OXFORD

Journal of Deaf Studies and Deaf Education, 2026, 1–9
https://doi.org/10.1093/jdsade/enag004
Policy Brief

Avoiding unintended consequences: science of reading policies may harm deaf children

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Abstract

Many U.S. policies inspired by the Science of Reading rest on two assumptions: (1) skilled reading *always* involves automatic mapping between written words and speech sounds, and (2) *all* children benefit from systematic instruction of phonological awareness and phonics. These assumptions are not wholly accurate, that they do not consider scientific evidence from deaf readers, and that policies based on these assumptions may be harmful to deaf children. First, skilled reading does not always rely on phonology. Evidence shows that deaf readers can read effectively without using spoken language phonology and that phonological processing can be unrelated to reading skill in this group. Second, a fundamental issue in deaf education is prioritizing speech and hearing over language development, academics, cognition, and socio-emotional well-being. This unhealthy imbalance persists despite the mounting evidence that we cannot ensure deaf children acquire spoken language. Policies mandating speech-based reading instruction for all children overlook how deaf readers develop literacy, and reinforce the overemphasis on speech, which creates the conditions for language deprivation. We caution against a one-size-fits-all approach to reading instruction and emphasize the need for differentiated instruction that respects the diverse ways beginning readers, including deaf learners, acquire literacy.

Across the United States, the *Science of Reading* movement has ushered in a wave of policies blanket-mandating phonics-focused instruction, which entails the use of spoken language, in teaching all children to read. These policies threaten to exacerbate significant harm that has been done to deaf individuals in the name of assimilation into the hearing world, often at the expense of their socio-emotional wellbeing, cognitive development, and academic growth (Bower et al., 2023; Hecht, 2020;

Received: March 29, 2025. **Revised:** December 23, 2025. **Accepted:** January 5, 2026

Humphries et al., 2012). Although promoted as scientifically grounded, such mandates ignore a substantial body of scientific evidence about literacy among deaf people. To preview our conclusions: in order to reduce and prevent ongoing harm, educators must have a nuanced understanding of reading and its multiple underlying skills along with the professional agency and resources to differentiate instruction for a diverse range of readers.

Although the scientific literature on reading development is vast and growing, a movement known as the *Science of Reading* has crystallized around a particular subset of this research that concerns the role of spoken phonology in reading development. Proponents of the movement argue that educators have long overlooked decades of cognitive science research pointing to what they claim to be a universal approach for reading acquisition. They contend that "the research has been clear: Teaching young kids how to crack the code—teaching systematic phonics—is the most reliable way to make sure that they learn how to read words" (Schwartz & Sparks, 2019; *Education Week*). The award-winning podcast *Sold a Story* by journalist Emily Hanford (2022) brought the Science of Reading to the center of public discourse. In it, she critiqued what she sees as a widespread but erroneous belief in education: that children do not need to sound out words to become skilled readers. Hanford argues that this idea is inconsistent with scientific findings and asserts that, while some children may by chance learn to decode words without direct instruction, phonics instruction should not be left to chance. According to her, all children "must be explicitly taught how to connect sounds with letters — phonics."

The five pillars of the Science of Reading—Phonics, Phonemic Awareness, Fluency, Vocabulary, and Comprehension (National Reading Panel, 2004)—constitute a codifiable task list for reading instruction for schools or governments to adopt, especially when attempting to demonstrate a commitment to research-backed reading instruction (Gabriel et al., 2025). Thus, local policies and state laws have presupposed that explicit instruction connecting phonology to print should be mandatory. As of 2023, 39 states had passed a total of 707 bills focused on phonemic awareness, phonological awareness, and phonics in reading instruction (Neuman et al., 2023). For example, Ohio House Bill 33 (2023) states that "all students benefit from explicit and systematic instruction in phonemic awareness, phonics." In this paper, we outline a body of empirical evidence from deaf people that demonstrates there are exceptions to this rule—skilled readers do not have to sound out words—and we argue that enacting reading instruction via spoken phonology with all deaf children is likely to harm them.

As a group of cognitive scientists, neuroscientists, reading specialists, educators, education researchers, school administrators, psychologists, and linguists, we are concerned about how the Science of Reading is being enacted in policy. We want to be clear about two things from the outset:

1) We enthusiastically embrace research about reading and reading education. We find, however, that recent policies have been informed by only a narrow subset of the literature and ignore the many scientific studies that show evidence that access to sound is not necessary to learn to read.
2) We take no stance on the effectiveness of methods based on Science of Reading—or any other specific approach to reading instruction—for some learners. Rather we advocate against a one-fits-all approach to reading education, particularly one that enforces phonics for all deaf children.

