

Webinar Transcript - The Road to Reading: Strategies for Literacy Assessment and Intervention

Susanna Miller:

The LD@school team is very pleased to welcome our guest speakers today, Damian Page, and Dr. Todd Cunningham, of the academic intervention lab, whose presentation this afternoon is entitled: *Road to Reading: Strategies for literacy assessment and intervention*.

The Ministry of Education has provided funding for the production of this webinar. Please note that the views expressed in this webinar are the views of the presenter and do not necessarily reflect those of the Ministry of Education, nor the Learning Disabilities Association of Ontario.

We will also be tweeting throughout the webinar. So, if you'd like to participate in the conversation, you can send us a tweet by using our handle @LDatSchool or using the hashtag, #LDwebinar.

So, that takes care of our housekeeping for this afternoon. So, let's get started. Please join me in welcoming our presenters for the day.

Damian page is a doctoral student at the school and clinical child psychology program at the Ontario Institute for Studies in Education at the University of Toronto. His research explores mental health literacy in schools and the early identification of emerging mental health issues in students. Damian's current doctoral research explores the impact of mental health literacy training on pedagogy and mental health referral decisions.

Dr. Todd Cunningham is a clinical and school psychologist, assistant professor, and chair of the School and Clinical Child Psychology program at the University of Toronto. His research investigates the support of students with learning disabilities from assessment through to intervention. His projects involve looking at new techniques in psychological assessments, evaluation of assistive technology, professional development in literacy, and numeracy, and telepsychology.

Welcome, Damian Todd. The floor is now yours.

Damian Page:

All right.



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Well, thank you for that warm introduction and hello everyone. Thank you for joining us today. My name is Damian and I'm joined here by Dr. Todd Cunningham and we are very happy to be presenting on the *Road to Reading: Strategies for literacy assessment and intervention*, that we put together.

So, as a roadmap for today, we're going to start by exploring some of the background context, the literacy context and Ontario. And the reason we feel like this resource is very important and timely. We will introduce the Road to Reading infographic which covers assessment and instructional strategies. Then we will apply some of this knowledge to fictional case examples. We'll talk about some students with some presenting concerns and reading and we'll talk about how we actually applied this assessment and instruction knowledge to help these students. And then at the end, we'll save some time for questions and answers.

So, to understand the current context of literacy rates in Ontario. I'm going to be citing from the International Dyslexia Association of Ontario, report, entitled lifting the curtain on EQAO scores and referencing the right to read inquiry, which is currently underway in Ontario.

We know from Decades of literacy research that over 95% of elementary students are capable of learning to read when they are provided with the proper instruction. Yet, in Ontario, we continue to see a significant gap between human potential and literacy outcomes.

The EQAO data reveals that over a quarter of grade 3, students are not meeting the provincial reading standard and the situation is even more dire for students with special education needs, 53% of whom are not meeting the provincial standard for reading.

The cost of not learning to read comes with a high-cost post both for the individual, but also for society, more broadly. Research tells us that low levels of literacy put people in increased risk for adverse mental health outcomes, of not graduating high school, for substance use, lower income and in unemployment. So, the impact of these following literacy rates in Ontario is incredibly significant not just for the lives of those who are experiencing difficulty learning to read, but for society, as a whole.

The Ontario government also recognizes the significance of this, and in 2004 they announced an influx of funding into Ontario schools, setting a Target literacy Benchmark of 74% of students, achieving the minimum standard by 2007. And indeed, if we look at the EQAO data here appears to have been significant progress towards this goal with 74% of students in grade 3 in Ontario meeting the provincial reading standard as of 2019.



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However, if we take a deep dive into this data, we see that the proportion of students in grades 3 and in grade 6, completing the EQAO reading assessment, through the use of accommodations, these are things like text-to-speech or using a scribe to write down their answers, is six times higher in 2019, at 18 percent, as compared to 2005, when it was less than 3%.

So, what this tells us is that the EQAO data isn't giving us a clear picture of literacy rates in Ontario because many students aren't actually reading during these EQAO assessments and what we see is a pattern in which we've replaced remediation and instruction, in word-level reading skills with these accommodations.

This graph here shows us what's happening. EQAO reported an increase in the percentage of grade 3 students who met the provincial standard, from 59% in 2005, to 74% in 2019.

However, when we examine the percentage of students meeting the EQAO standard unassisted, these are students not using accommodations, the number is 62% in 2019 rising from 56%, in 2005 and increase of 6 percent, which is of course, significantly lower than the 50% increase, reported by EQAO.

So, while the EQAO data over the last decade seems to suggest that in Ontario, literacy rates are steadily improving, the reality is, is that only marginal improvements have been made in terms of literacy rates, and many students are still not reading at the provincial standard.

Of course, the situation is even more pronounced and dramatic for students with IEPs. These are students who have identified learning difficulties. We see a similar graph here, charting literacy rates for grade 3 students with IEPs from 2005 to 2019. But we see that the number of students with IEPs using accommodations has really exploded since 2005. And what's more, the number of students with IEPs completing the EQAO reading assessment unassisted, without accommodations, shows us that only 8% of these students are meeting the provincial reading standard in 2019 as compared to 10% in 2005.

So, we actually see that not only have literacy rates not improved for this group of students, we actually see a slight decrease in literacy rates. So, what does this all mean? Well, we have more students than ever using accommodations to pass these tests. But our contention is that the use of accommodations doesn't really allow us to properly assess literacy in students. And the reason for that is because reading is the product of two distinct skill sets. Of course, the goal of reading is to comprehend to infer meaning



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from the text and the simple view of reading provides a framework for understanding how the component skills of literacy are involved in this reading comprehension.

The model describes reading comprehension as the product of two skill domains. We have language comprehension, which is colored here in Blue on the left, which is the ability to understand spoken language. And then we have decoding and word recognition skills colored in yellow on the right, which is the ability to read printed words.

This model is typically expressed as a multiplicative formula and it's intended to represent the equal importance of each of these domains. It's important to understand this model because it explains why the EQAO data, and particularly the increased use of accommodations to complete the EQAO reading assessments is problematic.

If we look again at the slide in light of the view, the simple view of reading, we see that those students were using accommodations in passing the EQAO assessment. The orange bar are only receiving assessment of 1/2 of that reading model, the language comprehension component because, of course, they're saying their answers and they're having their answers recorded down and they're also having the questions read to them. So, it's really only assessing that language, that oral language component of the reading model. What it's not getting at is the word recognition or decoding component and this means that we're not accurately assessing literacy through the EQAO measures and therefore accommodation, accommodation assisted improvements in literacy are not really capturing the literacy development of Ontario students, and we know that this is likely the case because other International measures of literacy achievement completed by Ontario students, like the progress and international reading literacy study assessment of grade 4 students shows declining literacy rates as compared to the EQAO data, which would suggest improved literacy achievement.

