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# Translanguaging Supports Reading with Deaf Adult Bilinguals: A Qualitative Approach

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## Abstract

Translanguaging is a pedagogical theory and an approach to teaching language. It conceptualizes the dynamic ways in which bilinguals use their linguistic repertoire and language practices in both languages for learning, meaning-making, reading, and writing. This study reports on the results of a qualitative study using Grounded Theory. The research question posed was, "what insights do bilingual Deaf readers provide regarding their metalinguistic processes and reading strategies used during translanguaging? To answer this question, responses were gathered from Deaf adults who were interviewed on their language and literacy histories. Further, they were queried about their reading comprehension practices using translanguaging. The researchers used videotaped interviews taken in American Sign Language (ASL) then glossed into English for analyses to examine how Deaf adults comprehended English expository texts. Based on the data analysis, the core category, "bridge to literacy" was revealed after identifying seven themes. Recommendations for future research using the translanguaging bilingual theory and practice are included.

## Keywords

translanguaging; Deaf; adults; bilinTranslanguaging, Deaf, Adults, Bilingual, Reading, Grounded Theory, Literacygual; reading; grounded theory, literacy

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# Translanguaging Supports Reading with Deaf Adult Bilinguals: A Qualitative Approach

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*Translanguaging is a pedagogical theory and an approach to teaching language. It conceptualizes the dynamic ways in which bilinguals use their linguistic repertoire and language practices in both languages for learning, meaning-making, reading, and writing. This study reports on the results of a qualitative study using Grounded Theory. The research question posed was, "what insights do bilingual Deaf readers provide regarding their metalinguistic processes and reading strategies used during translanguaging? To answer this question, responses were gathered from Deaf adults who were interviewed on their language and literacy histories. Further, they were queried about their reading comprehension practices using translanguaging. The researchers used videotaped interviews taken in American Sign Language (ASL) then glossed into English for analyses to examine how Deaf adults comprehended English expository texts. Based on the data analysis, the core category, "bridge to literacy" was revealed after identifying seven themes. Recommendations for future research using the translanguaging bilingual theory and practice are included. Keywords: Translanguaging, Deaf, Adults, Bilingual, Reading, Grounded Theory, Literacy*

Translanguaging is a pedagogical theory and language practice that conceptualizes the dynamic ways in which bilinguals use their linguistic repertoire and language practices for learning, meaning-making, reading, and writing (Celic & Seltzer, 2011; García, 2009; García & Wei, 2014). As a theory and an approach to language learning, it extends traditional definitions of bilingualism by referring to ways that bilinguals use the features of both their languages to mediate cognitive, social, and language activities, particularly reading. Translanguaging is a language practice used by both emerging and more developed bilinguals.

This study is important because it examines the ability of Deaf individuals to read print through active participation using American Sign Language (ASL) and Deaf culture in a "think-aloud" activity. In contrast, traditionally researchers have investigated reading and writing as a variable that is unrelated to the culture and experiences of Deaf individuals. Secondly, if we could enter the "minds" of skilled Deaf readers and ask them to reflect on their processes of comprehending English print and tell us about it, then we may obtain insights on how these cognitive, linguistic and metalinguistic processes occur. Such insights could be used to develop reading instructional techniques with young deaf children who are struggling readers. And thirdly, our study addresses the process of reading from a strength or "asset" perspective rather than a "deficit view." Typically, research in reading and deaf children has approached reading by looking at deaf children's deficits in phonological awareness, vocabulary, syntax, and comprehension of passages and texts (see reviews in Leigh & Andrews, 2017). This study departs from this deficit view and looks at the language and cultural strengths that Deaf adults bring to the reading process such as translanguaging, a strategy investigated in this study.

## Translanguaging: A Definition

Originally developed in Wales by Cen Williams (as cited in Baker, 2011; Williams, 2002), translanguaging was defined as a pedagogical theory where students alternate their languages for purposes of receptive and productive use. The translanguaging theory was utilized by teachers in high school to teach academic content using two languages--Welsh and English. According to Baker (2011), this theory and resulting applied strategies provide the learner with critical thinking skills, a deeper understanding of content, and knowledge of lexical and grammatical structures of the two languages used. The aim (Baker, 2011) is to develop cognitive academic language proficiency (CALP) in both languages. For instance, the students read a text in the majority language then discussed it with the teacher using their minority language. In other words, the important bilingual strategy is that the input is in one language and the output is in another language.

García (2009) as well as García and Wei (2014) posit that the translanguaging theory encompasses more than bilingual translation or codeswitching strategies. Instead, this theory provides a dynamic and fluid tool used by students who find themselves in bilingual or multilingual settings where they use their linguistic repertoires to make sense of conversations, lessons in school, or even in the reading or writing of texts. Translanguaging is considered *flexible bilingualism* that does not have clear boundaries and which places the speaker at the center of the interaction (García, 2009). For instance, it requires that the learner use cognitive, metacognitive and metalinguistic skills, background and world knowledge, prior experiences, as well as social and interactional skills. Culture is also included and Horejes (2012) characterizes it by using a portmanteau of words, "language" and "culture," to capture the essence; he terms it--*languaculture*. Using translanguaging practices, learners can display their receptive and productive skills in a presentation or lesson, as well as reading a text or writing a letter or essay (Canagarajah, 2011; García & Wei, 2014).

