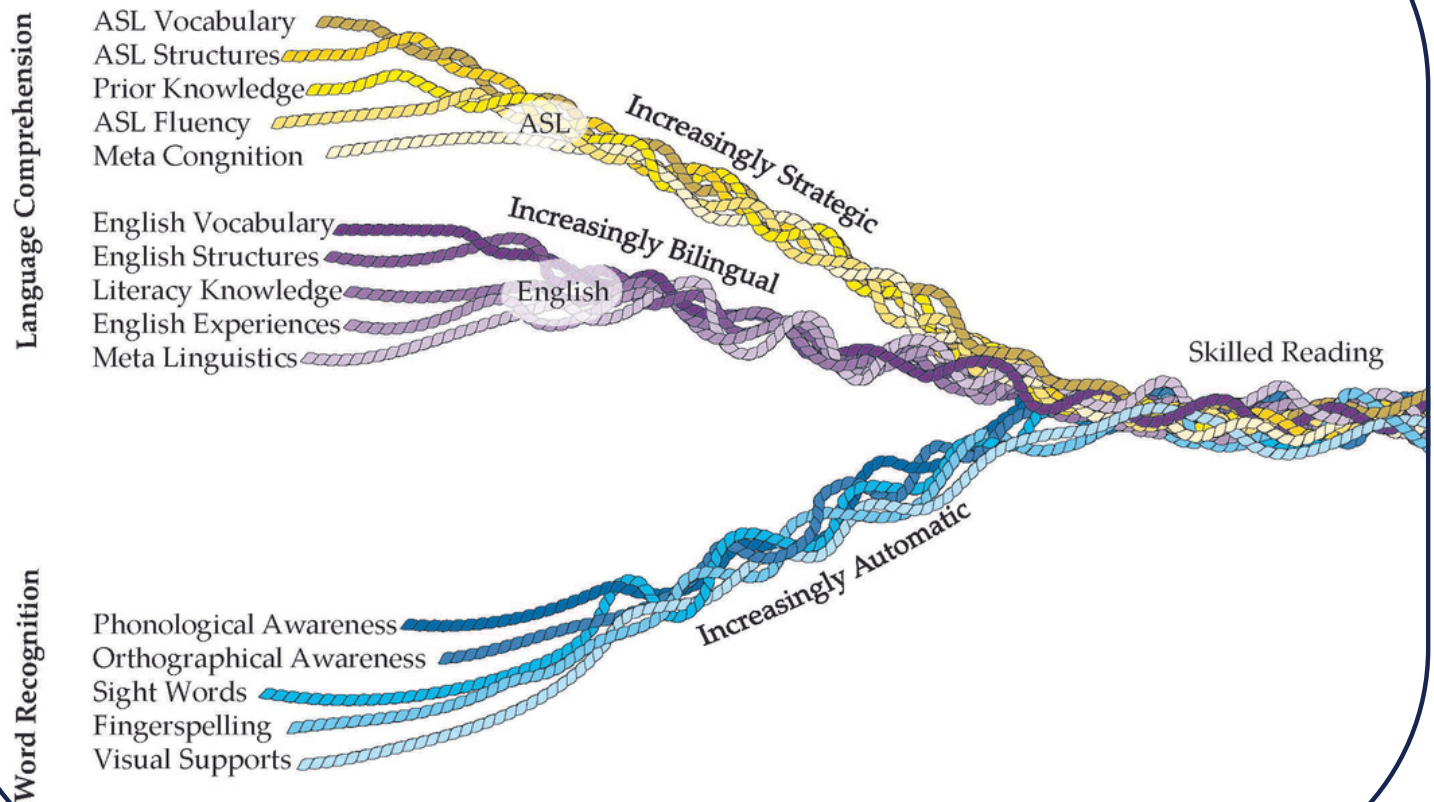


Deaf Reading Rope

Visualizing the Science of Reading for ASL/English

Deaf Reading Rope



Reading is an essential skill for success in the modern world in addition to providing access to a vast array of leisure activities. At its core, reading is a "simple" act - if you recognize words and have the language to comprehend those words, you are reading. This is called the Simple View of Reading (Hoover & Gough, 1990). Decades of research have shown these to be the pillars of skilled reading, however, we all know that reading is more complex and nuanced. To help explain this, Scarborough (2001) created a visual model of "strands" coming together to make word recognition and language comprehension to braid together into the "rope" of skilled reading. The research supporting each of these strands and the Simple View of Reading over multiple decades is called the Science of Reading.

