

Webinar Transcript: The SLP in the Math Class: Empowering Math Learners Through Collaboration Between Educators and Speech Language Pathologists

**Presented by: Sabrina O'Keefe, M.H.Sc. Speech-Language Pathology, Reg. 4100;
Private Practice**

[SLIDE – FREE WEBINAR: Supporting Students with Learning Disabilities in the Differentiated Literacy Classroom]

[Text on slide:

FREE WEBINAR! The SLP in the Math Class: Empowering Math Learners Through Collaboration Between Educators and Speech Language Pathologists

June 5, 2019 3:45 – 4:45 pm ET

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Image of cartoon brain wearing glasses with one hand raised and the other hand holding a megaphone. There is a speech bubble coming out of the megaphone that contains math symbols.]

[Cindy Perras]: The LD@school team is very pleased to welcome our guest speaker, Sabrina O'Keefe. Sabrina's presentation this afternoon is entitled "The SLP in the Math Class: Empowering Math Learners Through Collaboration Between Educators and Speech Language Pathologists."

[SLIDE – Funding for the production of this webinar was provided by the Ministry of Education]

[Image of LD@school logo

Text on slide:

Funding for the production of this webinar was provided by the Ministry of Education.

Please note that the views expressed in this webinar are the views of the presenters and do not necessarily reflect those of the Ministry of Education or the Learning Disabilities Association of Ontario.]

[Cindy]: 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.

[SLIDE - Don't forget to use our social media hashtag!]

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[Image of Twitter bird holding megaphone and speech bubbles coming out of megaphone]

Text on slide: #LDwebinar @LDatSchool]

[Cindy]: We will also be tweeting throughout the webinar, so if you would like to participate, you can send us a tweet by using our handle, at LD@School, or the hashtag LDwebinar.

[SLIDE – WELCOME]

[Image of Sabrina O'Keefe]

Text on slide: Sabrina O'Keefe, M.H.Sc. Speech-Language Pathology, Reg. 4100; Private Practice]

[Cindy]: That takes care of housekeeping for this afternoon so let's get started. It is now my pleasure to introduce our speaker Sabrina O'Keefe. Sabrina is a speech language pathologist, working in private practice, in the Dufferin and Peel regions. She graduated from the University of Toronto and has 17 years of experience working in the field supporting children and their families. For two years, Sabrina was on contract at Trillium Demonstration School a specialized residential school program for students in grades seven to 11 with severe learning disabilities. At Trillium, Sabrina collaborated with teachers to integrate speech and language goals into the classroom. Welcome Sabrina, the cyber floor is now yours.

[SLIDE – The SLP in the Math Class - Empowering Math Learners Through Collaboration Between Educators and Speech Language Pathologists]

[Text on slide:

The SLP in the Math Class - Empowering Math Learners Through Collaboration Between Educators and Speech Language Pathologists

Sabrina O'Keefe, SLP

LD@School Webinar

June 5, 2019]

[Sabrina O'Keefe]: Thank you very much. Hello and thank you very much for joining me this afternoon. I had the opportunity to present this topic at the Learning Disabilities Association of Halton conference in March 2017. And I'm glad to share a freshened up version with you all today.

[SLIDE – Introduction]

[Text on slide:

- Undergraduate studies at U of Guelph
- Masters of Health Sciences in Speech Language Pathology from U of Toronot in 2002
- Preschool Multidisciplinary Team at Erinoakkids from 2002 – 2008

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- Private clinic in Orangeville from 2008-20015
- Solo Private Practice owner 2015 – present

Image of Sabrina O’Keefe]

[Sabrina]: So as Cindy mentioned I do work in private practice in Dufferin-Peel. One of my contract jobs was with the Trillium Demonstration school in Milton. My role there was quite different than what you all may be familiar with. My mandate there was to support the language and literacy needs of the student body. So instead of splitting language versus speech, I was to collaborate with staff, both residents and teaching staff, to implement school wide strategies as well as specialized intervention for students who may have had more traditional CCAC or LHIN type goals. So I'll note to you that I do not have any school board experience.

[SLIDE – My Lens]

[Image on slide of a camera lens with the pupil and iris of a human eye inside.]

[Sabrina]: So today is going to be a conversation about how an SLP may fit into the support plan for a student with math difficulties. And how inherent to training and experience an SLP may look at the presentation of math concepts in a classroom from a different perspective. I'll be providing some data along the way with respect to best practice. But will be sharing some of my own experiences that I've gained through my collaboration with teachers at Trillium and the support that I provide privately just to give you some food for thought.

[SLIDE – Agenda]

[Text on slide:

- Speech Language Pathology 101
- Discuss the role of vocabulary and language development and how that may impact a math learner
- Explore the impact of executive functioning on math learning
- Discuss strategies that may support students in the language heavy math curriculum]

[Sabrina]: So today we're going to talk a little bit about speech language pathology in general. Also discuss the role of vocabulary and language development and how they may impact a math learner. Explore the impact of executive functioning on math learning. And discuss strategies that may support students in a language heavy math curriculum.

[SLIDE – Scope of SLP]

[Image of three intersecting circles

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Circle #1 text: *Speech*: articulation, phonology, motor speech, fluency, voice

Circle #2 text: *Language*: written and oral comprehension and expression; reading

Circle #3 text: *Pragmatics*: Social communication and executive functioning

Fourth circle, off to the side not intersecting with the other three circles, with text that reads: *Feeding & Swallowing*]

[Sabrina]: So first let me give you some background as to what a speech language pathologist is and does. An SLP is a regulated health professional with at least a Master's degree, who works in educational, medical, vocational, therapeutic, private settings, for example. We have the education and training to support all of the above areas that you see on your screen. But over the years and with experience we tend to find our own areas of interest.

[SLIDE – Image of an SLP working with a student]

[Image of a Speech Language Pathologist working with a young boy. Both the SLP and the boy have their mouths open wide as if they are speaking. The SLP is pointing to her mouth. On the table in front of them there are flashcards and a mirror.]

[Sabrina]: Although you may have a more traditional view of an SLP so here we have a classic representation of the SLP working one on one with a child working on speech sounds. I see in this picture that there's a mirror and some flashcards, and sort of based on the size of the room and the size of the window she may be working in a small storage closet of some sort.

[SLIDE – New Era!]

[Image of a super hero flying through a hole in a brick wall with arms extended, as if he just punched his way through the wall.]

[Sabrina]: But I would like you to consider going beyond the stereotypes and look towards a future where the SLP is not an outside entity at school, but who is integral to the collaborative teaching model. Supporting our kids together with functional assessments and in class intervention.

[SLIDE – What Does the Research Say?]

