

# Language, Reading, & Math in Children



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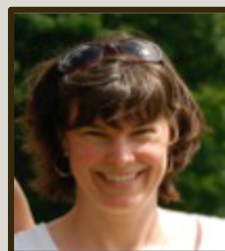
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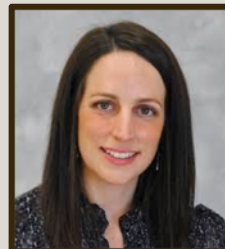
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## *A study of the skills that support children's learning*

Investigators: Drs. Lisa Archibald, Marc Joanisse,  
Daniel Ansari, and Janis Cardy  
School of Communication Sciences And Disorders  
and the Department of Psychology  
Western University

### Current Research Summaries

Since 2014, 767 kindergarten children have participated in our study examining early predictors of learning. We found that knowledge of letters predicts reading in grade 1, but not grades 2 and 3. Comparing quantities predicts math across grades 1 to 3. Language skills - like the ability to repeat a sentence or identify words - predict all school grades and become a more important predictor across grades 1 to 3. Our results suggest that helping develop language skills could have the biggest impact on school grades in all areas of the curriculum.



*-Lisa Archibald, Ph.D*

<https://thenounproject.com/search/?q=brain&i=1262695>

### Research on Challenges SLPs Face

In Ontario, preschool children with speech or language concerns receive support from the publicly-funded Preschool Speech and Language Program. Speech language pathologists (SLPs) in this program provide assessments and interventions to over 60,000 families per year. To be able to improve this program, we need to collect data on children's progress. We partnered with program SLPs to understand some of the challenges they face when keeping track of children's progress. Then, we worked closely with the SLPs and the Ministry of Children Community and Social Services to find ways to address these challenges. This study found workable solutions for monitoring child progress within the Preschool Speech and Language Program.

- Elaine Kwok - M.Cl.Sc/PhD Candidate

## Language, Reading, & Math in Children

### Our Partnership With the Upper Grand District School Board

The Upper Grand District School Board developed a program called Language Intervention Through Engaging Stories, or 'LITES'. LITES is a small-group intervention program for students in kindergarten to grade two with concerns regarding language development. Each LITES session is based on an engaging picture book or beginner novel, and targets a variety of skills, including background knowledge, vocabulary and concepts, following directions, social interaction, phonological awareness and narrative skills. We are working on a research project with the SLPs who run LITES to learn more about the assessment tool they use to identify students for intervention and measure progress following LITES intervention. The most recent aspect of the research project involved gathering information on how students without language concerns perform on the assessment tool. This information will help us better understand how the kids in the program are progressing. We're very fortunate to have a great partnership with the UGDSB team.

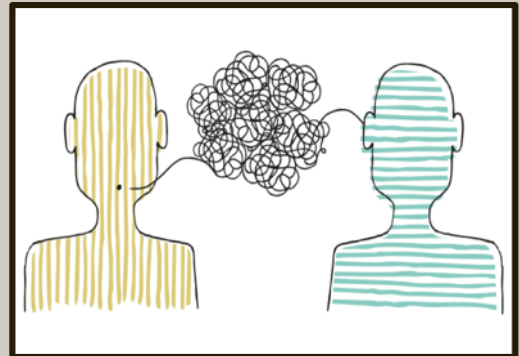
*-Taylor Bardell, M.Cl.Sc/PhD Candidate*

### The children's ability to represent items approximately and exactly: which drives math learning?

When we examine any set of items in the world, may it be a plate of cookies or a bag of sweets, we can represent it in our minds either exactly – “there are 16 cookies on the plate,” or approximately – “there are a lot of cookies on the plate.” Previous research has shown that the ability to recognize sets of items approximately is present even in young infants (although they can't express it verbally yet!) and that the ability to recognize sets of items exactly develops slowly as children learn to count with number words. Both abilities have been shown to be strong predictors of children's later math achievement, however, how these two ways of representing quantities are developmentally interrelated have not been explored.

In our study, we examined kindergarteners' ability to represent numbers approximately and exactly and their math achievement in grade 1. Perhaps counterintuitively, we found evidence that once children have a basic grasp of **exact number representation**, it is growth in this ability that drives growth in both the **ability to represent quantities approximately** and in later **math achievement!** This research highlights the importance of children's early experience in representing and manipulating quantities exactly, and may have implications on the type of home math activities that parents can do with preschool children to best prepare them for the first grade.

*-Nathan TT Lau M.Phi, PhD Candidate*



<https://www.chieflearningofficer.com/2017/01/19/do-we-practice-what-we-preach/>  
[https://pubs.asha.org/doi/abs/10.1044/2018\\_AJSLP-16-0219](https://pubs.asha.org/doi/abs/10.1044/2018_AJSLP-16-0219)

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### Grade 1 Students become Story Champs!

Imagine a school's primary yard. You will hear the excited chatter of young voices. The kids will be telling stories about their experiences and creating wonderful stories together. We know story telling ability impacts a student's social interactions, it also acts as an important bridge connecting oral and written language. Both have a significant impact on academic success. These storytelling skills are so important to develop at a young age!

In our recent study with grade 1 students, we taught engaging and interactive whole class story telling lessons using the Story Champs™ intervention program. We delivered twelve 30-minute lessons over a 3-week period. Stories, pictures, actions, and activities were used to teach the story elements of "Character, Setting, Problem, Feeling, Action, Ending, and End Feeling". We found that this short but consistent explicit teaching significantly improved the students' ability to orally tell stories, and that these skills were maintained well after the intervention period ended. Our students certainly became Story Champs! These findings are important because they allow us to inform classroom teachers of effective oral narrative teaching strategies and methods.

We didn't find a significant transfer of skills over to writing so it looks like grade 1 students may need both oral and written story telling instruction to make major changes in writing. Our next study will take a look at this, so stay tuned!

*-Christine Davison, M.Cl.Sc.*



<https://essecomesonia.tumblr.com/post/62656999052#blogroll>

### FIND OUT MORE ABOUT OUR RESEARCH

Follow this link to find out more about our work

Our past newsletters: <https://www.uwo.ca/fhs/lwm/research/newsletter.html>

List of our published papers can be found at the lab website:

<https://www.uwo.ca/fhs/lwm/publications/index.html>

Language and Working Memory Lab: 519-661-2111 ext. 89053

### Our Sincere Thanks!!

Thank you to all of the school personnel, parents, and children who make our studies possible. Thank you also to the talented graduate students working on these research projects!

Thank you to all of the parents who have indicated that they would like to be contacted for future studies. As we continue working on our research projects, we greatly appreciate your continued participation.