So, really, we have quite divergent stories appearing, when we look at different assessments of literacy skills and Ontario. And this inconsistent story is also evident when we look at literacy levels, and specifically participation levels for grade 10 students on the Ontario Secondary School literacy tests. EQAO reports at the percentage of successful first time eligible, students has been relatively stable, 82 percent in 2004 and 80% 2019. However, what's not being reported are the students working towards their Ontario Secondary School certificate their OSSC, as they're not considered eligible and as such their literacy even is not reported by EQAO. And since 2005, the non-participation rate for the OSS LT has more than doubled from 8.4 percent in 2005, to 19% in 2019.



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Little is known about the literacy rates and future pathways to students that are deemed ineligible to write these OSS LT assessments, but TDSB data indicates that the majority of eligible students, who did not participate in the OSS LT, also do not apply to post-secondary education.

So, the question is, if students are continuing to struggle in their literacy achievement, if the current assessment instructional methods and instructional methods are not resulting in significant improvements, and if we have a significant proportion of students reaching grade 10 were not even eligible to write the OSS LT to graduate and continue on to secondary school, what can we do to address this?

Well, the International Dyslexia Association in their report outlined four recommendations in light of their analysis of this data, these recommendations emphasize early identification and intervention including progress monitoring of literacy development in grade 1, baseline screening of kindergarten students, and the use of evidence-based curriculum and instructional strategies. And indeed, we agree that the current literacy context and Ontario really requires a shift towards a more preventative model that's going to emphasize the systemic, systematic rather, assessment continuous monitoring of and instruction in foundational literacy skills, which are all necessary for the development of reading comprehension.

So, our goal today then is to provide you as educators with some tools you can use in your own classrooms or at home to quickly and effectively assess the development of key foundational literacy skills and through this identify students in your classrooms who are struggling to learn to read and provide them with effective evidence-based instruction throughout.

Today, we're going to be talking about assessing different literacy skills, but it's also important to remember that these skills are laid down developmentally in a particular predictable, sequential order. If we look at this simple view of reading model, we can see how these skills that are located towards the base of the pyramid, things like alphabetic knowledge and phonological awareness are the first skills acquired by students, building upwards towards reading comprehension at the peak.

What we see from the research is that as students move from kindergarten through grades four, and beyond, they're developing particular literacy skills in a predictable sequence. So, early on in the preschool and kindergarten period, we see that children's oral language capacity is developing and they're starting to be exposed to concepts of print, things like, how to hold a book or that text runs from left to right in English.



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Then as they move in to grade 1 they begin to learn the symbols of the English alphabet, connecting them to the sounds they know and their oral vocabulary. In grades 2 and 3 we see students begin to consolidate this understanding of sounds and symbols learning to decode new words and recognize learned words. All of this is building towards the capacity for fluent and accurate reading. And then around grade 4, we see our students shift, they're shifting from learning to read and now they're reading to learn which continues on into High School, secondary school and beyond through the life course.

So then, if we have a breakdown in this process, at any one of these developmental stages, we know that students are not going to reach this end goal of reading comprehension that we want to get them to and we can use this knowledge of sequential order and scope of literacy development to guide our assessment strategies and our instructional strategies.

To guide our conversation today, I'm going to be referring to the road to reading infographic which is available for download at LDatSchool.ca. The infographic is designed to be a desk resource, something to keep on hand for quick reference, to help us guide our actions and our decisions when we're working with students struggling to develop their literacy. And the infographic is really designed around five core components. So, it's organized into a developmental scope and sequence is taking the principles of literacy development to growth and graphing them visually in this chart. Starting at the top with the primary foundational literacy skills in both oral language, phonemic awareness, and text level domains, alphabetic principle and working downward, towards more complex, reading skills, like word reading, reading fluency, and eventually reading comprehension.

A description of each foundational literacy skill is presented to help orient the, the reader, you as teachers, in understanding how these component skills are contributing to the overall goal of reading comprehension. And then we also have recommendations for assessment, which are all based on freely available curriculum-based measures which are outlined here in yellow. And recommendations for instruction-based, strategies, evidence-based strategies, which are outlined here in green. And then of course, we include the expanded appendices which provide a more detailed elaboration of these brief assessment instructional tips described on the front page of the infographic.

But before we move on, I want to make sure that we're all on the same page about what a curriculum-based measure is. When talking about assessment today, we'll be referencing CBMs. So CBMs, allow us to assess student's skill development. They're widely available online. Here's a list of some free ones that can be accessed online and they provide a means of tracking skill development week by week, which is important



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because by doing this we can tell whether or not the instructional strategies or the interventions we are using are actually working as intended.

The tests generally last from 1 to 5 minutes, and we have an example here of how it works. This is one source from AcadienceLearning.com. It's an oral reading, fluency measure. So, to use the CBM, the teacher provides the student with the short passage to read like the one pictured here at the top right and instructs the student to read the story as described here in the example instructions, on the bottom left here.

As soon as the student starts to read the teacher starts a timer for one minute as the student is reading, the teachers following along on their scoring copy and making notes of any words that are missed, or mispronounced, putting a slash through those incorrectly read words. After 1 minute, the teacher instructs the student to stop and records where the student was when the time expired, with a bracket. The student's errors are subtracted from the total words to give us a score of 16 correctly read words in one minute.

Then we take that score, and we plot it on the progress monitoring graph. This information is supplied by Acadience learning in their scoring appendices and we plotted against these other scores. So, in this above graph we see that we have two lines. We have a blue line that represents benchmark scores. These are scores that we would expect a typically developing student to achieve at this particular time point, and this is the fall of grade 3. And we have an orange line that represents what we call the cut point for risk. This is a score that would indicate that the student is at risk for reading failure.

So, using these goalposts, we can plot our students score and determine where they are in their skill development as compared to typically achieving peers and more importantly, whether or not intervention is warranted for that student. In this case, we see that our students score of 16 correctly read words is significantly below that cut point for risk, given their grade level and where they are in their term. In this case, we would definitely want to provide the student with some targeted instruction and some extra support to build up that underlying skill.

If we determine that a student requires intervention, we can also use CBMs to monitor the effectiveness of the intervention we're using. The above charts show two scenarios. So, in the first scenario, a child is undergoing an intervention and we see that they're making very slow gain. So, this line is essentially flat throughout. They're making some minimal gains towards the end of it, but not quick enough that they would be able to perform at grade level by the end of the intervention. In the second chart, we see that the child is also undergoing a reading intervention, but through the use of progress,



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monitoring were able to tell by week 12 that this child is not responding effectively to the intervention.

So, a change is made and we see that there's a significant little bump up between weeks, 12 and 13, but then again, progress, stagnates, and that week 16 another change is made, maybe we increase the tier of support or the frequency of the intervention, its intensity its length and we see that there's an exponential growth in their performance.

I mean, all of this is designed to illustrate this point that through the use of CBMs in continuous progress monitoring, we understand how our students are responding to Intervention, which means that we're going to make those interventions as effective and as efficient as possible for them.

Okay. So, let's start in on the road to reading. And we'll start with our first skill phonemic awareness.

