American Sign-Language (ASL) for Audiologists

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AMERICAN SIGN-LANGUAGE (ASL) FOR AUDIOLOGISTS

By

COLETTE VOSSLER-WELCH

A capstone project submitted to the Graduate Faculty in Audiology in partial fulfillment of the requirements for the degree of Doctor of Audiology, The City University of New York

2019
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By

Colette Vossler-Welch

This manuscript has been read and accepted for the Graduate Faculty in Audiology in satisfaction of the capstone project requirement for the degree of Doctor of Audiology.

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Abstract

SIGN-LANGUAGE FOR AUDIOLOGIST’S

By

Colette Vossler-Welch

Advisor: Barbara Weinstein, Ph.D.

The goal of this project is to provide a means for audiologists, speech-language-pathologists and related personnel to improve their ability to communicate and connect with culturally Deaf individuals through the use of video-animated sign-language interpretations. Arguments for or against the bilingual approach of using ASL and the spoken language with regards to Deaf education will be discussed through both a personal memoir and a review of current literature. This study will also shed light upon the history of the American Deaf population, American Sign-Language (ASL) and will conclude with a training module in ASL. The training module will be available through an application called “Brainscape” with animated gifs to assist in user learning.
ACKNOWLEDGEMENTS

Growing up with hearing loss in the hearing world, in hindsight, made me feel isolated because I was different; no matter what I did, I stood out. Every success and every failure earned unwanted notoriety. There was no place to hide or blend in because I had a sign-language interpreter follow me from class to class until I graduated high-school. Even though I wanted to blend in, it was -- and still is -- nearly impossible to follow conversations enough to feel included in a group of more than two people due to the high levels of chatter and excessive background noise. At the time I did not recognize my inclination to avoid situations in which I knew I would not be able to participate, but upon reflection, I realize that avoidance was a coping mechanism for what I felt I had no control over. Due to these facts, I identify as someone who is Deaf. To state that I am any less “Deaf,” such as hard-of-hearing, makes me feel as though I have to validate my communication hardships that much more.

In high-school, I learned to “accept” my hearing loss, my subtle differences, and subpar ability to hear the world around me by insisting I was doing fine. On paper, I was. It was not until after I was introduced to the world of Audiology on a deeper level by my first mentor, Ron J. Leavitt, AuD that I grasped how much information I had missed over the years and how I still fail to catch a punchline. During my years working as an audiology assistant, Dr. Leavitt introduced me to sounds I had never heard before. Using the residual hearing in my right ear and superpower embedded earmolds, Dr. Leavitt pushed the envelope of audibility for an individual whose hearing levels remain in the severe to profound range. Not only did I understand speech more clearly, but at the age of 20 I heard the fan on a refrigerator for the first time. Hearing a refrigerator fan for the first time may seem miniscule to most. But it quantified how inaccessible information is to Deaf people -- myself included -- even with the ability of intelligible speech.
Communication inaccessibility has always troubled me; however, it was not until I was in my late twenties that I acknowledged that I was bothered by the unwavering focus of most hearing strangers who crossed paths with me and most medical professionals I encountered, on how well I could speak despite my deafness. Once, I was told I was “too deaf to learn to speak” and on a separate occasion, “so smart,” I no longer needed a sign-language interpreter. Another time, one hotel front desk personnel inquired about my accent and when I explained that I was Deaf, he argued. He said, “It can’t be that - what country are you from?” These statements are like a double-edged sword because of the unspoken insinuation that Deaf people are cognitively less capable than hearing people. To this day, I have not forgotten those statements and since then I have taken it upon myself to carefully evaluate the current methodologies of educating d/Deaf people and to make suggestions for how social worlds could be improved by achieving a deeper level of understanding their needs.

In partaking these sometimes tedious, unforgiving projects, I could not have been done without the overwhelming level of support I received. First, I would like to thank my immediate and extended family, for all the love and support they’ve shown me throughout my life growing up with hearing loss. To my mother who pushed me to learn both English and American Sign-Language and fought for my rights when I could not yet stand up for myself. To my dad who taught me many years ago how hearing and balance related, all because of how I excelled at the floor exercise in gymnastics, but for many years, fumbled on the balance beam; I probably looked as though I had stepped off a merry-go-round! I also want to thank my sisters: Tye, Natalie, Krista and Shivani for your unwavering confidence in me. To my brother, Shawn who became the

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1 How a person determines whether they identify as “deaf” or “Deaf” is discussed later in this paper.
younger brother I always wanted and acquired quite late; you remind me to stay strong even in the face of fire! To my husband Colin - I could not have done this without you. You have always found your own way to show your support for me during this difficult journey. To my son, Fenix, you are my heart and soul and the reason for never giving up - never giving in and one day when you’re old enough to read this, I hope that you too will spread your wings and fly.

Lastly, I wanted to thank Drs. Leavitt, Weinstein, Silverman and Wortsman for your continued support and for believing in me throughout this long journey. To Dr. Leavitt, I thank you for planting the seed that blossomed into this beautiful journey. To Dr. Weinstein, for understanding me more than I understood myself and for your guidance with this project. Dr. Silverman, I will never forget the first time we met and how inspired I continue to be by your story. To Dr. Wortsman, thank you for all you have done to make sure we all graduated on time! To d/Deaf people young and old, your stories continue to inspire me and remind me how our fight will never be over - until it is.
INTRODUCTION

American Sign-Language (ASL) is considered the most natural method of educating children with hearing loss by the National Association of the Deaf (NAD, 2019). ASL is the primary language used by Deaf people whom, as a whole, have been marginalized by medical professionals, politicians, educators as well as the population at large. Many Deaf people are part of a Deaf community which has its own set of customs and culture. However, learning ASL is a low priority in many schools primarily because children with hearing loss are more likely to be mainstreamed into state schools where educators use oral approaches for their selected educational program with favor given to those with hearing loss learning spoken communication. When parents find out they have a child with permanent hearing loss, professionals versed in ASL or knowledge of the Deaf community are often not contacted (Ladd, 1993). Speech-Language pathologists and audiologists are the main professionals overseeing children with hearing loss.