[Text on slide: SLP- educator classroom collaboration: A review to inform reason based practice. (n.d.). Retrieved from <https://journals.sagepub.com/doi/full/10.1177/2396941516680369>

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Based on the presentation by Lisa Archibald at the 2016 School Services Symposium of the Ontario Association of Speech Language Pathologists and Audiologists (OSLA) and was informed by an @WeSpeechies twitter week based on the theme of SLP educator collaboration curated by the author. 19]

[Sabrina]: Okay. So starting off with a little bit of research on collaboration. A few years ago I attended this conference and I listened to Dr. Archibalds' presentation and this was a review of the current literature about collaborative classroom models. And since then, I've mentored a student of hers from Western. And have started to become more knowledgeable about her passion and Dr. Archibald really focuses on developmental language disorder.

[SLIDE - SLP-Teacher Collaboration:]

[Text on slide:

- Promotes generalization through classroom based services
- Helps to address functional communication goals for academic ADLs (activities of daily living)
- Supports inclusivity
- Allows for the provision of differentiated instruction]

[Sabrina]: Here is some of the information that she gathered from her literature review with respect to SLP teacher collaborations. She found that it promotes generalization through classroom based services. It helps to address functional communication goals for academic activities of daily living. It supports inclusivity. It allows for the provision of differentiated instruction.

[SLIDE - Other Benefits to SLP Teacher Collaboration]

[Text on slide:

- The teacher can observe the SLP and successfully reinforce strategies
- The SLP can gain a better understanding of the skills that are needed for classroom success both social and curriculum
- No pull out therapy means no missed instruction time!]

[Sabrina]: Other benefits, the teacher can observe the SLP and successfully reinforce strategies. And the SLP can gain a better understanding of the skills that are needed for classroom success. Both social and curriculum. And there's also no pull-out therapy which means there's no missed instruction time.

[SLIDE - Quote: Research indicates that]

[Text on slide:



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“Research indicates that when teachers and SLPs collaborate to plan and deliver oral language instruction (e.g., teaching basic concepts, vocabulary and phonological awareness), students achieve greater success than when the same oral language material is taught by either participant independently.”

Oral Language At Your Fingertips (OSLA) p. 113]

[Sabrina]: So research indicates that when teachers and SLP's collaborate to plan and deliver oral language instruction. For example, teaching basic concepts, vocabulary, and phonological awareness. Students achieve greater success than when the same oral language material is taught by either participant independently. So really, we are better together. And a key word in this quote is the word plan. Collaborative teaching looks very different depending on the grade and the professionals involved. But it must be supported at the level of administration. So the principle and the chief SLP. If you don't have the support to have time to plan then it's going to be very difficult to present a successful lesson. I'm also going to note to you this particular source. Oral Language At Your Fingertips. Many of my citations come from this source and it's a great document that's been put out by the Ontario Association of Speech Language Pathologists and Audiologists.

[SLIDE - Key Words]

[Image of a cartoon little girl dressed like a detective, in a trench coat and hat, holding a magnifying glass to her eye.

Text on slide: Poor problem solving

- Poor rote learning
- Poor recall
- Poor sequencing
- Poor organization
- Grapheme challenges (i.e., reading numbers)
- Challenges with orientation and directions where do I have to be and when?
- Dysregulation with routine changes
- Inconsistent abilities day to day due to poor long term memory
- Weak working memory

[Sabrina]: So as part of your collaborative work I encourage you all to settle in with the OSR's and take a good look at the students past psych ed and SLP assessment reports and notice the following key words. Poor problem solving, poor rote learning, poor recall, poor sequencing, poor organization, grapheme challenges like reading numbers, challenges with orientation and directions, where do I have to be and when? There's dysregulation with routine changes, inconsistent abilities day to day due to poor long term memory, as well as weak working memory. These are all red flags for a possible learning disability in mathematics and you need to be able to adjust your teaching strategies to maximize the students learning.

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[SLIDE - Quote: In a longitudinal study...]

[Text on slide:

Cross, Alexandra M.; Archibald, Lisa M.D.; and Joanisse, Marc F., "Mathematical Abilities in Children with Developmental Language Disorder" (2018). Health and Rehabilitation Sciences Publications. 14.

"In a longitudinal study of children with DLD, language abilities at 7 years old predicted teacher reports of students' mathematics performance at 11 years old" (Durkin, Mok, & Conti Ramsden, 2015)]

[Sabrina]: Here's another great quote from a paper also out of Western, and it really reinforces, or enforces rather, the fact that those earlier assessments and findings can provide insight into future learning. So here we have in a longitudinal study of children with DLD so Developmental Language Disorder, the language abilities at seven years old predicted teacher reports of students' mathematics performance at 11.

[SLIDE - Vocabulary]

[Text on slide: Vocabulary]

[Sabrina]: So one obvious area of expertise where an SLP can provide support in the math curriculum is in the learning of new subject specific vocabulary.

[SLIDE - Learning New Words]

[Text on slide:

- Preschoolers: 9 new words/day
- School age children: up to 20 new words/day
- Most learning is incidental in social interactions and naturalistic contexts it takes place across time and environments
- Older students: 10 minutes of daily independent reading contributes to continued, incidental vocabulary development]

[Sabrina]: What we know is that preschoolers learn about nine new words per day. A school-age child will learn up to about 20 new words per day. We also know that most learning is incidental in social interactions and naturalistic contexts. It takes place across time and environments. And for older students, 10 minutes of daily independent reading contributes to continued, incidental vocabulary development. So consider those students who are not able to engage in daily independent reading because of their LD. How is their vocabulary developing?

[SLIDE - Learning New Words, continued]

[Text on slide:



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“Learning vocabulary through hearing and reading, however, may not be sufficient or possible for some students. Research shows that all students benefit from explicit teaching of vocabulary.”

Oral Language At Your Fingertips, pg. 39]

[Sabrina]: Learning vocabulary through hearing and reading may not be sufficient or possible for some students. Research shows that all students benefit from explicit teaching of vocabulary. We need to explicitly teach key question words that include what response is required and what operation is needed.

[SLIDE - Teaching New Words: Math Word Problems]

[Text on slide:

Sandra Laing Gillam, Professor in the Department of Communicative Disorders and Deaf Education at Utah State University and the current Vice President for Speech Language Pathology Practice for the American Speech Language and Hearing Association (ASHA). She gave a presentation at YRDSB April 29, 2019, Navigating the Discourse Continuum in the Classroom: Conversations Stories Math”]

[Sabrina]: So just recently I had a really good kind of collegial Facebook conversation with another SLP named Janelle Albrecht and she shared her notes from a presentation that she attended by Dr. Gillam. And the presentation was for the York region district school board in April entitled "Navigating the Discourse Continuum in the Classroom" Talking about conversations, stories, and math. Dr. Gillam spoke about six structures of math problems and each structure has key or signal words that are to be taught individually. The concepts start in grade one and then they go up. And the difficulty can be varied by using bigger numbers, or fractions, or decimals, depending on what you're looking at in your curriculum.

[SLIDE - Six Structures of Math Word Problems (Gillam)]

[Text on slide:

1. Group or combine (2 smaller parts make a whole) altogether, together, how many
2. Change (begin with an amount and then perform an action that adds to or takes away) then, now
3. Compare more, less, fewer Executive Function]

[Sabrina]: So I'm going to just briefly have this here cause this was sort of a late addition to my presentation but I thought it was really important to be able to share this information with you. So the six structures of math word problems and the key words that go along with them. So for example, if you're looking to group or combine things the key words would be things like altogether, together, and how many. With change, some key words are then and now.

