

## Research Article

# Same Language Subtitling of Bollywood Film Songs on TV: Effects on Literacy

Brij Kothari

Tathagata Bandyopadhyay

Indian Institute of Management, Ahmedabad

### Abstract

*In addition to 273 million illiterates (2001 Census), India has an estimated 389 million officially “literate” people who cannot read a simple text. Same Language Subtitling (SLS), the concept of subtitling audiovisual content in the same language as the audio, has been promoted as a low-cost solution to addressing functional illiteracy using existing film songs on television that 740 million viewers already watch regularly. SLS was implemented for five years on Rangoli, a nationally telecast, popular weekly TV program of Bollywood film songs in Hindi. Data collection for the baseline (2002) and endline (2007) was conducted by Nielsen’s ORG-CSR on a number of literacy skill indicators in reading, writing, and self-perception. The agency drew a random sample from five Hindi states (n = 7,409). Self-reported regular Rangoli viewers (treatment or SLS group) were compared to those who saw it rarely or never (control or no-SLS group). For children in school (6–14) and youth/adults (15+), the SLS group showed substantially greater mean improvement on all the indicators of literacy skill than the no-SLS group. Regression analyses confirmed the significant effect of SLS on literacy.*

## A Mass of “Literates” Who Cannot Read

India has a literacy challenge that few in the official apparatus acknowledge. A majority of those who are officially enumerated as “literate” in the national Census cannot read simple texts meaningfully.<sup>1</sup> They cannot, for example, read the day’s newspaper headline in any language of their choice or a story pitched at a second-grade level. They cannot perform some of the simplest functions a literate person would be expected to perform. Then why do we call them “literate”? That is because when the Census fieldworker visited and asked them—and that happens every 10 years—they self-reported as “literate.”

Many countries are guided in theory by UNESCO’s 1958 definition of *literacy* as an ability to read and write simple sentences with understanding, in a familiar context (Ahmed, 2011). In practice, the respondent’s reading or writing abilities are not tested, and the method of self-reporting has prevailed. Ahmed (2011) discusses the evolution of various definitions of literacy at UNESCO. If the earlier definition was difficult for governments to operationalize, the latest one from UNESCO Expert Meeting (2003, para. 8) would be even more challenging:

Literacy is the ability to identify, understand, interpret, create, communicate and compute using printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve his or her goals, develop his or her knowledge and potential, and participate fully in community and wider society.

Definitions of literacy have been and will always remain contested (Luebke, 1966; Walter, 1999). Most definitions go beyond the instrumental skills of reading, writing, and numeracy, yet none of them exclude these

---

To cite this article: Kothari, B., & Bandyopadhyay, T. (2014). Same language subtitling of Bollywood film songs on TV: Effects on literacy. *Information Technologies & International Development*, 10(4), 31–47.

1. Throughout the article, “literate” in quotes implies that it is an official label used by the Census when it deems a person to be “literate,” but it does not necessarily imply that the person can read or write.

## SAME LANGUAGE SUBTITLING OF BOLLYWOOD FILM SONGS ON TV

skills. Expanded definitions of literacy build on the core of textual literacy, and even within textual literacy, the ability to read is fundamental. Globally, the ability to read can be said to have acquired a normatively positive value. While acknowledging that literacy is a much broader concept than reading, our presumption is that not being able to read in an increasingly information-oriented society is a serious disadvantage.

The 2011 Indian Census found that 74% of citizens aged seven years and above, or 778 million, self-reported as being “literate.” There is limited data on how many are actually able to read.<sup>2</sup> In the face of an ever-increasing national “literacy” rate, policymakers have little incentive to explore the quality question. The drive to somehow achieve a higher official literacy rate is not unique to India. Globally, UNESCO estimates there are 775 million illiterate youth and adults, but, Ahmed (2011) argues, if “a reasonable measurement method and criteria are applied, the number of illiterates would be at least double this” (p. 192).

The disturbingly low quality of India’s literacy is well-accepted, if underresearched. Therefore, the alarmingly low levels of reading skills in the “literate” population, the fragility of those skills, the reality that they erode quickly from already low levels following formal education, mainly because of disuse, do not inform policy adequately.

In a study of four Hindi states among a large sample that self-reported a “literacy” rate of 68.7%, when actually tested, we found that only 25.8% could read a second-grade-level story (Kothari & Bandyopadhyay, 2010). In other words, only 37.6% of the self-reported “literate” were able to read a simple text functionally. Accounting for the fact that this study was conducted in Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh, four low-literacy states which account for 40% of India’s population, one could conservatively estimate that at least half of India’s official “literate” are functionally illiterate.<sup>3</sup> By the 2011 Census, 273 million were officially illiterate. Our contention is that at least an additional 389 million, i.e., half the official number of “literate” are functionally illiterate.

A staggering 662 million are either illiterate or functionally illiterate. We estimate that India’s functional reading rate, not the official “literacy” rate, is no more than 37%. Policy makers tend to deny this reality and may prefer to take comfort in an overstated national “literacy” rate. Our estimation is supported by other independent sources.

The most recent edition of Pratham’s Annual Status of Education Report (ASER), consistent with previous ones, found that 53% of fifth-graders in rural India cannot read a second-grade text (ASER, 2013). Fragile reading skills among those who cannot read by fifth grade only erode further as they go through youth and adult life, without much reading engagement. Yet, by virtue of having started formal schooling, even if only until first or second grade and irrespective of the level of functional reading skills acquired, almost all are reported “literate” in the Census. If more than half the school children cannot read functionally by fifth grade, it is easy to see why more than half the “literate” are nonreaders.

According to the National Readership Survey (2006), there were only 222 million readers of dailies and magazines in India when the “literacy” rate was estimated to be 71.1%. The survey put the number of “literate” people in the country who did not read any publication at 359 million. A majority of “literate” not found to engage in reading actually do not possess the minimum decoding competency to read functionally. But they could, if reading practice became an integral, automatic, and inescapable part of something they do every day such as watching television.

## Television

Television has an oversize presence in the leisure and entertainment landscape of India. The 2011 Census found that 47.2% or 117 million households had a TV. During the 2001–2011 decade, the number of TV

---

2. *The National Family Health Survey asks those in the 15–49 age group to read a sentence from a preprinted card, but only of those who reported not having completed sixth grade. Those able to read any part of the sentence are considered “literate.” Those having completed sixth grade or higher are automatically counted as “literate.” These factors and the fact that ages 50+ are not included in the survey inflate the resulting literacy figures.*

3. *In this article, we use “functional illiterates” or “functional illiteracy” to include only those reported as “literate,” but who cannot read minimally at a second-grade level. They may be able to decode a few letters or write their name, so they*

households grew by 15.6%. Based on this growth, we estimate there are 123 million TV households at present, each providing access to an average of five people at home and, as TV viewing patterns go in India, at least one additional person from the neighborhood or community. The average Indian watches a little over two hours of TV a day, in a mix of more than 20 languages and 600 channels (FICCI-KPMG, 2012). TV engages 740 million people already, for two hours daily, and is on course to make deeper inroads into the entertainment and leisure space of more than a billion people.

