

## Same Language Subtitling (SLS) and its impact on reading literacy

### *A summary of evidence<sup>1</sup>*

Same Language Subtitling (SLS) is the idea of subtitling audio-visual content in the ‘same’ language as the audio. Word for word, what you hear is what you read. SLS was first coined in 1996 to promote reading literacy in a multilingual country like India with 23 official languages and 700+ dialects (Kothari, 1998). SLS and captioning are overlapping concepts but not the same. Captioning can be transliteration or translation. SLS is strictly transliteration.<sup>2</sup>

### ***Does SLS on audio-visual content cause automatic reading engagement among viewers?***

Surely, that depends on the viewer’s ability to read so it is worth considering the question for weak readers (who can decode a few letters or words but are unable to read simple texts at Grade 2 level) and good readers (who can read simple texts).

For good readers, d’Ydewalle *et al.*’s (1991) eye-tracking research found that American subjects watching an English movie with SLS and Dutch subjects watching a Dutch movie with SLS, spent considerable time in the subtitle area. Reading SLS was inevitable and comparable for both groups, even though the Dutch subjects had much more experience with subtitles on TV. Reading along with SLS did not depend on habit formation.

Several studies have confirmed that reading along with SLS is inescapable when the viewers are good readers. However, there is a dearth of studies on weak readers’ reading with and improvement from SLS exposure. Our eye-tracking study with weak readers drawn from a remote village in Rajasthan, India found that, “70 percent of weak readers engaged in unprompted reading while watching [Hindi] film clips with SLS” (Arjun *et al.*, 2022).

In another study with government school children in Grades 2-5 in rural Rajasthan, we showed them animated stories with and without SLS (PlanetRead, 2018a). The subjects were extremely struggling readers from low-income families. Most children (94%) engaged with SLS, exhibiting an increasing number of eye-fixations on the subtitles, with grade. The stories at a ‘low’ level of reading difficulty (81 simple words/min) invited the most reading engagement. SLS was mostly ignored in the story with a relatively higher level of difficulty (111 words/min).

The main conclusion is that almost all viewers who have some letter decoding will automatically try to read along with SLS even if they are not able to keep up at first. SLS cannot and will be ignored by weak and good readers alike.

The value of SLS and overlapping concepts like captioning, intralingual, and bimodal subtitling, for language learning (first, second, and foreign) has received the bulk of academic attention.<sup>3</sup> The potential impact of SLS on reading literacy remains understudied.

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<sup>1</sup> Authored by Dr. Brij Kothari, Co-Lead, Billion Readers (BIRD) initiative.

<sup>2</sup> Captioning is designed for media access among Deaf and Hard of Hearing (DHH) viewers, so it has to be in a language they can read in and understand, but not necessarily in the ‘same’ language as the audio.

<sup>3</sup> See this comprehensive bibliography on SLS and language learning maintained by Günter Burger: <http://www.fremdsprache-und-spielfilm.de/Captions.htm>.

### ***Does regular SLS exposure lead to improved reading skills?***

The idea of leveraging Closed-Captioning (CC) on TV to enhance the reading skills of struggling readers, is as old as CC itself (Koskinen *et al.*, 1986) but longitudinal studies are few. Linebarger *et al.* (2010) commented on one such by Koskinen *et al.* (1997): “In a longitudinal study of continuous caption use in the home, children who viewed with captions scored significantly higher on normative tests of word identification and passage comprehension when compared with non-caption viewers.”

In Linebarger *et al.*'s (2010) study with struggling readers in Grades 2-3 from low-income urban locations in the US, SLS exposure was limited to just six 30-minute episodes from children's TV. Still, “The majority of outcomes... indicated that children who viewed with captions outperformed their counterparts who viewed without captions,” and the improvement was most pronounced among children at risk for poor reading outcomes.