Our basic premise is this: while some deaf people may learn to read by making connections between print and spoken phonology[1], other deaf readers do not. Many deaf people, including some authors of this paper, use a sign language as their primary language and have never used a spoken language, yet are highly skilled readers. Ultimately, we are concerned that research about a specific set of readers—namely, hearing monolingual learners—is driving policies that prescribe a spoken English[2] phonology-only approach to reading instruction for *all* children. We argue that one-sizefits-all policies are harmful especially for many deaf children, a population historically and currently vulnerable to misinformed and misapplied education approaches. This claim has been echoed in the past by multiple educational scholars concerning multilingual students (De La Luz Reyes, 2010; del Carmen Salazar, 2013), and specifically deaf students[3] (Gabriel et al., 2025; Moores, 2013).

In what follows, we briefly outline how the history of indiscriminate practice of teaching deaf children to hear and speak has damaged generations of deaf and hard of hearing children. We then review a robust body of evidence that a phonological route to reading is not necessary for deaf people to become skilled readers. Finally, we explain why it is problematic to borrow a scope and sequence for reading instruction that was made for hearing children and apply it, in whole or in part, to deaf children.

A Brief History of the Role of Language, Speech, and Harm in Deaf Communities

One of the most pressing issues in deaf education is delayed or limited access to any language during early childhood, a phenomenon known as language deprivation, which has been described as a public health crisis (Hall et al., 2019; Hall et al., 2023; Hall & Hecht, 2024). Even with recent advances in hearing technology, the most modern devices and therapies do not guarantee deaf and hard of hearing children sufficient access to spoken language to support foundational language development (Campbell & Bergelson, 2022; Ching & Leigh, 2020; Culbertson et al., 2022; Dettman et al., 2021; Geers et al., 2017; Wie et al., 2020). By contrast, early exposure to sign language enables deaf children to acquire essential language skills that underlie cognitive and emotional development (Coppola & Walker, 2025; Lillo-Martin & Henner, 2021). Yet families are often discouraged from introducing sign language (Geers et al., 2017; Knoors & Marschark, 2012; Madell, 2015). The consequences of language deprivation are serious and are often lasting, impacting not only language proficiency but also broader developmental domains that rely on early language access (Courtin, 2000; Goodwin et al., 2022; Langdon et al., 2023; Mayberry et al., 2023; Pyers et al., 2010; Pyers & Senghas, 2009; Santos & Cordes, 2022).

One of the driving factors behind language deprivation is that children are primarily, or exclusively, exposed to spoken language despite the risk that it may not be accessible, and denied an opportunity to learn sign language which is fully accessible to them. To be clear, the issue is not whether deaf children should learn to speak, but rather about the fact that speech and hearing are often prioritized at the expense of sign language, despite the inherent risks of this approach. This imbalance reflects a social system that values learning based on hearing values and norms, an expectation rooted in ableism and audism (Henner & Robinson, 2021). When academic instruction is delivered solely through spoken language, it often leads to predictably poor outcomes in reading, writing, and mathematics (Clark et al., 2016; Hoffmeister et al., 2022; Taylor, 2016). The hyper-focus on speech during periods when deaf children lack effective communication not

only risks cognitive and academic harm but can also cause profound trauma, with long-term negative health consequences (e.g., Gulati, 2018; Hall, 2017; Hall et al., 2023; Kushalnagar et al., 2018, 2020). This harm is so widespread in the deaf community that it is a recurring theme in Deaf literature (Christie & Wilkins, 2007).