So, phonemic awareness is the ability to identify and you manipulate the smallest units of sound in a word, what we call phonemes and these phonemes help us to differentiate units of meaning, which we call morphemes. And we know from the research that early difficulties in phonemic awareness are strongly predictive of later reading difficulties. This is a really important skill that students need to acquire and master early on in order to be successful in their reading development later. And we also know from the research that classroom teachers can effectively teach phonemic awareness. But this instruction really does need to meet the student at their level of need which of course requires assessment.

And one of the ways we can do this is through first sound fluency. So, what we're getting at here is the student's ability to identify the initial sound in a word. So, we would supply them with the word, something like this:

We would say, listen to me say this word: man.

The first sound that you hear in the word man, is, /m/.

Listen.

Mmm, man.

What is the first sound you hear in the word men?



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They would repeat the first phoneme and then you would continue on with the test and you're supplying them with the word like skirt. And then what is the first sound in the word skirt? And then they would supply you with the correct phoneme and you're marking it according to whether or not they isolate that phoneme successfully by only saying the sound. And if they were to add what we call a schwa sound where they're incorporating other consonant or vowel sounds, we're going to give them less points because it shows that that still isn't quite mastered yet. Then we would just take their score like we did with the oral reading, fluency measure and we're going to compare it to this progress monitoring chart, which, of course, has a time course here for kindergarten.

But we can also assess this skill in older students as well through more complex tasks, like phoneme segmentation. This is a task that requires a student to not only identify the first sound but all of the phonemes within a word, take apart that word, and break it into its component phonemes.

So, we would supply a word like fan. Listen to me say all the words in the word fan, /f/ /a/ /n/.

And then you would have them repeat that. And then of course, you're just working through these other supplied words, having the student segment all of the phonemes in it and their score is calculated according to how many correctly segmented phonemes they accomplished. And again, the scoring and progress monitoring is done in just the same way. Comparing their progress to the cut point for risk and benchmark.

And if we determine that the student's phonemic awareness isn't quite where we want it to be there's lots of different things we can do. So, we can teach syllable awareness through things like counting and clapping, tapping out or counting out the phonemes and words. We can use things like alliteration, tongue twisters, and rhymes to teach students that different words share common phonemes.

And we can also use multi-sensory approaches for instruction as well. So, this is one called, push the sound, where the student is learning how the construction of words occurs and they're doing it in sort of a multi-sensory approach. So, they're pushing squares that have phonemes printed on them and listening to their teacher model this this process as well to learn how we construct words out of discrete sounds. And we can get even more complicated with it.

Now, this is a grade 3 tasks in which the student is building words, out of dice to have phonemes printed on them. Putting together words blending those forms together.



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And with that, I'll pass it over to Todd. He's going to talk a little bit about the alphabetic principle.

Dr. Todd Cunningham:

So, when students are developing this knowledge of the sounds within our language and English has 44, sounds, there's 44 phonemes for only 26 letters. The purpose of alphabetical principle now is to actually take those sounds, those 44 sounds, and start to map them onto the letter, their symbol correspondence.

And to do this, we need to do direct instruction. We really need to teach the letter-sound correspondence to be able to get this going. And then as a student start to learn what sounds the letters make, they then also start to develop the ability to kind of start to blend those together.

So, how do we go about assessing this? Well, the first thing we want to do is actually look at how well, our students actually know the sounds to go with the letters so the letter sound fluency task provides students with a bunch of letters on the page and within one minutes you just see how many letters do they know the sounds to? So, /d/ /m/ /g/ /ai/. They're going just basically go through and say them out loud.

Now, this is really important because we have different fonts we're using here. We have different shapes or uppercase and lowercase letters. We want students to not just see one type of print and be able to be able to recognize those letters. We're going to use different types of prints, to be able to ensure that students are actually developing their ability to link the sounds to the symbol.

Within our brain, the neural research on reading is fantastic. What we know is when it comes to phonological processing or phonological awareness, the skill Damian was just talking about, there's a very localized part within our brain, right up here and that's where those 44 sounds live, knowing for English. And it's what this part of the brain we use to be able to hear the sounds of the language and recognize the words.

However, when it comes to the symbols, what we have to do is we have to use our feature detection system at the back of our brain and create a highway that links the feature detection part of our brain, up to the phonological processing. And this is what we, which is letter-sound correspondence. And so, what this test is doing is it's helping us assess: how strong is this highway? And we call this highway orthographic processing, the ability to see a letter, and know what its sound is, or eventually, see a word in know what that word is.



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And here we're using multiple fonts. We're using upper case, lower case to really help to see how strong is this feature detection system working. You also see is that, this is also observing, just go back for a second Damian,

We're also looking at not just single letters, but we're also looking at double letters, which we call our digraphs, when two letters go together to be able to make a single sound, so /th/ and /sh/. And so, the task continuously gets a little bit more harder and harder and harder to again to assess how strong this association is developing.

Now, it's not just enough to be able to know the letter-sound correspondence, to be able to know what sounds letters make. But we also have to know how to decode those, to start to apply the rules of phonics to be able to decode words.

The next slide, Damian.

So, in the nonsense word fluency task, what we're doing asking students to do here is they're going to see a made-up word. These made-up words are made up of consonant vowel consonant, and that the combination of letters are such that you could find these in English. These are all plausible combinations of letter sounds that you would find in the English language. However, they're not real words because what we're really interested in is not a student's kind of sight vocabulary, the ability to see and know what a word is, but their ability to apply their alphabetical principles of being able to decode a word and figure out what that word is.

So, when I see S-O-G, I'm looking to see, can the students say is a single unit /SOG/ or do they sound it out? /s/ /o/ /g/. Or KIZ, or /k/ /i/ /z/.

If they say it as a single unit that shows that this highway is much more developed. It's a stronger highway. They're able to see all the units together and pass it all up, to the front of the brain, to be able to figure out what that grouping is. Versus a student who's slowly moving through that to be able to figure out which individual sound is first and then pull it together as a, as a unit.

This task is fantastic at getting at one of the key underlying skills of: is the student beginning to be able to decode a word? Can they apply the principles of phonological awareness, of alphabetic principles, to start to figure out unknown words and not need to pull on meaning to figure out those words are, but really have the skills, this highway within our brain, to be able to recognize, which is really important for future developments within reading.



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So, if we're assessing this and we see that this is not work out very well. What do we do? Well, the first thing we have to do, is right back in the beginning, is to teach letter-sound correspondence. And we can do this in a wonderful multi-sensory approach. The Jolly Phonics program is a fantastic program that can be used in kindergarten and grade 1 to help students start to learn the letter-sound correspondence. What, what is that symbol? And what sound goes with that symbol? So, for example, if I was trying to teach the student the letter S, I would have to either draw out in the air the S sound. I show them the S sound and I may bring a little story to it like: Sammy the snake goes /s/. Sammy the snake goes /s/.

So, having them do a multi-sensory approach to be able to start to connect that symbol to the sound that they're doing. Now, this is where we also are having to bring writing in because not only are we talking about the development of reading here, but we also need to actually use writing to help to build our readings skills. They actually go kind of hand in hand. So, as I'm teaching student to recognize this symbol S, I'm also going to start to ask them to produce the symbol S, to start creating that symbol that letter on the page and practice that.