Canagarajah (2011) defines translanguaging, as the ability of multilingual speakers to *shuttle* between languages, treating the diverse languages that form their repertoire as an integrated system. Because translanguaging is still in its early development as a theory and practice, taxonomy of translanguaging strategies have not yet been fully described. Therefore, translanguaging studies of bilinguals and multilinguals only involve small data sets within classroom ethnography studies. For example, Canagarajah (2011) followed one Saudi Arabian multilingual student and documented his translanguaging strategies while developing writing skills using a dialogic pedagogy with his teacher and peers. Using multiple data forms such as essay drafts, journals, classroom assignments, peer reviews, stimulated recall, and member checking, the researcher found the use of four strategies; recontextualization strategies, voice strategies, interactional strategies, and textualization strategies. By reflecting on their strategy use and discussing them with teachers and peers, the student was able to develop metacognitive awareness.

Other studies by Creese and Blackledge (2010) discuss translanguaging from a sociolinguistic perspective. Translanguaging is viewed as a classroom ecological approach where the teacher creates interactive lessons with the languages not rigidly separated but used in a flexible and concurrent fashion. They focused on two case studies of students in the U.K; one school used Garanti (a language used in India) and English, and the other classroom used Mandarin Chinese and English. Using a classroom ethnographic approach, two children in each school were identified and audio-recorded during lessons. Stakeholders such as teachers, administrators, and other children and parents were also interviewed. Excerpts from both students showed that students were able to use both languages with the teacher providing support. The strategies used included bilingual label questions, repetition, and translation across the languages. Using both of their languages enabled the students to keep the

pedagogical task moving along, as well as provided them with more access to the curriculum. Given these studies, one can investigate if translanguaging is used by Deaf[1] Native American Sign Language (ASL) users and or by those who are highly literate. Below, we discuss Deaf readers and connect the bilingual strategy of translanguaging.

## Reading Studies with Deaf Readers

Translanguaging is an unexplored topic in reading and deaf education. In light of our failure to deliver increased reading achievement as the average deaf student continues to read at the third to fourth grade level (Allen, 1986; Marschark & Harris, 1996; Traxler, 2002), new reading strategies need to be explored that depart from standardized test comparisons and which venture into a new terrain using qualitative methods. While we do know that many Deaf adults become fluent readers, we do not fully understand their underlying cognitive, linguistic, and reading processes, nor the reading practices used during the act of reading (Mounty, Pucci, & Harmon, 2013). Much of the discussion on reading and Deaf persons has taken the tact of focusing on deficit models examining reading achievement test scores comparing deaf students to hearing monolingual students (Traxler, 2002). Other studies have examined the cognitive processes of young deaf readers at the word level on how they decode words using auditory phonology (Cupples et al., 2014; Easterbrooks & Trussell, 2015), signing (Allen, 2015; Allen, Letteri, Choi, & Dang, 2014), and fingerspelling (Allen et al., 2014; Allen, 2015; Stone, Kartheiser, Hauser, Petitto, & Allen, 2015). But these approaches have not shed light on how deaf readers derive meaning from whole texts.

In an attempt to better understand the reading process of deaf readers, some research has focused on translation, a cognitive skill frequently observed by Deaf teachers, as they teach a reading lesson to young deaf children (Andrews, Hamilton, Misener-Dunn, & Clark, 2016a; Andrews, Liu, Liu, Gentry, & Smith, 2016b; Bailes, 2001; Gallimore, 2000; Simms, Andrews, & Smith, 2005). This bilingual strategy of translation involves taking an English text and making a meaningful translation, either literal or free, by using expansions of concepts into ASL (Livingston, 1997). That is, deaf readers map ASL onto print or even use both ASL and English to map onto print (Hoffmeister & Caldwell-Harris, 2014). Clearly, the field is in need of alternative frameworks that take into account deaf students' learning of ASL and English that utilize their use of ASL and English to build English reading skills to better understand how to develop effective reading curricula for all deaf students along the bilingual continuum (Andrews et al., 2016a, 2016b).

In a move to provide this understanding, a Deaf epistemology was developed and applied to the teaching of English literacy (Brueggemann, 2004; Hauser, O'Hearn, McKee, Steider, & Thew, 2010; Holcomb, 2010; Humphries, 2004). This epistemology views Deaf people from a difference or cultural perspective rather than a deficit or medical perspective. When applying this Deaf epistemology, studies reveal the benefits of visual language for cognitive, social, and language growth. Related to literacy, results show that those with strong backgrounds in ASL tended to be better readers in ASL and that auditory phonology was not necessary to be a skilled reader (Freel, Clark, Anderson, Gilbert, Musyoka, & Hauser, 2011; Mayberry, Del Giudice, & Lieberman, 2011; Miller & Clark, 2011; Mounty et al., 2013; Thumann, 2006) or even a developing reader (Andrews et al., 2016a, 2016b; Herbold, 2008).

Using a Deaf epistemological perspective, ASL/English bilingual strategies have been recommended by many researchers to capitalize on understanding how Deaf adults learn to read (Andrews & Rusher, 2010; Harris, 2013; Humphries, 2016; Humphries, 2004; Strong &

[1] The term "deaf" is used to refer to have a hearing loss, which can extend along a continuum from mild to profound. Big "D" Deaf refers to a person who is a member of the Deaf community and who uses American Sign Language, as a primary language, with the use of English, as a second language (Leigh & Andrews, 2017).

Prinz, 1997; Visual Language and Visual Learning Science of Learning Center, 2012). Many of these bilingual techniques mirror indigenous bilingual techniques used by Deaf parents on how they use the two languages--ASL and English--to teach more English through conversations, signing, fingerspelling, reading, and writing to their young Deaf children (Andrews, Byrne, & Clark, 2015; Geeslin, 2007).