For Deaf/Hard of Hearing persons that use ASL, there is even more complexity in the bilingual nature of their reading and the unique barrier of not having complete, if any, access to the spoken language (English) that underpins how English text is produced. Many decades of research have delved into how D/HH readers use their bilingualism in reading. This model looked at that research and focused on research from the emic perspective of skilled Deaf readers. *Continued...*

This model seeks to combine the research of the Science of Reading and Deaf reading using Scarborough's Reading Rope as a foundation. There are two areas in the model that follow the Simple View of Reading: **Language Comprehension** and **Word Recognition**. Under those areas are three braids: ASL & English under Language Comprehension and then Word Recognition as it's own braid. Each braid has strands that began in the Science of Reading and were shaped, refined, and added from the research into Deaf reading.

For the Language Comprehension braids, the goal is for students to become **increasingly strategic** in how they use their language skills as part of reading. Part of increasing strategies is that both the ASL and English braids intertwine with the goal for students to become **increasingly bilingual** in how they use both languages for reading. For the Word Recognition braid, the goal is for students to become **increasingly automatic** in their ability to recognize and understand both known and unknown words.

The first braid is **ASL Language Comprehension** and includes strands of: ASL Vocabulary, ASL Structures, Prior Knowledge, ASL Fluency, and Metacognition. The second braid is **English Language Comprehension** and includes strands of: English Vocabulary, English Structures, Literacy Knowledge, English Experiences, and Metalinguistics. The third braid is **Word Recognition** and includes strands of: Phonological Awareness, Orthographical Awareness, Sight Words, Fingerspelling, and Visual Supports.

Evidence-Based Effective Literacy Practices

John Hattie of the University of Melbourne, Australia, has spent his career studying what "works" in education, especially for literacy. His analysis of all the research showed that "almost everything we do improves learning" but there are activities and attitudes that create the **most** learning. We talk about educational practices by "effect sizes": a decimal number between -2 and +2. Negative means it causes students to not grow, 0 means no growth, and positive numbers mean growth. In education, one year's growth is typically an effect size of **0.4**. We want to remove any negative effect size practices and thoughtfully choose positive effect size practices, giving the best attention to the highest effect sizes. This chart has several practices we use or could use in teaching literacy.

Please follow the link below the chart for more information on evidence-based practices.

1.46	Teachers believing students can achieve	0.88	Micro-teaching & video reviews	0.57	Technology
1.29	Cognitive task analysis	0.84	Teacher Clarity	0.52	Teacher-student relationships
1.29	Reading interventions	0.82	Scaffolding	0.51	Clear learning intentions
0.93	Integrate prior knowledge	0.60	Meta-cognitive strategies	0.48	Questioning
0.90	Curiosity	0.58	Strategy monitoring	0.43	Exposure to reading

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ASL Strands

Language Comprehension

ASL Vocabulary

Having a strong vocabulary foundation is vital to both ASL fluency and to connecting English vocabulary. Vocabulary should be built within context and used across content areas to support generalization of signing. ASL vocabulary can take the form of signs, classifiers (depicting verbs), and fingerspelling. Sign studies, similar to "word studies", can be a valuable part of understanding how signs are constructed and how to use signs and parameters of ASL, especially non-manual signals. There does not need to be a one-to-one correspondence between ASL and English vocabulary, but cross-language understanding should be cultivated. Vocabulary should be taught semantically (in context) and morphographically (parts of signs - such as roots, parameter manipulation, directionality, compound signs, etc.)

Metacognition

Students need to be able to "think about their thinking" - having awareness of their own thinking processes and knowing what they are actually comprehending and where breakdowns are occurring. This can include visualizing what they are reading/signing. Metacognitive reading strategies can be applied prior to reading, during reading, and after reading to both monitor and increase comprehension. Four components of metacognition are: knowing *when* you comprehend, knowing *what* you comprehend, knowing what knowledge you *need* to acquire in order to comprehend, and knowing how to use *strategies* to improve comprehension. Metacognition should be part of instruction in all subjects.

ASL Structures

Understanding the grammatical and semantical structures of ASL is important to the academic use of ASL, such as for reading. Being able to use the structures of ASL leads to communicating clear meaning with fluency and the structures can be used to help understand English structures. Basic, fundamental structures of ASL can include "time-topic-comment" that uses clear subject-predicate relationships within the sentence systems of ASL linguistics.

Prior Knowledge

Sharing information in ASL or English requires calling on the schema of background knowledge - building on prior knowledge and allowing students opportunities to explain, explore, and expand on their world knowledge in both formal school contexts and subjects as well as informal life and social contexts. Students need explicit instruction in how to activate their prior knowledge as part of reading and discussing text as well as how to expand on their knowledge through tools like dictionaries.