So, I can start testing them. What sound makes the, what letter makes the /s/ sound and have them draw it out on on the page. So, this is where reading and writing actually go back and forth to help to promote the development of it, but the first stage in alphabetical principles is just to ensure that we are able to get those letter-sound correspondence together.

Programs like Jolly Phonics have a very effective way of actually laying out how to teach the letters. We shouldn't teach them ABCD. We actually need to think very critically about what letters to teach, so usually S, T, A, P, and E are the first letters. Or I, sorry, not E, are the first letters taught because those letters phonemically they sound very different and from a graphical perspective, they look very different. So, this way the students are able to, as they're entering into this, not get confused by the different letters that they're learning. As a student, it takes a bit of time to get this process going, but once you know, you spend a couple of weeks in starting to help students to learn their letter-sound correspondence, it can get going quite quickly. So, most kindergarten students can be learning for 4-5 letters a week once they get the process going and we're also going to teach them the digraphs as well. So, we're not only teaching single letters. But we're also going to teach them the digraphs when two letters go together to represent the sound.

Now, once we get kind of this skill going this can consolidate. We can start turning it into fun. We don't have to just always be doing the direct instruction with immediate feedback or in multi-sensory approach. We can turn this into game. So, a fantastic



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kindergarten game is the name game. The teacher puts all the students names up on the blackboard or the whiteboard, or project them on the screen these days. And then they sit down and they're going to have the students trying to guess at what name they're attending to. So, the teacher might say, I'm thinking of a name that starts with the /a/ sound and when I clap it out and it has two syllables. This game is great, because it pulls two key pieces together. One: It's getting the students to think of the letter-sound correspondence. So, they have to look through and have be able to go Sophia starts with a /s/ sound and Jordan starts with a /j/ sound. So, I'm looking for Alex. Okay, but they're also, you're helping them to refocus on the phonological information they've been learning in prior skills about how many syllables, how many direct sound units are within the word?

So, Alex has Al-ex, so that's two syllables. That's fantastic. That's what the word is. And so the student yells out Alex and fantastic game to be able to take a very critical tasks, make it engaging and to actually be working on two skills at once.

But we can get more sophisticated as the student goes through grade 1 and in through to grade 2 we can actually then again pull back on our writing abilities out spelling abilities to actually continue to support development of our reading. So, in the Word Ladder game, what we're doing is we're starting off with one word and we're using kind of a construct of the consonants staying the same. So, the R and D are staying the same. And now, what we want to do is see if the student can pay attention to the different representations of vowels. And how as we change the vowel, sounds can actually develop more and more complex words.

So, we have red. And so now we go to the next step in the ladder and the clue is can you pick up your book and... Okay, so read is the word. So now I can go R-E-A-D. So now I'm bringing in again, a different vowel, combination different symbol, two symbols, to be able to represent that, that sound. And I can continue to go up. Get Ready, set go and keep moving up through it.

So, this is a very challenging task. We wouldn't give this right to early grade one student because in this task students really have to have a good understanding on their letter-sound correspondence, both in the single letters, but also within the digraphs and they have to have really good, developing good phonics skills to be able to pull a set or the word apart and know how to put it back together so that they write it down on the piece of paper with the right spelling patterns.

Damian:

Okay. Thanks Todd.



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I'm just going to talk about word reading now. So, when we talk about word reading, we're actually talking about two different things. So, we're talking about the ability to read sight words. Sometimes, these are called non-decodable words and you might be familiar with things like the Dolch sight word list, but we also want to ensure that there's this capacity for common word reading or decodable words. So, these are these are distinct skills in many ways, but the very much related as well.

So, word reading, of course, is the emergent skill that's based on these things like phonetic understanding of vowel sounds and being able to blend sounds together. And we know that this is very important because if students don't have these decoding skills, they're not going to be able to memorize every word. Right? So, we want to be able to get them to a place where they can decode newly encountered words by sounding them out. And of course, if you've ever read a book where you saw a word, you didn't see like abstemious. What do you do? You start sounding the word out using your understanding of letter sound relationships. And of course, once you've seen that word, many, many times it gets stored in your mental lexicon, your store of words, and now it becomes a sight word.

So, essentially decodable words through repeated experience, or repeated exposure are then stored in the brain, as a memory trace, then become a sight word, but we have to ensure that students have the ability to decode the word as well as just to memorize it. And one of the ways we can assess whether or not this word reading ability is developing as we would like it to is just to have students read words, read to read sight words and also on common decodable words.

So, this is a word reading fluency test taken from Easy CBM and much like the oral reading fluency measure, it's a measure of how many correct words read in one minute. The student is presented with a page of words, and they're asked to read the words left to, right and then the score is calculated, depending on how many words they went, they read correctly, but it's also important to recognize that this is different than oral reading fluency measure because these words are all independent. There's they're not sentences. There's no narrative or relationship between the words. And if we determine that a student's word reading isn't where we want it to be, again, we want to ensure that those underlying skills are properly fixed. So, phonemic awareness, this understanding of letter-sound relationships, alphabetic principle that Todd talked about. We want to ensure that those underlying skills are properly fixed and mastered.

And again, in addition to teaching sight words, we're ensuring that these skills are fixed so that we're building this ability to decode, to decode new words. And we can use letter sound knowledge to have students also decode words, sight words as well. So, we



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usually teach sight words as kind of a memorization task, but we can use these decodable skills to analyze and to pull apart sight words as well. This can be really helpful because what it does, is it builds a more complex representation of these phonemes in the student's mind. So, for example, the word "was" has an A that sounds like uh an S that sounds like /z/. And if we teach each of these sight words have uncommon vowel and consonant sounds, we're building a more robust phonological representation of all of these words, which is going to support the learning of new words as well. And of course, instead of teaching that some words like "some" are our rule breaker, you can provide the student with other words that are also, you know, rule-breaker words to show that there is correspondence across other words and how these vowel consonant sounds are pronounced.

And, of course, one of the best strategies, we have to develop word reading in students is through repeated readings which means reading the same text again, and again, which of course is going to be tedious, but there's lots of different ways in which we can make this more engaging for students. So, we can have a variety of reading formats. We can do things like choral reading in the classroom, teacher lead reading. We can do paired reading or even do independent reading, depending on their ability levels. And the important thing to know it is, you know, for paired reading, we want to ensure that we're pairing up students of differing ability levels. So, you would want to pair a student with a stronger reading ability with a perhaps a more weaker reader in to ensure that the scaffolding is happening there.

Alright Todd, I'll let you talk about reading fluency.

Todd:

Thanks, Damian.

So, reading fluency is a critical skill. All of these are all critical skills, but now we're at a kind of a really important skill because often we use this skill, reading fluency, as an indicator of how efficient this network is developing. So, what reading fluency is, is how fast and accurate, am I able to read words in connected text?

Let's go to next slide.