From a Deaf epistemology perspective, another area of discussion is that bilingual theories for hearing bilinguals do not always accurately apply within deaf education because Deaf parents use both ASL and English with their Deaf children, not just ASL (Humphries, 2016). Other tenets of bilingual theories also do not fit. For instance, one theory posits that the two languages have a Common Underlying Proficiency (CUP) (Cummins, 1979) and that a level of proficiency in the dominant language must be attained to reach a threshold of linguistic skill (Cummins, Baker, & Hornberger, 2001) to reap the cognitive and linguistic advantages of bilingualism (Baker, 2011). Proponents here claim that deaf children can make use of strengths in ASL to allow semantic and conceptual transfer of meaning between ASL and English vocabulary (Ausbrooks, Gentry, & Martin, 2014; Cummins, 2007). Detractors claim that because the two languages are structurally different and that ASL does not have a written form, it is impossible for strong ASL to facilitate learning English; rather a Signed English mediating system is required (Mayer & Akamatsu, 2010).

Humphries (2016) suggests a mismatch in these traditional bilingual perspectives that relates to the fact that Deaf bilinguals use both of their languages together, rather than separately. Therefore, deaf children from Deaf families have high levels of ASL and English proficiencies, and their parents help their children use both languages to bridge to English print in their ongoing language development. However, the majority of deaf children are from hearing families who do not use or have proficiency in ASL, nor do they have abilities to teach English reading and writing beyond simple labelling of furniture or objects in the home or simple note writing. The teaching reality most deaf children face is that they are learning both sign language and English through reading simultaneously and often by bypassing auditory phonological processing (Andrews et al., 2016a, 2016b; Freel et al., 2011; Mayberry, Del Giudice & Lieberman 2011; Miller & Clark, 2011). Indeed, for even the developing deaf bilingual learner, they must use their emergent ASL skills to build English and their English skills to build more ASL (Andrews & Mason, 1986; Andrews et al., 2016a; 2016b). As such, these deaf children from hearing families may have literacy learning trajectories similar to immigrant hearing children who are learning two languages simultaneously, but weakly. This dual language learner description may also include almost 50% of hearing children in the world who learn to read for the first time in a language other than their mother tongue (McBride, 2015). Therefore, translanguaging may be suited as an effective bilingual strategy for ASL/English bilinguals, especially developing bilinguals. Clearly, more research is warranted.

Based on these ideas, of translanguaging as a bilingual strategy (García, 2009; García & Wei, 2014), as well as the focus on creating a cognitive ecology that matches the skill set of the individual (Hutchins, 2010), translanguaging has the potential to establish a supportive learning environment. Swanwick (2015) uses this strategy to support the use of bimodalism, or both signed and spoken language, in the classroom. The use of bimodal strategies depends on the students' communication and language needs. In three case studies of deaf children in a mainstream classroom, she describes how teachers used translanguaging, as a strategy, to promote dialogic inquiry among deaf students. These conversations extended their opportunities for incidental learning in the classroom through peer conversations. Using Vygotsky's (1978) and Bruner's (1983) theories, Swanwick (2015) emphasizes the important role of the teacher and adult-child interaction in language learning. By not rigidly separating the languages (speech and sign), Swanwick (2015) claims that teachers are better able to improve the quantity and quality of classroom dialogues with the students. Translanguaging

acts not only as a scaffold for language learning but for content learning, as well as it helps bridge the gap from what they know and what they do not know (Swanwick, 2015).

In another study related to deaf readers and translanguaging, Ausbrooks and colleagues (2014) asked Deaf individuals to apply translanguaging while reading a text in English and explaining it in ASL. They found a high correlation between Deaf adult readers' English reading comprehension and their ASL morphology, reading vocabulary, English language skills, and ASL semantic skills. Importantly, it was noted that the participants used translanguaging while reading two English texts. In order to further study translanguaging and its function for Deaf readers, this study investigated how Deaf adult readers used this strategy, as they read English texts and talked about their own comprehension of the reading process.

### Research Question

The research question was as follows: What insights do bilingual Deaf readers provide regarding their metalinguistic processes and reading strategies used during translanguaging?

### Authors' Positionality

The four authors constitute a Deaf-hearing collaborative team. The senior author (Hoffman) was born to Deaf parents; he has used ASL all his life as his primary language. He learned English as a second language. His passion for studying reading and Deaf students grew from learning about his own Deaf parents' struggles with learning English as a second language, as well as his own experiences in a variety of school settings, from schools for the deaf to public schools, and universities. His life experiences learning ASL and English propelled him to get university training to earn his doctorate and to teach hearing students ASL as a second language. The second author (Wolsey) is also Deaf, uses ASL, and has research interests in the bilingual/bicultural learning of deaf students, as well as DeafBlind adults. She has extensive research experiences publishing qualitative studies, and also has worked with Deaf and DeafBlind populations. The third author (Andrews) is hearing and has been immersed in Deaf culture and ASL throughout her career as a reading teacher and a reading researcher of Deaf individuals across the lifespan. The fourth author (Clark) is a developmental psychologist who also has been immersed in Deaf culture and ASL, and has extensive experiences publishing research in cognition, Deaf culture, bilingualism, and literacy.

## Method

### Participants

Upon approval from the Institutional Review Board (IRB), the senior author recruited participants through purposive and convenient sampling, using a snowball technique (Corbin & Strauss, 1990; Luborsky & Rubinstein, 1995). The convenience sample is a non-random, non-probability sample that utilizes an open time for recruitment and continues until the desired number of participants is found. This approach uses a predefined population where the researcher intentionally selects participants based on an established set of criterion. In this study, through the senior author's Deaf community networks, he was able to assemble a list of possible participants who would meet the criteria. Using the "snowball" or "word of mouth" technique, these prospective participants also contacted other participants who would be willingly to participate and who had similar backgrounds (Corbin & Strauss, 1990; Luborsky & Rubinstein, 1995, pp. 104-105). The criterion used by the researcher for participant selection

included the following: (1) bilingual fluency in ASL and in English, (2) an education level of at least high school completion, and (3) employed in a professional capacity.

