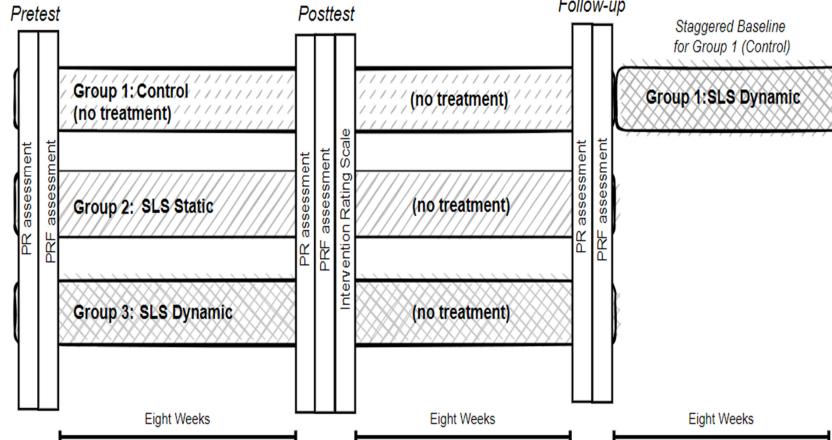


Do Dynamic Same Language Subtitles Help Improve Reading Proficiency in Struggling Grade 3 students?

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Identification of Problem	Participants	Methods	Discussion
<p>Covid-19 restrictions have resulted in unique challenges for young readers. Researchers who have analyzed the effects of lockdowns have seen stagnant and regressive effects upon literacy skills (Engzell et al., 2020; Prati & Mancini, 2021).</p> <p>Educators and parents seek targeted strategies to support children's reading development (Angrist et al., 2021; Hofmann et al., 2021).</p>	<p>Participants</p> <ul style="list-style-type: none"> Recruitment of 900 Grade 3 students from 12 mid-size public elementary schools Random assignment of entire classrooms to one treatment group Consent forms will be sent via email to guardian of students at participating schools 	<p>Procedure</p> <p>Pre-treatment</p> <ul style="list-style-type: none"> Researchers train interventionists (Grade 3 classroom teachers) to ensure standardization. Administer the PRF test individually and the PR test with the entire class one week before intervention begins. <p>Treatment</p> <ul style="list-style-type: none"> Intervention will take place for 10-minutes, 5 days a week, for eight weeks (40 sessions). New audio-visual material is presented daily based on their pre-assigned treatment conditions. 	<p>Inclusion Criteria</p> <ul style="list-style-type: none"> Data analysis will be performed only on students who meet inclusion criteria on the pre-test: <ul style="list-style-type: none"> CWPM below 50th percentile (struggling readers) on the pre-test PRF reading comprehension (PR) percentile rank scores below 50th percentile (struggling readers) on the pre-test PR non-ELL students English Language Learner (ELL) student data will be removed for the purpose of this study.
<p>Rationale</p> <ul style="list-style-type: none"> This study introduces a novel Same Language Subtitles (SLS) presentation of audiovisual content, featuring a dynamic animation of a bouncing ball over the word syllables synchronized to the audio. The research aim is to determine whether using dynamic SLS will make a difference for Grade 3 struggling readers relative to static SLS, or no SLS at all. Learning to read is an effortful process requiring mapping sound to text (Linebarger, 2001). Subtitles can facilitate a child to maintain focus on the story's text. Research using eye-tracking to investigate reading patterns of emerging readers reveals a complex set of strategies that use both verbal and visual components to comprehend text (Arya & Feathers, 2012). SLS provide an additional reading cue for the reader (Markham, 1989) whereas dynamic elements such as highlighted words provide other attention-enhancing features that contribute to a reader's decoding skills (Lacina & Matthews, 2012). We argue that a "bouncing ball" animation on the highlighted words (similar to karaoke lyrics) will draw attention to the word's syllables. The dynamic animation provides an additional attention-enhancing feature that improves reading outcomes. 	<p>Instrumentation</p> <p>Oral Reading Fluency</p> <ul style="list-style-type: none"> Grade-level curriculum-based measure in reading (CBM-R) to measure oral reading fluency (PRF) as Correct Words Per Minute (CWPM). <p>Reading Comprehension</p> <ul style="list-style-type: none"> Grade-level curriculum-based measure in reading (CBM-R) to measure reading comprehension (PR). Percentile ranks of comprehension benchmark levels will be obtained. 		<p>Limitations</p> <ul style="list-style-type: none"> The study premise does not account for potential underlying causes of reading deficits and may not be beneficial for all struggling readers (e.g., learning disabilities, intellectual disabilities, and ASD). Furthermore, the study outcome may be impacted by the diversity of the underlying conditions of some struggling readers (resulting in outliers). Convenience sampling is not ideal: each treatment group has one teacher who may unintentionally affect the performance of the children through their own delivery of the intervention or even how they teach literacy to students. Subtitle use may not generalize effectively in the home, where additional confounds exist outside a formal learning environment.