And the reason that we want to look at both accuracy and speed is if we just look at accuracy, then it doesn't get at how efficient the system is. So, accuracy and speed together, create a measure of efficiency. How efficient is the reading system? How efficient are those foundational skills developed to allow a student to be able to read? Because when it comes to efficiency of reading this is in huge indicator of how well a



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student in the future is going to be able to comprehend. So, for example, I could be very accurate reading. But... if... I... read... like... this... If I'm reading very, very slowly, then all of my brain's cognitive energy is going into trying to decode every single word. You say the cognitive load on the brain is so high around decoding and trying to recognize those words, that there's really no room left for comprehension. They don't, they don't know what they just read. And that's why you see, a lot of students who are really slow readers having to go back and reread the same paragraph over and over and over again, trying to pull out the meaning from that paragraph. However, if someone can read really quickly and accurately, then what that's telling us is, that's a very efficient system. That the cognitive load, how much processing that's going on in the brain, is actually really small when it comes to recognizing words, and therefore, a lot of room is left over for comprehension to take place.

So, reading fluency is an essential skill in terms of our understanding of how efficiently these bottom skills have, or the foundational skills of reading, have come together. Often, we'll use reading fluency as our kind of entrance into assessment, for a lot of students to say: "Hey, this grade 5 student, well, let's see what they're oral reading fluency is". And if it's problematic, then we go, we have to kind of dig down through the triangle, the pyramid to figure out where are the, where is this breaking apart? Or, if it's working really well, then we want to move upward. We want to look at their reading comprehension skills or their vocabulary skills so that we can understand what their higher-level skills in reading are. So, oral reading fluency is a really important skill to get at, both the fluency, or to get efficiency of how those initial skills have come together.

And so, as Damian demonstrated earlier on, at the beginning of the presentation, to assess oral reading fluency you just simply give a student passage that at their grade level and he asked them to read it out loud. Now, you know, and then you just see how many words are able to read within one minute. So, if they misread word, you put a slash through it. If it takes more than three seconds for them to read a word, you put a slash through it, and at the end of one minute, you add up all those words and that will give you your score and you can see based on the norms, are they, is a skill developing as we'd expect it to be, or are they, is it atypically low and therefore, putting them at risk for future reading challenges. So, oral reading fluency is a fantastic measure to really get at those foundational skills.

So how do we go about teaching oral reading fluency or developing oral reading fluency? Well, as Damian said earlier, repeated reading is this is the strategy. It's where a student rereads the same passage over and over and over again because in doing that what you're really doing is you're really consolidating this highway; you're really maximizing this highway of being able to quickly see and recognize a word and



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automatically know what the word is. And we can do that, that we can use repeated reading in in different formats. We can do guided reading, where you have a teacher with a small group of students. And you're asking the students to read the passage out loud, the student, the teacher can get right in and to be able to correct it. Now, it's important in like guided reading, choral reading, which is the next strategy, where everybody's reading together, is that you have the right level text and the way that we measured the student has a right level text. It's not based on the grade ability, but it's based on the accuracy that they're able to read that text. So, accuracy, to get the right level, is a student has to be able to read between 90 and 95 percent of the words correct. That tells you that this is their instructional level. If they are lower than 95 or below 90 words read correctly, percent words read correctly, then we know that that passage is too difficult for them, and we should probably look at a bit easier passage. If they're reading above, 95 words correctly, or even at, and especially at a hundred percent of the words correctly, then we know that that passage is a little too easy and so, we should go for a little bit more difficult passage. So, the sweet spot is looking at ensuring the student can read between 90 and 95 percent of the words read correctly. And the way to do that is you just take a paragraph, you count up how many words are in that paragraph, you have them read that paragraph out loud to you and you see how many words they read correctly. And so, it's basically number of words read correctly in the numerator. The number of words read. And in overall words in the denominator divided and that gives you your percentage. So, once you figure out the correct instructional level for the student, that 90 to 95 words read correctly, then the guided reading, choral reading, are fantastic. Two ways of being able to help students to do repeated reading activity.

There's other things that can actually help develop reading fluency. Reading while listening has been shown to be effective. So, if the student is listening to computer to read out loud to them, and the computers reading at a slower pace, and this happens on a regular basis, there's a bit of a remediation effect on the reading fluency because again, the student is constantly seeing and hearing the words over and over and over again. Now, if the student is staring off into space, reading while listening is not going to happen. They have to be directly focused in on the text, on the words on the doing it.

Another way is to use peer assisted reading, and this is where mixed ability group is created. So, you have some stronger readers with some more developing readers, and they work together to be able to give feedback. It's almost like guided reading but you're using some stronger readers to be able to help support those students.

But in any case, in all of these situations, what we want the students to do is basically reread the same paragraph, a couple of times to ensure that they're really focusing in on the words look and developing that orthographic recognition system within the brain.



Damian?

Damian

Okay, so I'm going to talk about vocabulary now. And if you look on the infographic, you'll notice that vocabulary is set off to the side. And what this is intended to depict is that vocabulary is not, it's not following the development of reading fluency. For example, vocabulary is developing, you know, right from the get-go with oral language and then eventually with written vocabulary.

So, it's not sequentially located within this this process. It's really it's developing in lockstep with most of these other skills. And we talked about vocabulary, we're referring to, you know, the words that we have to understand in order to comprehend what we're reading. So, as Todd said, we want to ensure that our readers are understanding 90 to 95 percent of the words in a in a passage in order to be able to comprehend what that passage is actually saying. And research tells us that vocabulary is learned, both through interactions every day in our everyday experiences, but also through direct instruction. So, as students move through school, they're developing the background knowledge in a variety of different areas in order to comprehend academic texts.

And we can think about this in terms of tiers of words. So, when we talk about vocabulary assessment and instruction, we have to consider that not all words are equal in their utility or even in their stage of acquisition. So, Beck and colleagues provide a really nice way of understanding. This, this means the categorizing words into three tiers. Tier 1 words are the words that students are likely to acquire without instruction just through their everyday experiences. Tier 2 words are high frequency words, used by mature language users and are found across a variety of domains. And then we have tier 3 words, which are rare words, and they require direct instruction and typically relate to a narrow domain. Things like chemistry words or biology, words, word specific to history, those kinds of things. And when we talk about assessing vocabulary knowledge, focusing on tier 2 words is going to provide the most useful estimate of a child's understanding of academic terms, which is also going to be the most predictive of their ability to read text across multiple domains.

So, we have here a vocabulary measure. It's called the two question vocabulary measure, and it's adapted from Kearns and Biemiller, 2010. And this is an oral language vocabulary test. So, as I said, vocabulary is developing right from the oral language stage on through and this is a way of getting at vocabulary development in the sort of preliterate stage. These are kindergarten students, and you would read them questions and have them answered whether or not they understand the word. So, for example,



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alone, do you do things by yourself when you are alone? Yes or no. This is just getting other oral language comprehension of vocabulary words. And of course, we can continue to assess vocabulary in older, students as well. And we want to get, again, get at that tier 2 word knowledge because we know that those words have the greatest utility across domains so, it's a good place to start in terms of assessing whether or not vocabulary impairments are also impacting on their ability to read. So, this is a tier 2 word vocabulary assessment sourced from Easy CBM, and you're providing students with essentially multiple choice questions where they're defining, picking the right definition to describe a word in a passage of text and their total score is simply the number of correct responses that they provide.