Instead, many schools follow a strict set of “oralism.” Oralism was heavily promoted by Alexander Graham Bell in the 1860s (Gannon, 1981). Oralism not only requires that students learn to speak, but also that they learn aspects of language, mathematics, science and related academic subjects without assistance from signed-languages. Due to these conflicting philosophies, disagreement among Deaf and hearing educators fuel more than a century-long debate regarding the education of children with hearing loss. Given limited evidence of the efficacy of the strict oral method, its inability to predict an “oral failure,” coupled with mounting evidence showing support of a bilingual/bicultural – teaching ASL to children with hearing loss should be a goal that is as important as optimizing residual hearing for the use of speech and language.
The history of ASL – of deafness – is deeply rooted throughout time. The first documentation of deaf people dates back to the first known writings of Aristotle who claimed, “those who are born deaf all become senseless and incapable of reason,” (1981) and as follows:

“Men that are deaf are in all cases dumb; that is they can make vocal sounds, but they cannot speak.”

Aristotle
5th Century B.C.

The belief that congenitally deafened people are, in fact, also cognitively challenged was heavily fostered by Aristotle (Gannon, 1981). Assaults upon the intelligence of Deaf people continued throughout time (Becker, 1980; Higgins, 1980; Lane, 1992; Moores & Meadow-Orlans, 1987; Preston, 1994; Rodda & Grove, 1987; Schein, 1989) through promoting this language that appeared in hearing newspapers, in the workforce, in schools and the public sphere as a whole. The ability to speak reflected status within many hearing communities. Speaking was highly valued and d/Deaf individuals were considered “low class” if they were unable to speak (Cohen, 1994). Deafness was at one time considered such an undesirable trait that it was once rationalized that these people should be sterilized against their will (Gannon, 1981).

Evidence of sterilization of d/Deaf citizens is documented by an old law. In 1907, the first sterilization law was passed in Indiana which allowed unconsented sterilization procedures to be performed on individuals who did not fit into Eugenicists beliefs as to what made a human race “superior,” or those classified as criminals, alcoholics impoverished, physically and/or mentally defective, and disabled. By 1920, 24 states had passed sterilization laws and nearly 20,000 procedures had been performed in the United States by the 1930s (Greenwald & Murray, 2016). The National Association for the Deaf (NAD) continually fought for the reproductive rights of Deaf people and insisted they be separated the undesirable’s group. Support for Eugenics and
sterilization procedures continued until the 1960s. Although, support decreased in the 1940s due to these procedures being closely associated with procedures performed by Nazi physicians (Greenwald & Murray, 2016), more than 60,000 people were sterilized against their will during.

All the while, the American Deaf Culture gained momentum within the few Deaf schools where ASL survived and outside the realms of strict AV methodologies (Gannon, 1981; Baynton, Gannon, & Bergey, 2007; Ladd, 1993).

It was only in the last 20 years that the use of the word “dumb” when referring to Deaf people was considered inappropriate. Historically, the linguistic meaning of the word “dumb” was a synonym for silent, though less intelligent was implied. Several centuries after Aristotle’s writings, educating deaf people was believed possible. In the late 14th century, Rudolphus Agricola wrote about a “deaf-mute” who learned to read and write, but the earliest documented attempt of educating deaf children using sign-language was in the 1540s. Specifically, Pedro Ponce de Leon of Paris taught 15 deaf people at his monastery (Murray, 2006). It was not until 1766 that scholars began to refute the theory that congenitally Deaf people were incapable of thought and reason. During this era, the education of individuals with hearing loss consisted of manual methodologies with philosophies mirroring that of the bilingual approach (Fong, 1997).

Charles Micheal de L’Eppe, was a philanthropic educator in the 1800s who devoted his life to helping d/Deaf people establish not only a means to communicate but who fought for their rights. While L’Eppe is credited with the invention of the signed alphabet (Gannon, 1981), he did not invent the signed system as it was already in use. L’Eppe learned French Sign-Language (FSL) from other deaf people, but modified it to approximate spoken French (Gannon, 1981).

This historical account suggesting that d/Deaf people already used French Sign-Language (FSL) is consistent with James Woodward’s research suggesting similar forms of signed language
date earlier than the widely accepted belief that sign-language was brought to America by Thomas H. Gallaudet, an American Revered and Laurent Clerc, a French man in the early 18th century (Woodward, 1978). Woodward estimates that Deaf culture creolization (the emergence of culture) may have begun as early as 500 B.C. Sign-language has specifically been traced to 350 A.D. from Benedictine monks in Italy who had taken a vow of silence and created a form of sign language in order to communicate their daily needs (Gannon, 1981). A Benedictine monk named Leon took deaf pupils under his wing in the 1540's. Clerc studied and benefited from the disciples of de L’Eppe which helps explain the similarities between ASL and French Sign-language (FSL).