[SLIDE - Six Structures of Math Word Problems (Gillam), continued]



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[Text on slide:

4. Equalize or Equal Groups (The same number of items in each group, how many in each group, make the groups even, find the total) each, every, a, per
5. Array, Area (problems with rows, columns, sides...) rows, lines, sides, length/long, width/wide, area, perimeter, cover, fill
6. Multiplicative compare (compare one thing as a multiplicative of another [e.g., 3x as many] or part of another [e.g., 1/3 as much]) -- times as many, times as much, of.]

[Sabrina]: The last four here equalizing, an array, and multiplicative comparing those types of things. And then, past those dashes are where the key words are located. Okay? So that's just something for you to have in your references.

[SLIDE - Continuum of Word Understanding]

[Image of a blue arrow pointing downward

Text on slide:

- No Understanding
- General Sense
- Narrow, context bound knowledge
- Some knowledge
- Rich, decontextualized understanding]

[Sabrina]: So the general progression of beginning to understand a word is going from no knowledge, to surface knowledge, to deep knowledge. And as a persons understanding of the word deepens its frequency of use increases. Typically you would start to hear a student using a term after approximately the fifth exposure to a term. And note that there are five steps here on the slide. A student with oral language difficulties or an LD needs to hear a new word twice as often as their peers to understand it. They also benefit from opportunities to imitate saying the word before producing it independently.

[SLIDE - Understanding the word "ratio"]

[Text on slide:

- General sense: "I think I heard it before."
- Narrow, context bound knowledge: "I think it was a word in my last math class when we were talking about apples vs. oranges in a bowl."
- Some knowledge: "You make a ratio with ":" between 2 numbers."]

[Sabrina]: So as an example if we were to take the word ratio. So a general sense, a student might say, you know I think I've heard that word before. And then it builds to something more narrow or context bound knowledge, where I think it was a word in my last math class when we were talking about apples

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versus oranges in a bowl, something like that. Then you start to bring in some knowledge where the student may think that okay well a ratio you use those two dots and they're between two numbers.

[SLIDE - "Ratio", cont.]

[Text on slide:

Decontextualized understanding: The student understands the word's meaning by providing antonyms, synonyms, role in a sentence, common affixes, multiple meanings and metaphoric use. "A ratio shows a relationship where how much of 1 thing is compared to another. So, if your bowl has 4 apples and 5 oranges, the ratio is 4:5."]

[Sabrina]: And then eventually, they have decontextualized understanding. So the student, sorry just had to check something. The student understands the words meaning by providing antonyms or synonyms. The role in the sentence, some common affixes, multiple meanings or metaphoric use. So for example, they may be able to say that a ratio shows a relationship where how much of one thing is compared to another. So if your bowl has four apples and five oranges, the ratio was four to five.

[SLIDE - Sample: On the IEP, this might look like]

[Image of 8 stick figure drawings of children climbing up a pencil.

Text on slide:

Kids Know A Vocabulary Word When:

1. They know the meaning.
2. They know the word parts.
3. They know the grammar.
4. They know the connotations.
5. They know the synonyms and antonyms of the word.
6. They can use it.]

[Sabrina]: We know that kids know a vocabulary word when they know the meaning, they know the parts of the word, they know the grammar, they know the connotations, they know the synonyms and antonyms, and they can start to use it appropriately.

[SLIDE - Tiers of Language]

[Text on slide:

- Tier 1 everyday words

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- Tier 2 general academic words
- Tier 3 domain specific words]

[Sabrina]: There are three different levels of vocabulary. And you have to think about what types of words to teach and to use in class. Tier one are your everyday words. Tier two are your general academic words. And tier three would be your domain specific words.

[SLIDE - Vocabulary Instruction: Choosing Words to Teach]

[Image of a three tiered cake with candles. The bottom tier is labelled “Tier I”, the middle tier is labelled “Tier II”, and the top tier is labelled “Tier III”.

Text on slide:

Tier III: Tier three words are low-frequency words and are limited to a specific “domain”. They often pertain to a specific content area. These words are best learned within the context of the lesson or subject matter. Examples: atom, molecule, metamorphic, sedimentary, continent.

Tier II: Tier two words are high-frequency words that occur across contexts. These words are used by mature language users and are more common in writing than in everyday speech. Tier II words are important for students to know to enhance comprehension of a selected text. Tier II words are the best words for targeted explicit vocabulary instruction. Examples: hilarious, endure, despise, arrange, compare, contrast.

Tier I: Tier one words are the words we use everyday in our speech. These words are typically learned through conversation. These are common words that rarely require direct instruction. Examples: come, see, happy, table.

[Sabrina]: So here's another visual for that. So appreciate that many of your learners are reading, writing, and speaking at tier one. And the majority of math terms fall in the tier two to tier three category range. The vocabulary may be familiar across contexts. So for example, we may use the term total in many subjects and contexts, but the learner has to know how it is used in the realm of mathematics.

[SLIDE - Definitions]

[Text on slide:

“Student friendly definitions promote comprehension and retention. Dictionary style definitions are often difficult for students to understand and use in conversations and classroom learning opportunities.”

Oral Language At Your Fingertips, pg. 45]

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[Sabrina]: One way of building subject specific vocabulary is to engage in the creation of student-friendly definitions. Student-friendly definitions promote comprehension and retention. Dictionary-style definitions are often difficult for students to understand and use in conversations and classroom learning opportunities.

[SLIDE - Student-Friendly Definitions]

[Text on slide:

- Explain the meaning in every day language that is easy to understand
- Use concrete and familiar examples
- Employ visuals and manipulatives
- Are interesting to the student
- Are often longer than the dictionary definition so allow for time and space!]

[Sabrina]: A student-friendly definition would explain the meaning in every day language that's easy to understand. There would be the use of concrete and familiar examples. You would use visuals and manipulatives. These definitions would be interesting to the student. And note, they're often longer than the dictionary definition so make sure you're allowing for time and space. Cause noting that most students with oral language difficulties have small vocabularies composed primarily of high frequency short words. In comparison to peers with typical language development. So the creation of these definitions may end up being longer due to the fact that they don't have the language to be more efficient in their descriptions.

[SLIDE - Ratio]

[Image of an example student-friendly definition of the word ration

Text on slide:

Ratio: a comparison of any two quantities

Image of two example data sets. Set A is composed of 3 white circles and 4 blue triangles. Set B is composed of 5 purple circles and 4 yellow triangles.

A chart below the two data sets shows the different ways a ratio can be represented.

Ratio of blue triangles to white circles is 4 to 3

Ratio of blue triangles to all of set A is 4/7

Ratio of white circles to purple circles is 3:5

Ratio of set B to set A is 9 to 7 or 9:7]

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[Sabrina]: One way of building subject specific vocabulary is to engage in the creation of student-friendly definitions. Student-friendly definitions promote comprehension and retention. Dictionary-style definitions are often difficult for students to understand and use in conversations and classroom learning opportunities.