So, if we determine that a student vocabulary is a little bit underdeveloped and it's impinging on their ability to read, there's lots of different things we can do to improve that vocabulary ability, so we can focus on rich meaning and we want to be providing them with vocabulary that's not just based on dictionary definitions because we know that students are more likely to remember a new word if they're able to use that word in different ways. So, providing opportunities to use it to look at dictionary definitions, but also, synonyms, real, real-life examples, all of these are going to improve the depth of encoding of those new vocabulary words. And of course, we know that memory is associational. So, how memories are stored, is how they are associated to other things. When we teach new words we should be emphasizing the connection between other words. So, we might teach gas and brakes, but it makes sense to also teach other words associated with vehicles because we know it's going to create a more robust memory trace.

Promoting the usage of the word is also really important, just like repetition is important for reading. We want to create opportunities for students to use the words in a multitude of different ways. So, speaking, writing, listening, and reading. And of course, review is important as well. Research tells us that students need to be exposed to word about three to seven times before they learn it. It's repetition of course is very important here. As with reading fluency and word reading we're going to be using repeated reading to do to build up that vocabulary knowledge and research tells us, that about four readings of the same material is optimal for the retention of new words. And like I said, we want to increase the sort of depth of encoding. So, we want to provide words with them as a means of different understanding associated with them. So, we've got dictionary definitions, but we'll also have the student use the word in a sentence or draw a picture of it. And again, all of these strategies are going to help that student remember the word more robustly.

And I'll hand it over to Todd to talk about reading comprehension.



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Todd:

So, we started off our journey of reading development with phonological awareness. And as we develop knowledge of those 44, sounds and start to associate those with the symbols that represent those sounds and start to recognize those symbols and then actually recognize the words. And, and be able to decode and recognize words. We then start to build up an efficiency system around meeting to be able read those words in connected text and get faster and faster at that. Well, we also have vocabulary kind of this side venture going on as well, that that's that has been developing and all this really comes together to meet our kind of the end of our journey in reading development, which is reading comprehension.

Next slide.

So, reading comprehension is the combination of both the oral language skills that we have, as well as a text level skills. We know that with reading comprehension if any part in this pyramid is not working, then it's going to impact our ability to read. If our reading fluency is slow and then the student is.. using.. a lot... of... effort... to try and figure out what is written on the page, then that's going to impact their ability to understand what they're reading. If the student doesn't have a good vocabulary, then they're going to read words and not know what the meaning of those words are and it's going to impact their comprehension. And another thing that might is the strategies, that they lack strategies to be able to go in and understand what, how to find the important information within the reading then that's going to impact their comprehension. So, all these skills have to come together to lead to someone to have good reading comprehension.

Now the way that we assess reading comprehension through curriculum baseline measures depends on which grade you're in. If you're in the younger grades, then what we're doing is we're actually doing a retell task after your oral reading fluency. So, the student's doing an oral reading fluency, and at the end we wait, we ask the student to tell us all the things that you can remember, and the student retells the story. Now remember oral reading fluency is looking at efficiency to see how efficient is the reading system. If the system is not very efficient and the is reading... really... slowly..., then all the attentional resources, all the cognitive resources, are going in to try and figure out each individual word. And there's very little room left over for comprehension. So, the students probably not going to be able to retail much of the story because it, because the system is just not efficient. However, if you have a very good efficient system, then the decoding aspect and word reading aspect is going to take very little of the cognitive energy, put very little load, cognitive load, on the brain, and therefore, there's a lot of



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resources left over for comprehension and they're going to have a very good retell of the story. Unless they have some attentional difficulties where they might read very, very fast and not actually attend to what they're reading, which then also informs you about hmmm, maybe we need to add some strategies in here to be able to help a student to slow down and really check further understanding as there as they're going through.

Now, as a student gets older, we change up the tasks, we use what's known as The Maze task. And with the maze task, is that students reading a line and in every single sentence, one word is replaced by three possible options and the student has to read through and circle which is the right option to complete that sentence, or that works in that sentence. This is a timed task. So, the students, we're looking again at the efficiency of their reading comprehension now, so, how fast and accurate can they read, how well their vocabularies are developing, how well the strategies they're using to be able to ensure that they are monitoring their understanding, to be able to choose the right words to complete the sentences. Now, if a student scores low on this task, but yet, everything else has developed well and their vocabulary, as well, then the main intervention will be teaching reading comprehension strategies.

And all reading comprehension strategies interventions, basically follow the same, the same format. You have to start, you have to start by activating prior knowledge, get the brain thinking about what it's going to be reading, to be ready to engage. You have to set a goal for the reading of "why am I actually doing this?" so I can help me focus my attention on what information to extract. As I'm reading, I have to monitor my understanding of what I'm reading and if I don't understand that, I have to go through and look for clues, verification. We call this the click, click, clunk strategy. So, I'm going through and reading, click, I got that, click, I got that, click, I get that, clunk, I didn't get that. Now, let me use one of my clarification strategies to go back and try and resolve why I'm not understanding what it is. And then the final thing is a summary, being able to summarize the information at the end. By teaching students these key strategies, then we can see increase in comprehension rates, if all the other pieces are working,

However, if reading comprehension is low, and then I start testing down, good start, put my car in reverse and start reversing down the road and testing out the different areas and find that one those other skills is weak, such maybe my vocabulary is weak. Then that's going to say, don't worry about the reading comprehension right now, go back and teach vocabulary focus on vocabulary development, or let's focus on word reading, or reading fluency, depending on which part of this skill development is weak. We have to go in first intervene there, then we can move back to reading comprehension in the future to develop.



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Damian:

Okay, thank you, Todd, great.

So, we've reached the destination of reading and comprehension and now our hope is to apply some of that knowledge. So, we're going to go through a case study here describing a student with some reading difficulties and then we're going to do hopefully a kind of a group think and share about what we might do in terms of assessment.

So, we've got a grade 3 student here and this student is having difficulty, understanding what they read. When we listen to them read in the classroom, we see that their oral reading is choppy and effortful. So, given this brief little profile of a student's where would we start to assess?

And I put together this flowchart to kind of help orient our thinking a little bit. So, it shows the skills, of course moving from phonemic awareness due to that alphabetic knowledge, word reading, reading fluency, and reading comprehension, and we've placed vocabulary here off the side just to indicate that vocabulary is not sequentially developed, right? So, it's developed in lockstep with all of these other skills as they're developing.

So, given this profile, we've got a student, he's having trouble understanding what he's reading is, reading is choppy and effortful. So, if you have any ideas about where you would start assessing put it in the chat. And I see that we've already got lots of chat questions and we will try to set aside some time at the end for Q&A as well.

Okay, so we've got reading fluency. Test to determine the type of errors the student is making. What is the pattern? And we can isolate specific phonemes that are difficult for the student.