The growth of ASL and deaf education in America blossomed when Clerc and Gallaudet traveled on their famous voyage aboard the *Mary Augusta* in 1816. On that journey, Clerc taught FSL to Gallaudet and Gallaudet taught English to Clerc. Later they went on to establish the first Deaf University, known today as Gallaudet University. From 1766 until 1888, before the Second International Conference of the Deaf and Dumb, which was actually the first (though it is unclear why it was called the “second,”) took place in Milan in 1888, the educational outlook for Deaf individuals was at an all-time high. The proportion of Deaf teachers in Deaf schools peaked to 40.8% by 1858. During the early 1800s, Alexander Graham Bell made a name for himself with the invention of the telephone. Bell was married to Mabel Hubbard, a deaf woman who preferred the use of speech to communicate with others. Other than a report of her having hearing loss, there was no confirmation of complete deafness or the time at which his wife’s deafness occurred. It was noted that his feelings towards sign-language changed upon meeting his wife. Prior to this, his support for use of sign-language was unrelenting. He once denounced the lack of any sign-language use in schools for teaching purely oral methods to children with hearing loss. Later, however, it became clear that he rescinded support for the use of sign-language in the educational
setting. During a famous public performance orchestrated by Bell, he featured the use of the oral method with two of his students whom had lost their hearing prelingually and developed intelligible speech. He also featured a third student with prelingual hearing loss. All of whom would recite a common phrase. Bell meticulously scheduled their speaking turns so that the crowd would not notice the third individual, prelingually deafened, had unclear speech (Gannon, 1981). The timing was critical in demonstrating a false sense of success for even those with especially severe hearing losses as the Bell was charismatic and knew how to excite a crowd. At the same time, support for the oral method was gaining a momentum of acceptance within hearing communities. This momentum initiated the scheduling of the Milan conference. During this conference, Eight Resolutions were voted on and passed. The resolutions are recorded verbatim below:

1. The Convention, considering the incontestable superiority of articulation over signs in restoring the deaf-mute to society and giving him a fuller knowledge of language, declares that the oral method should be preferred to that of signs in education and the instruction of deaf-mutes.
   ○ Passed 160 to 4

2. The Convention, considering that the simultaneous use of articulation and signs has the disadvantage of injuring articulation and lip-reading and the precision of ideas, declares that the pure oral method should be preferred.
   ○ Passed 150 to 16

3. Considering that a great number of the deaf and dumb are not receiving the benefit of instruction, and that this condition is owing to the impotence of families and of institutions,
recommends that governments should take the necessary steps that all the deaf and dumb may be educated.

○ Passed unanimously.

4. Considering that the teaching of the speaking deaf by the Pure Oral method should resemble as much as possible that of those who hear and speak, declares

○ That the most natural and effectual means by which the speaking deaf may acquire the knowledge of language is the "intuitive" method, viz., that which consists in setting forth, first by speech, and then by writing the objects and the facts which are placed before the eyes of the pupils.

○ That in the first, or maternal, period the deaf-mute ought to be led to the observation of grammatical forms by means of examples and of practical exercises, and that in the second period he ought to be assisted to deduce from these examples the grammatical rules, expressed with the utmost simplicity and clearness.

○ That books, written with words and in forms of language known to the pupil, can be put into his hands at any time.

■ Motion carried.

5. Considering the want of books sufficiently elementary to help the gradual and progressive development of language, recommends that the teachers of the Oral system should apply themselves to the publication of special works on the subject.

○ Motion carried.

6. Considering the results obtained by the numerous inquiries made concerning the deaf and dumb of every age and every condition long after they had quit school, who, when
interrogated upon various subjects, have answered correctly, with sufficient clearness of 
articulation, and read the lips of their questioners with the greatest facility, declares:

○ That the deaf and dumb taught by the Pure Oral method do not forget after leaving 
school the knowledge which they have acquired there, but develop it still further by 
conversation and reading, when have been made so easy for them.

○ That in their conversation with speaking persons they make use exclusively of 
speech.

○ That speech and lip-reading so far from being lost, are developed by practice.

  ■ Motion carried.

7. Considering that the education of the deaf and dumb by speech has peculiar requirements;
considering also that the experienced of teachers of deaf-mutes is almost unanimous,
declares

○ That the most favourable age for admitting a deaf child into school is from eight to 
ten years.

○ That the school term ought to be seven years at least; but eight years would be 
preferable.

○ That no teacher can effectually teach a class of more than ten children on the Pure 
Oral method.

  ■ Motion carried.

8. Considering that the application of the Pure Oral method in institutions where it is not yet 
in active operation, should be to avoid the certainty of failure prudent, gradual, progressive, 
recommends
That the pupils newly received into the schools should form a class by themselves, where instruction could be given by speech.

That these pupils should be absolutely separated from others too far advanced to be instructed by speech, and whose education will be completed by signs.

That each year a new speaking class be established, until all the old pupils taught by signs have completed their education.

Motion carried

During the conference a demonstration was held which was used as evidence for the effectiveness of the oral method. A group of students were asked to lip-read the questioners lips and respond appropriately, however, they would respond before the speaker had finished asking the question, which implies that they were told what they would be expected to say before the demonstration. Audience members were not permitted to ask questions (Gannon, 1981). Clerc, though he is considered one of the founders of Gallaudet University, was barred from attending the conference because of his status as a Deaf man. Delegates from America and Britain were the only individuals opposed to enforcing what became known as the ban on ASL (Gannon, 1981).