Prior to starting the study, all participants signed both an informed consent, as well as a video release form. All database was kept confidential and in a secure place.

To screen participants for literacy skills in English, we utilized the reading comprehension, reading vocabulary, and language subtests of the Stanford Achievement Test (SAT) 10th edition (Pearson Assessments, 2016). To assess ASL, we utilized the American Sign Language Proficiency Interview (ASLPI; Gallaudet University, 2016) to quantify expressive ASL skills in the area of phonology, morphology, syntax, semantics, and pragmatics. The ASLPI measures signing skills and provides a proficiency score from Level 0 to Level 5. Inclusion criteria included identifying as being a Deaf bilingual, using ASL and English, and with a high level of competency in ASL (no lower than ASLPI level 3+) and English (no less than a $10^{th}$ grade level in reading comprehension, as measured by the SAT ($10^{th}$ Edition).

## Demographic Questionnaire

For this study, the researchers developed a demographic questionnaire which included 30 questions related to information about participants' age, hearing status of family members (e.g., Deaf parents, Deaf siblings), language exposure (e.g., sign systems, spoken language, sign languages), and education level. The sample included five Deaf bilingual adults ranging from age 28 years to 51 years. The average age was 38.2 years old. All participants were of Caucasian descent, three were female and two were male. Four had hearing parents. All were identified as being deaf between birth to 15 months of age. One had Deaf parents and was exposed to ASL since birth, while the other three families used a signing system after their child's hearing loss was diagnosed. One family used spoken language until their child entered kindergarten at age five. Four participants had college degrees and one had only a high school diploma, and all were professionally employed as university instructors, a counselor, or as a Video Relay Service (VRS) manager. All preferred to use ASL and stated it was their dominant language. Questions in the interview also included their history with learning to read, what sign systems or sign languages they used, how they believed English help them understand ASL, how they used ASL to understand English, and if other sign systems helped them with ASL and/or English.

## Materials and Data Collection

Following a Deaf epistemological approach, seven expository passages from the field of deaf education, Deaf culture, and language learning were selected for stimulus materials. The texts held a Deaf cultural perspective to the teaching of language to deaf students by authors such as Leo Jacobs, Carol Padden, Tom Humphries, Oliver Sacks, Kathleen Jankowski, Harlan Lane, and Leah Cohen. Using a Microsoft Word readability formula, the selections of the texts that participants were asked to read were written on average at the 8.7 reading grade level. They ranged from easiest text written at the 3.8 reading grade level to the most difficult text written at the 12.0 grade level. The texts were randomly assigned to five participants in which each individual were asked to read and reflect on two texts. A semi-structured interview was conducted after participants filled out a background questionnaire, where they used translanguaging on the selected passages. Informal observations were gathered during this part of the interview.

## Procedures

Semi-structured interviews with open-ended questions were conducted with participants face-to-face at their home or place of employment. Each interview session lasted on average of 60 minutes and was video recorded for later review, analysis, coding, and transcription. The videotaped interviews were transcribed from ASL to English by one independent transcriber who was a Deaf native user of ASL. All data were de-identified. All interviews were conducted in ASL by a native Deaf researcher.

## Data Analytic Plan

*Grounded theory.* The researchers utilized a **g**rounded theory approach with the method of a constant comparative analysis (CCA; Corbin & Strauss, 1999; Fram, 2013). Grounded theory develops inductively from data (from the ground up) rather than deductively through a theory already established in the literature. In other words, the researcher does not begin with a theoretical stance and match the data to that previous theory in literacy, but allows the data to define the theory as the outcome. Grounded theorists are influenced by an emic understanding of the world and use categories that are taken from the participants themselves as they uncover implicit beliefs taken from the participants, thereby making these belief systems explicit (Corbin & Strauss, 1999). The rationale for using grounded theory with the Deaf population is that it provides a tool where reading processes can be studied from the Deaf participants' own belief systems and thereby make these belief systems explicit.

As mentioned earlier, the researcher videotaped the sessions of Deaf adults reading as well as their interviews. These interviews in ASL were then glossed to English for purposes of analyses. In order to discover a theory that was grounded in participants' reading experiences, analysis began with coding the data. Coding is the basic analytic process where the researcher assigns a label or a code to the transcripts. Corbin and Strauss (1990) state: "In grounded theory research, there are three basic types of coding: open, axial, and selective" (p. 12).

The researchers used open coding to break down the data and analyze the participants' responses for similarities and differences. Open coding guided the researchers to generate questions and comparative questions (constant comparison) to determine reading behaviors used by Deaf adults (Corbin & Strauss, 1990).

In axial coding, the researchers further combined and categorized the data into themes. This further refinement of the data allowed the researchers to make the conceptual linkages more specific to review and identify shared themes from participants' responses then axial coding was used to categorize the responses (Corbin & Strauss, 1990).

Last, the researchers used selective coding so that the categories found in axial coding could be unified around a "core" category to represent the central phenomenon found in the study. The core category emerged from the categories already identified (Corbin & Strauss, 1990). Related to this study, the researchers used selective coding to develop a theory to build a story from participants' reading experiences and strategies and made a visual diagram of these interdependent relationships (see Figure 1).

*Validation strategies.* To ensure accuracy of the translation, an independent ASL fluent peer viewed 30% of the videos. Accuracy was confirmed at 100% agreement. After translations were completed, they were emailed to all participants for member checking. A peer reviewer looked at all of the coding to provide an outsider check on the thematic analysis.

