate the collection of a range of artifacts because a single activity is incapable of capturing the depth and breadth of these skills.

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Why Is Constrained Skills Theory Important?

Because many schools now use curriculum-based measures of constrained skills as part of a universal screening and progress-monitoring process, we must be cautious that the instruction of constrained abilities does not dominate classroom instruction and supplementary interventions. Easily quantifiable phonological awareness abilities can serve as indicators of potential difficulties with conventional *early* literacy skills (NELP, 2008). However, phonological awareness weaknesses might be consistent with preschool education factors that have broader literacy implications. It is important to remember that most of the studies using constrained skills to predict comprehension were not longitudinal. They were studies that looked at fairly constrained measures of comprehension, often cloze tasks, at the end of kindergarten or first grade (NELP, 2008).

Similarly, the ubiquitous test of oral reading fluency, which typically excludes attention to prosody, is now being used in many schools to inform instruction, dictate small-group interventions, and even inform special education referrals. It is important to monitor the proportion of the literacy block that is being devoted to the instruction of constrained skills. If the instruction of these skills dominates literacy instruction, then it will yield short-term, isolated test improvements but obscure more complex literacy needs (Paris, 2005; Paris & Luo, 2010). It is unreasonable to believe that giving priority to constrained abilities at the

cost of the instruction of unconstrained abilities will somehow actually increase the likelihood of students' later success with unconstrained abilities. Teaching constrained skills explicitly and systematically and matching instruction to students' developmental needs should ensure that the largest portion of the literacy block can be allocated to the more complex unconstrained abilities throughout the elementary years.

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REFERENCES

Afflerbach, P., Pearson, P.D., & Paris, S.G. (2008). Clarifying differences between reading skills and reading strategies. *The Reading Teacher, 61*(5), 364–373. doi:10.1598/RT.61.5.1

Bear, D.R., Invernizzi, M., Templeton, S., & Johnston, F. (2008). *Words their way: Word study for phonics, vocabulary, and spelling instruction* (4th ed.). Boston: Allyn & Bacon.

Chall, J.S. (1996). *Stages of reading development* (2nd ed.). Fort Worth, TX: Harcourt Brace.

Ehri, L.C. (1998). Grapheme–phoneme knowledge is essential for learning to read words in English. In J.L. Metsala & L.C. Ehri (Eds.), *Word recognition in beginning literacy* (pp. 3–40). Mahwah, NJ: Erlbaum.

Hasbrouck, J., & Tindal, G.A. (2006). Oral reading fluency norms: A valuable assessment tool for reading teachers. *The Reading Teacher, 59*(7), 636–644. doi:10.1598/RT.59.7.3

Kendeou, P., Bohn-Gettler, C., White, M.J., & van den Broek, P. (2008). Children's inference generation across different media. *Journal of Research in Reading, 31*(3), 259–272. doi:10.1111/j.1467-9817.2008.00370.x

Kintsch, W. (1998). *Comprehension: A paradigm for cognition*. New York: Cambridge University Press.

McKenna, M.C., & Stahl, K.A.D. (2009). *Assessment for reading instruction* (2nd ed.). New York: Guilford.

National Early Literacy Panel. (2008). *Developing early literacy: Report of the National Early Literacy Panel*. Washington, DC: National Institute for Literacy.

National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel. Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. (NIH Publication No. 00-4769). Washington, DC: U.S. Government Printing Office.

Paris, S.G. (2005). Reinterpreting the development of reading skills. *Reading Research Quarterly, 40*(2), 184–202. doi:10.1598/RRQ.40.2.3

Paris, S.G., & Hamilton, E.E. (2009). The development of children's reading comprehension. In S.E. Israel & G.G. Duffy (Eds.), *Handbook of research on reading comprehension* (pp. 32–53). New York: Routledge.

Paris, S.G., & Luo, S.W. (2010). Confounded statistical analyses hinder interpretation of the NELP report. *Educational Researcher, 39*(4), 316–322. doi:10.3102/0013189X10369828

Purcell-Gates, V., Duke, N.K., & Martineau, J.A. (2007). Learning to read and write genre-specific text: Roles of authentic experience and explicit teaching. *Reading Research Quarterly, 42*(1), 8–45. doi:10.1598/RRQ.42.1.1

Shanahan, T., Callison, K., Carriere, C., Duke, N.K., Pearson, P.D., Schatschneider, C., et al. (2010). *Improving reading comprehension in kindergarten through 3rd grade: A practice guide* (NCEE 2010-4038). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved May 4, 2011, from ies.ed.gov/ncee/wwc/publications/practiceguides

Stahl, K.A.D., & Bravo, M.A. (2010). Contemporary classroom vocabulary assessment for content areas. *The Reading Teacher, 63*(7), 566–578. doi:10.1598/RT.63.7.4

Stahl, S.A. (1992). Saying the *P* word: Nine guidelines for exemplary phonics instruction. *The Reading Teacher, 45*(8), 618–625. doi:10.1598/RT.45.8.10

Stahl, S.A., & Fairbanks, M.M. (1986). The effects of vocabulary instruction: A model-based meta-analysis. *Review of Educational Research, 56*(1), 72–110.

Stahl, S.A., & Murray, B.A. (1994). Defining phonological awareness and its relationship to early reading. *Journal of Educational Psychology, 86*(2), 221–234. doi:10.1037/0022-0663.86.2.221

Valencia, S.W., Smith, A.T., Reece, A.M., Li, M., Wixson, K.K., & Newman, H. (2010). Oral reading fluency assessment: Issues of construct, criterion, and consequential validity. *Reading Research Quarterly, 45*(3), 270–291. doi:10.1598/RRQ.45.3.1