[SLIDE - What Does the Research Say?]

[Text on slide:

What Does the Research Say?

Throneberg R.N., Calvert L.K., Sturm J.J., Paramboukas A.A., Paul P.J. (2000) A Comparison of Service Delivery Models Effects on Curricular Vocabulary Skills in the School Setting. American Journal of Speech Language Pathology 9: 10 20.]

[Sabrina]: So what does the research say? This study by Throneberg et cetera, it's an older study. But it was heavily referenced in Dr. Archibald's research summary as having excellent reliability. Like I said, it is an older study but it does provide some valuable data to the benefits of collaboration for vocabulary development.

[SLIDE - Throneberg, et al (2000)]

[Text on slide:

Throneberg, et al (2000)

- n= 177
- 3 classrooms in each of Kindergarten, Grade 1, 2 & 3 (12 classrooms in total)
- 12 weeks]

[Sabrina]: So in this particular study, there were 177 students. There were three classrooms in each of Kindergarten, so three Kindergarten classes, three grade one classes, three grade two classes, and three grade three classes. So that's 12 classrooms in total. And the study lasted for 12 weeks, or the experiment lasted for 12 weeks.

[SLIDE - Throneberg, et al (2000), continued]

[Text on slide:

- 3 types of service provision:
 - o Pull out : Weekly, 50 min small group or individual sessions held outside the classroom
 - o Classroom based : Weekly 40 min SLP delivered whole class language lessons with additional 15 min small group pull out session

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- Collaborative : Weekly, 40 min SLP teacher PLANNED AND TEAM TAUGHT lessons with additional weekly 15 min small group pull out]

[Sabrina]: There were three types of service provisions. One was pull-out. So weekly, 50 minute small groups or individual sessions held outside the classroom by the SLP. There was classroom-based service, where there was a weekly 40 minute SLP delivered whole class language lesson with an additional 15 minute small group pull-out. And then there was a collaborative model. Where weekly there was a 40 minute SLP and teacher planned and team taught, and that is so key, the planning together. Planned team taught lessons with additional weekly 15 minute small group pull-out.

[SLIDE - Throneberg, et al (2000), Results]

[Text on slide:

- Results (growth on a study specific measure of targeted vocabulary):
- “A significant advantage for the collaborative co teaching approach over either of the other conditions for children with speech and language needs (n=32)”
- For all participants, “greater gains were observed in either classroom based condition compared to the pull out condition.”]

[Sabrina]: The results based on one specific measure of targeted vocabulary, is that they found a significant advantage where the collaborative co teaching approach over either of the other two conditions for children with speech and language needs. And there were 32 kids with specific speech and language needs identified out of those 177. And for all participants, there were greater gains observed in either classroom-based condition compared to only the pull-out condition.

[SLIDE - Throneberg, et al (2000), Why Did It Work?]

[Text on slide:

- Why did it work?
 - Perhaps the collaboration fostered sharing between professionals, leading to more carry over of activities for those students with speech and language needs]

[Sabrina]: So why did it work? Well perhaps the collaboration fostered sharing between professionals, leading to more carry over of activities for those students with language and speech needs.

[SLIDE - Throneberg, et al (2000), Limitations

[Text on slide:

- Limitations
 - Time!

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- No measurement regarding generalization]

[Sabrina]: And what were the limitations of the study? Time. It takes time to sit and plan as a team. And to deliver this type of lesson. And there was also, there wasn't any measurement regarding the generalization of this. So those are some limitations of the study.

[SLIDE - Word & Sentence Structure]

[Text on slide: Word & Sentence Structure]

[Sabrina]: Another major area of language learning that can be addressed collaboratively with teachers and SLP's, is word and sentence structure. So we're talking about grammar.

[SLIDE - Things to Consider]

[Text on slide:

- The meaning of the prefix and suffix (e.g., **reorder** do something again or change; **invalid** not; **operation** turns a verb into a noun)
- Conjunction denotes 2 parts (and, but)
- Tense]

[Sabrina]: And just like with vocabulary learning, there should be direct instruction of word and sentence structure too. So things like the meaning of the prefix and the suffix. So to reorder something, that means you have to do something again. If something is invalid, we know that there's a negation there's a negative there. The operation, that t-i-o-n, is gonna turn a verb into a noun. So I have to know the name of something. You'll be looking at conjunctions like and and but. Which is gonna denote two parts of your question. There's tense.

[SLIDE - More Things to Consider]

[Text on slide:

- Plural (e.g., ones)
- Pronoun references (e.g., what number has the greatest value in **its** column)
- Temporal notation (e.g., "he ate the cookies after he drank the milk" what did he do first?)]

[Sabrina]: There's also looking for the plural forms. There may be pronoun references. So what number has the greatest value in its column. There's also time, temporal notation. He ate the cookies after he drank the milk. So what did he do first?

[SLIDE - Example]



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[Text on slide:

Jody has 3 chocolate chip **and** 3 oatmeal cookies in her lunch **but** she **gave one of each** to Sam and she ate 1 chocolate chip cookie herself at recess. What is the **ratio** of *remaining* cookies? What **operation** did you use to solve the problem?]

[Sabrina]: So here is an example that has a lot of language information in it. Jody has three chocolate chip and three oatmeal cookies in her lunch. But she gave one of each to Sam and she ate one chocolate chip cookie herself at recess. What is the ratio of remaining cookies? And what operation did you use to solve the problem? So in red there we've got the and and the but. Which is denoting two parts to your question. There's the word gave and ate, which is talking about the past tense. There's the pronoun she and herself. Who are we referring to? We're referring to Jody. There's that big word, remaining. So what's a synonym for remaining? That would be what is left. The ratio, oh that's a specific math term and it's comparing two things. And then there's that phrase one of each. What does that refer to? That's each cookie. And then operation, which is denoting a noun. What is the thing called that I did? It's called subtraction. And this also highlights another challenge for many kids with LD. Not only do they have to do the math. But they then have to explain it, adding another layer of language to the task.

[SLIDE - Example 2]

[Text on slide:

The temperature outside **in** - 5C on **Monday**. *Overnight* it drops by 3C. Between 9 am and **noon** the next day it rises 2C. What is the temperature on **Tuesday** at noon?

?

A) -6 Celsius B) 0 Celsius C) -4 Celsius D) -10 Celsius]

[Sabrina]: Here's another example. The temperature outside in minus five Celsius on Monday. Overnight it drops by three Celsius. Between nine a.m. and noon the next day it rises two Celsius. What's the temperature on Tuesday at noon? So it's not a huge deal, and everyone makes mistakes, but there is a spelling mistake. And if you have an LD that may be throwing you off. The term noon. That's a time convention and it may not be understood by an LD learner, to be 12 o'clock. So they may not be able to know how many hours are between nine and 12. The rote knowledge of the days of the week is also not strong. So to understand that Tuesday is following Monday is also assumed in this question. A few years ago I worked with a boy who didn't know the months of the year. And he only knew them based on what hunting season he was in. So he didn't have that reference, those time references. And then there's that idea about overnight. What does that mean? During the course of one night. So there's lots of embedded language in these questions.