Bollywood, used here to refer to the entire Indian film industry—not only the Hindi film industry—has a symbiotic relationship with Indian TV. Bollywood films may be released in movie theaters, but they enjoy an extended life on TV. The prolific industry produces 1,000 films a year. The distinctive Bollywood format includes six or more songs per movie. Songs from the movies form the backbone of content on many music and general entertainment TV channels. Besides the 6,000 or so new songs that flow from Bollywood to TV annually, other song-based genres on TV include folk and devotional songs and song-based competitions. TV is ubiquitous in India. Songs are ubiquitous on TV.

In 1996 we began to explore the possibility of subtitling songs on mainstream TV in the same language as the audio to give viewers regular reading practice (Kothari, 1998). We called it Same Language Subtitling (SLS). Our earlier, short-term studies found SLS exerted an impact on reading skills (Kothari, Pandey, & Chudgar, 2004; Kothari, Takeda, Joshi, & Pandey, 2002). This research study looked at the impact of SLS on reading skills after it had been on the air for almost five years on *Rangoli*, a popular and nationally telecast weekly program of Bollywood film songs.

### Same Language Subtitling (SLS) on Song-Based Content

Same Language Subtitling (SLS) is the simple idea of subtitling audiovisual content in the same language as the audio. Word for word, what you hear is what you read. Although SLS can also be used for dialogue, when implemented in conjunction with songs, such as existing film songs and music videos on TV, we felt it might have a special resonance that reinforces reading skills among emergent and early readers.<sup>4</sup> Following observations in the early stages that found that SLS causes reading engagement, we suggested that the lyrics of Hindi film songs on TV (or other types of songs) could be subtitled in Hindi, Tamil songs in Tamil, and so on in every language, preferably with the words highlighted in perfect timing with the audio. To assess the potential of SLS on songs, it is instructive to look at the life context of millions of functional illiterates.

Many functional illiterates in India are rural first-generation learners from a low socioeconomic background. Parents with no formal education tend to be functionally illiterate and unable to provide learning support for their children at home (Ghosh, 2014). According to Govinda and Bandyopadhyay (2008), 37% of rural households between 1993–2003 had no literate member aged 15 years or older.

While the low quality of education in government and many private schools is well-documented (Banerji & Mukherjee, 2008; Dyer, 2008), there is a dearth of studies on the home literacy environment of low-income Indian children. Anecdotally, however, it is well known that parents reading to preschool and early-grade children is not a common practice, for a variety of reasons relating to reading ability, print access, affordability of children's books in the desired language, and cultural acceptance of the critical importance of reading to children from infancy. One study carried out in Mumbai's slums offers a perspective: Only 30% of families owned any children's books, 26% read to children, and 53% did not borrow or own any children's books (Vagh, 2009). A further qualifier to these findings is that all the children in the study attended community-based

---

are not strictly illiterate. UNESCO's 1978 definition of a functional literate, still in use, is someone "who can engage in all those activities in which literacy is required for effective functioning of his or her group and community and also for enabling him or her to continue to use reading, writing and calculation for his or her own and the community's development" (in UNESCO, 2006, p. 30).

4. In India, most English movie channels now subtitle the dialogue in English to make the accents more understandable. SLS and closed captioning are overlapping concepts that differ in key respects (Kothari et al., 2004). Likewise, SLS for song-based content resembles karaoke, but SLS requires a strict correspondence of audio and text in terms of language and script. Hindi songs transliterated in Roman script, which is done by many private channels catering to a literate and urban audience, is karaoke, but not SLS.

## SAME LANGUAGE SUBTITLING OF BOLLYWOOD FILM SONGS ON TV

preschools run by Pratham, a reputable NGO known to promote reading in and out of school. Home-literacy environments in low-income families across India are likely to be poorer.

According to the 2011 Census, 29.5% of India's population, or 357 million people, are in the 0–14 age group: 123 million ages 0–5 and 234 million ages 6–14. The majority of these children are growing up with an inadequate preschool, during-school and beyond-school reading experience. More than half the population, despite a number of years in school, is on course to join the ranks of the “literate” (by the Census), essentially nonreading youth and adults. In this scenario, the challenge is to motivate hundreds of millions of officially “literate” but functionally illiterate people—spread across 640,000 villages, speaking 22 official languages and who cannot afford reading matter—to engage with text regularly.

### **Overcoming the Motivation Barrier**

Almost all research on the motivation to read is done in relatively literate societies (LSs) and not in the enormously more challenging low-literate societies (LLSs), as outlined above. In LSs, *motivation* refers to the impulse to read after most people have acquired a functional reading ability, minimally at the second-grade level. In LLSs the first goal is to motivate people with emergent decoding skills to engage with print until they at least acquire a functional second-grade reading ability, irrespective of whether they are in school, out of school, or beyond schooling. The overwhelming mass of people who need motivation to stick with print engagement are functional illiterates. The key concepts of intrinsic and extrinsic motivation from LS research begin to have greater relevance after a person has acquired basic decoding ability.

Wigfield and Guthrie (1997) conceptualized *intrinsic motivation* as an orientation and desire to read purely from an internal impulse for enjoyment. For an intrinsically motivated reader, reading is an exciting and emotionally fulfilling activity (Ryan & Deci, 2000). An *extrinsically motivated* reader is driven by an external incentive to read, such as prizes, recognition, or a host of tangible and intangible rewards from an external agency. In LLSs, as in LSs, people understand the intrinsic value of acquiring reading skills; however, inspiring a mass of people with poor decoding skills to acquire the motivation, intrinsic or extrinsic, to persist with print engagement, especially, perhaps, after long experience with repeated failure, could be challenging.

Motivating functional illiterates to engage with print throughout life can realistically become a possibility when that engagement itself becomes an integral part of another activity for which people's intrinsic motivation is guaranteed to be lifelong (e.g., texting on mobiles to communicate with friends and family). Within the boundaries of that activity, if encounters with print can arouse feelings of decoding success and if that success can in turn enhance the pleasure component of that activity, a functional illiterate will not only get reading practice but is also more likely to develop the intrinsic motivation to read more broadly. SLS could perhaps reduce the weak reader's dependence on motivation to persist with print by integrating reading into daily entertainment already consumed and expected to be consumed throughout life. But would a functional illiterate try to read or would he or she ignore the subtitles?

### **Subtitles and Reading Skills**

Eye-tracking studies from LSs have found that subtitles on screens, as translations (interlingual) or in the language of the audio (intra-lingual), cannot be ignored (d'Ydewalle & Gielen, 1992; d'Ydewalle, Praet, Verfaillie, & Van Rensbergen, 1991). Their presence causes automatic and inescapable reading behavior for all combinations of audio and subtitles in the viewer's first or second language. However, nearly all the research on subtitling has explored its impact on readers (not functional illiterates), mostly for second language learning such as for listening comprehension (Markham, 1989; Vanderplank, 1990) or vocabulary acquisition (Koolstra & Beentjes, 1999; Neuman & Koskinen, 1992).