The aftermath of the Milan conference had a profound impact on the Deaf community and the employment of Deaf teachers. Not only did Oralism take a strong hold as the preferred method of teaching, but Deaf teachers were fired from their positions and replaced with hearing teachers. The number of Deaf teachers fell from 40.8% in 1858 to 30.9% in 1927. By the 1970s, the percentage fell to a staggering 13.6% (Gannon, 1981). Education focused heavily on learning through use of all, if any, residual hearing, lip-reading skills and spoken communication. Technology during the 19th, 20th and early 21st centuries was far more limiting than what is currently available. One type of technology that was popular during in the 1950s consisted of
body-worn devices which provided limited amplification and were known to signal dropouts (Gannon, 1981), so every time a wearer turned his/her head the amplified signal would cut-out. Think of this like Bluetooth technology, when the signal is not clear, the person’s voice is garbled or cuts out completely. Children using these devices were expected to use only residual hearing for learning activities, which put them at a significant disadvantage to hearing students. Due to the more significant limitations of amplification for d/Deaf individuals, these devices more often ended up in drawers (Gannon, 1981). During the years that technology was insufficient at providing adequate amplification for children with severe-to-profound hearing losses, ASL should have remained a high priority. However, even today the greater public as well as some professionals, do not fully understand the limitations of technology and certainly would not have recognized this concept 50 years ago. It really was not until the last five to ten years that hearing aids became powerful enough, or had adequate feedback management controls, for individuals with severe to profound hearing losses. However, hearing aids and cochlear implants are still riddled with limitations with the wearers’ success dependent upon a multitude of factors in addition to hearing sensitivity. Factors include, but are not limited to, 1) how well individuals make sense of amplified signals, 2) on an individual’s dynamic range of hearing, 3) on what is comfortable versus uncomfortable to the wearer and/or the physical fit of these devices.

During what became known as the “dark ages” of ASL, oralism was often required for all d/Deaf children, sometimes regardless of their residual hearing sensitivity; however, it is no longer as prevalent in strictly Deaf schools. Despite the assertion that Oralism was the preferred method of teaching.

ASL did not vanish; silent communication survived behind teachers backs, in hallways, or outside the classroom to list a few examples (Gannon, 1981). Children caught signing were
subject to punishment (Bayton, 2009); such as rapping a child’s hand with a ruler or clapping a child’s mouth with a chalky eraser (Gannon, 1981). Previously the punishments were so severe, a French Deaf publication even defined Oralism as the method of “violence, oppression, obscurantism, charlanism, which only makes idiots of poor deaf-mute children” (Ladd, 1993). In one graphic memoir from a German school published in December 1892 described the events that took place in some schools:

“…. pupils had their hands tied behind their backs so as to prevent them conversing by signs, and that they were moreover continually flogged with canes and struck with rulers. On one occasion, twelve of them came out of class covered with blood. The teachers, in endeavoring to induce their pupils to pronounce sibilants, had forced instruments into their mouths which made their tongue bleed, and in order to make the children open their mouths, the masters pinched their noses so hard as to cause blood to flow” (Ladd, 1993).

It should be recognized that current Oralism approaches do not encourage the use of physical harm, however, these historical accounts led to a deep mistrust among several d/Deaf people against the medical community regarding their well-being. Thus, clarification regarding the current methodologies used today is warranted.

 METHODS DEFINED

There are two main “oralist” methods which include the auditory-oral (AO) and auditory-verbal (AV) approaches. ASL is considered one of the visual approaches to teaching d/Deaf children language, but include other sign systems known as Signed Exact English (SEE)
or Pidgin Sign Language (PSE). Any of the three mentioned visual communication methods may be used in a total communication (TC) program. The final approach is the bilingual-bicultural (BiC) method (Kaipa & Denser, 2016).

Both the AO and AV approaches focus more heavily on spoken communication, but one key difference between the AV and AO approach is that the AV method specifically discourages use of signed languages and manual communication (Kaipa & Denser, 2016). Johanna Stith, Ph.D., published a manual for the AV method for parents sometime after 1992 in which she claimed that children with hearing loss, when provided with appropriate cutting-edge hearing assistive technology and AV intervention, that these children will not “automatically resort to visual learning styles” such as sign-language (Stith, nd). The AO method requires not only the use of residual hearing, but also visual speech reading cues. The AV approach also requires the presence of the caregiver during all sessions. TC is a combination of an oral and manual approach. Lastly, the BiC approach includes a goal to immerse the individual with hearing loss into both the hearing and Deaf world by training them in ASL and spoken/written English.

According to Kaipa & Denser, the AV method is “one of the highly sought approaches” for spoken language learning in children with hearing loss (Kaipa & Denser, 2016). The method in which a student is educated often dictates whether an individual will identify as deaf, Deaf or hard-of-hearing. These terms reflect how individuals identify with the Deaf community or feel assimilated into the hearing culture. Capitalizing “Deaf” suggests that individuals have fully embraced their culture and ASL as their primary language. The use of the lower case, “deaf” term or use of “hard-of-hearing” suggests that these individuals identify with the hearing world and are able to maintain conversations at varying levels of proficiency. This depends upon many factors including degree of hearing loss, age of identification and treatment, sufficient audibility, speech
recognition scores, and lip-reading mastery. The most skilled lip-reader may achieve around 61% accuracy reading speech out of context but is considered an outlier (Auer & Bernstein, 2007). This is due to the fact that only about 30-45% of the English language can be seen on the lips (Steinberg et al., 2006; Iezzoni, O'Day, Killeen, & Harker, H. 2004; Witte & Kuzel, 2000; Ebert, & Heckerling, 1995).

Scores also depend on the speaker's ability to enunciate their speech without over-exaggerating. When speakers fail to enunciate their speech, have a beard that covers their lips, or speak with an accent, lip-reading becomes much more difficult and frequent repetition is required. As a result, d/Deaf individuals are at an increased risk of being left out of conversations entirely, causing them to feel increasingly isolated from the hearing world.