[SLIDE - Executive Functioning]



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[Text on slide: Executive Functioning]

[Sabrina]: Moving on now to my favourite part of the afternoon. We're going to talk about executive functioning. Executive functioning skills are a huge focus of an SLP's practice, especially in the areas of LD, of ASD, autism spectrum disorder, and traumatic or acquired brain injury. Even for a, you know, quote unquote easy articulation kid, that we're working with, we have to constantly be thinking about how we need to deliver the therapy in order to make the most gains. What type of day? Am I working at the table or on the floor? Does the child need body breaks? Do I have to do cooperative or competitive games? Does this child need a token system? How many trials do I need to do? What types of cues am I going to use? A tactile cue, a visual cue, verbal cue? How do I fade those cues? You know, do I use a visual schedule? Or do I just go with the flow with this particular learner?

[SLIDE - Definition]

[Text on slide: Word & Sentence Structure]

[Sabrina]: Another major area of language learning that can be addressed collaboratively with teachers and SLP's, is word and sentence structure. So we're talking about grammar.

[SLIDE - Word & Sentence Structure]

[Text on slide:

Executive function (EF) is the name given to the group of processes that allow us to respond flexibly to our environment and engage in deliberate, goal directed, thought and action. Executive function forms the basis of abilities such as problem solving and flexible thinking and is most likely to be used in the absence of external guidance or when a situation is novel.]

[Sabrina]: So it's defined as the name, executive functioning is the name given to the group of processes that allow us to respond flexibly to our environment and engage in deliberate, goal-directed, thought and action. Executive function forms the basis of abilities such as problem solving and flexible thinking and is most likely to be used in the absence of external guidance or when a situation is novel. So really, an executive functioning, this is you being able to manage yourself.

[SLIDE - Executive Functioning Skills]

[Text on slide:

- Shifting (Flexible thinking)
- Working Memory (monitoring and manipulating information in mind)
- Impulsivity and Inhibition (suppressing distracting information and unwanted responses)]



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[Sabrina]: Now this may not be an exhaustive list. But these are the areas that I would be considering when I work with a client. These first three, I have a few slides. These first three are identified as the critical skills for the development of mathematical proficiency. Shifting, working memory, and impulsivity and inhibition. So that idea that suppressing distracting information and unwanted responses, only paying attention to the key ideas in your math.

[SLIDE - Executive Functioning Skills, cont.]

[Text on slide:

- Perspective Taking
- Task break down
- Processing speed
- Problem Solving and Judgment
- Initiation
- Time management
- Visual Memory]

[Sabrina]: Some more skills would be perspective taking, task break down, processing speed, problem solving and judgment, initiation, time management, visual memory...

[SLIDE - Executive Functioning Skills, cont. 2]

[Text on slide:

- Self- monitoring/ Self-regulation
- Verbal reasoning
- Orientation
- Organization
- Visual Processing
- Verbal Memory and New Learning (Immediate, short term, long term)
- Attention and Concentration

[Sabrina]: ...self monitoring, self regulation, verbal reasoning, orientation, organization, visual processing, verbal memory and new learning, as well as attention and concentration.

[SLIDE - Question 1]

[Text on slide:



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Of the executive functioning skills mentioned, which one is the core deficit for language learning disorders?]

[Sabrina]: So now we get to a little bit of an interactive part of the afternoon. Of the executive functioning skills mentioned, which one do you think is the core deficit for language learning disorders?

[SLIDE - Quickpoll 1]

[Text on slide:

Of the executive functioning skills mentioned, which one is the core deficit for language learning disorders?

Please select one:

- Shifting
- Working memory
- Problem solving
- Visual processing]

[SLIDE - Quickpoll 1: Results]

[Text on slide:

Of the executive functioning skills mentioned, which one is the core deficit for language learning disorders?

Poll Results (single answer required):

- | | |
|---------------------|-----|
| - Shifting | 20% |
| - Working memory | 63% |
| - Problem solving | 18% |
| - Visual processing | 0%] |

[SLIDE - Answer]

[Image of a brain with arms and legs, riding a unicycle while juggling.

Text on slide: Working memory]

[Sabrina]: The answer is working memory. So this is the idea of how many balls you can have in the air at the same time.

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[SLIDE - Question 2]

[Text on slide:

What process underlies working memory?]

[Sabrina]:

Next question. What process underlies working memory?

[SLIDE - Quickpoll 2]

[Text on slide:

What process underlies working memory?

Please select one:

- Attention
- Processing speed
- Orientation]

[SLIDE - Quickpoll 2: Results]

[Text on slide:

What process underlies working memory?

Poll Results (single answer required):

- Attention 49%
- Processing speed 49%
- Orientation 2%]

[SLIDE - Answer:]

[Image of a cartoon teacher speaking to a student. The student is drawing and in a thought bubble there is a picture of a unicorn and a rainbow, implying that the student is not paying attention. The teacher is saying "Pay attention! This will be on the test!]

[Sabrina]: Okay, so hopefully you all selected... attention. So attention is the process that underlies working memory. And so the big question now is what do you think the prevalence is of ADHD in the population of learners with learning disabilities?

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[SLIDE - Quickpoll 3]

[Text on slide:

What is the prevalence of ADHD in the LD population?

Please select one:

- Less than 25%
- 25 – 50%
- More than 50%]

[Sabrina]: One last question. What do you think the prevalence is of ADHD in a population of learners with learning disabilities?

[SLIDE - Quickpoll 3: Results]

[Text on slide:

What is the prevalence of ADHD in the LD population?

Poll Results (single answer required):

- Less than 25% 0%
- 25 – 50% 39%
- More than 50% 61%]

[SLIDE - What is the prevalence of ADHD in LD?]

[Text on slide:

- More than half of all children with ADHD have comorbid learning disabilities.
- 60-80% of children with ADHD will also have co-morbid mental health conditions, such as anxiety, depression, oppositional defiance disorder, conduct disorder, or sensory integration disorder

<http://www.kars4kids.org/blog/comorbidity-adhd-not-just-adhd/>]

[Sabrina]: More than half of all children with ADHD have comorbid learning disabilities. And 60 to 80% of children with ADHD will also have comorbid mental health conditions. Such as anxiety, depression, oppositional defiance disorder, conduct disorder, or a sensory integration disorder.

[SLIDE - Students with SLD with Impairments in Mathematics may...]

[Image of a cartoon scuba diver with a panicked look on his face.



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Text on slide:

Students with SLD with Impairments in Mathematics may...