Even in LSs, where subtitling and captioning have enjoyed a long history on TV, considering the richness of research on reading, only a handful of scholars and studies have explored the impact of subtitling on reading skills (Linebarger, 2001; Linebarger, Kosanic, Charles, Greenwood, & Nii Sai Doku, 2004; Linebarger, Piotrowski, & Greenwood, 2010). In several controlled studies with school children in early grades, half exposed to videos with captions and half to the same videos without captions, Linebarger (2001) and Linebarger et al. (2010) found that captions contributed to word recognition and word comprehension skills. The content and captions were carefully selected at a level that a second- or third-grader would be able to read without

difficulty. In another study that showed recorded episodes of a children's TV program, *Between the Lions* (BTL), specifically designed to impart emergent literacy skills to prereading children (e.g., speech to print and print concepts), Linebarger et al. (2004) found that on-screen print, not regular captions in this case, led to "positive changes or growth in key early literacy skills predictive of later fluent reading" (p. 307). BTL encouraged a read-aloud experience by displaying, highlighting, and sounding on-screen text in a variety of child-friendly ways that improved letter-sound correspondence and phonemic awareness skills (Uchikoshi, 2006).

To our knowledge there are few (if any) studies that have looked at the effects of subtitle exposure from regular TV viewing in a naturalistic setting (not recorded TV shows with captions shown in controlled settings) on viewers' literacy skills (not language skills) and especially on the masses of functional illiterates with emergent literacy skills in an LLS. Functional illiterates could well ignore the subtitles on mainstream TV and not engage in any reading.

To invite functional illiterates with some letter-decoding ability to read subtitles, we required that the subtitles be in the same language as the audio, thus aiming to strengthen text-sound correspondence. The usefulness of song lyrics to improve the decoding skills of struggling readers has been explored (Hines, 2010). SLS of song-based content was preferred for several reasons. A functional illiterate knows the lyrics of many songs, but for most songs, the lyrics are known partially. SLS fulfills both a desire to know the remaining lyrics and to sing along with the subtitles as in karaoke. The known lyrics can be anticipated and are easier to read along with, engendering with some regularity a feeling of reading success—part of it coming from memorized lyrics and part of it from one's still-developing decoding ability.

Songs provide an emotionally positive state, further cementing the fusion of text and sound. Repetition of song lines, typically the known refrains, increases practice opportunities and the frequency of reading success. Highlighting the words in time with the song assists the reading process by clearly matching text and sound. With or without conscious engagement, over time functional illiterates can strengthen their decoding skills with SLS exposure and the in-built support of word-sound highlighting. Songs offer a challenge for every level of decoding ability. For someone who can read along with a song easily, the experience is positive and predominantly one of karaoke. Songs that offer a reading challenge still serve the entertainment purpose. Most importantly, reading engagement becomes automatic and inescapable, independent of one's motivation to read.

This study builds on two earlier studies. The first study looked at the effects of SLS on school children's decoding skills after three months of exposure in a controlled experiment (Kothari et al., 2002). The second study, conducted over six months, implemented SLS on a weekly Gujarati TV program telecast across Gujarat state and assessed its impact on viewers who were not in school, including youth and adults (Kothari et al., 2004). In both studies, SLS exposure via film songs contributed positively to decoding skills. The present study is closer in design to Kothari et al. (2004), but different in two significant ways: It doubled the possible weekly exposure to SLS and extended that exposure over a period nearly 10 times longer than the previous studies.

## Method

The study's primary goal was to measure the impact of SLS on reading and, to some extent, writing skills after implementing it in a natural setting over a sustained period. The basic study design had three phases.

First, we conducted a baseline of reading and writing skills in a randomly selected sample of people with (70%) and without (30%) access to TV. From our original sample of 12,280 individuals who were asked to read a simple story of only 36 words at second-grade level, we enrolled those who were found to be nonreaders (48%) or weak-readers (37%), that is, who read with broken flow and considerable difficulty. We included a significant number of people without a television at home. It has long been argued that TV has a deleterious impact on reading (Beentjes & Van der Voor, 1988), so the no-TV condition could potentially be an advantage. Not having a TV in the home is not a good indicator of not watching TV, especially in Indian villages where viewing at a neighbor's home or elsewhere in the community is common. Thus, TV access in one's home or not was seen as an important factor to control for. Second, we implemented SLS on an existing, popular program of Bollywood film songs with the objective of keeping the subtitles on air for a minimum of one year, longer if possible. At least one year of SLS exposure was seen as necessary to ascertain its potential impact on

## SAME LANGUAGE SUBTITLING OF BOLLYWOOD FILM SONGS ON TV

Table 1. Sample from Four Hindi States for SLS Impact Study.

State	District	Literacy (%), 2001 Census			Baseline sample size (female %)	Endline sample size (female %)	Reached at endline (%)
		Total	Male	Female			
Bihar	Muzaffarpur	48.2	60.2	35.2	2,483 (52.5)	1,728 (53.3)	69.6
Madhya Pradesh	Katni	63.6	77.9	48.2	2,490 (65.1)	1,734 (63.4)	69.6
Rajasthan	Dausa	61.8	79.4	42.3	2,995 (56.3)	1,907 (59.4)	63.7
Uttar Pradesh	Lucknow	68.7	76.0	60.5	2,533 (53.2)	2,040 (52.6)	80.5
Total					10,501 (56.6)	7,409 (57.1)	70.6

literacy skills. A longer period of exposure was expected to result in greater, and therefore, more easily measurable impact. Third, we remeasured the literacy skills of those baseline study participants with the same tools after SLS had been on air for more than a year.

Before a baseline could be initiated, we had to ensure that a broadcaster was willing to enter into a Memorandum of Understanding to allow SLS on an existing and popular film song program for at least one year. This was by far the most challenging piece of the study to put in place. We approached several broadcasters over a three-year period, both public and private, but none was willing to permit SLS on air for fear that it would hurt the program's ratings. Most were convinced that it would hurt ratings, even though we shared evidence to the contrary.

After considerable persuasion, negotiation, not to mention stiff resistance at times, India's national TV broadcaster Doordarshan (DD) gave permission to implement SLS for a year on *Rangoli*, a popular program of back-to-back Bollywood film songs in Hindi, hosted by a well-known anchor and nationally telecast in prime time on Sunday mornings, 8–9 A.M.<sup>5,6</sup> DD was an ideal partner for the study because it has the maximum reach in rural India, especially in Hindi-speaking states where the study was to be conducted. We had permission for one year of SLS on air at no cost to DD, although we were unsure at the beginning of the study whether it would be extended, even if it were offered as a free service to the broadcaster.

### Baseline

An independent agency, ORG–Centre for Social Research (now acquired by and known as Nielsen's ORG-CSR), was commissioned to collect data for the baseline and endline studies using tools designed by and previously used in Kothari et al. (2004). Baseline data were collected by ORG-CSR during September 2002 in four Hindi-speaking states, namely Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh.

Based on the 2001 Census, three pools of low-, medium-, and high-literacy districts were created for each state. From those pools, a low-literacy district was picked at random from Bihar, a medium-literacy district each from Madhya Pradesh and Rajasthan, and a high-literacy district from Uttar Pradesh (Table 1).<sup>7</sup>

In each of the selected districts, five villages were chosen at random, after which we confirmed they were electrified and had households with TVs. Our sampling goal was to select approximately 500 nonreading or weak-reading residents from each village, roughly two thirds from TV households and one third from non-TV households.

