

5.22.20

Notes for An Introduction to The Science of Reading

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My goal today is to provide a brief introduction to a collection of knowledge and best practices known as the science of reading. I know that we have been doing great work in our district. Our teachers are some of the most caring and dedicated that I've ever worked with. But still, I believe this information can help us do even better for our students.

I don't claim to be an expert on the science of reading. I would like to share with you what I am learning.

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This definition of the science of reading is from reading researcher and author Dr. Louisa Moats. The bottom line is that there is a body of knowledge that can help us learn more about how children learn to read, help us understand what is happening when children struggle with reading, and help us implement the kind of instruction that is most likely to work best for the majority of students

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Why should we base our instruction on the science of reading?

Because there is a documented sequence of steps that reliably, efficiently and safely produces skilled readers. Although science hasn't yet answered all of our questions about reading, there is evidence, collected over decades on all types of children in all types of schools, in a variety of alphabetic languages like English, that can inform our work.

Research shows that children who start with low word reading skills tend not to catch up

Over time these children spend less time reading, which means they don't learn as many word meanings and

don't have as many opportunities to develop comprehension strategies,

which often ultimately results in a negative attitude toward reading

So rather than waiting until students struggle with reading, there are things we can do in pre-K, K and 1<sup>st</sup> grade that will ensure more students become readers

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There are districts around the country where students enter K with many challenges – parents who don't speak English, no pre-K experience, and homes that are experiencing poverty

Here are two examples of the amount of growth is possible in K, from 2 different districts

District A...

District B...

In our district, more k students start the year on track but we aren't growing our students as much as other districts do

Applying the principles of reading science might help us make sure more students are automatic word readers early on

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The body of knowledge known as the science of reading can be organized into 4 categories

1. The theoretical models that explain the cognitive processes involved in reading.
2. The essential skills required for reading and how they are inter-related.
3. The instructional methods that are most likely to work with the majority of students.
4. The systemic structures for getting students what they need.

I'd like to introduce each category briefly

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Recent research using brain scans has been able to capture what happens in our brains when we read.

Before children come to school they have naturally learned how to talk and have learned a lot about the meanings of words Speaking is hard wired into our brains but the circuits for reading must be built

So In pre-K and K students can be taught to tune in to the sounds in spoken language and to break spoken words into parts.

At about the same time children can learn to recognize letters

In K and 1<sup>st</sup> grade students learn to connect the sounds in spoken language to the print.

They form representations of sequences of letter sounds that they store as words which are also connected to their understanding of what the words mean

A summary of the process would be that learning to read is not natural. Speaking is hard wired in the human brain, so it doesn't have to be directly taught. But unlike speaking, the circuits for reading must be built through instruction.

The reading circuit looks the same in the brains of all readers. But people who struggle with reading are missing these strong connections. What we teach and how we teach can either create and reinforce these brain connections or leave students without the connections to read for meaning.

An interface has to be created between the vision systems in the brain and the language systems in the brain

At the foundation of this neural circuitry is the ability to process spoken language at the individual phoneme level (for example being able to say the sounds in the word cat as /c/ /a/ /t/) and to map these phonemes to letters.

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The beginning of the reading circuit is the spoken word. Ultimately, speech sounds have to be mapped to print so students will eventually recognize words instantly and effortlessly.

At the same time, children need to be building their bank of word meanings, and their understanding of language at all levels.

It is the interaction of these two systems that supports students to understand what they read.

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In 1986 two researchers proposed a model of how children learn to read called the Simple View of Reading. This model has been researched over decades and is still relevant today.

The model represents bringing together the sound-symbol circuits in our brains (simplified to the term decoding)

and the

Word meaning circuit in our brains (simplified to the term language comprehension)

To produce the ability to understand text (or what we call reading comprehension)

As you could see

Reading comprehension requires competence in both broad skill areas – decoding and language comprehension – those systems have to be connected in students' brains through deliberate and repeated interactions with language and print

If a student can decode but doesn't have grade level language comprehension, they won't understand what they read

If a student has grade level language comprehension but can't decode, they won't understand what they read – this pattern is typical of students who have reading difficulties such as dyslexia

These 2 skill areas are considered essential and can inform what skills we teach and how we teach them

It is important to get reading instruction right for young children. The reading research is clear that most reading failure can be prevented in K and 1<sup>st</sup> grade by teaching these skills. But we should remember that these skills are what we should consider if we are working with older students who are struggling. If an older student is having difficulty with reading comprehension, we should investigate their language comprehension and their decoding skills

The Simple View of Reading serves as a framework for what we teach, what we assess, and how we determine where a student is struggling if they aren't comprehending.