## Results

In this section we describe how we coded the data using open, axial, and selective coding, and how we arrived at the themes in this coding. We also describe how during the research process of analyzing the data, we were able to see a new theory emerge "from the ground up" of how fluent bilingual Deaf adults navigate through the reading processes of texts (Corbin & Strauss, 1990). First, we discuss the coding, provide supportive narratives then describe how our research process based on seven criterions for the empirical grounding of our findings (adapted from Corbin & Strauss, 1990, pp. 17-20).

### Coding and Narratives

*Open coding.* Seven common codes during open coding were identified. These codes included family background/history, communication/language, education, reading experience/history, bilingual, translation, and professional/school experiences and are described individually below.

The first code, *family background/history*, looked at participants' personal background with their family, as well as the hearing status of their parents and/or family members. Four participants were born to hearing families. However, one of these four participants (Danny) had a Deaf sister. Another participant, who was using Total Communication (TC), reported that having access to sign language allowed her to have stronger bonds with her family as they could communicate. A fifth participant (Mandy) was born to genetically Deaf parents; therefore ASL was their main mode of communication within the family. All five participants were identified early, before the critical or sensitive period for language acquisition and their families began communication/language intervention, as the next category demonstrates.

The second code *communication/language*, examined what communication and language participants used. Participants used a wide range of communication methods and language abilities with family members, teachers, and peers such as spoken language, the Rochester Method (i.e., fingerspelling), Signed Exact English (SEE), Pidgin Signed English (PSE), TC, and ASL. Regardless of these different communication methods, all of the participants had high proficiency levels of ASL and English, as Deaf bilingual adults. For instance, Mandy came from a Deaf family who used ASL since birth but when she attended a school for the Deaf, the Rochester Method (i.e., fingerspelling), PSE and ASL were used. Outside of the classroom, Mandy and her peers used more PSE than ASL. Cathy used TC but preferred ASL. She commented, "My parents and brothers took sign language classes...so...I learned sign language along with my family." Danny had a Deaf teacher when he was 15 months old but was not exposed to ASL until he attended a school for the Deaf. However, Danny's hearing parents took sign language lessons after his sister was born deaf; as a result, Danny and his siblings learned PSE. George was exposed to spoken language from birth and was able to speak fairly well with his family but at age eight, he learned PSE while attending a self-contained classroom in a public school with his peers. When he transferred to a Deaf residential school out of state, he acquired ASL and his mother noted, "When he went to the residential school and learned ASL, I noticed that his self-confidence increased." Last, Kamila used SEE from eight months old until twelve years old with her family until she attended a Deaf residential school. It was there where she learned ASL, which helped her understand subjects better in the classroom. All of these individuals were exposed to some form of signing early in life. They reported that they believed it was important for their reading abilities, as they had language in the critical period for language acquisition.

The third code, *education*, found that at some point, the majority of participants attended a residential Deaf school, using PSE or ASL. Two participants (Cathy and George)

were in a self-contained classroom using TC in a public school. However, when George moved to a different state, he attended a Deaf residential school and acquired ASL for the first time. He reported:

> When I was little, I communicated with my family through speech and writing. I would sign some words to fill in the gaps but to understand the whole thing, it's not always clear. When I used ASL, time {in translating} was getting shortened and my ideas started getting big. My teachers were challenging me to overlay my ideas in ASL with English text and to push me to my full potential. I was better able to expand ideas and concepts through ASL and apply it to writing.

Kamila discussed the importance of access at school and reported, "…. that once I learned ASL, I finally felt that I 'had a language.' I felt comfortable with ASL as it felt 'right.'" Kamila stated that when her teachers used ASL to teach the content, she then felt she was able to understand those subjects more comprehensively.

The fourth code, *reading experience/history*, found that some participants read more than others or had a Deaf teacher who explained concepts in ASL. Danny noted the impact of ASL on his literacy skills:

> Looking back, I've always struggled with English. My mother told me she encouraged me to read but I wasn't motivated. I felt that my teacher at the former school didn't teach me the right way. They would just point (to) the words, but I couldn't grasp the concept of reading. Then at the deaf school, my teachers would model by signing aloud. I got what they're saying, and then they would point to the sentences. I was able to make some connection between English text and what they were saying. When I was about five or six years old, I was struggling with writing, trying to write very simply, but I was not up to par with hearing peers. I feel that I've gotten caught up with my hearing peers once I started attending college. Still, is my English perfect? No. I feel ASL has helped me understand the concept better.

Another reported that without ASL, English was not enjoyable:

> It was unfortunate that I didn't get to enjoy reading novels until I was around 15 years old. My mother bought a wonderful collection of classic books, (I still have them, still like squeaky new) but I didn't touch one of them because I considered them academic reading (I recognized those titles from my school.).

Still another participant, Kamila, loved reading. In her words:

> As far as I recall, I loved to read. I am a bookworm. Growing up, I used to walk to the local library almost on a daily basis during the summers to get a pile of books to read for that day. In mainstreamed school, I remember my class would read together and a classmate would point out the words to me as the assigned reader read the book out loud so I'd be on the "same page" with others, but I read fast so often that I would get way ahead of others.

Therefore, the reading experiences of these participants differed, with some becoming readers mostly through English print, while others were unable to connect to the stories through English print.

The fifth code, *bilingual*, showed that when participants used ASL (as opposed to SEE or PSE), as their main form of communication, it helped them with understanding English text. One participant, Mandy, shared, "I understood Shakespeare better when my teacher retold [it] in ASL." Danny reported that he was able to "make a connection between English text and what they were saying. I see ASL better when I understand the concept. I was able to make sense of the English text." Another participant (Kamila) reported that while she did not like the signed English systems, she "finally felt that she "had a language...and liked how things were explained in ASL." She "learned more from ASL, as she could "fill in the gaps." Kamila felt confident that bilingual education would have made a difference with understanding English text. However, she commented that "SEE helped me learn more ASL rather than speech only."