5. *Rangoli's* popularity can be judged by its longevity. It is the longest-running national TV program in India. In the first year we created subtitles for *Chitrahaar* (a 30-minute program) and then switched to *Rangoli* (a 60-minute program) for two reasons. *Chitrahaar* stopped being a national program, and *Rangoli* doubled the duration of SLS exposure. Most of the SLS exposure that viewers received in this study came from *Rangoli*.

6. The permission is owed to DD's then–Director General, Dr. S. Y. Quraishi, who overruled strong internal opposition to SLS at DD for about three years.

7. Our sample did not aim for generalizability of findings for any geography. It was drawn with the sole purpose of having a sufficiently large number of early and nonreaders who either watched *Rangoli* (with SLS) regularly or did not.

Table 2. Exercises and Questions Administered.

Exercises	Variable name	Score range	Improvement
<b>Reading</b>			
1. Decode 40 unique syllables in Hindi (Syllable Decoding Score)	SDS	0–40	$\Delta$ SDS
2. Decode 10 vowelizations of a known syllable	VOW	0–10	$\Delta$ VOW
3. Decode 22 simple 2-syllable words	SIMWORD	0–22	$\Delta$ SIMWORD
4. Decode 8 complex words	COMWORD	0–8	$\Delta$ COMWORD
<b>Writing</b>			
5. Write full name	WRINAME	0–2	$\Delta$ WRINAME
6. Write any 5 words	WRIWORDS	0–2	$\Delta$ WRIWORDS
7. Write complete address	WRIADDR	0–2	$\Delta$ WRIADDR
8. Dictation of 2 simple sentences	WRIDICT	0–4	$\Delta$ WRIDICT
<b>Self-perception of common functional abilities</b>			
9. Can you read a bus board?	BUS	0 (cannot) 1 (with a lot of difficulty) 2 (with a bit of difficulty) 3 (can)	$\Delta$ BUS
10. Can you read a newspaper?	NEWSPAPR		$\Delta$ NEWSPAPR
11. Can you read a letter?	RLTR		$\Delta$ RLTR
12. Can you write a letter?	WLTR		$\Delta$ WLTR
13. How many times a week do you read a newspaper?	NEWSFREQ	0 1–2 times 3–4 times daily	$\Delta$ NEWSFREQ

Each village was divided into four geographic segments. A proportionately representative sample was drawn from each segment by visiting the required number of TV and non-TV households. In every household, all the available residents of each home aged 6–50 were tested for their ability to read a simple story of 36 words at a second-grade level.<sup>8</sup> Those who could not read it with some fluency were included in the study, resulting in a total sample of 10,501 from the four states (Table 1), 56.6% female<sup>9</sup> and 69.5% from TV households. A total of 3,177 households were sampled. The names and contact details of the individuals were collected to facilitate a future revisit and retest.

### Materials

In addition to collecting background information, every study participant was administered several reading and writing exercises in Hindi, and questions on one's functional literacy abilities (Table 2).<sup>10</sup> Exercises 1–4 tested ability to decode simple syllables, vowelizations, simple two-syllable words, and some relatively complex words.<sup>11</sup> In the vowelization exercise, the syllable "ma" was read by the field-tester if they could not decode it

8. We used three versions of the story in every household to minimize subject-to-subject repetition from overhearing.

9. More female members of the household were present at the time of the visit by ORG-CSR field workers.

10. We used a more condensed version of this instrument in an earlier study on the impact of SLS and found it to be useful for capturing small improvements in decoding skills. The instrument was pretested by ORG-CSR, but has not been validated.

11. In the vowelization exercise we were not testing letter knowledge but the ability to vowelize, once a consonant was known. It is akin to saying, This is a "k." Can you read "ki," "ko," "ku," etc.? We tested for all 10 Hindi vowelizations.

## SAME LANGUAGE SUBTITLING OF BOLLYWOOD FILM SONGS ON TV

because we were only testing for ability to vowelize in that exercise. Exercises 5–8 tested for basic writing functions—ability to write one’s full name, any five words from one’s context, any complete address, and a two-sentence dictation of unconnected sentences. Exercises 9–12 represented self-reports on ability to perform common literacy functions such as reading a bus board, newspaper, and letter, and writing a letter on this scale: Cannot, With a lot of difficulty, With a bit of difficulty, Can. The improvement score was simply the score at the endline minus the score at the baseline. On any exercise, if someone did better at the baseline than the endline, implying skill erosion, the improvement score was negative. For instance, someone who decoded all 40 syllables correctly at the baseline but could not decode a single one at the endline would have a  $\Delta\text{SDS} = -40$ .

For six popular TV programs on DD, including the one we chose to subtitle, we asked the participants to self-report on their viewing frequency (Very regularly, Regularly, Sometimes, Rarely, Almost never).<sup>12</sup> We used the self-report for *Rangoli* viewing at the endline to group and compare people with High-SLS exposure (who reported watching the SLS program very regularly or regularly) and those with Low-SLS exposure (who reported watching rarely or almost never).<sup>13</sup> We did not include in our analysis those who reported seeing *Rangoli* sometimes because of the ambiguity of deciding to which group they belonged.

An important weakness of the study is that it did not take into account at least some inevitable contamination between the High-SLS and Low-SLS groups from baseline to endline. Another weakness is that the extensive time between the pre- and post-tests made it harder to rule out the effects of other factors. In a naturalistic and longitudinal study such as ours, one of the most challenging aspects was demarcating High-SLS from Low-SLS viewers. Since we had no practical, affordable way to objectively record SLS exposure, we relied on a self-report.

### **SLS Exposure**

Barring a few small gaps due to the exigencies of discontinuous and patchwork funding, SLS was implemented on *Rangoli* and the program was telecast nationally from September 2002 to May 2007, over four years, nine months. The permission for SLS, granted initially for one year, was extended annually by DD for a significantly longer period because the ratings of their program went up as a result of the subtitling.<sup>14</sup> What initially seemed like a challenge to keep SLS on air for one year turned out to be a lengthy exposure of nearly five years, albeit only for a maximum of one hour per week. Most viewers, one assumes, got less weekly exposure than that but did view with some regularity and over a sustained period.

### **Endline**

ORG-CSR independently administered the same battery of tests as in the baseline to the same baseline sample in two separate rounds, the first after one year of SLS exposure (in September 2003) and the second after 57 months of exposure (in May 2007), which we termed the endline. ORG-CSR was able to reach and retest 70.6% of the baseline sample from nearly five years earlier (Table 1).<sup>15</sup>

## **Results**

The High-SLS group was defined as those who self-reported as being very regular or regular *Rangoli* viewers at the endline. The Low-SLS group included those who self-reported watching *Rangoli* rarely or almost never. Because of the inherent churn in the viewership pattern of television programs over time, the pattern of *Rangoli* viewing reported at the endline was seen to have had a more immediate bearing, if any, on reading skills. In the High-SLS group, 80.9% were aware of SLS. In the Low-SLS group only 17.7% were aware of SLS.