A Phonological Route to Reading Is Not Required for Skilled Deaf Readers

A central tenet of reading instruction frameworks is that spoken phonological awareness is foundational to skilled reading (e.g., Ehri et al., 2001; Suggate, 2014; Verhoeven et al., 2022). This assumption underlies many mainstream approaches to literacy, including those promoted by the Science of Reading movement. Some people have posited that deaf children learn to read just like hearing children, albeit on a delayed timescale (e.g., the Qualitative Similarity Hypothesis; Paul & Lee, 2010). However, as we review in the following section, psycholinguistic, behavioral, and neuroimaging research about deaf children challenges this assumption. While some deaf individuals may engage phonological processes while reading, a sizable body of research shows that deaf people can achieve reading fluency without relying on spoken phonological representations (see Emmorey & Lee, 2021, for a review). These findings indicate that alternative cognitive routes exist to support reading development. In this section, we review evidence demonstrating that spoken phonological awareness is neither a consistent predictor of reading ability in deaf populations nor a universal prerequisite for skilled reading. These findings call into question phonics-dominant instructional models and underscore the need for accessible, language-rich learning environments that reflect the diverse pathways to literacy available to deaf children.

Across several languages, studies have shown deaf children and adults can be skilled readers even if they show low phonological processing scores (Clark et al., 2016; Emmorey et al., 2013; Kargin et al., 2012; Koo et al., 2008; Miller, 2006, 2013). Reviews of studies have shown that spoken phonological processing and reading ability are not highly correlated among deaf readers (Mayberry et al., 2011; Sehyr & Emmorey, 2022). Phonological processing abilities also do not differ between skilled versus less-skilled deaf readers, and this is true across languages regardless of their orthographic transparency (Miller et al., 2012). Several studies show no association between phonological or phonemic awareness and reading ability in deaf children and adults (Izzo, 2002; Miller, 2010). A review of research on deaf children's word reading found similar results: deaf children who showed very low phonemic awareness scores nevertheless had reading skills that were comparable to those of hearing children (Miller & Clark, 2011). Furthermore, a recent large-scale study found that phonological awareness does not predict reading comprehension for deaf adults when controlling for other variables such as spelling ability and vocabulary size (Sehyr & Emmorey, 2022). In fact, in a meta-analysis of studies evaluating the relationship between phonological coding and reading ability in deaf individuals, phonological coding ability explained only 11% of the variance in reading ability (Mayberry et al., 2011). For deaf readers, the architecture of the reading system may rely less on phonological representations and use orthographic (spelling or fingerspelling[4]) and semantic representations instead. These studies challenge the core assumption of the Science of Reading movement that spoken phonology is a necessary component of learning to read.

A large number of psycholinguistic studies of skilled deaf readers, often focused specifically on those who primarily use a sign language and read an alphabetic language, have shown that phonological knowledge of spoken languages plays little to no role in reading comprehension (Clark et al., 2011; Miller & Clark, 2011). For example, the presence of pseudohomophones (e.g., 'bloo' is a non-word that would be pronounced the same as the real word 'blue') affects the performance of hearing readers across different reading tasks, but deaf readers are unaffected, suggesting that deaf readers do not necessarily access phonology during reading (Cripps et al., 2005; Fariña et al., 2017; see also Rowley et al., 2025). Hearing readers are faster at reading a target word if it is preceded by a phonologically related word, but this is not true for skilled deaf readers (Bélanger et al., 2012; Bélanger et al., 2013). Similarly, while deaf and hearing writers make a similar number of spelling errors, the kinds of errors they make are different: hearing writers typically use phonologically plausible spellings, while deaf writers often spell words with combinations of letters that do not match the pronunciation of the word (e.g., a hearing student spelled 'secret' as 'secrete' while a deaf student wrote 'secert'), suggesting that spoken phonology is not a required component in deaf students' writing (Allman, 2002; Hanson et al., 1983; Olson & Caramazza, 2004; Sehyr et al., 2019). Taken together, these psycholinguistic studies suggest that phonological knowledge does not consistently play a central role in reading among skilled deaf readers.

Neuroimaging studies provide an under-the-hood perspective that illustrates how the neural underpinnings of reading for deaf readers may differ from hearing readers. Using electroencephalography to observe neural activity, Costello et al. (2021) found that unlike hearing readers, skilled deaf readers do not activate phonological representations of spoken words during reading. Functional Magnetic Resonance Imaging (fMRI) studies show that although skilled deaf readers show phonologically-related activation in the temporoparietal cortex during word reading, this area is not as selective for phonology as it is in hearing readers, which suggests that deaf people do not need a finely-tuned phonological system to become skilled readers (Glezer et al., 2018, 2025). Unsurprisingly, children who do not hear speech have low phonological decoding scores[5], but this does not manifest in physical differences via neural activation in the visual word form area (VWFA), a key region in the reading circuit (Emmorey et al., 2013; Wang et al., 2015). Thus, for deaf readers, activation in the VWFA does not depend on phonological awareness or decoding skills. Interestingly, neural activity for deaf and hearing readers did not differ when reading for meaning, but differences emerged when the task focused on phonology (deciding if a written word had two syllables or not), suggesting that deaf readers do not spontaneously activate phonological representations during reading. Indeed, neural activity during a phonology-focused task does not correlate with reading skill in deaf readers (Emmorey et al., 2016). Skilled deaf readers may instead approach reading differently: when deaf people read English, their brain activation looks more similar to that of people reading logographic scripts (i.e., writing systems like Chinese characters, where the symbols represent whole words rather than phonemes), suggesting that skilled deaf readers use a fundamentally different process to read words than typically seen in hearing readers of alphabetic systems (Corina et al., 2013). Altogether, these studies illustrate that at least some skilled deaf readers do not use a phonological route to reading.