The sixth code, *translation*, also demonstrated that participants used different strategies when reading English text without instruction (reading text 1 without being informed by the researcher what to do) and with instruction (reading text 2 after being informed by the researcher to translate the text into ASL). Different insights were found across participants when reading passages. The majority of participants found that reading both texts were different when translation was and was not used. One participant, Mandy, shared that she felt some "English interference" in her reading of the first passage and that "when it comes to translating, one really has to digest for a while and understand completely before signing aloud." Another participant, Cathy, expressed that there were differences with reading two texts. She commented, "it's more of...I can express (it) better using my own way. Once I understand what the passage is saying and what the concept is, I can then translate easier. I prefer to sign the text in my own not by following the English way." Kamila agreed with other participants about the differences. She commented, "Yes, a bit different. When I did the first one, I did not give any thought to trying to translate into ASL. But with the second one, I spent more time thinking of how to say this and that in ASL." Another participant, Danny, had another insight. He reported, "In the first passage, I was more of analyzing the main idea and meanings. I did not think of what I would say in ASL. With the second passage, I increased thinking more (in) ASL." These participants were observed to use different skills in translanguaging when reading English texts to ASL.

Last, the code regarding *professional/school experiences (in translanguaging)* found that the majority of participants became more aware of the translanguaging process through their employment, such as a teacher's aide, career counselor, Video Relay Services (VRS) Manager, or ASL instructor. Therefore, they learned to translate from English text to ASL through the use of translanguaging. One participant (Mandy) reported that she became more skilled with translating texts from English to ASL when she was a college student, a teacher's aide, and later, reading to her children. Another participant (Cathy) shared that while "working for VRS, often we have to do video commercial or vlog to communicate with the deaf community about relay service information. That forced me to think ASL more in translating from text." An ASL instructor, Danny, believed that his translation skills in English and ASL improved during teaching when he was "switching between ASL and English." In addition, when he went to college, he "became comfortable with two languages, as the more I read English, the more I had to think conceptually in ASL." Kamila shared that she struggled with understanding how things worked but when she "had a Deaf teacher explain to her in ASL, she was able to understand English." Participants' experiences at work and at school allowed them to be more aware of their understanding of English text and use translanguaging skills from English text and ASL.

*Axial coding.* These interconnecting seven codes were reduced during axial coding, which identified two broad categories; metalinguistic knowledge and reading strategies. The first axial code, metalinguistic knowledge, focused on participants' background and experiences with reading English text, as Deaf bilinguals, as well as how they used their knowledge and cognitive processes of both languages to comprehend texts. The three codes under this category related to participants' family background/history, communication/language used as a child and adult, and education. This category provided a foundation to participants' knowledge in how they learned to read and understand English text. The second axial code, reading strategies, examined how participants used multiple reading strategies to read English text into ASL. Four codes included participants' reading experience/history, being bilingual (with their knowledge of both ASL and English), use of translation, and professional/school experiences. See Figure 1.

This selective coding finds that balanced Deaf bilinguals see their languages as integrated. English is the language of their academic experiences and interactions. Some of their teachers helped them find this integration by pointing out the connections between the two languages. These strategies were internalized and now, these Deaf individuals use them in their own work to convey meaning in ASL to students or clients who are not balanced bilinguals. Without naming the strategy, it appears as if translanguaging has been a foundational technique used to "bootstrap" English by those who had become balanced bilinguals.

*Core category.* After reanalyzing and coding the themes, the overarching theme (core category), "bridge to literacy," was found through the analysis of these emerging themes. This core category influenced participants' experiences with reading and understanding of printed English in ASL. This bridge to literacy would not occur without participants' background knowledge, reading experiences (personal, academic, and professional), being bilingual in ASL and English, and their use of strategies to understand English text. A summary of the results is shown in a visual "fish" diagram (see Figure 1).

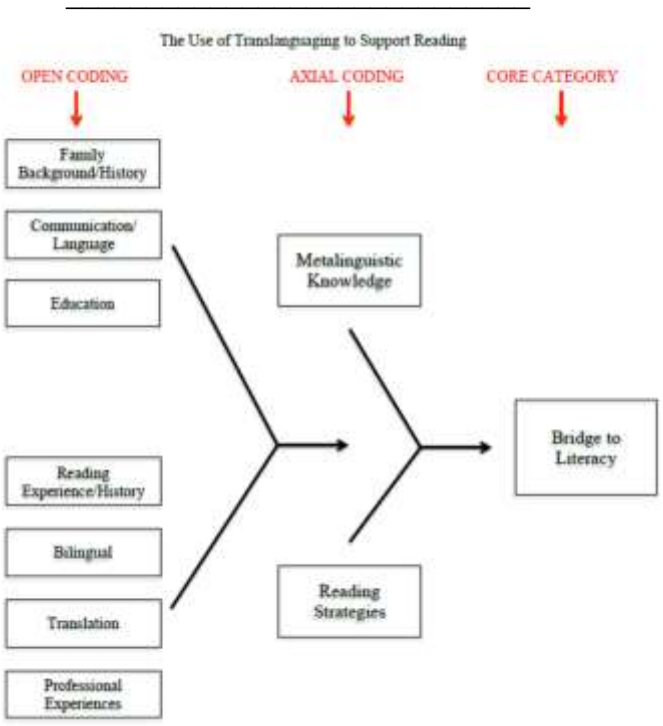


Figure 1: A visual model illustrated data grounded in theory. Open coding consisted of four themes under the umbrella of metalinguistic knowledge and four under the umbrella of reading

strategies. Axial coding consisted of two categories; metalinguistic knowledge and reading strategies. The core category was determined as "bridge to literacy" that related to shared themes found in participants' reading experiences as Deaf Bilingual adults.