Separately for children in school ( $\leq$ age 14) and youth and adults aged 15 years or older out of school

---

12. We were interested only in the viewing frequency of our SLS program, but also asked about other programs to mask our interest.

13. The baseline self-report of *Rangoli* viewing was too far back in time.

14. SLS on *Rangoli* continued even later, until June 2013, as a free service to DD. A longstanding proposal is pending before the Government of India to support the scaling-up of SLS on all songs in all languages. The endline retest was conducted in May 2007; hence, is stated as the end date for SLS exposure on *Rangoli*.

15. We did not collect the reasons for sample dropout. We suspect it is primarily due to seasonal migration.

(hereafter, adults 15+), we first looked at the mean improvements for all the exercises and applied a regression analysis.

### **Children in School**

#### **Mean Improvement from Baseline to Endline**

The mean improvements for children in the Low- and High-SLS groups are presented in Table 3. Children in the Low-SLS group decoded 1.9 syllables more on average, after nearly five years of schooling. That may be surprising to readers, but it is a comment on the quality of education, especially in rural north India. In contrast, children in the High-SLS group decoded 9.6 syllables more on average over the same period. Generally, the High-SLS group did better on average in every measure of improvement from baseline to endline. On all reading, writing, and self-perception of functional literacy measures, the High-SLS group did better. The difference in mean improvement between the groups, for all the exercises, was highly significant as was evident from the *p*-values of the two-sample *t*-test in Table 3.

To understand whether SLS exposure led to other forms of reading, we looked at the proportions of children reporting newspaper reading at different frequency options, in both Low-SLS and High-SLS exposure groups, at the baseline and endline (Table 4). At the baseline, the groups are comparable—7.3% and 7.9% in the Low-SLS and High-SLS groups, respectively, reported that they read a newspaper three or more times a week. By the endline, the same figures were 12.6% and 35.9%, respectively. Without SLS exposure, 20.2% more children moved from never reading to reading a newspaper after nearly five years. With SLS exposure, 45.0% children did the same.

Mean improvements on skill measures and proportions of children reading newspapers represent a preliminary analysis because improvement on every measure depends on where a subject was at the baseline and how much he or she could improve before topping out on the scale. To allow for improvement on the entire scale, we looked at a special subset of children, those who were completely nonliterate and could not read a single syllable at the baseline, or SDS (baseline) = 0. We call them nondecoding children.

#### **Nondecoding Children at Baseline**

Looking at nondecoding children at the baseline gives us an insight into what might have happened if SLS were present from the early stages of reading skill development. We found that improvement scores in the High-SLS group were more than double that of the Low-SLS group for all the exercises, and the differences in group means were highly significant (Table 3).

To understand the proportion of children advancing from nondecoding at the baseline to improved stages, we defined *semiliterates* as those able to decode 1–34 of 40 syllables at the endline and *functional literates* as those who decoded 35 or more syllables. This is justified on the grounds that the mean SDS of bus-board readers at the endline was 36.9; hence, we considered anyone 35 or above to be a functional reader.

Among nondecoding school children (baseline) in the Low-SLS group, 44.9% of children remained nondecoding, even after nearly five years of schooling, as compared to only 13.1% in the High-SLS group (Table 5). At the other end, many more children in the High-SLS group became functional readers, 69.6% compared to 34.1%. Arguably, the 17.3% semiliterates in the High-SLS group would also become functional readers over time, provided SLS exposure continued to be a part of their regular TV consumption.

SLS, as a complement to schooling, may have started 31.8% more children on the path to reading and progressed 35.5% more children to functional reading skills in approximately five years of routine SLS exposure, which in our case could only have been for a maximum of one hour per week if *Rangoli* were to be seen in its entirety every week. That, of course, is unlikely. In actuality, the previous episode was reported to have been seen by less than a third of the children (27.4%).

#### **Regression Analysis: All Children in School**

The stepwise linear regression analysis we ran for children in school explained 54.5% of the variations in the improvement in SDS ( $\Delta$ SDS) from baseline to endline ( $R^2 = 0.548$ ; Adjusted  $R^2 = 0.545$ ). An important covariate was the starting point on every exercise. The variables in the order of most to least explanatory power are presented in Table 6.

Table 3. Mean Improvement in Low-SLS and High-SLS Groups.

Improvement	School Children (6–14)			Nondecoding School Children at Baseline			Adults 15+		
	Low-SLS Group: Mean Δ (SD)	High-SLS Group: Mean Δ (SD)	(n = 1,109)	Low-SLS Group: Mean Δ (SD)	High-SLS Group: Mean Δ (SD)	(n = 237)	Low-SLS Group: Mean Δ (SD)	High-SLS Group: Mean Δ (SD)	(n = 1,004)
	(n = 1,232)	(n = 1,109)	(n = 323)	(n = 237)	(n = 2,402)	(n = 1,004)			
<b>Reading</b>									
ΔSDS	1.9 (20.7)	9.6 (19.2)***	16.7 (18.2)	30.9 (15.0)***	0.0 (13.8)	3.1 (15.4)***			
ΔVOW	1.8 (4.8)	3.6 (4.6)***	3.7 (4.6)	7.3 (4.1)***	0.5 (3.2)	1.3 (3.7)***			
ΔSIMWORD	5.7 (10.6)	9.7 (10.6)***	6.3 (9.3)	14.7 (9.2)***	1.4 (7.1)	2.8 (8.4)***			
ΔCOMWORD	2.2 (4.2)	4.0 (4.2)***	1.8 (3.2)	4.8 (3.7)***	0.6 (2.8)	1.6 (3.8)***			
ΔNEWSFREQ	0.5 (2.1)	1.9 (2.8)***	0.3 (0.9)	1.5 (2.4)***	0.2 (1.5)	1.1 (2.7)***			
<b>Writing</b>									
ΔWRINAME	0.3 (1.1)	0.7 (0.9)***	0.8 (1.1)	1.4 (0.9)***	0.0 (0.8)	0.2 (0.8)***			
ΔWRWORDS	0.6 (1.0)	1.0 (0.9)***	0.7 (0.9)	1.4 (0.8)***	0.1 (0.6)	0.4 (0.8)***			
ΔWRIADDR	0.6 (0.9)	1.0 (0.9)***	0.5 (0.8)	1.2 (0.9)***	0.2 (0.7)	0.4 (0.8)***			
ΔWRIDICT	1.1 (1.9)	2.0 (1.9)	1.1 (1.7)	2.7 (1.8)***	0.3 (1.3)	0.9 (1.7)***			
<b>Self-perception of common functional abilities</b>									
ΔBUS	0.7 (1.4)	1.3 (1.4)***	0.9 (1.3)	2.1 (1.2)***	0.1 (0.9)	0.3 (1.0)***			
ΔNEWSPAPR	0.8 (1.3)	1.4 (1.3)***	0.8 (1.2)	2.0 (1.2)***	0.2 (0.9)	0.4 (1.0)***			
ΔRLTR	0.8 (1.3)	1.3 (1.3)***	0.8 (1.2)	1.9 (1.2)***	0.1 (0.9)	0.4 (1.0)***			
ΔWLTR	0.8 (1.3)	1.3 (1.3)***	0.7 (1.1)	1.7 (1.2)***	0.1 (0.9)	0.3 (1.0)***			

\*\*\*p ≤ 0.001.