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There are terms used in reading research to talk about these essential skill areas that students have to learn are

Related to decoding:

Phonemic awareness –

Phonics

Related to language comp

Vocabulary and oral language

Reading comprehension

Oral reading fluency is often referred to as the bridge between decoding and

Reading comprehension

These 5 skill areas are called the essential early literacy skills. They were first summarized in the report of the national reading panel in the year 2000. Research in the last 20 years has confirmed and expanded on these skills as the essential building blocks of early literacy

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As we saw in the image of how our brains learn to read, reading is a language-based skill. So the first skills to emphasize in instruction are phonemic awareness and oral language.

Students need to learn that letters represent sounds and the phonics patterns that regulate those sound-symbol connections.

Being able to read connected text accurately and fluently

facilitates reading comprehension, which is the ultimate goal.

Writing skills are an additional and related area of instructional emphasis, and can be seen as an extension of or companion process to reading – Writing involves the ability to represent one’s ideas in print.

As students learn to decode, then should also learn to encode or spell

And as they learn to read connected text, they should learn to represent their thoughts in writing.

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A great deal of research has been done on the approaches to teaching reading that are most efficient and most effective.

Those include teaching that is explicit – telling students exactly what you want them to know and do;

systematic – using purposeful review and practice; and

sequential – carefully moving students from easier to harder tasks in a planned sequence.

A term used to describe this direct approach to teaching reading is “structured literacy”

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This table shows examples of teaching practices in each of the 5 essential skill areas that represent structured literacy instruction in contrast what you might typically see in classrooms.

You can see that structured literacy practices are based on the knowledge that reading is a language-based skill not a visual memory skill,

with support of both decoding and language comprehension skills.

Structured literacy supports students to map speech to print with intentional modeling, deliberate practice and immediate corrective feedback.

The emphasis is on leaving nothing to chance – especially for beginning and struggling readers

The typical literacy practices have been found to be less effective for teaching reading and aren’t based on the research on the neural pathways that have to be created for skilled reading. What is typically happening in many classrooms tends to emphasize visual memory, learning words as wholes, guessing, and incidental teaching.

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I’m not suggesting that explicit instruction has to be used at all times

There may be a place for instruction that is less intentional and allows students to construct their own knowledge.

But for young students who are just learning to read and for older struggling readers, supportive learning that is carefully constructed by the teacher and scaffolded to mastery, has been shown to work best.

Explicit instruction is essential for some students, and harmful to no one.

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I've briefly introduced the skills that are needed for reading and the methods of teaching those skills that are most likely to work with most students.

The last component of reading science I would like to introduce is the framework for service delivery called Multi-tiered Systems of Support or MTSS.

By building multi-tiered systems of support, we can efficiently match students to the type and amount of instruction they need, right away, without waiting until they fall behind and need intervention.

In a school like ours, with so many students who need our support, we need systems in place to find the students who are at risk of not learning to read in the early grades, and early in each grade, so we can provide support immediately.

When more students learn to read through the instruction given to all in the general education classroom, resources can be made available for those who need more support such as students with dyslexia.

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Building an MTSS system that gets all students reading at grade level, requires collection of data on students in a coordinated assessment system.

We need universal screening assessments to tell us which students and which systems need our support

We need diagnostic assessments to tell us exactly what to teach next to each student

We need progress monitoring assessments to tell us in real time if our instruction is working

And we need outcome evaluation at the end of each grade to tell us if students met our objectives

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These assessments will be used within a specific data-based decision-making model called the collaborative problem solving process. As we apply the problem-solving process to systems level and student level concerns, we will learn how to solve any issue that may confront our school.

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So in closing, I want to remind you why I'm asking you to learn about the science of reading. Reading opens doors for students,

All students deserve a teacher who knows how to apply current useful information that is most likely to help children learn to read

Our students face many challenges. But we can help them overcome them with what and how we teach

If we focus on prevention, we will be able to get more students to be readers and reduce the need for intervention.

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So I hope you will join me in learning more about the science of reading.

As we do that, I hope we can discuss and learn from each other

So we can build even better ways to support our students as readers