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WWC Review of the Report "Same-Language-Subtitling (SLS): Using Subtitled Music Video for Reading Growth"[1]

The findings from this review do not reflect the full body of research evidence on *SLS*.

What is this study about?

This randomized controlled trial examined the impacts of *Same-Language-Subtitling (SLS)*, a karaoke-style subtitling intervention, on the reading comprehension skills of secondary school students in Kaneohe, Hawaii.

Researchers randomly assigned 198 secondary school students with learning disabilities (ages 14 to 19) to either special education classrooms using the *SLS* intervention or comparison classrooms (special or general education). The final study sample consisted of 51 students in the intervention condition and 98 students in the comparison condition.[2]

Teachers in the intervention condition used *SLS* to encourage reading and increase reading proficiency over a 12-week period. Students engaged in *SLS* viewing/response activities for 15–20 minutes per day at the beginning of class, during which they completed cloze-style worksheets and responded to comprehension questions while viewing the *SLS* recordings. During the last six weeks of the intervention, they also spent a minimum of 90 minutes per week producing subtitled multimedia files. Students in the comparison group received the school's regular "business-as-usual" curriculum.

Researchers assessed the effectiveness of *SLS* by comparing the reading comprehension achievement of students in the *SLS* intervention and comparison conditions at the end of the 12-week intervention in June, and again after the summer break in September.[3]

What did the study find?

The study did not report the statistical significance of the impact of the *SLS* intervention. However, WWC calculations indicate that students in the *SLS* intervention condition scored significantly higher than students in the comparison condition on the reading comprehension achievement posttests.

WWC Rating

The research described in this report meets WWC evidence standards without reservations

Strengths: This study is a well-implemented randomized controlled trial.

Features of *Same-Language-Subtitling (SLS)*

SLS is the practice of using videos with a format similar to karaoke, where captioned text changes color in synchronization with audio. The purpose is to encourage reading and increase reading proficiency. Students are able to hear the words being spoken/sung and read the words being spoken/sung at the same time.

SLS typically uses repetitive sources of audio, such as music, poetry, audiobooks, or occasionally, famous speeches. In the study described in this WWC report, the researchers used audio from three Broadway musicals that contained lyrics above the students' reading levels: "Les Miserables," "Cats," and "Big River."

In the final six weeks of the intervention, students produced subtitled multimedia files from the "Big River" CD during study hall time periods.

SLS was developed by Dr. Brij Kothari, the president of PlanetRead, a non-profit organization dedicated to reading and literacy development. It was originally used with Bollywood film songs on TV to promote literacy in India.

Appendix A: Study details

McCall, W. G., & Craig, C. (2009). Same-Language-Subtitling (SLS): Using subtitled music video for reading growth. In G. Siemens & C. Fulford (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2009* (pp. 3983–3992). Chesapeake, VA: AACE. Retrieved from http://www.editlib.org/p/32055.

Setting

The study took place in one school in Kaneohe, Hawaii.

Study sample

A sample of 198 students with learning disabilities was chosen to participate in the study from a pool of approximately 1,200 students. Sixty-seven students were randomly assigned to the *SLS* classrooms, and the remaining 131 students were assigned to the "business-as-usual" comparison condition. Over the course of the study, nine students transferred out of the school (two students in the *SLS* condition and seven in the comparison condition), and 40 students (14 in the *SLS* condition and 26 in the comparison condition) were eliminated from the impact analysis (these students were characterized as outliers on the baseline assessments). The final analysis sample included 51 students in *SLS* classrooms and 98 students in comparison classrooms. The students in the analysis sample were between 14 and 19 years old and had reading levels ranging between a 2.2 Grade Equivalency (G.E.) and a 9.4 G.E. The average reading level of this sample was 5.37 G.E.