Table 4. Weekly Frequency of Newspaper Reading Reported.

	Children in School (6–14) (n = 2,838)				Adults 15+ (n = 3,948)			
	Baseline (%)		Endline (%)		Baseline (%)		Endline (%)	
	Low SLS	High SLS	Low SLS	High SLS	Low SLS	High SLS	Low SLS	High SLS
Never	85.7	77.2	65.5	32.2	90.0	70.3	83.9	53.0
1–2 times	7.0	15.0	21.9	31.8	5.5	14.6	8.9	16.5
3–4 times	3.7	3.8	5.7	13.3	2.7	7.7	3.2	7.5
Daily	3.6	4.1	6.9	22.6	1.9	7.4	4.0	23.0

Table 5. Nondecoding at Baseline: Proportion Progressing to General Stages of Literacy.

At endline	School Children (6–14)				Adults 15+	
	Low-SLS (%) (n = 323)		High-SLS (%) (n = 237)		Low-SLS (%) (n = 1,635)	High-SLS (%) (n = 457)
Remained nondecoding	44.9	13.1	88.0	68.7		
Became semiliterates	21.0	17.3	7.0	17.5		
Became functional readers	34.1	69.6	5.0	13.8		
	100.0	100.0	100.0	100.0		

## SAME LANGUAGE SUBTITLING OF BOLLYWOOD FILM SONGS ON TV

Table 6. School Children (6–14): Summary of Stepwise Regression Analysis for Variables, Listed in Order of Explanatory Power. Dependent Variable:  $\Delta$ SDS.

	$\beta$	t	$\Delta R^2$
(Constant)		0.677	
1 SDS (baseline)	−0.820***	−35.879	0.421***
2 SLS exposure ( <i>Rangoli</i> )	−0.107***	5.236	0.050***
3 Assessed to be illiterate or semiliterate at baseline, based on ability to read simple story	0.223***	8.751	0.030***
4 Father’s literacy	0.126***	7.161	0.022***
5 Aware of subtitles on TV programs	0.070***	3.397	0.005***
6 Grade completed, endline	0.164***	6.482	0.003***
7 Grade completed, baseline	−0.113***	−4.220	0.010***
8 Age	−0.060**	−2.608	0.002***
9 Has cable connection	−0.040*	−2.393	0.001***
10 Owns TV	0.036*	2.126	0.001***
11 Mother’s literacy	0.001 NS	0.029	NS
12 Sex	0.015 NS	0.933	NS
13 Owns land	0.008 NS	0.498	NS
14 Has electricity	0.010 NS	0.579	NS

$n = 2,838$ . \* $p \leq 0.05$ ; \*\* $p \leq 0.01$ ; \*\*\* $p \leq 0.001$ ; NS = Not significant.

SDS (baseline) explains 42.1% of the variation in  $\Delta$ SDS. As earlier mentioned, the higher the baseline SDS (on a 1–40 scale), the less room there is in the exercise for further improvement. SLS exposure via *Rangoli* had the most explanatory power after that ( $\Delta R^2 = 0.05$ ). *Rangoli*’s effect on improvement was highly significant, even after controlling for other statistically significant covariates.

As compared to illiterate children, those judged to be semiliterate at the baseline, not surprisingly, exhibited greater improvement by the endline. The father’s literacy (but not the mother’s) was found to have a positive bearing on a child’s reading improvement. Awareness of SLS on TV was associated with reading improvement, although the direction of this relationship was unclear; that is, whether greater SLS awareness led to improvement or vice versa. The higher the formal grade level achieved by the endline, the greater was  $\Delta$ SDS. However, children who were in lower grades at the baseline showed greater improvement, pointing to the possibility that earlier grade exposure alongside schooling was more effective than starting exposure at later grades.<sup>16</sup> One would have expected children to improve more from SLS exposure than adults 15+, but even among children, age was negatively correlated to  $\Delta$ SDS, as expected. TV ownership was a positive contributor to reading but cable ownership was not. This was understandable, as DD viewership (and therefore, *Rangoli*) generally tended to be less among cable owners. Besides a mother’s literacy, other factors such as sex, land ownership, and access to electricity were not found to be significant predictors of reading skill improvement.

Linear regression analyses were conducted on other dependent variables with the same covariates, except that SDS (baseline) was replaced by the baseline score of the appropriate exercise (Table 7). For all the measures of reading, writing, and self-perception of functional ability, the effect of SLS on *Rangoli* was highly significant. The analyses accounted for more than 50% of the variation in nearly all the improvement measures, except  $\Delta$ COMWORD and  $\Delta$ NEWSFREQ. The impact of SLS on children’s reading skills was confirmed through several measures. Did it have a similar impact on adults 15+?

16. The correlation between the grade completed at the baseline and endline was 0.67 ( $p \leq 0.01$ ), not high enough for multicollinearity. This is unsurprising as several children in school at the baseline would have dropped out by the endline.

Table 7. School Children (6–14): SLS Impact on Functional Literacy Outcomes, Summary of Regression Analyses.

Dependent Variable: Improvement from Baseline to Endline	SLS Exposure (Rangoli)		Adjusted R <sup>2</sup>
	$\beta$	t	
<b>Reading</b>			
$\Delta$ VOW	0.104***	4.964	0.527
$\Delta$ SIMWORD	0.096***	4.571	0.522
$\Delta$ COMWORD	0.076***	3.483	0.484
$\Delta$ NEWSFREQ	0.116***	4.923	0.400
<b>Writing</b>			
$\Delta$ WRINAME	0.114***	6.024	0.611
$\Delta$ WRIWORDS	0.115***	5.497	0.522
$\Delta$ WRIADDR	0.084***	4.025	0.532
$\Delta$ WRIDICT	0.095***	4.525	0.524
<b>Self-perception of common functional abilities</b>			
$\Delta$ BUS	0.101***	5.175	0.586
$\Delta$ NEWSPAPR	0.071***	3.511	0.555
$\Delta$ RLTR	0.078***	3.803	0.545
$\Delta$ WLTR	0.065***	3.164	0.540

$n = 2,838$ . \* $p \leq 0.05$ ; \*\* $p \leq 0.01$ ; \*\*\* $p \leq 0.001$ ; NS = Not significant.

### Adults 15+

Most of the adults 15+ in our sample were not in school (96%); hence, unlike children, they lacked the possibility of formal literacy learning complemented by practice through SLS at home. In the Low-SLS group, 88% of nondecoding adults 15+ at the baseline remained nondecoding at the endline, as compared to 68.7% in the High-SLS group (Table 5). SLS not only got more people started on the path to literacy, it also transitioned 13.8% to a state of functional reading; in the Low-SLS group, only 5% became functional readers.