While some deaf readers may access phonology while reading (e.g., Gutierrez-Sigut et al., 2017), research consistently shows that spoken phonological awareness alone is not a strong predictor of reading ability in deaf individuals. Instead, a study of 50 deaf

readers showed that signed phonological awareness, or awareness of constituent sign parts, was highly correlated with reading comprehension (MacQuarrie & Abbott, 2013), not spoken phonological awareness. The authors proposed that phonological awareness of sign language provides a functional, representational base for the segmentation and pattern recognition of written English as phonics does (MacQuarrie & Parrila, 2014). Another possibility is that, simply by preventing language deprivation, learning sign language offers a foundation on which reading skills can be built. It has been shown that greater overall language proficiency, regardless of modality, is a more significant predictor of reading success (Mayberry et al., 2011; Sehyr & Emmorey, 2022). Under this interpretation, low reading scores among deaf children may arise not because they do not have access to spoken phonology, but because they often lack early language access.

Emerging data from eye-tracking studies of reading support this hypothesis. Deaf adults who are early signers are more efficient readers than skill-matched hearing readers, that is, they read faster, skip more words, and re-read (regress) less, without loss of comprehension (Bélanger et al., 2012; Cooley et al., 2025; Schotter et al., 2024; Sinclair et al., 2025; Stringer et al., 2024; Traxler et al., 2021). These efficient reading behaviors have not been observed in deaf adolescents who have not learned a sign language (Blythe et al., 2018; Gómez-Merino et al., 2022). The source of reading efficiency in deaf signers is under investigation, but recent evidence suggests a potential role for sign language experience in shaping visual attention during reading (Emmorey et al., 2025).

One criticism of this body of literature could be that these studies do not include an experiment testing the efficacy of spoken-phonology-based reading interventions on deaf and hard-of-hearing children. Our response to readers who share this concern is twofold. A formal experiment testing an intervention is warranted when the available evidence gives reason to believe the intervention will be effective, and when allowing the intervention to run its course is unlikely to do harm. Neither is true in the case of phonics-based reading instruction for deaf and hard-of-hearing children. As we outlined above, the majority of deaf children do not successfully use spoken language, and skilled reading does not entail spoken phonology knowledge. Thus, it is unclear that an intervention focused on spoken phonology would be effective. Furthermore, there is already a harmful overemphasis on spoken language, and an intervention that inflates this focus could cause additional harm to deaf students.

In this section, we illustrated what is possible, not what is typical, for deaf readers. In practice, the majority of deaf students face educational environments that do not support their needs nor help them achieve their full potential, and as a result, they often have low reading scores (Finton et al., 2024; Mayer & Trezek, 2018; Qi & Mitchell, 2012; Wolbers et al., 2025). Nevertheless, understanding what reading looks like among skilled deaf readers is instructive. The fact that some skilled deaf readers develop strong literacy skills without relying on spoken phonology demonstrates that reading can be achieved through alternative pathways (Andrews et al., 2016). Ignoring this science, and mandating phonics-based instruction when it is not necessary for deaf learners, may be unhelpful at best and may ultimately harm reading development in deaf learners.