ASL Fluency

The ability to smoothly use vocabulary and structures to share meaning with another person provides a solid foundation for understanding reading. Being able to understand and express a complete sentence in ASL allows for understanding and expressing a complete sentence in ASL. Being able to understand and express a story with a beginning, middle, and end in ASL leads to the same in English. Beginning writing projects in ASL first allows for complete thoughts before working in a student's L2.

English Strands

Language Comprehension

English Vocabulary

English vocabulary provides a foundation for metalinguistic action between ASL and English as well as providing the building blocks for reading comprehension. Special attention should be paid to English vocabulary that has multiple meanings, is figurative in usage, is sound-based in usage, does not exist in ASL (such as articles or to-be verbs), or can be signed in different ways. There does not need to be a one-to-one correspondence between ASL and English vocabulary, but cross-language understanding should be cultivated. Vocabulary should be taught semantically (in context) and morphographically (parts of words - such as prefixes, suffixes, roots, word families, etc.).

Literacy Knowledge

It's not enough just to know words or word order, reading also requires an understanding of the purpose of the text. Students need to understand the purposes and styles of fiction versus nonfiction texts and the genres under each. Concepts of print are vital to understand the meaning of the text - how books physically function, chapters and sections, headings and titles, picture books versus text only books, and more. Included in literacy knowledge is how to understand if a book is currently too hard to read or if a book is not appealing to the reader - teachers can also help students understand when it makes sense to stop reading a text or how to apply strategies to come to enjoy this particular text.

English Structures

Understanding the foundations of English grammar and both the similarities and differences with ASL grammar is crucial to both reading and writing. Comparing ASL and English structures can help with metalinguistic awareness. Being able to use correct English structures allows for better communication when using English and for better comprehension of reading when able to understand how order, structure, and format in English text provides meaning.

English Experiences

Learning English requires time to experience and explore. Literacy practice should be incorporated in all subject areas across the entire school day in organic and meaningful ways. Students need to experience reading and writing in both group and individual approaches, fiction and nonfiction, educational materials and real books, for learning and for pleasure, short-form and long-form texts, as well as electronic and print texts. Students need to explore the entire gamut of "reading" to expand their world knowledge and generalize reading outside the ELA classroom.

Metalinguistics

An important metacognitive aspect of reading is metalinguistics - thinking about language and being aware of how language is being used. For students working in both English and ASL, it is important to be aware of the bilingual interactions of the languages and where breakdowns occur when moving between the languages. Students can apply translanguistic strategies to act bilingually to the benefit of L1 and L2. Metalinguistics allows for comparing and contrasting the languages to build better understanding of both and better usage of both languages by tapping into common underlying proficiency.

Decoding Strands

Word Decoding

Orthographical Awareness

English uses a variety of word pieces to create meaning: roots, prefixes, suffixes, plurals, etc. Helping students understand “word families” gives them access to a large array of words and the tools to make educated guesses as to meaning of unknown words. There are also patterns for types of words (such as nouns, verbs, adjectives, and adverbs) and understanding those patterns can support students in understanding how a word is being used within a sentence.

Fingerspelling

Fingerspelling is a bridge between English and ASL. Skilled fingerspelling can be a tool for working between both languages and teachers can leverage fingerspelling to explore both orthographic and phonemic patterns in English in a visually accessible manner. When students ask how to spell a word, teachers can use “chunking” to give spelling information in either phonetic, syllabic, or common pattern chunks to help students internalize English patterns.

Sight Words

For many ASL/English students, being able to know the meaning of a word as a whole unit rather than decoding a word each time provides the easiest fluency for English words. Sight word memorization is a vocabulary exercise and so attention should be paid to the phonological/orthographical awareness of the word and also the contextual understanding of the word.

Phonological Awareness

English is a spoken language and so printed English depends a great deal on the phonics of spoken English. Research has shown that students who understand how letters produce sounds and how those sounds combine are able to decode words more effectively. For students who do not access sound, they can still gain phonological awareness through visual representations of phonetic information, exposure to phonetic pieces through fingerspelling, and through studying the patterns of words.

Visual Supports

As users of visual language, students can take in more than just the words on a page to aid in comprehension - the style of font, margin sizes, headings, pictures, charts, colors, font styles, and more can all provide additional information to aid comprehension. When working with unknown words, students should be taught how to appropriately access dictionaries (sign language dictionaries being preferred), strategic internet searches for images and explanations, word or sign walls, and vocabulary notebooks, in addition to using word and visual context clues in the text.

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2023 Deaf Reading Rope model created by Deaf artist [Amanda Wolfe, @fruit_bat_creative](https://www.instagram.com/fruit_bat_creative)

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