As reported for children, the difference in mean improvements between the Low-SLS and High-SLS groups was highly significant. However, the gains in the High-SLS group over the Low-SLS group were much smaller for adults 15+ than for school children. For instance, a comparison of children and adults in Table 3 shows that for adults 15+,  $\Delta$ SDS (High-SLS)— $\Delta$ SDS (Low-SLS) = 3.1, and for all children, it was 7.7 and for nondecoding children, 14.2. For adults 15+,  $\Delta$ SIMWORD (High-SLS)— $\Delta$ SIMWORD (Low-SLS) = 1.4, and for all children it was 4.0 and for nondecoding children, 8.4. Children in school, not surprisingly, were able to take greater advantage of SLS for literacy skills improvement.

Over nearly five years, with no exposure to SLS, i.e., in the Low-SLS group, 6.1% of adults 15+ transitioned from unable to read a newspaper to reading one at least once a week (Table 4). In the High-SLS group, 17.3% did so. Arguably, SLS exposure transitioned 11.2% more adults 15+ and 24.8% more school children to reading a newspaper at least once a week. Daily newspaper reading went up by 2.1% in the Low-SLS group and by 15.6% in the 15+ High-SLS group. In other words, SLS contributed to daily newspaper reading by an additional 13.5% of adults and 15.2% of school children.

A stepwise linear regression analysis conducted on data for adults 15+ accounted for 41.4% of variations in  $\Delta$ SDS ( $R^2 = 0.416$ ; Adjusted  $R^2 = 0.414$ ; Table 8). Most of the significant covariates for children were also significant for adults 15+, except TV ownership and cable access. In addition, male adults 15+ advanced their reading marginally more than female adults 15+. Awareness of the subtitles was important for improvement among adults 15+, suggesting that it may help to inform weak readers more directly about the importance of SLS for the improvement of reading skills. On TV itself, our SLS intervention made no overt connection to

## SAME LANGUAGE SUBTITLING OF BOLLYWOOD FILM SONGS ON TV

Table 8. Ages 15+: Summary of Stepwise Regression Analysis for Variables, Listed in the Order of Explanatory Power. Dependent Variable:  $\Delta$ SDS.

	$\beta$	t	$\Delta R^2$
(Constant)		-8.567	
1 SDS (baseline)	-1.119***	-39.005	0.142***
2 Assessed to be illiterate or semi-literate at baseline, based on ability to read simple story?	0.771***	25.114	0.219***
3 Aware of subtitles on TV programs, reported at endline	0.134***	6.900	0.033***
4 Father's literacy	0.078***	3.756	0.009***
5 SLS exposure ( <i>Rangoli</i> )	0.074***	3.880	0.003***
6 Sex	-0.061***	-3.762	0.003***
7 Age	-0.044**	-2.632	0.002***
8 Newspaper reading regularity at baseline	0.060**	3.089	0.002***
9 Grade completed	0.048**	2.703	0.002***
10 Has cable connection	0.024 NS	1.527	NS
11 Owns TV	0.027 NS	1.705	NS
12 Mother's literacy	0.014 NS	0.677	NS
13 Owns land	0.018 NS	1.121	NS
14 Has electricity	-0.016 NS	-1.031	NS

$n = 3,948$ . \* $p \leq 0.05$ ; \*\* $p \leq 0.01$ ; \*\*\* $p \leq 0.001$ ; NS = Not significant.

literacy—it was simply added. Newspaper reading regularity had a positive correlation with reading. As with school children, father's literacy was significant, but not mother's literacy; land ownership and access to electricity were not significant.

For several other measures of improvement, SLS exposure through *Rangoli* was significant, even after controlling for a number of covariates (Table 9). They included  $\Delta$ SDS,  $\Delta$ VOW,  $\Delta$ SIMWORD,  $\Delta$ COMWORD,  $\Delta$ NEWSFREQ,  $\Delta$ WRINAME,  $\Delta$ WRIWORDS,  $\Delta$ WRIDICT, and  $\Delta$ BUS. Improvement measures for which SLS on *Rangoli* was not significant were  $\Delta$ WRIADDR,  $\Delta$ NEWSPAPR,  $\Delta$ RLTR, and  $\Delta$ WLTR. Unlike for children, in the case of adults, SLS exposure cannot be said to impact ability to write one's address and self-perception of these functional abilities: read a newspaper, read a letter, write a letter. Self-perception to read the bus board was, however, impacted positively. Our regression analyses found, not surprisingly, that children have a greater ability than adults 15+ to take advantage of SLS to advance their reading. However, SLS also had a positive impact on adults' literacy skills.

## Conclusion

Perhaps the most important conclusion of our study is that regular exposure to SLS on Bollywood film songs invites automatic and inescapable reading engagement among functionally illiterate children and adults 15+. Regular reading engagement via SLS over five years—and that not more than one hour a week—more than doubled the number of functional readers produced otherwise by the low quality of primary education. Where schools are failing to get nearly 45% to decode a single letter after five years of schooling, the SLS complement at home brought this shocking figure down to 13%. Reading along with film songs not only reinforces reading skills, it leads to substantially more newspaper reading among children and adults 15+ as they transition gradually to functional reading ability.

The mounting evidence of the positive effects of SLS on reading, writing, and self-perception of one's skills suggests that song-based content on TV in India could carry SLS. On existing programs, the cost of adding SLS is practically nothing, especially considering that a popular program in India can reach tens of millions of viewers in most major languages. US\$1 can provide 30 minutes of weekly reading practice to 1,000–5,000 viewers annually.

Table 9. Adults 15+: SLS Impact on Functional Literacy Outcomes, Summary of Regression Analyses.

Dependent Variable: Improvement from Baseline to Endline	SLS Exposure ( <i>Rangoli</i> )		Adjusted R <sup>2</sup>
	$\beta$	t	
<b>Reading</b>			
$\Delta$ VOW	0.038*	1.919	0.377
$\Delta$ SIMWORD	0.060**	3.106	0.399
$\Delta$ COMWORD	0.061***	3.240	0.438
$\Delta$ NEWSFREQ	0.147***	7.495	0.383
<b>Writing</b>			
$\Delta$ WRINAME	0.049**	2.709	0.482
$\Delta$ WRIWORDS	0.045*	2.330	0.406
$\Delta$ WRIADDR	0.018 NS	0.986	0.457
$\Delta$ WRIDICT	0.051*	2.785	0.461
<b>Self-perception of common functional abilities</b>			
$\Delta$ BUS	0.043*	2.134	0.351
$\Delta$ NEWSPAPR	-0.028 NS	-1.416	0.365
$\Delta$ RLTR	0.033 NS	1.661	0.369
$\Delta$ WLTR	0.030 NS	1.558	0.403

$N = 3,948$ . \* $p \leq 0.05$ ; \*\* $p \leq 0.01$ ; \*\*\* $p \leq 0.001$ ; NS = Not significant.

At such a low cost, scaling up SLS nationally would appear to be a good idea. It cannot hurt unless the viewing experience is compromised. On the contrary, we found that viewership experience is enhanced. In our sample, 95% expressed a preference for SLS on *Rangoli*. Viewership ratings of the song-based programs we have been subtitled in the SLS project (not only *Rangoli*) have generally gone up by around 15%.