This is great.

So, we're talking about getting right to reading fluency, so as Todd told, this is kind of the entry for where we want to start to assess and, you're right, this is probably where we would want to look first. So, we know that the students having trouble comprehending what they're reading, but if we were to check their reading comprehension and we found that that was, it was compromised they were having some trouble with comprehending what they're reading. It wouldn't make sense to just go and then, as Todd said, apply some, some reading comprehension strategies to that student because what we're doing is ignoring some of the sub skills that are likely undeveloped in this student.



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We want to go back, as Todd said, we want to look back at reading fluency, which is sort of the penultimate skill. That is going to ensure that students can read and can comprehend with the reading.

So, that's great. Any other ideas about what we might do?

Okay.

Well, I think we kind of hit the nail on the head there with fluency. Word reading? Yeah, you could, you could start there, but again, you would probably want to be moving up to reading fluency

Todd:

And vocabulary they said.

Damian:

Yeah. Yeah, that's good, too. Yeah, any other thoughts about that one? Todd?

Todd:

No, that's great.

So, jump on the next one so we can get time for some questions. So, the other case is a grade 1 student. Now again developmentally, we know grade 1, this is, you kind of, almost need to know what time of year it is. So, let's say it's wintertime. So, wintertime. We know that students oral reading fluency is just starting to kick in at this at this time. So, we're able to provide a student and they're having difficulties reading fluently. So, they're having difficulties with both the accuracy and how quick they're reading. So, at this point we go, okay, so if we're thinking about the reading fluency, oh, and also when they're, when they're trying to read, they're using the first letter to guess at what word they're reading. So, when they see the word eleven, they read it as even. So, this is a really good indicator because the student has some development of phonological awareness. They have definitely some alphabetic principles going on. They see the E. They know it makes that, they know it is and they know words that kind of start with that. However, they're guessing at what the word is. And eleven to even, that's not a lot of contextual information. So, they're not putting a lot of content, they're not using a lot of context to figure that out. So, my guess is the brains also are pretty flooded with just the accuracy of reading. It's really hard to decode every single word that they're not



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actually holding any meaning in their head as they're trying to guess at this word. They're really using a very simplistic strategy of looking at the first letter to guess that word that they know.

So where do we start then?

You can just jump to the next line.

Give you a second to think about this.

Well, given knowing that, this is a grade one student and given that we are getting here and that they're using this kind of simplistic strategy to guess. Someone just said, definitely would be jumping to back to the alphabetical knowledge. So, we, I'd start off with a nonsense word fluency task to be able to see how well are they being able to recognize or decode unfamiliar words to see how well is their alphabetic knowledge developing and may also do a letter-sound fluency tasks as well, to be able to see, do they even have all, do they have this road? How well is this road beginning to develop and consolidate? If those skills are also underdeveloped, then I'd probably also move back and do phonological awareness task to really look at those first sound fluency and phoneme segmentation fluency components to actually look at that primary area because the student might have or possibly be at risk for developing learning difficulties or dyslexia in the future. So, I really want to kind of do my due diligence to kind of work back to the beginning to understand these initial foundations.

We also know if we can intervene on a grade one student, we have the best chance for remediation. 80% of students who have reading disorders can probably be remediated if we do it by the end of grade 1. It drops to 50% in grade 2, and down to 30% in grade 3, so we're in this fantastic window where if we actually do have an underlying reading disability or dyslexia that we could probably do some amazing work with this individual.

So, with that, we want to thank you very much for allowing us to beam into where you are in the world today. Really, the infographic is meant to be a kind of a desktop or desk resource that educators or parents can look at quickly to be able to say hey, I'm seeing some challenges in a student am working with, how can I go to first identify where that weakness is? And then once I identify that weakness, what do I do about it? How do I go and start to directly intervene, and in turn develop that skill?

We know, with any good remediation. There's three key pieces. One is you have to have specificity. We have to understand what skill is weak and we have to develop a use the right type of intervention to target that specific skill. That's our specificity. Then we need intensity. We need to do a kind of, probably 45 minutes a day for five days a week. We



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haven't had happened of intensity in each of those settings to really get the brain to be working. And then we have to have duration. We have to do it for a long enough period of time to really allow that skill to become mastered before we really continue to progress on. And that's where the, again, the use of the progress monitoring aspect of Curriculum Baseline Measures is so powerful, where we can actually track that progression of our intervention over time. So, we can see When that students reach those mastery skills

So, on behalf of Damian and myself and the Academic Intervention Lab, we thank you for listening to us today and very happy to take some questions.

Susanna Miller (moderator):

Alright, thank you so much for that presentation. I've gotten a lot of comments in the chat about how great this infographic is. And I agree. I've seen a lot of different analogies for how reading develops, but I like the road so much because it perfectly shows that it develops in a sequence. I think that's a really lovely take away from today.

So, it is already past our end time, but we're going to keep it open for a little bit longer, so we can get through some questions. If you do have to leave right now, don't worry. Pop your questions in the question box. We are recording this, and you will receive a copy of the recording, a few weeks down the road.

And I've gotten a lot of questions about where the infographic can be found. And I know there was a lot of information on those slides, both of those are available on the padlet, which is in the chat right now and it will be sent out in a follow-up email tomorrow morning.

So, without any further ado, I suppose we should start the question period.

I've gotten a number of good ones. Let's start with a question we got a from one of our audience members asking about what your favorite spelling inventory is and for the layman in the crowd, including myself, can you also go over what exactly a spelling inventory is and what it's used for?

Todd:

So, spelling inventories are kind of family of words that were going to use. So, they have kind of common elements to them, orthographic pattern, so like the shuns, the t-i-o-n words that go together or our R sounds, a-r or o-r combinations.



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Well, I'm going to say a product. Words Their Way is really one of the best products out there in terms of helping to develop both, assess for the developmental sequence. Where is the student at in the development of that, of their spelling? So, it can then guide you to the right kind of listing of words there are and then within the words or way program, it provides words in kind of a family of words that are developmentally appropriate for that student. And then it provides a lot of really good friendly in class activities to help to develop the understanding of those words. Because we know that just giving a list of words, ten words, and having a student memorize those words for the spelling test on Friday means that a student's going to memorize a whole bunch of letter combinations, spell well on that spelling test on Friday and forget it all by Monday. By looking at word families, by looking at those common orthographic patterns and how they can be changed to be able to make different words, then we're creating a deep understanding of the spelling patterns within our language, and that can also help support the word reading skills that students are having as well. Again, this is a two-way street. So, the Words Their Way program is a fantastic program.

Susanna:

Lovely. That kind of flows, right into the next question We're talking all about reading where does writing fit in. How does that support the reading process? Is something that needs to wait til later?

Todd:

Mmm. Hey, they're happening, happening in tandem. So, you know right back to the beginning, we're trying, we're, well knowing the phonemes within our language. You don't need to do that, but that's developing. You can start playing with phoneme games, you know, 1 2 3, you know, we're constantly doing phoneme activities with young kids, but the second we start doing that phoneme to grapheme, or symbolic association, developing alphabetical knowledge, writing comes in right at that point. We need to not only be able to recognize the sounds, but we also have to be able to reproduce those. If I say write the /t/ sound, a student needs to be able to do, make a T with those two, two lines. So, this is a two-way street reading and writing are a two-way street.