Intervention group

The *SLS* intervention consisted of two types of *SLS* music exercises: viewing/response activities and producing subtitled multimedia files. During the 12-week intervention, students engaged in *SLS* viewing/response activities for 15–20 minutes per day. This included watching three brief repetitions of *SLS* music videos and, while watching, completing cloze-style worksheets containing questions about the songs (e.g., filling in the blanks of lyrics being sung, or reading comprehension based on the lyrics). In some instances, students would echo the singing to encourage tracking of the subtitling.

In the final six weeks of the intervention, students produced subtitled multimedia files from the "Big River" CD during study hall time periods. To create the subtitled videos, students used Karafun, a free karaoke production program, along with Microsoft Word and PowerPoint. Creating the *SLS* videos took a minimum of 90 minutes per week over the six-week period.

Comparison group

Students in the comparison group were taught using the existing curriculum in special education and general education classrooms (some of the students with learning disabilities in the comparison group were in mainstreamed general education classrooms). Comparison teachers agreed to use classroom materials that mirrored the difficulty of the materials taught in the intervention classrooms (text material that ranged between the fifth- and twelfth-grade reading levels). The main difference in the experiences of the intervention and comparison groups was exposure to *SLS* and time spent using computers during the course of the study.

Outcomes and measurement

The study used *Accelerated Reader's* Standardized Test and Assessment in Reading (STAR) to assess student performance at pretest, immediate posttest (after the 12-week intervention), and delayed posttest (after summer break). For a more detailed description of this outcome measure, see Appendix B.

Support for implementation

The report did not describe any implementation training or support provided to teachers.

Reason for review

This study was identified for review by the WWC because it was suggested as a promising intervention through the WWC website's help desk.

Appendix B: Outcome measure for the reading comprehension domain

Reading comprehension	
Standardized Test and Assessment in Reading (STAR) assessment	The STAR assessment from the *Accelerated Reader* system was used as a baseline, immediate, and delayed posttest assessment. This assessment is a computer adaptive instrument that is used to identify the reading level of a student, measured in terms of grade equivalents. The assessment also produces a scale score, which was the score reported by the author in an email correspondence.

Appendix C: Study findings for the reading comprehension domain

Domain and outcome measure	Study sample	Sample size	Mean (standard deviation)		WWC calculations			*p*-value
			Intervention group	Comparison group	Mean difference	Effect size	Improvement index	
Reading comprehension								
Reading comprehension—post-intervention	Secondary school students ages 14–19 with learning disabilities	149 students	821.7 (119.45)	767.0 (115.57)	54.70	0.47	+18	0.01
Reading comprehension—delayed post	Secondary school students ages 14–19 with learning disabilities	149 students	833.7 (119.94)	696.0 (132.23)	137.70	1.07	+36	0.00
Domain average for reading comprehension						**0.77**	**+28**	**Statistically significant**

Table Notes: For mean difference, effect size, and improvement index values reported in the table, a positive number favors the intervention group and a negative number favors the comparison group. The effect size is a standardized measure of the effect of an intervention on student outcomes, representing the change (measured in standard deviations) in an average student's outcome that can be expected if the student is given the intervention. The improvement index is an alternate presentation of the effect size, reflecting the change in an average student's percentile rank that can be expected if the student is given the intervention. The WWC-computed average effect size is a simple average rounded to two decimal places; the average improvement index is calculated from the average effect size. The statistical significance of the study's domain average was determined by the WWC. The study is characterized as having a statistically significant positive effect because the mean effect for the multiple measures of the outcome is positive and statistically significant.

Study Notes: The intervention and comparison group means and standard deviations in scaled scores were obtained in response to an email request to the authors. The WWC calculated the intervention group mean by adding the difference-in-differences adjusted estimate of the average impact of the program (i.e., difference in mean gains between the intervention and comparison groups) to the unadjusted comparison group posttests means. Please see the *WWC Handbook* for more information. The *p*-value presented here was calculated by the WWC, as the author did not conduct inferential tests of the impact of *SLS* in the article. Both contrasts reported here were determined to be statistically significant by the WWC after adjusting for multiple comparisons.