On a cautionary note, it has been suggested to us at times that the use of Bollywood lyrics may be inappropriate in education. Our recommendation is not to introduce Bollywood songs into formal education contexts but rather introduce reading into an entertainment space such as TV. The slight increase in ratings implies that SLS may also encourage more viewing of Bollywood songs and greater attention to the lyrics. No doubt, Bollywood has its share of songs that may cause discomfort, but the preponderance, in our view, is within the range of familial acceptability. That is why they are shown and mostly accepted by families on TV. Nevertheless, it may be advisable with selected songs to err on the side of caution and not subtitle songs that might be offensive.

SLS is best viewed as a complement and supplement to schooling and other literacy programs of the government, civil society, and the private sector. Whatever emergent decoding skills a child or adult might pick up in a formal or nonformal setting are regularly practiced immediately and daily at home. No change of behavior or additional motivation is required for engaging in reading practice. It just happens. With India's current 740 million TV viewers, SLS may offer a solution that has the potential to deliver reading practice at home to a billion people in India, and many more in other countries that share the twin condition of low literacy and a passion for songs. ■

**Brij Kothari**, Adjunct Professor, Indian Institute of Management, Ahmedabad (IIMA). [brij@iimahd.ernet.in](mailto:brij@iimahd.ernet.in)

**Tathagata Bandyopadhyay**, Professor, Indian Institute of Management, Ahmedabad (IIMA). [tathagata@iimahd.ernet.in](mailto:tathagata@iimahd.ernet.in)

## **References**

- Ahmed, M. (2011). Defining and measuring literacy: Facing the reality. *International Review of Education*, 57(1), 179–195.
- ASER Centre. (2013). Annual Status of Education Report (Rural) 2012. New Delhi, India: Author. Retrieved from <http://www.asercentre.org>
- Banerji, R., & Mukherjee, A. N. (2008). Achieving universal elementary education in India: Future strategies for ensuring access, quality and finance. *Margin—The Journal of Applied Economic Research*, 2(2), 213–228.
- Beentjes, J. W. J., & Van der Voort, T. H. A. (1988). Television's impact on children's reading skills: A review of research. *Reading Research Quarterly*, 23(4), 389–413.
- d'Ydewalle, G., & Gielen, I. (1992). Attention allocation with overlapping sound, image, and text. In K. Rayner (Ed.), *Eye movements and visual cognition: Scene perception and reading* (pp. 414–427). New York, NY: Springer-Verlag.
- d'Ydewalle, G., Praet, C., Verfaillie, K., & Van Rensbergen, J. (1991). Watching subtitled television—Automatic reading behavior. *Communication Research*, 18(5), 650–666.
- Dyer, C. (2008). Early years literacy in Indian urban schools: Structural, social and pedagogical issues. *Language and Education*, 22(5), 237–253.
- FICCI-KPMG. (2012). Digital dawn: The metamorphosis begins. Indian media and entertainment industry report. Retrieved from [www.in.kpmg.com/securedata/ficci/Reports/FICCI-KPMG\\_Report\\_2012.pdf](http://www.in.kpmg.com/securedata/ficci/Reports/FICCI-KPMG_Report_2012.pdf)
- Ghosh, S. (2014). The silent exclusion of first generation learners from educational scenario—A profile from Pancha block of Purulia District, West Bengal. *International Journal of Development Research*, 4(3), 804–811.
- Govinda, R., & Bandyopadhyay, M. (2008). Access to elementary education in India: Country analytical review. New Delhi, India: Consortium for Research on Educational Access, Transitions and Equity (CREATE) and National University of Educational Planning and Administration (NUEPA).
- Hines, S. J. (2010). Name that word: Using song lyrics to improve the decoding skills of adolescents with learning disabilities. *Teaching Exceptional Children*, 43(1), 16–21.
- Koolstra, C. M., & Beentjes, J. W. J. (1999). Children's vocabulary acquisition in a foreign language through watching subtitled television programs at home. *Educational Technology Research & Development*, 47(1), 51–60.
- Kothari, B. (1998). Film songs as continuing education: Same language subtitling for literacy. *Economic and Political Weekly*, 33(39), 2507–2510.
- Kothari, B., & Bandyopadhyay, T. (2010). Can India's "literate" read? *International Review of Education*, 56, 705–728.
- Kothari, B., Pandey, A., & Chudgar, A. (2004). Reading out of the "idiot box": Same-language subtitling on television in India. *Information Technologies & International Development*, 2(1), 23–44.
- Kothari, B., Takeda, J., Joshi, A., & Pandey, A. (2002). Same language subtitling: A butterfly for literacy? *International Journal of Lifelong Education*, 21(1), 55–66.

- Linebarger, D. L. (2001). Learning to read from television: The effects of using captions and narration. *Journal of Educational Psychology, 93*(2), 288–298.
- Linebarger, D. L., Kosanic, A. Z., Charles, R., Greenwood, C. R., & Nii Sai Doku, N. S. (2004). Effects of viewing the television program *Between the Lions* on the emergent literacy skills of young children. *Journal of Educational Psychology, 96*(2), 297–308.
- Linebarger, D. L., Piotrowski, J. T., & Greenwood, C. R. (2010). On-screen print: The role of captions as a supplemental literacy tool. *Journal of Research in Reading, 33*(2), 148–167.
- Luebke, P. T. (1966). Toward a definition of literacy. *Community Development Journal, 1*, 33–37.
- Markham, P. L. (1989). The effects of captioned television videotapes on the listening comprehension of beginning, intermediate, and advanced ESL students. *Educational Technology, 29*(10), 38–41.
- National Readership Survey Council. (2006). *National Readership Survey*. Retrieved from <http://www.yourarticlelibrary.com/media/calculating-readership-figure-of-media-in-india/22473>
- Neuman, S. B., & Koskinen, P. (1992). Captioned television as comprehensible input: Effects of incidental word learning from context. *Reading Research Quarterly, 27*(1), 94–106.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54–67.
- Uchikoshi, Y. (2006). Early reading in bilingual kindergartners: Can educational television help? *Scientific Studies of Reading, 10*(1), 89–120.
- United Nations Educational, Scientific and Cultural Organization (UNESCO). (2006). *Education for all: Literacy for life*. Retrieved from [www.uis.unesco.org/Library/Documents/gmr06-en.pdf](http://www.uis.unesco.org/Library/Documents/gmr06-en.pdf)
- United Nations Educational, Scientific and Cultural Organization (UNESCO) Expert Meeting. (2003). *Literacy and lifelong learning*. Retrieved from [www.unescobkk.org/education/literacy-and-lifelong-learning/literacy](http://www.unescobkk.org/education/literacy-and-lifelong-learning/literacy)
- Vagh, S. B. (2009). *Learning at home and at school: A longitudinal study of Hindi language and emergent literacy skills of young children from low-income families in India* (Ph.D. dissertation). Harvard University, Cambridge, MA.
- Vanderplank, R. (1990). Paying attention to the words: Practical and theoretical problems in watching television programmes with uni-lingual (Ceefax) sub-titles. *System, 18*(2), 221–234.
- Walter, P. (1999). Defining literacy and its consequences in the developing world. *International Journal of Lifelong Education, 18*(1), 31–48.
- Wigfield, A., & Guthrie, J. T. (1997). Relations of children's motivation for reading to the amount and breadth of their reading. *Journal of Educational Psychology, 89*(3), 420–432.