Also, when we're teaching word reading, so we call spelling word study, is a fantastic place to bring that in. So, as we're learning about the structure of high-frequency words. We're also looking at how to spell those word families, those words in those word families. It's happening together. It's a two-way street. Vocabulary development is a wonderful way to be able to do writing. Giving a student a word and then think about how to write a sentence that uses that word within it. A fantastic way of supporting vocabulary development. So, it is a really a two-way street that is developing.



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Susanna:

Wonderful.

So, in the very beginning of the presentation, there was talk about sort of the literacy pass rates on the EQAO and the assisted pass. How does assistive technology, fit into the EQAO? If we're trying to test for literacy, isn't it kind of cheating to use assistive technology? Or not? What are your thoughts?

Todd:

So, it depends when we're bringing assistive technology here. So, assistive technology is fantastic. Shoot. My whole research career has been mostly on assistive technology, looking at the efficiency and effective ways of using it. However, where we see assistive technology is, is that it's really there to support older students who are having significant issues gaining their ability to access the curriculum. So, if a teacher hands out a worksheet and my decoding skills, are at a grade 1, grade 2 level, then that's not unfair because I can't engage in that classroom activity of being able to read the text. So, assistive technology comes in to be able to help me to engage in, in the, the learning. It's a compensatory tool. It's not a remediation. However, when we look at the grade 3 data, well, we know from remediation rate that really we should be around 85-90 percent of all students, being able to read by the end of grade 3, based on the science that we have out there. So, the fact that we have so many students using assistive technology so early on, indicates that were using assistive technology as a Band-Aid to replace good remediation. So, instead of teaching kids how to read who are having reading difficulties, we're saying we don't want to take the time to do that. We're just going to give you technology instead.

It'd be kind of like someone who had a car injury and instead of sending them, and had some leg difficulties, instead of sending them to the physiotherapist, to be able to work on developing their natural ability to walk, again, we just go we are going to give you a wheelchair and to be able to use that. Or even more sinister, if you have a child who hits 18 months and they still haven't taken their first step. Instead of saying: Oh my goodness, the student, this child hasn't learned how to walk in the normal time. Then, let's just give him a wheelchair and let them use the wheelchair for the rest of the life. That's kind of how we're using assistive technology, right now. We're saying you have not developed this central skill, that we know that we should be able to teach you to do at this piece of time, instead of investing the time and energy to developing that essential skill, we're just going to give you some technology and let you just use that for the rest of your life.



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And so, that's where we have a challenge. You know, we feel very strongly about the EQAO scores, kind of, not quite getting the full picture. We really need to be seeing assistive technology being brought in later, time really used to help students engage in the learning going on, but it's not necessarily a tool to reflect our literacy rate. It's because we have a lot of knowledge of how we should be able to teach those skills and get students up to where they need to be.

Susanna:

Wonderful.

So, you're saying it's more of a, when it comes to remediation and assistive technology, it's a yes-and not an either-or situation.

Todd:

Yeah.

Susanna:

Perfect. While we're still talking about technology, I have a parent in the chat who's wondering, are there any apps that can be used to sort of reinforce phonemic awareness, help with reading sight words, kind of build those skills maybe at home, even?

Todd:

Yeah, there's some great apps, you know, you can get the Jelly Phonics app, if you're right at the beginning of this whole thing, the Jolly Phonics apps are lots of fun for younger children to be able to develop those skills. However, off the top of my head, I can't think of anything else, but we do, there are good things.

Now the important thing to always remember when it comes to apps and other computer technology such as Lexia or fast-forward, technology is good as a practice modality, it is not replacement of instruction. So, often what we're seeing especially in Ontario is we're seeing the instructional piece of literacy being handed over to a computer or an app to be able to do that. But really all the research keeps coming back to is, you need a skilled individual to be able to help drive that student through this road of reading to ensure that these skills are developing properly. We can't substitute, good, human teaching with a computer program. We have things that can help to



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practice that, but we really do need that that human in place to be able to actually develop the skills, but we'll get some apps and send them to you.

Susanna:

Perfect, and we will share that with the audience as well.

I think we've got time for a couple more I'll squeeze in. So, a couple of the interventions or games that you brought up, there was the name guessing game, and the Maze task, is there any issue with students getting the right answer because they were lucky and just chose the right multiple choice, answer or guessed the right name? And how does that factor into teaching?

Todd:

There's always going to be some guessing but if your guess every time, then you know, statistics would state that you're going to be scoring pretty low, you know, even if you're at the best, guess, right, on the maze test, you know, you're hitting only thirty percent, thirty-three percent accuracy rate, which isn't going to be nowhere close to what you need to have to be able to pass the test. So, yeah, you can just guess, but it's going to show that you're not doing well on the test itself. So, we always expect some guessing to take place, but it's if the students using consistent guessing, you're going to score low. So that's why we're, again your, when you get those high numbers, there are those average numbers. You know that a student is actually have those skills consolidated for their developmental level.

Susanna:

Awesome.

So, this is kind of being a presentation about reading for everyone and how reading develops for all of us, but we are again, LD@school. We have to bring it back to LDs. You mentioned a few timed tasks. What happens if a student has an LD that affects their processing speed?

Todd:

Processing speed has nothing to do with time tasks. So, processing speed is just the efficiency of how our brains are doing. And we know that with remediation and proper practicing, you can reduce any task's processing speed down. So, when we think of, we're not actually thinking about processing speed, but we're thinking about efficiency.



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Efficiency is how strong and how well developed a current neural net is and we know with the right types of interventions that will increase that strength and that efficiency of that neural net and then lower the speed. So, even if a student has global processing speed, it doesn't mean that they're going to be a slow reader. We can remediate and develop their efficiency in that area. And also, our processing speed measures, the way that we do it has a lot of handwriting involved. So, often that adds error to our processing speed tasks and which doesn't directly correlate with reading. Processing speed itself is not a determining factor or even a real indicating factor for reading difficulties. Phonological awareness, what we call orthographic processing measured by rapid automatic naming, which is the efficiency of reading, recognizing those symbols, the letters of words, those are key indicators of this neural net for, for reading.

Susanna:

Wonderful, so that is, we've stretched it today. That's all the time we have, unfortunately, but if anyone in the audience still has a question that wasn't answered. We would love to hear from you. We can be reached at our Twitter as well as at info at LD at school dot CA, or you can just reply directly to the email I'm going to send out tomorrow and you can talk with me.

So, with that I just want to thank all of our audience and, of course, our lovely hosts Damian Page and Dr. Todd Cunningham for their presentation.

Please remember that we will be sending out the presentation slides, the handout a short survey tomorrow, and the recording will follow at after a couple weeks. So, thank you again for participating today and enjoy the rest of your day.

Goodbye.