- “Dive in” to problems too quickly
- Don’t read and have a good understanding of the instructions
- May assume that they are to do one operation because that’s what they did yesterday
- Rushing will lead to errors]

[Sabrina]: So students with a specific learning disorder with impairments, and that's how you would see it in the DSM. Students with specific learning disabilities with impairments in mathematics may dive in to problems too quickly. They don't understand and have a good understanding of the instructions. Or sorry, they don't read and have a good understanding of the instructions. They may assume that they are to do one operation because that's what they did yesterday. And their rushing will lead to errors.

[SLIDE - Be Inflexible]

[Text on slide:

- Be inflexible
- Have a hard time learning new math rules, as there are challenges with impulse control, working memory and flexible thinking
- Fixate on what they know, so can’t step back and see that they need a new strategy]

[Sabrina]: They're often inflexible. They have a hard time learning new math rules as there are challenges with impulse control, working memory, and flexible thinking. They may also fixate on what they know, so they can't step back and see that they need to use a new strategy. So personally, I can't do short division. So to this day, I'm stuck doing long division. I also couldn't shorten anything up in Calculus class when I was doing the steps, I had to do all the steps, I couldn't shorten it up. So there's areas of our executive functioning that we all have challenges with and those are just examples of my inflexibility.

[SLIDE - Give Automatic Responses]

[Text on slide:

Give Automatic Responses

The literature described this as “getting stuck giving an automatic response”, which leads the student to ignore crucial information that suggests a change in approach.]

[Sabrina]: These students also tend to give automatic responses. So the literature describes this as getting stuck giving an automatic response. Which leads the student to ignore crucial information



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that suggests a change in the approach. So they have difficulty shifting from one type of problem to another. Think about the EQAO that addressed a variety of math concepts within one test. Or an exam that demands that you shift between many types of questions within a certain amount of time.

[SLIDE - Mismatch Multi-Step Problems]

[Text on slide:

- A huge stress on working memory
- Have to remember the formula and the steps to achieve the answer
- Often use scrap paper to “show work”, but it is often so disorganized that the chances of moving along correctly are very slim, not to mention visual and motor shifting from the “scrap” sheet to the answer sheet.]

[Sabrina]: These learners also they tend to mismatch multiple step problems. So this is a huge stress on working memory, to work on a multi-step problem. Not only do the learners have to remember the formula and the steps to achieve the answer, they also often have to use scrap paper to show their work. But it is often so disorganized on this piece of paper that the chances of moving along correctly are very slim, not to mention visual and motor shifting from that scrap sheet now to the answer sheet. So it's just a lot of management.

[SLIDE - Don't Catch Their Mistakes]

[Text on slide:

- Self monitoring
- Self regulation
- EDIT! EDIT! EDIT!]

[Sabrina]: They also don't catch their mistakes. They have poor self-monitoring, poor self-regulation, and the idea of editing is just such a challenge. A student with an LD will tend to use less self-talk. But definitely benefits from teacher modeling of self-talk.

[SLIDE - Advice - Beginning]

[Text on slide:

When you are writing a math problem:

- The brain likes white space. Provide room to “show work” in the same area as the question.
- Consider having a word bank of Tier 1 & 2 words to support the subject specific Tier 3 words
- Separate the different kinds of questions with a line, change in font, boldness, etc. to alert the student to a need for flexibility]

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[Sabrina]: So when you are writing a math problem I'd like to give you some tips to think about at the beginning stages, in the middle, and then at the end. So when you are writing a math problem, understand that the brain really likes white space. So provide room to show the work, in the same area as the question. You may also want to consider having a word bank of tier one and two words to support the subject specific tier three words. You also may want to separate the different kinds of questions with a line or a change in font or boldness. To alert the student to a need for flexibility. So this is as you are preparing to write this problem.

[SLIDE - Advice - Middle]

[Text on slide:

When the student is presented with the math problem:

- Underline signal words in the directions
- Teach them to use self-talk by providing consistent models: "Is this the same as the last problem or is it different?"
- Follow a personalized "check list" (find the operation, find the conjunction to break the question down, etc.)
- Have a calculator available
- Have manipulatives available, as students may not have made the transition from manipulatives to drawing to more abstract processing]

[Sabrina]: And when the student is then presented with the math problem it's important to underline some signal words in the directions. Teach them to use self talk by providing those consistent models. You know, is this the same as the last problem? Or is it different? And then that can help them with the shift. They may follow a personalized check list. First I find the operation, then I find the conjunction to break down the question. It's also important to have a calculator available and to have manipulatives available as the students may not have made that transition from the manipulatives to drawing to more abstract processing.

[SLIDE - F.A.S.T. D.R.A.W.]

[Text on slide:

F.A.S.T. D.R.A.W.

Find what you are solving for (underline the key words)

Ask, "What is important information?" (Find and circle number phrases)

Set up the equation (write equation with numbers in correct order)

Tie down the equation (solve the problem if you can, or solve using DRAW)



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Discover the sign (circle the sign and say the name of the operation)

Read the problem

Answer the problem or draw (answer the problem if you know how to, or draw pictures to solve it)

Write the answer]

[Sabrina]: So I'd like to talk a little bit about mnemonic as a tool and don't get me wrong, I love a mnemonic. But this particular one, this FAST DRAW mnemonic, is eight steps and it's a strategy that relies on phonemic awareness for students who may have impairments with phonemic awareness. And it also has a heavy load on language, literacy, and memory. And there's embedded knowledge that describes what to do at each step. So each step is really a multi-step. And if this is going to be successful, it has to be practiced a lot.

[SLIDE - Advice – End]

[Text on slide:

Once the student has answered the question:

- Teach them to edit by reversing the operation
- Teach them to check the answer using a calculator]

[Sabrina]: Once the student has answered the question, you would then be teaching them to edit by reversing the operation. And teach them to check their answer using a calculator.

[SLIDE - Grade 8 Review Test – A Dissection]

[Text on slide: Grade 8 Review Test – A Dissection]

[Sabrina]: So now what we're going to do is look at a real life example that came under a Google search that I did that may have been similar to Ontario middle school math test examples. So when you see these, the lines may be a little bit squishy but it's going to be less important that you can see what the words mean, and more important to appreciate the overall aesthetic of the test from the perspective of a student with LD and through my lens as an SLP.

[SLIDE - Grade 8 Review Test – page 1]

[Image of the first page of a grade 8 math test.

Text on slide:

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Grade 8 Review Test – Do not write on this paper (1)

- Simplify:
 $3x - 7 + 5x + 8$
a) $-5x=15$ b) $2x + 1$ c) $8x - 15$ d) $8x + 1$ (2)
- Simplify:
 $m + m + 3m + 4$
a) $3m + 4$ b) $5m - 4$ c) $5m + 4$ d) $2m + 3m + 4$
- Evaluate:
 $(-2) \times (5) \times (-6)$
a) -30 b) -60 c) 30 d) 60
- Evaluate: (3)
 $(-3/4) + (1/4)$
a) $-3/4$ b) -3 c) $12/4$ d) $-3/16$

[Sabrina]: On this particular grade eight review test, it's going to be three slides long, the first thing that catches my eye is the disclaimer do not write on this paper. And there it's where I circled at the top, the number one. So I as the student, have to use a separate sheet of paper to attempt to organize my answer. Only to then have to put in a corresponding letter on yet another sheet of paper, here at the top, to be able to put my answer in.