Endnotes

[1] Single study reviews examine evidence published in a study (supplemented, if necessary, by information obtained directly from the author[s]) to assess whether the study design meets WWC evidence standards. The review reports the WWC's assessment of whether the study meets WWC evidence standards and summarizes the study findings following WWC conventions for reporting evidence on effectiveness. This study was reviewed using the Students with Learning Disabilities topic area protocol. The WWC rating applies only to the results that were eligible under this topic area and met WWC standards without reservations or met WWC standards with reservations, and not necessarily to all results presented in the study.

[2] One hundred and ninety-eight students were initially randomly assigned to condition—67 students to special education classrooms using the *SLS* intervention and 131 to comparison special and general education classrooms (this information was obtained in email correspondence with the author). A total of nine students left the school before the study completed (two in intervention classrooms and seven in comparison classrooms), and 40 other students (14 in the intervention condition and 26 in the comparison condition) were removed from the study due to having "unreliable" baseline data (this was a term used by the author to describe students who were outliers in the initial baseline assessments). Even if this removal of sample members is considered a source of attrition, the study still passes the WWC attrition standard and is therefore eligible for the highest evidence rating as a randomized controlled trial.

[3] In addition to presenting the impacts for the full sample at the end of the intervention and after summer break, the authors presented information on program impacts using alternate samples and for subgroups of these separate samples. There was insufficient information to determine if any of these additional analyses met WWC standards. Therefore, this single study report focuses on the impacts for the main analysis sample for the two periods of assessment described.

Recommended Citation

U.S. Department of Education, Institute of Education Sciences, What Works Clearinghouse. (2013, January). *WWC review of the report: Same-Language-Subtitling (SLS): Using subtitled music video for reading growth*. Retrieved from http://whatworks.ed.gov.

Glossary of Terms

Attrition Attrition occurs when an outcome variable is not available for all participants initially assigned to the intervention and comparison groups. The WWC considers the total attrition rate and the difference in attrition rates across groups within a study.

Clustering adjustment If intervention assignment is made at a cluster level and the analysis is conducted at the student level, the WWC will adjust the statistical significance to account for this mismatch, if necessary.

Confounding factor A confounding factor is a component of a study that is completely aligned with one of the study conditions, making it impossible to separate how much of the observed effect was due to the intervention and how much was due to the factor.

Design The design of a study is the method by which intervention and comparison groups were assigned.

Domain A domain is a group of closely related outcomes.

Effect size The effect size is a measure of the magnitude of an effect. The WWC uses a standardized measure to facilitate comparisons across studies and outcomes.

Eligibility A study is eligible for review if it falls within the scope of the review protocol and uses either an experimental or matched comparison group design.

Equivalence A demonstration that the analysis sample groups are similar on observed characteristics defined in the review area protocol.

Improvement index Along a percentile distribution of students, the improvement index represents the gain or loss of the average student due to the intervention. As the average student starts at the 50th percentile, the measure ranges from –50 to +50.

Multiple comparison adjustment When a study includes multiple outcomes or comparison groups, the WWC will adjust the statistical significance to account for the multiple comparisons, if necessary.

Quasi-experimental design (QED) A quasi-experimental design (QED) is a research design in which subjects are assigned to intervention and comparison groups through a process that is not random.

Randomized controlled trial (RCT) A randomized controlled trial (RCT) is an experiment in which investigators randomly assign eligible participants into intervention and comparison groups.

Single-case design (SCD) A research approach in which an outcome variable is measured repeatedly within and across different conditions that are defined by the presence or absence of an intervention.

Standard deviation The standard deviation of a measure shows how much variation exists across observations in the sample. A low standard deviation indicates that the observations in the sample tend to be very close to the mean; a high standard deviation indicates that the observations in the sample are spread out over a large range of values.

Statistical significance Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups. The WWC labels a finding statistically significant if the likelihood that the difference is due to chance is less than 5% ($p < 0.05$).

Substantively important A substantively important finding is one that has an effect size of 0.25 or greater, regardless of statistical significance.

Please see the WWC Procedures and Standards Handbook (version 2.1) for additional details.