**Statistics of Individuals with Hearing Loss**

Hearing loss is most prevalent among individuals 60-69 years of age (NIDCD, 2016). Among children, hearing loss occurs 2 to 3 out of 1000 births. Close to 90% of children with hearing loss are born to parents with normal hearing (CDC, 2010). Less than 5% of deaf children have deaf parents and more than 80% of the children born to deaf couples have no hearing impairment (Mitchell, 2004; Mitchell & Karchmer, 2004; Schein & Delk, 1974).

Approximately 37.5 million adults report difficulty hearing, but may not necessarily have hearing loss based on their audiometric threshold. Communication difficulties in spite of normal hearing sensitivity are more common than previously believed (Saunders & Haggard, 1989; Gates, Cooper, Kannel, Miller, 1990; Chia, Wang, Roichtchina, Cumming, Newall & Mitchell, 2000; Jacobson, 2018). As much as 29% of those who passed pure tone testing report a hearing handicap (Saunder & Haggard, 1989).
Barriers to adequate communication, hearing loss, and deafness affects individual’s quality of life. Hearing loss often affects one's socioeconomic status.

- People with untreated hearing loss typically had annual incomes from $16,000 to $30,000 less their normal hearing counterparts.
- Total loss of income for those with untreated hearing loss due to underemployment is estimated at $176 billion a year.
- Hearing aids are shown to offset the impact of income by 90-100% for those with milder hearing losses and from 65%-77% for those with moderate to severe hearing losses (Kochkin, 2010).

Based on a survey completed by “totaljobs.com,” an estimated 1 in 4 d/Deaf people in Europe quit their jobs due to discrimination. Nineteen percent of this group did not inform their employer they suffer from hearing loss. Apart from quitting jobs, deafness makes it increasingly difficult for d/Deaf people to find good jobs. Hospitals rarely have effective means of communicating with Deaf people and sometimes do not even recognize that hearing loss could be an issue. In general, nurses showed no real awareness of Deaf culture and the particular challenges Deaf people faced (Scheier, 2009). Nurses interact often with patients, which means Deaf people may not be receiving the quality of care they require.

**ON THE TOPIC OF DEAF CULTURE AND AMERICAN SIGN LANGUAGE (ASL)**

The most defining trait of someone who would be considered accepted into Deaf community is their choice to use ASL. After the establishment of Gallaudet University in the early 1800s, several other Deaf schools were also established throughout America. Residential schools were established out of necessity given that most students with hearing loss lived on small farms and were too spread out for them to remain living at home, and continue to receive an
education. At schools where ASL was allowed and used in teachings, students formed lasting bonds with their classmates, teachers and their schools. They created folklore, poetry, theatre, jokes, customs, rituals or romance, rules of etiquette and proper conduct were enacted through manual communication suited to visual communicators (Baynton, Gannon, & Bergey, 2007).

One of the most intriguing aspects of Deaf culture is how a Deaf person defines themselves individually and Deaf communities define who “fits” into their community. Within Deaf some communities, social ranking exists which is not too far from any hearing culture. Higher class citizens of Deaf communities are those who are born with severe-to-profound hearing loss and choose ASL as their primary mode of communication. Hearing children of Deafened adults (CODA) are ranked slightly below someone who has hearing loss. As clearly indicated, ASL is highly valued. Hearing parents of d/Deaf children are also held to higher standards. Those that embrace ASL earn a higher citizenship status, but the exactness of ranking varies within some communities.

There is no “Deaf” look but there are personality traits that tend to define Deaf people. Deaf people are often very blunt and to the point, especially when speaking to one another. Deaf people believe they are to be treated as minorities as they carry similarities with other minority groups in that they have their own customs, beliefs and norms that are specific to the culture. For example, it is not uncommon for a small Deaf child to tap on an adult’s thigh to get their attention. It is also not uncommon for a hearing child of a Deaf adult to do the same. A hearing teacher or educator witnessing this may find the location of touch alarming, when in reality it is a piece of their culture that should be recognized as different and not necessarily as wrong (NAD, 2019). One of the biggest differences from a hearing point of view is how many Deaf people do not consider their hearing loss a disability. They may find it offensive to be labeled as an individual
with a disability. This is in stark contrast from the medical model, most medical professionals view deafness only as something that requires a cure, and not an opportunity to become a part of a rich vibrant culture. They often may not realize that Deaf people do not always view hearing as an essential need (Barnett, 1999).

Culture in the earliest residential Deaf school setting included instruction in reading, arithmetic, and other common subjects. These schools in the 1800s were considered by some, pioneers for offering vocational training to d/Deaf individuals. For girls, sewing and needle work were considered important skills, while boys were taught shoemaking or bookbinding. As mentioned earlier, teaching at Deaf schools was at one time a common career path for Deaf individuals. These students were often high-achievers within their school and were encouraged to pursue teaching given that it had once been a solid, stable career path for Deaf people (Gannon, 1981; Baynton, Gannon, & Bergey, 2007; Ladd, 1993). Deaf schools made the preservation of ASL possible. During the 100-year ban on ASL, Deaf people were rightfully concerned about the survival of their language, which motivated community members to film ASL in the early 1900s. The first ASL dictionary was published in 1960 by William C. Stokoe who made the claim that ASL was a distinct language separate from manual version of spoken English (Stokoe, Casterline & Croneberg, 1965).

It was not until 10 years after Stokoe’s text that ASL was recognized as its own language (Gannon, 1981) which is primarily due to the establishment of the National Association of the Deaf (NAD) in Cincinnati, Ohio in August of 1880, eight years prior to the Milan conference (NAD, 2019). At the same time ASL was recognized as a language, the Graduate School at New York University even began accepting ASL as satisfying a language requirement. It is often mistaken that American Sign-language (ASL) is English, but by using your hands. ASL is very
different from English in several ways that include differences in grammar, structure, syntax and the uses of its own form of ‘slang’ and idioms. Different countries have their own recognized manual signed language, which includes but is not limited to, Brittan Sign-Language, German Sign-Language, or Australian Sign-language to name a few examples. However, ASL classes in America are still not always recognized by universities as fulfillment of their second language requirement. In 2016, in fact, Harvard University began offering credit for ASL courses for the first time in 20 years (Harvard, 2019).