Similarly, in New Zealand, Parkhill & Johnson (2009) found that in their six-week ‘AVAILLL’ program for children aged 5-13 years, which uses popular, subtitled movies and accompanying novels to engage students in reading literacy, the greatest gains occurred for ‘low-progress’ readers. A positive impact was also observed for average and higher-level readers.<sup>4</sup> The handful of studies that do exist on the impact of captions or SLS on reading literacy had a short duration of exposure, small sample size, and conducted in majority English speaking countries.

Several longitudinal studies have come out of the SLS project in India, now called the Billion Readers (BIRD) initiative.<sup>5</sup> Kothari and Bandyopadhyay (2014) evaluated the impact of SLS after sustaining it for 5 years on a weekly hour-long program of Hindi film songs telecast nationally in prime time. Among school children who could not read a single letter in Hindi at the baseline (2002), 70% in the high-SLS viewing group became functional readers by the endline (2007) as compared to 34% in the low-SLS group.<sup>6</sup> In the 15+ age group, 14% in the high-SLS as compared to 5% in the low-SLS group went from non-decoding to functional-reading ability. Adults gained too but children benefited substantially more in what can be described as a schooling + SLS effect.

Given the SLS project's goal of persuading broadcast policy in India to require SLS on all the film songs shown on TV in India, in every language, a maximum SLS exposure of an hour a week, albeit for 5 years, was still too little. That was addressed in Maharashtra state where, for 2 years, SLS had a strong broadcast presence on around 20 Marathi films per week (only the songs were subtitled) on two of the most popular Marathi channels (Kothari and Bandyopadhyay, 2015). The Gujarat (control) and Maharashtra samples were comparable at the baseline (2013).<sup>7</sup>

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<sup>4</sup> The Audio Visual Achievement in Literacy Language and Learning (AVAILLL) program is based on the premise that using popular movies with subtitles not only enhances students' reading skills but also motivates students to read books.

<sup>5</sup> See <https://billionreaders.org/> or <https://planetread.org/>.

<sup>6</sup> The study caught Bill Clinton's attention <https://www.youtube.com/watch?v=juZOlmf9APk>.

<sup>7</sup> The Gujarat sample had marginally better reading scores.

By the endline (2015), in Maharashtra, 68% in Grade 3 could read at Grade 1 level or better as compared to 43% in Gujarat.<sup>8</sup>

The Annual Status of Education Report (ASER) independently found that over the same 2-year period, Maharashtra outperformed all states – 9% more children in Grade 5 were able to read a Grade 2 level text, as compared to no gain nationally.<sup>9</sup> Among those who got regular SLS exposure, 30% more children in the early grades achieved basic reading ability. The impact of SLS on reading skills was considerably stronger for children in Grades 2-3. A separate study of SLS on TV in Gujarat state confirms its value on film songs for reading literacy (Kothari *et al.*, 2004). What about SLS on children's TV?

Universally, children love to watch cartoons. PlanetRead (2018a) found that struggling readers cannot but attend to SLS on animated stories. Does that contribute to reading skills? Linebarger *et al.* (2010) and Linebarger (2001) provide evidence that it does, while underscoring the importance of captions, “especially for children who might not have access to print.”

PlanetRead (2018b) conducted a year-long study in 10 primary schools in rural Delhi serving children in Grades 1-5 from low-income families. In 5 treatment schools, the teachers showed all the children in Grades 1-4, 30 minutes of animated stories in Hindi with SLS, three times a week. From a comparable starting point, the average reading score in the treatment schools was 70% higher than the control schools. The impact of the intervention on reading was most apparent in Grades 2-3, pointing again to the strong complementarity of SLS, during the early stages of reading acquisition.

The benefits of SLS are not limited to reading literacy. For an overview of the range of benefits attributable to SLS, including reading, media access and language acquisition, see Gernsbacher (2015).

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<sup>8</sup> The majority of children in India do not read at grade level, hence, the use of such outcome measures.

<sup>9</sup> [https://www.huffingtonpost.com/entry/what-caused-maharashtras-leap-in-reading\\_us\\_589d1277e4b0e172783a9a8f](https://www.huffingtonpost.com/entry/what-caused-maharashtras-leap-in-reading_us_589d1277e4b0e172783a9a8f)

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