<p>Comparison Groups</p> <ul style="list-style-type: none"> Group 1 Control Group 2 Static SLS Group 3 Dynamic SLS 		<p>Discussion</p> <ul style="list-style-type: none"> This research looks at the potential for existing technology, available to all, to target the needs of readers who are struggling. Online storybooks that use Same Language Subtitles (SLS) are an example of an accessible tool that helps support reading development. Children are spending more time in front of screens and the use of multimedia resources is increasing. Reading books/watching television online with subtitles can be highly motivating to students. This provides an intervention opportunity for parents of struggling readers. If dynamic subtitling is beneficial in early literacy, these findings could help raise awareness of this underutilized resource. Struggling readers require targeted intervention with the goal of closing the gap between them and their peers. Grade 3 is a key final stage of learning to read, where an opportunity for intervention is salient for struggling readers before increasing intermediate expectations and texts. Finding strategies to support students at school and at home should be done purposefully and intentionally to maximize their reading gains. Subtitled videos could be utilized by teachers and parents and be considered a motivating and engaging aid to support literacy practices in the classroom and at home. The intervention may be a beneficial support since little effort is required for parents to implement this resource at home. 	<p>Future Research</p> <ul style="list-style-type: none"> Use ELL data for future research in a sister study examining fluency and comprehension gains in literacy. Investigate the intervention's impact on all five main areas of reading (phonemic awareness, phonics, fluency, vocabulary, and comprehension) Conduct a longitudinal study analyzing the impact of this intervention over the course of a full year. Conduct an experiment on struggling readers in a different province as well as on Indigenous Reserves. Conduct a double-blind study where the administrators do not know that the study is looking at reading fluency and comprehension outcomes. Conduct the study in the home environment of struggling readers, where parents are the interventionists.
<p>Hypotheses</p> <ul style="list-style-type: none"> H_0: No differences exist between the three groups in comprehension and fluency measures. H_1: Static SLS group will be an improvement over the control condition. H_2: Dynamic SLS group shows greater improvement in comprehension and fluency measures relative to static SLS group. H_3: Dynamic SLS group will maintain a greater improvement in comprehension and fluency measures relative to the Static SLS group at follow-up. 	<p>Intervention Experience Rating Scale</p> <ul style="list-style-type: none"> Students rate their level of agreement or disagreement on a Likert scale - "Did this way of practicing reading help you?" The researchers will later code the rating response to a 0-2 rating scale corresponding to 2 representing "agree" (thumb up), 1 representing "somewhat" (thumb sideways), 0 representing "disagree" (thumb down). <p>Materials</p> <ul style="list-style-type: none"> Grade 3 audiovisual materials will be prepared by the research team, with curated fictional age-appropriate stories from epic.com (approx. 250-300 words per story). 	<p>Post Treatment</p> <ul style="list-style-type: none"> Administration of the PRF test individually and the PR test to each group occurs one week after the intervention terminates to determine any effects. At posttest, participants of Group 2 and Group 3 will complete the Intervention Experience Rating Scale. At follow-up (<i>following 8 weeks of no treatment</i>), all groups will be re-assessed with PRF and PR CBM-R measures to establish any lasting impacts from the treatment. The Control Group will then receive dynamic SLS treatment for eight weeks, ensuring that all groups receive treatment (staggered baseline). 	<p>References</p> <p>Angrist, N., De Barros, A., Bhula, R., Chakera, S., Cummiskey, C., DeStefano, J., Floretta, J., Kaffenberger, M., Piper, B., & Stern, J. (2021). Building back better to avert a learning catastrophe: Estimating learning loss from COVID-19 school shutdowns in Africa and facilitating short-term and long-term learning recovery. <i>International Journal of Educational Development</i>, 84, 10379. https://doi.org/10.1016/j.ijedudev.2021.103797</p> <p>Angrit, N., Djankov, S., Goldberg, P., & Patrinos, H. A. (2021). Measuring human capital using global learning data. <i>Nature</i>, 592(7854), 403-408. https://doi.org/10.1038/s41586-021-03323-7</p> <p>Arya, P., & Feathers, K. M. (2012). Reconsidering children's readings: Insights into the reading process. <i>Reading Psychology</i>, 33(4), 301-322. https://doi.org/10.1080/02702711.2010.518881</p> <p>Engzell, P., Frey, A., & Verhagen, M. D. (2020). Learning loss due to school closures during the COVID-19 pandemic. https://doi.org/10.31235/osf.io/ve427</p> <p>Hofmann, R., Areng, G., Dickens, S., Marfan, J., Ryan, M., Tiong, N. D., Radia, B., & Janik Blaskova, L. (2021). The COVID-19 learning crisis as a challenge and an opportunity for schools: An evidence review and conceptual synthesis of research-based tools for sustainable change. <i>Center for Educational Policy Studies Journal</i>, 11(Sp Issue). https://doi.org/10.26529/cepsj.1133</p> <p>Lacina, J., & Matthews, S. (2012). Using online storybooks to build comprehension. <i>Childhood Education</i>, 58(3), 155-161. https://doi.org/10.1080/00090045.2012.682347</p> <p>Linebarger, D., Piotrowski, J. T., & Greenwood, C. R. (2010). On-screen print: The role of captions as a supplemental literacy tool. <i>Journal of Research in Reading</i>, 33(2), 148-167. https://doi.org/10.1111/j.1467-9817.2009.01407.x</p> <p>Markham, P. L. (1993). Captioned television videotapes: Effects of visual support on second language comprehension. <i>Journal of Educational Technology Systems</i>, 21(3), 183-191. https://doi.org/10.1080/0093329197041a73073a516d</p> <p>Prati, G., & Mancini, A. D. (2021). The psychological impact of COVID-19 pandemic lockdowns: A review and meta-analysis of longitudinal studies and natural experiments. <i>Psychological Medicine</i>, 51(2), 201-211. https://doi.org/10.1017/S0033291720000155</p> <p>Picture sources:</p> <ul style="list-style-type: none"> https://www.dreamstime.com/search.php?securitycheck=baf6032a515b697041a73073a516d076&fristvalue=covid-19+student+learning+strategies&lastsearchvalue=&slh_field=student+url+guideline&slh_value=iv&v=video&v2=audio https://www.pexels.com/photo/students-sitting-inside-the-classroom-693598/