In addition to the fight for ASL, the NAD also organized rally’s, wrote letters to legislators, sued on behalf of civil rights issues and much more. The NAD fought for Deaf teachers, and supported that Gallaudet University was run by a qualified, Deaf president in 1988. Closed captioning became required in films in part because the NAD fought for this right. Shortly after one of their many letters, Eisenhower signed this requirement into law in 1958 (NAD, 2019).

The NAD offers suggestions regarding terminology when speaking about the Deaf population. Language that was historically appropriate is now considered offensive and inappropriate. These include the use of “deaf-mute”, “deaf and dumb” and “hearing impaired”. “Deaf-mute” is offensive in part because it implies that all Deaf people are mute, which is far from the truth. When speaking of Deaf people, few describe themselves as: mute: or “silent;” they communicate using an alternative means to spoken communication. “Deaf and dumb” follows the old belief from Aristotle that deaf people do not have the ability to reason. Even the later meaning of the word “dumb” as “silent” is as offensive as the word mute, because again, Deaf people have a lot to say even if hearing people do not understand their language. They reason, develop minds of their own and have just as much to say as anyone else. The last term, “hearing impaired”, focuses too much on what d/Deaf people cannot do and is rarely used by individuals with hearing
loss (NAD, 2019). It must be noted that the NAD is not against the use of the oral method in teaching Deaf children to speak, instead they fight for the BiC approach to education.

It is extremely difficult to determine the actual number of ASL users in America. According to Mitchell, Young, Bachleda, & Karchmer, claims that ASL is either the 3rd or 7th most common language in the world are unsubstantiated, despite their appearance on the internet and various literature as fact (Mitchell, Young Bachleda, & Krachmer, 2006). The internet claims there are anywhere as few as 100,000 to as many as 2,000,000 people who utilize ASL in America. In their research, Mitchell, Young, Bachleda & Krachmer also discuss the inaccuracies of census data and call for a need of a recount that includes current and a larger sample size. The most accurate measurement of good signers is roughly 500,000 as reported by Schain and Delk in 1974 with a sample size of only 1500 respondents. This does not include those that have taken a class or are hearing and have mastered ASL as a second language. Given that only 5% of children with hearing loss are born to Deaf parents, the number of ASL users is understandably relatively small. Furthermore, the 100-year ban also likely impacted the use of ASL, in addition to the unrelenting theme that some educators maintain learning ASL will hinder development of speech, language and academic outcomes (Buckley, 2016). Parents who have recently discovered their child is deaf desire the best outcome for their child, so if educators are discouraging ASL use, they are much less likely to choose to learn a new language. In some cochlear implant facilities, there has been a recent resurgence of overwhelming support for the AV method. O’Donoghue reported that cochlear implant surgeons often discourage parents from teaching and/or learning ASL (O’Donoghue 2013).

Herein lies the biggest irony: the same surgeons who discourage sign language in Deaf children often encourage parents of children with standard hearing to learn baby sign language,
because of the advantage of promoting early language skills (Okaly, 2017). On a similar note, simple hand gestures are used in baseball so that even the furthest players will understand the user intent from these distances. It is a mystery how there are few, if any, accounts of the military embracing the complexity of any signed language other than with simple, yet meaningful gestures, when the use of ASL could potentially allow for a significant militaristic advantage. Instead of simple gestures, the military, army, navy could converse in an entirely silent conversation all whilst engaging in stealth operations. Historically, the superiority of spoken language over ASL has been misguided by prejudice and naivety. That spoken language may be harder for children with hearing loss to learn in conjunction with English should not trump the decision to teach children ASL and limit them from interactions with other Deaf people. AV specialists previously discouraged parents from exposing their children to individuals who chose ASL as their primary mode of communication (Gannon, 1981).

ASL requires the use of a different modality of the brain through the use of the visual cortex, (Sharma et. al, 2016) may pave the way for deaf children to communicate most effectively using a manual language. While this theory has not been tested, it has been documented is that regardless of when deafness occurred, many d/Deaf individuals report relying only upon their residual hearing because lip-reading requires significantly more energy (Southwick & Vacalla, 2008). There is an astronomical amount of guesswork involved when lip reading without acoustic cues. Unfortunately, both cochlear implant and hearing aid users still report communication difficulties, especially in the presence of background noise (Chu, Throckmorton, Collins & Mainsah, 2018). Technology continues to improve, but reliance on AV only methods or only upon hearing and lip-reading cues is short-sighted and creates unnecessary limitations for the user. Further investigation is needed into the cognitive demands of the brain upon bilingual d/Deaf
individuals that compares imaging studies when engaging in an entirely ASL conversation versus English.

For ASL users, communication between two skilled signers is as seamless as two individuals without hearing loss. For hearing individuals who were not exposed to signed languages growing up, learning to make sense of ASL and read rapidly finger-spelled words takes equally as much effort as it would to learn any other foreign language; perhaps even more because of the visual modality requirement, which is an adjustment for those used to listening and making sense of language with their ears. Just as it takes someone being in another person’s shoes to fully appreciate the challenges, once a/the non-native individual has studied ASL, is it then that it becomes possible to accept the complexity of the language.