## Research Process

Using Corbin and Strauss's (1990) criteria for ensuring the empirical grounding of our findings, we describe the research process. The first criterion relates to on what grounds was the sampling made (criterion #1). There is a growing consensus among reading researchers about the necessity of complementing standardized testing assessment of deaf individuals with insights about insiders' perspectives about literacy development (Andrews et al., 2015). This is because the historical and current view of literacy often obscures our view of the role of Deaf culture and personal experiences in forming how Deaf individuals learn language and literacy (see studies by Deaf reading scholars in Andrews et al., 2015). Thus, this study sought out members of the Deaf community who were fluent in both ASL and English and using qualitative approaches we explored diversities in cultural and personal beliefs, and experiences about the reading process.

The next criterion related to the major concepts generated from the data (criterion #2). Since the building blocks of this study were the set of concepts grounded in the data, we found these concepts to emerge from the participants' relating of their language histories and from their reading aloud of texts and telling us how they comprehended English texts. We linked our concepts systematically by showing how the concepts of family background history, communication/language, and education could be merged into metalinguistic awareness (criterion #3). These concepts have conceptual density and related to how the participants are able to use both of their languages to further develop their reading skills. We also acknowledge that there could be variation in our model and that broader conditions could, in fact, given different participants shape our core concept of "bridges to literacy" (criterion #4 and #5). For example, some participants from hearing families may use cross-modal bilingualism, a natural dynamic phenomenon where code-mixing and code-switching between languages of different modalities--signed or spoken/written that are pragmatic choices of the signer/speaker which serve specific purposes in different contexts (Menendez, 2010). We did not find this variation in the responses of the participants and this may be accounted for by the fact that the researcher collecting the data was Deaf who did not use spoken language during the study.

Criterion #6 refers to identifying change or movement in the form of process. We noted that as the participants got "warmed up" in their reading of texts, more strategies emerged as they became more comfortable with the tasks and describing how they comprehended texts. Thus, as they progressed through the three texts, they went through stages or phases in increasing their reporting of their strategies and insights to the reading process. Finally, we believe our findings have theoretical significance (criterion #7) as they show that metalinguistic knowledge described by the concepts of family background history, communication/language, and education and reading strategies described by being bilingual, translation, professional/school experiences are concepts, in combination lead to our core concept of "bridges to literacy."

## Discussion

Grounded theory functions in an inductive manner to point out theoretical frameworks. We describe our coding of concepts and research process. Here the suggested framework is that translanguaging functions as an indigenous practice within Deaf culture (Corina & Singleton, 2009; Holcomb, 2013; Humphries, 2004). Humphries' (2016) insight that

traditional bilingual theories (Baker, 2011) are not capturing a Deaf cognitive ecology (Hutchins, 2010) appears to apply here. The way that these Deaf individuals demonstrated their bilingualism was by relying on their ASL metacognitive skills to comprehend and convey English content. For Deaf bilinguals, translanguaging function as *flexible bilingualism* (García, 2009). These ideas of Humphries (2016) and Hutchins (2010) are reflected in Horejes' (2012) blending of the word language and culture (i.e., *languaculture*) to describe Deaf culture and how it combines with language in the classroom with signing Deaf bilingual students. Further, as noted by Hutchins (2010), cognition interacts with the environment and shapes both language and thought.

Gottlieb's (2000) probabilistic epigenesis proposes a bidirectional feedback loop, where the genetic structure and the environment continually influence each other through feedback loops. Given these ideas, an ecology that supports a visual language will allow the development of metalinguistic skills and metaknowledge that will support literacy skills (Mounty et al., 2013). These skills will then define a new type of bilingualism for Deaf individuals.

Canagarajah's (2011) idea of *shuttling* between languages appears to capture how these Deaf bilinguals integrate their languages into a fluid bilingual system. Using knowledge that is context embedded and personal seems to be the key to building critical thinking and the key to comprehension of more abstract and context reduced content, i.e., academic information (Cummins, 2000).

Here, these balanced bilinguals' metacognitive and metalinguistic strategies in both languages could be observed, as they prepared to video their translation. They reported relying on ASL to help them convey content in their translations. They typically paused and appeared to be thinking about how to set up the translation through translanguaging. None of the participants read the English texts in English word order but translated it conceptually, using ASL grammar. They were not confined to signing word for word thereby using a lower-cognitive level skill, which would interfere with their higher-order prose processing (Simms et al., 2005). One participant even mentioned that she did not want to be bound to the English word order, as this would "interfere" with her comprehension of the text. The strength of translanguaging was seen when the participants used several strategies; one was their background knowledge about being Deaf, another was the expansion of the ideas in the English text through ASL to allow connections to general knowledge in ASL, and finally their use of ASL expansions and ASL lexical signs to provide a transformation of the English structure into a comprehensible ASL text. Several of the participants even "talked to the text" by asking rhetorical questions after reading a sentence to assist them in deriving meaning and also "talked about the text" by signing "AWESOME," after reading an idea that was he was comprehending and one he found exciting, showing that he was emotionally engaged in the text. Thus, the participants were using translanguaging not simply as a support to understand English, but to expand their knowledge of the content of the reading passage and feelings about the text. Frequently, the participants focused on ASL grammatical morphemes, including facial expressions, nodding, body shifts, rhetorical questions, and classifiers. This usage showed their metalinguistic awareness of both of their languages to convey the meaning of the text in a comprehensible format (Ausbrooks et al., 2014).