[SLIDE - Grade 8 Review Test – page 3]

[Image of the last page of a grade 8 math test.]

Text on slide:

Grade 8 Review Test Mark _____/40 Name: _____

Multiple choice answers:

- 1) _____ 2) _____ 3) _____ 4) _____ 5) _____
6) _____ 7) _____ 8) _____ 9) _____ 10) _____
11) _____ 12) _____ 13) _____ 14) _____ 15) _____
16) _____ 17) _____ 18) _____ 19) _____ 20) _____

Open response: Show ALL work for full marks

(Each of the following questions appear in their own box.)

21. Two groups of tourists each have 60 people. 75% of the first group and $2/3$ of the second group board a bus to travel to a museum. How many more people from the first group boarded the bus?

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22. Find the volume of a cylinder with a height of 25cm and a radius of 5cm. Hint $V=\pi r^2h$
23. A rectangles length is 4 times bigger than its width. If the width of the rectangle is 3.5cm what is the perimeter and area of the rectangle?
24. You want to purchase a new computer. The computer costs \$449 plus \$129 for software. What is the total cost of your purchase including 13% HST?
- 25) Justin has 4 more marbles that Lee and Cindy has 3 times as many marbles as Justin. If Lee has n marbles, write an expression that could be used to determine how many marbles Cindy has.]

[Sabrina]: And this sheet of paper implies that I understand that I have to shift my answers to the questions on page one from my scrap sheet which I may or may not have even advocated for because I have such poor self awareness and I dive into things too quickly. I have to then transfer it to these little lines to this little line, and represent my answer as its letter reference. So my working memory is completely taxed and subsequently my attention is waning. I have visual spatial challenges. I also have to write a letter and if I struggle with letter reversals or dysgraphia I'm going to have an even harder time.

[SLIDE - Grade 8 Review Test – page 1]

[Image of the first page of a grade 8 math test.

Text on slide:

Grade 8 Review Test – Do not write on this paper (1)

5. Simplify:
 $3x - 7 + 5x + 8$
b) $-5x=15$ b) $2x + 1$ c) $8x - 15$ d) $8x + 1$ (2)
6. Simplify:
 $m + m + 3m + 4$
b) $3m + 4$ b) $5m - 4$ c) $5m + 4$ d) $2m + 3m + 4$
7. Evaluate:
 $(-2) \times (5) \times (-6)$
b) -30 b) -60 c) 30 d) 60
8. Evaluate: (3)
 $(-3/4) + (1/4)$
a) $-3/4$ b) -3 c) $12/4$ d) $-3/16$

[Sabrina]: In this particular test too, I also worry about the lack of white space. It's hard to know where the questions change. So now I need a fourth sheet of paper. So I have three pages of the test, I have one page with my scrap, I have to add a fourth sheet of paper to cover or inhibit my attention to the other questions on the page. And there on the left where I've circled number three

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I notice some tier two and tier three words like evaluate. So I really hope that I've had lots of practice and explicit teaching of these terms as a student writing this test.

[SLIDE - Grade 8 Review Test – page 2]

[Image of the second page of a grade 8 math test.]

Text on slide:

11. Evaluate: $3x + 12/3$

a) 7 b) 5 c) 6 d) 12

12. Last year there were 1940 students at Fletcher's Meadow Secondary School. This year there are 15% less students than last year. How many students are at Fletcher's Meadow this year?

a) 2231 b) 1649 c) 1925 d) 1807

13. The value of -3^2 is

a) 9 b) 6 c) -9 d) 1-6

[Sabrina]: And that's just page two. Showing the same types of things.

[SLIDE - Grade 8 Review Test – page 3]

[Image of the last page of a grade 8 math test.]

Text on slide:

Grade 8 Review Test Mark _____/40 Name: _____

Multiple choice answers:

1) _____ 2) _____ 3) _____ 4) _____ 5) _____

6) _____ 7) _____ 8) _____ 9) _____ 10) _____

11) _____ 12) _____ 13) _____ 14) _____ 15) _____

16) _____ 17) _____ 18) _____ 19) _____ 20) _____

Open response: Show ALL work for full marks

(Each of the following questions appear in their own box.)

21. Two groups of tourists each have 60 people. 75% of the first group and $2/3$ of the second group board a bus to travel to a museum. How many more people from the first group boarded the bus?

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22. Find the volume of a cylinder with a height of 25cm and a radius of 5cm. Hint $V=\pi r^2h$

23. A rectangles length is 4 times bigger than its width. If the width of the rectangle is 3.5cm what is the perimeter and area of the rectangle?

24. You want to purchase a new computer. The computer costs \$449 plus \$129 for software. What is the total cost of your purchase including 13% HST?

25) Justin has 4 more marbles that Lee and Cindy has 3 times as many marbles as Justin. If Lee has n marbles, write an expression that could be used to determine how many marbles Cindy has.]

[Sabrina]: And page three, so this page is both an answer page and it's a working page. Which might get confusing. But I do like that each question is contained in its own box with lots of space to work.

[SLIDE - Thank you!]

[Text on slide:

http://www.edu.gov.on.ca/eng/parents/min_math_strategy.html]

[Sabrina]: I hope you've enjoyed the last 45 minutes and have gained a perspective on how teachers and SLP's can work collaboratively in the math classroom. I would be remiss to not mention this particular document, the Ontario government's October 2018 document entitled "Focusing on the Fundamentals of Math: Grades 1-8 and I've attached the link for your reference there. So are there any questions or comments?

[SLIDE - Q & A]

[Image of a purple speech bubble with "Q & A" written inside]

[Cindy]: Thank you so much Sabrina, you have truly a wealth of information on the interconnectedness among language development, executive functioning, and math learners with LD's I'm sure that the educators participating in the webinar today will also appreciate your many suggestions and strategies to support students in language heavy math curriculum. Okay, so let's move on to the question and answer segment of today's webinar. If anyone has questions please type your question into the chat box on your go to webinar dashboard and I will read your question to Sabrina. And we have questions already coming in. First one for you Sabrina. Did you use the collaboration model at Trillium for co-teaching in the classroom?

[Sabrina]: Did I use?

[Cindy]: The collaboration—

[Sabrina]: I'm sorry I cut out.

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[Cindy]: Yeah, no, that's okay. Did you use the collaboration model for co-teaching in the classroom when you were at Trillium?

[Sabrina]: As much as I could. Understand that the student population there were only 40 kids in the school. And some teachers it worked better than with other teachers. I did very much try to plan and to use the collaborative model with them. One thing we found, which was, I mean which was challenging is that you know, when you spent the extra time to plan and to really teach these concepts, there was a real challenge in being able to get through all the requirements of the curriculum. So that was one issue that really, that we found, stood in the way of having a really awesome collaboration. Is that we took the extra time to be able to really explicitly teach these concepts. But it was challenging to work within you know, the time that you had to both plan it and deliver it and to ensure that the children are getting through the curriculum as well as learning what they need to use. So as much as I could for sure. I was on contract there once a week. So whenever I could, it was when we definitely did do planning and a co-teaching model.