**SUPPORT FOR THE AUDITORY VERBAL (AV) OR PURE ORALISM APPROACH**

The burning question is where is the evidenced-based support for the AV method? Does it exist? Health sciences are focused on providing healthcare that is based off of high-quality, evidenced-based literature. Evidenced-based literature is defined as a study that is randomized and controlled. This literature review will help to answer the question regarding evidence-based literature supporting the AV method. I searched the Graduate Center’s portal library, the Cochran’s database, and Google Scholar which yielded only one solid systematic review of this question. In their systematic review, Brennanjones, Rush & Law revealed that of the 2333 titles assessing the AV method, only 13 met their inclusion criteria. Upon further analysis, all 13 articles were excluded because none met the criteria with research methods that were randomized and/or controlled studies (Brennanjones, Rush & Law, 2014). This indicates that further research is required in order to determine the efficacy of the AV method.
Studies often failed to investigate areas besides spoken communication (Dettman et. al., 2013), which showed favor for the AV approach over the BiC approach, but did not assess English literacy. Apart from speech understanding and audibility, successful cochlear implant and hearing aid use is rarely determined by “real-world” measures of success. While both measures are critical and should be used to verify functionality of devices, it is equally as important to measure success in terms of literacy. Success should be measured in a way that the percent of high literacy achievers equates or surpasses that of normal hearing individuals.

At least one of the articles which did include an analysis of literacy showed no advantage of exposure of ASL pre or post cochlear implantation; however, indicated 91 families who were excluded from the study due to time of implantation (Geers et. al., 2017). Children who were not exposed to ASL performed better on both tasks than children who were exposed to short- or long-term use of the language. Their sample included a statistically lower than average age of implantation, and higher than average maternal education level at college graduate or higher. It does not appear that comorbidities had been ruled out (Geers et al., 2017). In other words, what were the overall cognitive skills of these children? Were there any other underlying issues that had not been addressed? If so, did this influence literacy scores? Granted, you could argue that the groups were equally matched as neither group were assessed for cognitive skills, but the possibility of other developmental issues may have affected the data. Due to later activation periods, they also excluded 91 families from their study (Geer et. al. 2017) which means those who were implanted later may have revealed statistically significant results for inclusion of ASL pre/post implantation. Their research question was not designed to investigate whether later implant activation showed the benefits of ASL use, but it was also not mentioned what the average age of implantation was for these families. As not every child is implanted before the age of three,
it makes sense to provide all children with every available tool. For one, the children that need the ease of ASL more than others will have more opportunities to interact with other individuals speaking their native tongue. For another, this ensure that less children will be left behind by focusing on both. Few studies investigating cochlear implant or AV therapy success do not assess bilingual development or skills.

Another key point for oralism is that learning ASL is a different language compared to reading and writing in English. There is no writing equivalent in ASL. ASL has a form of glossing, but it is not considered a written language; it is entirely visual. As with other children who learn English as a second language, children who are not exposed to English consistently have less opportunities to master it. It is evident that hearing loss on top of needing to learn a different language than what is used at home is difficult. However, in their work, Strong and Wilbur found that the BiC approach over AO and ASL only was associated with higher literacy scores (Strong, 1997; Wilbur, 2000). Other studies have also found that for children with no other developmental concerns, using manual communication does not hinder one's ability to speak, in fact, it may sometimes help provide clarity for the enunciation(s) (Nussbaum, Scott, & Simms, 2012; Nussbaum, Waddy-Smith, & Doyle, 2012).

Regardless of whether instruction includes ASL; however, many children with prelingual hearing loss struggle to understand the English language. As 90% of children with hearing loss are born to hearing parents, the risk of optimal language exposure is much greater. Parents are often not equipped with an effective means of communicating with their deaf child. They must learn the tips and tricks of capitalizing on teaching moments, and should they choose to learn ASL, be burdened with the disadvantage of learning a foreign language in adulthood as opposed to childhood. The reason language is much more difficult to learn could be due the phenomenon that
brain plasticity decreases with age. Children’s brain plasticity significantly decreases between the age of three and four years old (Kaipa & Danser, 2016). Children with normal hearing without developmental issues learn to speak with relative ease. Those who have been deprived of sensory input prelingually often have more difficulty learning to make sense of auditory input due to the change in modality dominance. Visual pathways may begin to dominate language learning areas making the adaption to hearing aid or cochlear implants increasingly difficult (Fine, Finney, Boynton, Geoffrey & Dobkins, 2005).

In addition to the auditory centers of the brain, the language centers go through an explosion of vocabulary building which is in jeopardy should a child lack exposure to language from birth to the age of three. While Gallaudet continued teaching ASL and speaking out against purely oral methods, it was not until the 1960s that other investigators began to question the ban on signed languages (Gannon, 1981). Support for the use of ASL began to resurface throughout the mid-20th century and continues to grow. Strong and Wilbur showed that when all other factors are controlled, including age of intervention, little to no differences in spoken communication from individuals who were exposed to ASL to those who were not. Some studies even showed that having a higher ASL proficiency led to improved English literacy (Strong & Prinz, 1997; Wilbur, 2000).

**Average Literacy of Deaf Individuals and Why It’s a Problem**

The problem is that regardless of which teaching method has been used, several decades of intensive research and intervention programs have failed to raise the average reading level of deaf high school graduates above the 3rd or 4th grade level (Allen, 1986). Johnson and associates (1989) suggested that low academic achievement levels are not the result of learning deficits related to deafness, but of problems in the communication practices of teachers and the absence of an
accessible language in the classroom setting. This 3rd/4th grade reading level became somewhat of a “glass-ceiling” (Easterbrooks & Beal-Alvarez, 2012). This reading level has been commonly reported but not investigated or updated since Allen’s publication. However, Easterbrooks and Beal-Alvarez showed that depending on the state from which the information was provided, at least one state reported 66% of d/Deaf individuals who met or exceeded grade level in literacy (Easterbrooks & Beal-Alvarez, 2012). Unfortunately, this study did not look at the method of instruction, but only compared reading levels in d/Deaf high-school graduates. Further investigation is needed to determine whether accessibility to language has improved for d/Deaf children.