Reframing Reading Instruction for Deaf Readers

Understanding how deaf readers succeed offers valuable insights not only for improving deaf education but also for broadening approaches to reading instruction for all learners. To support successful literacy development in deaf children, educational interventions must prioritize accessible language environments and robust language development, rather than narrowly focusing on phonics and spoken phonological awareness. The fact that deaf readers can read differently from hearing children means that reading instruction may also need to be different. The scope and sequence for teaching reading as listed in some state legislation (e.g., Connecticut General Assembly, 2021) assume that kindergarteners have some baseline fluency in spoken English and take logical steps building on that knowledge (e.g., learning about word sounds, how those sounds correspond to letters, how to rapidly decode letters and blend them together, etc., Gabriel et al., 2025). Deaf children, however, often come to kindergarten with a completely different set of skills and varying access to sounds and spoken phonology (Antia et al., 2020). In this section, we review some of the ways schools have tried to fit deaf children into a hearing-centric scope and sequence, and we argue that a scope and sequence should be specifically designed for deaf children that is tailored to their unique needs and strengths (Holcomb et al., 2024).

One current method of teaching deaf children to read is to teach them to speak like hearing children with the assumption that spoken language engenders reading. While some deaf children develop strong spoken language skills and could benefit from similar reading instruction as hearing children, even the best technologies and interventions are unsuccessful at supporting spoken language learning for many deaf children (see Pisoni et al., 2017 for a review). Children may be able to pronounce spoken words or have some knowledge of spoken language, but still not have a sufficient language foundation to become strong readers and writers (Holcomb et al., 2023a). Reading instruction that relies on spoken language proficiency will thus be ineffective for many deaf children. The risk of this approach is not limited to the possible wasted time and effort. An increased focus on teaching deaf children to speak often comes at a cost (e.g., less time spent in a fully accessible educational environment and cascading impacts on cognitive and socioemotional development; Hall, 2017), which, in our view, is unacceptable.

Educators may attempt to comply with Science of Reading policies by making superficial revisions to instructional practices designed for hearing children, but this approach is problematic, too. For example, a learning objective of teaching letter-sound correspondence has questionable value to a deaf child who uses sign language and does not use spoken language. A teacher who may realize the problem with the lesson might attempt to translate the words into ASL ("A is for apple, B is for ball..."). This lesson would be accessible in the sense that a signing deaf child could follow along, but it would not achieve the desired learning outcome of associating the beginning sound of each word with the corresponding letter, because the signs APPLE and BALL do not relate to the written letters A and B. Fingerspelling has been suggested as an easy workaround allowing educators to use off-the-shelf curricular materials designed for hearing children (Tucci, 2024). However, while mapping printed letters to manual letters is a useful skill for children to learn, it is unlikely to serve the same function as the soundletter relationship does for hearing children. Fingerspelling for literacy should be integrated into a broader curriculum that fully considers a deaf child's needs. Little research supports that such makeshift substitutes to these curricular materials designed for spoken English will be effective for deaf children in the way they are for hearing children. While one-to-one transcription such as fingerspelling may offer support, it is no replacement for

rigorous, evidence-based reading instruction tailored to deaf students.

Not only are superficial edits unhelpful, off-the-shelf curriculums for hearing children does not address components of literacy instruction that are crucial for deaf children. Importantly, signing deaf children who are learning to read in English are simultaneously learning written English as a second language. This means that literacy instruction for these children must be markedly different from hearing monolingual children, and must account for second language instruction. In this respect, deaf children are similar to hearing bilingual children, who also often exhibit purported 'delays' in language and literacy development (Holcomb & Lawyer, 2020). Instead of taking hearing-based reading instruction as a starting place, some states are working to develop guidance uniquely suited for deaf children (e.g., Minnesota Department of Education, 2025).

Rather than using any one reading approach, we advocate for flexible, responsive literacy instruction, because deaf children bring an extraordinarily diverse set of skills and experiences to the table (Wolbers et al., 2023). We encourage educators and researchers to consider three core questions: 1) what skills, knowledge, and experience does the child bring to the task, 2) what skills, knowledge, and experience do educators want children to gain, and 3) how can educators build a bridge between where children are and where educators want them to go?

For a deaf or hearing child who arrives at kindergarten with a clear and strong command of spoken English, the child can recruit knowledge of spoken English to make sense of the text by decoding print into a form they already understand. For these children, reading instruction strategies are designed to build on the explicit skills that they already have. However, we cannot assume that it will work for deaf children who do not use spoken English.