Findings here emphasized the importance of using both languages (ASL and English) in the comprehension of English print. This comprehension relied on family background/history, as these participants reported early ages of sign exposure, even if it was a sign system such as SEE (Gustason et al., 1975) with participants noting they could share in conversations with their siblings and parents around the dinner table. Therefore, their families' decisions on home communication and the language of their child's education seemed to establish their own foundation for literacy. As mentioned by several participants, their own

reading skills increased when they were at school and teachers provided them with stories or texts in an ASL translation. The findings are similar to Mounty et al.'s (2013) study in that it too "represents a departure from experimental research focused on phonological encoding and word recognition," (p. 8), which focuses on a deficit model rather than an emic or Deaf epistemological model (Brueggemann, 2004). Also, like Swanwick (2015), the individual's codeswitching and maybe even codemixing, facilitated their metacognitive development in making the transition from learning to read to reading to learn (Chavez, 2002; Mounty et al., 2013).

These results highlight the "bridge" to literacy, as a visual language. Moreover, providing parents all options and opportunities at the age of identification eliminate the false dichotomy that parents must "choose" between a visual and an auditory language (Humphries et al., 2014a, 2014b, 2014c; Kushalnagar et al., 2010). These participants' parents were provided early diagnoses and received early intervention that included signing during the early critical periods for language acquisition.

Here the "bridge to literacy" seems to require both metalinguistic knowledge, as well as effective reading strategies in both ASL and English (Moores & Miller, 2001). These skills have been related to early exposure to visual language in data from the Visual Language and Visual Learning (VL2) Early Education Longitudinal study (EELS). Results of the EELS study pointed to the positive effects of early sign language on letter knowledge, social adaptability, sustained visual attention, and cognitive-behavioral milestones (Allen et al., 2014). The EELS supports earlier correlational work showing the relationship between ASL fluency and reading in English (Freel et al., 2011) as well as with Hrastinski and Wilbur (2016) who found ASL proficiency was related to reading comprehension. These findings continue to provide additional buttresses to reveal this bridge for others to see and use with young Deaf children to provide them the academic skills needed for success.

## Implications

Participants in this study had high levels of ASL and English, as measured by the ASLPI and SAT-10, unlike many Deaf school leavers. Translanguaging enabled them to mediate the cognitive and linguistic complexity of the texts, similar to the bilingual Deaf readers in the Mounty et al. (2013) study. Thus, more experienced Deaf bilinguals present in these two studies "enhanced their existing practices through translanguaging, accommodating them and sharpening what they know how to say and do" (García & Wei, 2014, p. 86). Clearly, more studies are needed to determine how other advanced bilinguals used translanguaging.

But can translanguaging be used with young developing bilinguals? García and Wei (2014) claim that translanguaging can even be applied to the teaching of young children who are developing bilinguals. García and Lei's (2014) research with young Japanese children in kindergarten show that even young developing bilinguals can benefit from the strategy of translanguaging. These researchers distinguish between those students who are in the beginning process of acquiring additional language (developing bilinguals) and those who have had more experience with this process (advanced bilinguals).

Can translanguaging be applied to young deaf children who are at the beginning stages of the bilingual continuum? A longitudinal study incorporated the bilingual strategy of Purposeful Concurrent Usage (PCU), which is part of translanguaging and tested the feasibility of a yearlong shared book intervention (Adapted Little Books) to teaching, reading, and writing in the classroom using discussions with picture books, Deaf role models, ASL, and fingerspelling for signing deaf children at risk for learning how to read and write (Andrews et al., 2016a; 2016b). The researchers found that these young developing bilinguals and their teachers, along with PCU and translanguaging, utilized Deaf culture, Deaf mother/father, ASL

storytellers, and the children's background experiences and prior knowledge to support and expand their understandings of both ASL and English. PCU is a bilingual strategy where the teacher makes "a conscious and planned movement from one language to another in a regular and rational manner" (Baker & Jones, 1998, p. 590). PCU was first proposed by Jacobson (1990) in order to make both languages stronger and to reinforce taught concepts with a resulting deeper understanding of the subject matter for the student (Baker & Jones, 1998). Even though the 25 young deaf children in the Andrews et al. (2016) study were developing bilinguals, their contact with many Deaf adults and Deaf children in the classroom, cafeteria, in the dormitories, and on the playground, as well as being exposed to signed media on the Internet and DVD technology have given them more experiences with translanguaging.

## Limitations and Future Research

This project now provides a possible theoretical framework, which needs to be confirmed with advanced Deaf bilinguals and beginning Deaf bilinguals. Therefore, the results of this study cannot be generalized to the larger population of Deaf readers. Given a grounded theory framework, it is possible that other experiences can explain how ASL metacognitive and metalinguistic strategies developed.

Moreover, the sample is only five participants who were exposed to early signing. It is possible that oral English may provide the same effects in other contexts. Therefore, future research needs to have a more controlled quantitative view of both possibilities. Additionally, the participants were prescreened to be balanced bilinguals, limiting generalizability.

Additional qualitative studies are needed to look at adult Deaf readers from diverse backgrounds. From this study and others (Ausbrooks, 2007; Andrews & Mason, 1991), the think aloud methodology is a powerful method to determine how the Deaf reader comprehends texts. More studies using this methodology are needed. In addition, more research is needed to understand how Deaf readers are able to have the knowledge of two languages, ASL and English, with the incorporation of ASL/English bilingualism to comprehend English texts. We need to investigate *flexible bilingualism* and *shuttling* between languages.

In conclusion, this project suggests that translanguaging can be the missing piece to the literacy puzzle for Deaf children learning to read. Given a strong language base in ASL appears to facilitate learning the grammatical and linguistic structures of English. Additional research needs to explore alternative early interventions like the Adapted Little Books, to determine if building ASL skills can also build English skills at the same time (Andrews et al., 2016b).

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