One study suggested that non-verbal cognitive processes were the strongest predictor for cochlear implant users that were considered good readers (Daza e. al., 2018). As ASL requires more non-verbal processing in order to make sense of this language, is there a relationship between ASL proficiency and English literacy? Studies that held ASL exposure constant during the early years showed a strong association between ASL proficiency and English literacy for Deaf individuals (Israel et al., 1992; Johnson et al., 1989; Meadow-Orlans, 1990). The higher level of proficiency in ASL, the higher the English literacy scores.

COMmUNICATION BARRIERS

Deaf individuals often communicate only using ASL, which warrants a discussion of communication barriers. Any barrier to healthcare information prevents medical professionals from establishing good patient-client relationships. Merely discussing clients’ needs for treatment for individuals without a known hearing loss does not ensure healthcare information is accessible. For one, approximately 21% of American adults read below a 5th grade reading level and 19% of high-school graduates cannot read (USDOH, 2013). Limited health literacy increases the odds of
an adverse outcome by 1.5 to 3 times when compared to individuals with higher health literacy scores (DeWalt et al., 2014). Hommes et al., reported that, in general Deaf and hard-of-hearing individuals also have lower health literacy scores than individuals with normal hearing (Hommes, Borash, Hartwin, & DeGarcia, 2018).

Lower health literacy scores are related to an increased likelihood of hospitalization, reduced access to preventative care and overall decline in health status. As noted previously, d/Deaf individuals fall behind on readings tasks (Allen, 1986). While it would be ideal for Audiologists and other practitioners to develop strong ASL skills, another way to capitalize on maximizing conceptual understanding from both the aging deaf population and culturally Deafened individuals is by employing the concept of “teachback.” This concept requires that the teacher (physician, audiologist, nurse, or speech pathologist for example), to have their students/patients ask them to repeat in their own words what they understood about their diagnosis or treatment plan. Hommes and colleagues, showed that the instances where deaf or hard-of-hearing clients lacked clarity on provider messages decreased significantly when the provider effectively used “teachback”. Nearly 80% reported clarity with their provider when “teachback” was used during the clinical encounters. When this was not employed almost 50% reported they lacked clarity from their provider regarding their diagnosis (Hommes, Borash, Hartwig, & DeGracia, 2018). This sample assessed a group of individuals whose primary mode of communication was ASL. Many professionals surveyed in this sample thought that lip-reading was an adequate alternative if no ASL interpreter was present, which was very different from the d/Deaf individuals who responded to the same question. Teachback, by contrast was an effective alternative. Given that the degree of proficiency achieved in ASL will vary among professionals,
“teachback” strategies may be a more doable strategy to adopt should they lack ASL proficiency or the time investment required to learn a foreign language.

**DISCUSSION**

The goal of this project was to enhance reader knowledge of ASL, American Deaf History and Culture, and identify areas where evidenced-based literature for the AV approach is lacking. To further enhance knowledge of ASL, this project concludes with an appendix of basic sign-language. The historical account of Deaf Culture and their native language – ASL – gives precedence for why it is important to challenge oneself to learn their language so that barriers between the two worlds may be one day be dismantled. These accounts coupled with the limited evidence-based literature supporting the AV method support the recommendation that professionals should encourage a BiC approach to student education. In order to better serve their culturally deafened individuals, learning ASL for them could potentially help heal old wounds.

Countless Deaf individuals report their personal struggle with AV methods as with their accounts of trauma that have been associated with the use of the AV method. Further research should include surveys that analyze Deaf people’s experiences with the different methods. Means should include social media, as this may be the most effective way to reach the Deaf community at large. Several updates to the literature are needed, including an updated estimate on the number of ASL users, and an updated analysis of reading levels of high-school graduates in direct comparison of not only the methodologies employed, but of their normal hearing counterparts.

Swinbourne (2011) noted that culturally Deaf individuals rarely seek audiologic care and management, which means that, as a whole, their needs are not being met.” If we as audiologists consider ourselves champions for all d/Deaf individuals, it is critical that we employ the necessary steps in order to ensure culturally Deaf individuals’ needs are met. First and foremost, this begins
by showing respect for the use of ASL by learning basic signs and if not possible by ensuring tools such as “teachback” are employed in order to optimize d/Deaf persons conceptual understanding during a clinical encounter. Lastly, by recognizing prior and current terminology that is considered offensive to some Deaf people.

CONCLUSION

In summary, the importance of learning ASL cannot be overstated. The more people that communicate in both ASL and English ultimately may ensure that less people feel left out of conversations. It is time to accept that as pioneers for d/Deaf individuals we must think outside the box of learning by hearing alone. We should capitalize both upon what we can do for people through auditory means but also through the use of a vibrant, rich and natural language of Deaf people.
Due to the limitations of including visual animations for both print and online access, this module has limitations in how to best describe how some signs are made. Please note that for phrases, there will not be a sign for every word, especially the English articles as these signs are not present.
Start with your pinkie finger facing as shown in figure 1, keeping this shape air write the letter J ending with palm orientation in figure 2.
For Z, you use your index finger to air write this letter.
NUMBERS 1-10

1

2

3
Note: Gently move your hand back and forth with your thumb up
References


Fong, V. (1997). Deaf Education Roots Stem From Benedictine Beliefs. *Penn State online journal*.