If a deaf child is fluent in a sign language like ASL but does not have auditory access to spoken English, the answers to these three core questions are quite different, demanding a different scope and sequence in reading instruction. This child brings a wealth of knowledge about how language works, and the goal of instruction is to learn a second language: written English (Howerton-Fox & Falk, 2019). In this case, decoding is not a central skill for reading and writing, as the child does not need to translate between the written code and spoken form of English, but rather they are learning English as a language directly through sign and print (Kuntze, 1998; Kuntze & Golos, 2021). As a result, the scope and sequence should be structured to help the child leverage their pre-existing language and communication skills to support their effort to simultaneously learn reading skills and written English as a second language. Using foundational sign language skills in a bilingual education setting can support literacy development (Hoffmeister et al., 2022; Hoffmeister et al., 2022; Holcomb, 2023; Kourbetis & Karipi, 2021; Lange et al., 2013; Singleton et al., 2006).

For children with language deprivation who are fluent in neither a spoken nor a sign language, the approach to building a bridge between children's pre-existing skills and desired learning outcomes will again differ. For these children, teachers must focus first and foremost on meeting the child's basic language and communication needs by immersing them in a language-rich environment (Holcomb et al., 2023b), which can then serve as the foundation for other aspects of learning and development, including reading.

Conclusion

In sum, we caution against one-size-fits-all policies that emphasize spoken phonology as the primary and sole route to reading acquisition. Such approaches are not only ineffective for many deaf children but may also actively cause harm. Our point is simple: rather than imposing a uniform model in the push for phonics-based instruction, educators must be equipped with the tools, training, and flexibility to meaningfully differentiate instruction. This includes the freedom to leverage children's existing language skills to guide pedagogical decisions that reflect the needs of the unique learners in their classrooms.

To prevent further harm, it is essential to recognize that deaf readers may follow different developmental trajectories to literacy than their hearing peers. Science of Reading frameworks that rigidly prioritize phonological decoding fail to account for these differences and risk compounding educational inequities. As a practical response, we urge policymakers and educators to:

- Refrain from making one-size-fits-all policies. Instead, support teacher-led differentiated instruction that adapts to the heterogeneous needs and strengths of deaf children (Bondie et al., 2019).
- Develop and enact differentiated reading instruction frameworks, grounded in empirical research that acknowledges multiple pathways to literacy and that includes deaf children (Wolbers et al., 2025).
- Where restrictive reading mandates exist, create exemptions that allow flexibility in both assessment and instruction for diverse readers including deaf learners, as differentiated instruction leads to positive literacy outcomes (Puzio et al., 2020).
- Revise teacher preparation programs to ensure that all deaf educators have comprehensive training in literacy instruction for deaf children, including the ability to communicate with and support students whose primary language is ASL.

These evidence-based recommendations are essential for promoting accessible and effective literacy education for deaf children. Assertions that all people must learn to read through sound are demonstrably false. In practice, "all" often refers only to the dominant majority of hearing, monolingual English speakers in the United States, which excludes deaf and bilingual children, among others. As multilingualism continues to grow in the U.S., such a narrow stance becomes increasingly outdated and unjust (e.g., Zhang-Wu, 2023). A failure to acknowledge potential alternative learning pathways for diverse students has lasting consequences for their well-being and sense of belonging in schools (Artiles, 2011, 2013; Du Bois, 1935; Hernández-Saca, 2017). Policies that claim to serve all children but are designed for only some not only hinder reading outcomes for deaf learners, they dehumanize students and uphold systems of ableism and audism. As Kimberlé Crenshaw (1998, p. 285) powerfully states, "Treating different things the same can generate as much inequality as treating the same things differently."

Endnotes

1. While both spoken and sign languages have phonologies that manifest differently due to the modality differences, the term 'phonology' used in the Science of Reading movement denotes only the spoken (English) phonology, or the sounds as used in phonics instruction. We use this narrow definition unless otherwise noted.

2. Our impression of the Science of Reading movement is that it largely centers on reading alphabetic languages and English in particular, so correspondingly, we focus our argument on this language context.
3. Our specialties and experiences focus on the language use and education of deaf and hard of hearing children. Other language communities have also been argued to not be well served by the Science of Reading approach, such as those with learning and reading disabilities (Share, 2021).
4. Fingerspelling refers to the process of using the manual alphabet to express written words.
5. We view these findings simply as a measure of auditory access. These scores only reflect a 'deficiency' or a 'problem' in a culturally-determined value system that privileges auditory access. As is our main message here, this is simply evidence that the strategies used by skilled deaf readers are different, not that they are deficient.

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Conflicts of interest

None declared.

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