[Cindy]: Great, thank you. In your experience, do students with learning disabilities who experience difficulty with the language demands in math also experience difficulty with the language demands in other subject areas.

[Sabrina]: Oh absolutely. Absolutely. Yeah, it's across the board. As kids get older, and the expectations of language in the classroom, like thinking about science for example too. You know, you're shifting from learning to read to that reading to learn. And so if you still have students who are struggling with their early language acquisition and decoding skills that are inherent with a learning disability, you're going to also have difficulties in those other subjects. And not just math, for sure, especially with the tier two and three language that's required of those more specific subjects.

[Cindy]: Thank you Sabrina. Next question, what strategies could be used to support executive functioning?

[Sabrina]: Oh, tons. A lot of things are, you have to really look at what the individual needs. One person may require one type of intervention and another child may require a different type of intervention. This is where going back to the OSR that may include occupational therapy reports, perhaps there's been a behavioral therapist involved who looked at really supporting regulation. Regulation and inhibition. So looking back at what other professionals have brought to the table. Again that idea about collaboration. About what kids need. There are your generic, you know, where to sit and how to speak to a child and all that. But it's not a one size fits all and in a classroom with so many bodies and so much going on, you don't know exactly what is going to effect the learner so I think it really is a little bit more of an individual approach to making sure you're meeting that particular learners needs.

[Cindy]: Thank you Sabrina and thinking of collaboration and individualization, the next question is do you have a collaborative planning form that would list supports and strategies for individual students?

[Sabrina]: I wouldn't. But I would hope that the IEP might have some information. Might have some expanded information on how you could go about collaborating to meet the child's needs. So taking advantage of having a strong IEP and having a really strong team. That meets to be able to meet those needs, especially if you have a student coming in with a history of academics. Like if we have a middle



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school student there's bound to be a trail of hard work that people have done to be working with this student to find out what works best and what might be less successful.

[Cindy]: Okay. Another question that has come up, the role of the speech language pathologist seems to have changed over the years and you've talked about collaboration in the regular classroom and in the special education classroom. Is there still a place in today's educational system for what used to be considered traditional speech language therapy?

[Sabrina]: Well. I mean, there is definitely a place. I mean traditionally, and it is changing, and I think it's going to be changing for the better and someone decided years ago that speech and language were two independent ideas. And they're not. Speech sounds, articulation, fluency, motor speech, those are so heavily connected with language that to separate a child to work on speech only or language only is a real disservice and it really makes a difference to be able to put those two things together. So that being said, if there are individual specific goals that require a little bit of one on one attention and support that way, then yes the traditional SLP doing the one on one, doing the pull out, to be able to really focus in on a few of those skills I think is really important. Especially when we're looking at the idea that these learners with an LD or a DLD do require some more care and time and explicit instruction and so by having that opportunity to do some one on one or small group in that capacity, then yeah, the role of the SLP traditionally in that way is still really important. But I think what we're trying to show as a profession is that, you know, we are more integral in the whole, in the global learning of the child, that being in the classroom to support classroom language and it really is a really great use of our skill set to be able to support the children within their environment and then you can really see what challenges may be impacting their learning. What executive functioning challenges within that environment may be impacting their learning that we could really support. So the answer is yes there's a role and yes we want another one .

[Cindy]: Well this is just me adding a personal comment here, with my background as well. I think the partnership and the collaboration is absolutely key and when you talk about the different tiers of support there were so many tier one interventions and strategies that truly are good for all students not just the learners who may have specific difficulties.

[Sabrina]: Absolutely and I did find too that when I was working at Trillium a lot of the materials that I pulled out for working with these middle school and high school students were programs that were typically done with younger children. Because these students were needing this type of intervention. Now it was not preschool, the appearance was not preschool. But the content of what I was doing, was for much younger learners and unfortunately when you have middle school students with LD, a lot of the middle school teachers or even high school teachers, don't have that primary teaching background. And a lot of these students really need those primary concepts to be reinforced.

[Cindy]: Yes, the primary concepts to be reinforced but at grade level appropriate content.

[Sabrina]: Absolutely. Absolutely and so I think when you have something that complex you really do need multiple people involved to make sure that you're presenting something that is age appropriate, that works within the curriculum, but it ties in from across the curriculum.

[Cindy]: Okay. Thank you so much Sabrina.



Webinar Transcript: The SLP in the Math Class - Empowering Math Learners Through Collaboration Between Educators and Speech Language Pathologists

[Sabrina]: You're welcome.

[SLIDE - Other Questions]

[Text on slide: Email: info@LDatSchool.ca

Twitter: #LDwebinar

Image of three question marks inside circles]

[Cindy]: That's actually all of the time that we have for today. And of course, I need to pull back up my next screen here. If anyone has additional questions, further questions, that were not answered or questions that come to you after we have finished the formal part of the webinar today. Please either email us at info@LDatSchool.ca or use our hashtag on Twitter #LDwebinar and we will ensure that your questions get answered.

[SLIDE - Other Questions]

[Image of cartoon heart with arms and legs helping a cartoon brain with arms and legs to climb on top of a lightbulb.

Text on slide:

Upcoming webinar:

FREE WEBINAR! At the Heart of the Matter: Creating Classrooms and Schools that Support Well-being

July 10, 2019 3:45 – 4:45 pm ET

Presented by: Dr. Sue Ball, ABSNP, C. Psych., Chief Psychologist, York Region DSB]

[Cindy]: Please mark your calendars for the next LD@school webinar on Wednesday, July 10. Dr. Sue Ball will be presenting "At the Heart of the Matter: Creating Classrooms and Schools "that Support Well-being". After today's webinar you will receive an electronic link to register for this upcoming webinar.

[SLIDE - Educators' Insitute]

[Text on slide: August 20th & 21st, 2019

Hilton Mississauga/Meadowvale

SAVE THE DATE!

Image of the LD@school logo]



Webinar Transcript: The SLP in the Math Class - Empowering Math Learners Through Collaboration Between Educators and Speech Language Pathologists

[Cindy]: Please also mark your calendars and save the date to join us at LD@school's sixth annual Educators' Institute which will be held on August 20th and 21st in Mississauga. Public registration is now open and information on the program, registration, and hotel accommodation is available on the LD@school website.

[SLIDE - Thank you!]

[Text on slide: Thank You!]

[Cindy]: And on behalf of the LD@school team I would once again like to thank Sabrina for her presentation and thank you to all of our participants for joining us this afternoon. Please remember that we will be sending out presentation slides and a short survey following today's webinar. The feedback we receive through this survey provides us with important information for producing future webinars. And as a reminder, we will be sending out a link to this recorded webinar in approximately three weeks. Thank you again for participating.