

Sign Language Bible Translation; A New Day to Reach the Unreached

By Dee Collins

For hundreds of years, Bible translation has made God's Word accessible to thousands of people globally in their native languages. As each Bible becomes translated, the number of Bibleless people groups are reduced in the world. However, the number of sign language Bibles that are awaiting Scripture remains significant.

Marginalized and unengaged people groups known around the world as Deaf have been forgotten and unreached for centuries. Deaf people are blended into societies in every city, state, and country. Often misunderstood, Deaf communities are reduced to a homogenized culture and socially regarded as disabled. In some countries, Deaf people are labeled as leprous, and their deafness is considered a sign of sin. Many are cursed and ousted from society as deafness is considered shameful. Throughout history, Deaf people have been subjected to terrible crimes and atrocities in the name of science.

Missionaries seeking to talk to Deaf people must often knock on international doors to draw out the withdrawn and isolated. Churches mistakenly approach Deaf people with church services and resources based on a hearing model. Deaf people are left to figure out how they can fit.

The most unreached people group

Most sign language Bible translation organizations report that there are over 350 distinct sign languages around the world. Among all of the sign languages, only one completed sign language Bible - the American Sign Language Bible exists. There are portions of translated stories, chapters, and verses in a handful of sign languages all supported on the Deaf.Bible platform in video format. But that leaves hundreds of sign language Bibles not yet translated.

The staggering statistics indicate that fewer than 4% of Deaf people, worldwide, have been introduced to the truth of a Savior. This information confirms a huge void in Bible translation for Deaf people who use sign language as their mode of communication.

According to the World Federation for the Deaf, "each country has one or sometimes two or more sign languages, although different sign languages can share the same linguistic roots in the same way as spoken languages do. There are about 70 million deaf people who use sign language as their first language or mother tongue. It is also

the first language and mother tongue to many hearing people and some deafblind people...”

Deaf people who use sign language to exchange information do not use individual spoken words to convey meaning. However, Deaf culture is an oral culture in that, like oral cultures, their communication is passing language, art, and tradition through stories, preserving their culture, from one generation to the next,

Signed languages are not based on simple gestures or pantomime representing the national spoken language, but true languages, rich and complex, with their own syntax and grammar. Signed languages employ facial expression, hand and body movement, and palm orientation as part of the visual grammar. Deaf people who use sign language as their main mode of communication depend upon all of the parts of the visual language grammar to convey meaning, just the same as a person who hears depends upon all the parts of the spoken language grammar.

Just read it

One of the biggest misconceptions is that Deaf people ought to be able to just read the Bible since they can still see.

Because reading is based on phonetic sounds; words made up of letters representing sounds of speech, most Deaf people find it difficult. They must learn the national spoken language as a second or third language in order to read the written text. It has been described that reading for the Deaf resembles memorizing the numbers in a phone book! In regions and countries where education and literacy are limited or absent, an even greater barrier exists for Deaf communities to have access to written content and resources.

This means that the written text on a page creates a barrier to Deaf people knowing God. However, it has created an opportunity to approach sign language Biblical resources differently, outside the hearing model.

A visual language needs a visual Bible!

Sign languages are alive and active and must be in an accessible multimodal medium to be viewed. Instead of the traditional flat 2D linear words on a page, a Bible in sign language must utilize the face, the hands, body movement, and expressions all collaborated with clear, natural, and accurate community signs. This presents a

challenge, yet an advantage for sign language Bible translation to incorporate cutting-edge 3D technology.

Machine learning has been around since the 1950s, but it has never been on the lips of mechanical engineers, software developers, and computer scientists like it is today. It wasn't that long ago that the general public wasn't ready to accept things like artificial intelligence and learning bots into their private space. It may have been widely accepted that the U.S. military was using artificial intelligence for surrogate operators and combat training simulators, but '50s science fiction based movies often painted a picture of artificial intelligence (A.I.) in the form of little green men taking over the planet. A.I. was something more fearful than helpful.

Then along came Siri from Apple and Amazon's virtual assistant, Alexa, and the whole world exploded. Since then, new gadgets and smart electronics have emerged with life-enhancing algorithms. Eastern and western populations, alike, gobble it up daily. At the top of all the socials like Facebook and Twitter, current common discourse threads appear, engaging groups to tackle the world's biggest problems using an artificial brain learning data. The general public finally seems to have embraced something once considered part of a conspiracy to take over the world.

But how can Christian evangelists and ministries take advantage of this sailing ship? Can this kind of advanced technology be used to assist the acceleration of Bible translation and Scripture engagement? If digital assistants can be taught through mathematical equations how to turn off lights and order dinner, then certainly programs can be designed to perform specific, complex tasks like language acquisition. But, can advanced technology like A.I. be used in sign language acquisition? Better yet, can machine learning be used to assist sign language Bible translation?

Thinking inside the bot

When we talk about written text translation we talk about the variety of different versions available or the available audio Bibles. The reader or the listener rarely connects the team or the person who worked on the translation directly with the output.

However, years ago Bible translation organizations identified that the output of a signed Bible needs to look different from the traditional written text or the audio Bible in order to captivate their audience, and honor the heart language of the Deaf. But, security issues arise when a person's face is on camera. The character of the person overrides the message and becomes the focus, leading to scrutiny when the community recognizes

him, or exposure of the project when God's Word is not welcome in that region. These security risks can put an entire family and the translation team and project in danger. Additionally, having the identity of the signer revealed puts a lot of pressure on the person which can lead to cultural rejection within the community.

Masking the identity of the signer becomes the key!

One way that organizations are thinking forward is by using new technology, like neural networks and machine learning to catapult software into the mission field with the goal of masking the identity of a signer on camera. Building software that uses deep learning which drives realistic looking avatars seems to be the best advanced solution out there.

But how does it work?

Chameleon is a software specifically designed to mask the identity of a signer using avatars. Neural networks have enabled Chameleon to leap years ahead of the original design and what was thought possible. "It's really the dreamers who keep things moving forward," says Shawn, Chameleon's team leader. "It wasn't that long ago that neural networks were considered unpopular. People didn't think it was possible for computers to learn and self-correct on their own, but look at what God is doing for His glory!"

Neural networks are trained with real-time data. They are fed information such as "this is an elbow" and "that is an eyebrow" and "this is how the lips form in conjunction with a particular movement." They learn from the data. As the network looks at the larger picture of data they break it down into chunks, and then smaller chunks, and then build it up to recreate the parts. They work like an active brain to learn the motions and expressions while responding by recognizing bodily connections and coordinated movements. It is like a baby who sees his parents over and over and suddenly starts to smile when the parent walks in. The baby responds more based on what he is learning.

When the output of the neural network is driving the avatars, the signer's movement and style are fully captured without the risk of identity on the screen.

Awareness builds a movement

As sign language Bible translation makes its way into the light, deafness and education become recognized. Advanced technology and social media touch every place around the globe, making a place for acceptance and change possible. It is a time when Deaf people must be identified and honored as an intrinsic people group to society, as an

exclusive culture within a culture. And sign language must come to be fully recognized as a true language, cherished by the Deaf as their heart language.