

Attracting Critical Contributions of Deaf and Hard of Hearing People to STEM Fields using ASL Clear

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Abstract

The American Sign Language STEM Concept Learning Resource, ASL Clear (aslclear.org), is a web-based computer application, developed with substantial funding from the Massachusetts Department of Elementary and Secondary Education. ASL Clear was developed as a direct response to the need for a STEM instructional resource in ASL that would serve the learning needs of Deaf students, and the instructional needs of the teachers and interpreters who work with them. ASL Clear presents micro-lectures on STEM topics that feature conceptually accurate and linguistically appropriate ASL vocabulary for an array of STEM concepts, such as *photosynthesis* and *linear function*. The lack of shared terminology and academic discourse in ASL is increasingly shown to be a barrier for learning and mastery of STEM concepts among Deaf students in bilingual classrooms. Deaf and hard of hearing ASL signers report that the lack of fluent and consistent academic ASL across their years of STEM education is a major barrier to easily and effectively comprehending STEM material. It is likely that these struggles then contribute to the almost inconceivable dearth of representation of Deaf and hard of hearing professionals in STEM fields, as reported by NSF the proportion of Deaf and hard of hearing people working in STEM careers is a mere 0.13 – 0.19% compared to 11 – 15.3% in the general population (NSF, The National Center for Science and Engineering Statistics, 1996, 2004, 2009, 2011, 2017). statistic The impact of this level of underrepresentation is almost impossible to calculate. The small percentage of Deaf people who work in STEM fields have used their unique vantage points to advance research and make meaningful contributions, but subpar STEM education in ASL has made such opportunities inaccessible to the majority of Deaf people. Giving Deaf and hard of hearing people access to quality STEM resources in ASL would bolster their interests in STEM and increase the likelihood of them pursuing careers in STEM fields.

This panel will address the linguistic challenges Deaf people tackle daily related to learning and discussing STEM content in ASL, and demonstrate how ASL Clear's intentional design, materials, development practices, and presentation bring together linguistic and user interface elements to create a potentially powerful instructional tool that facilitates deeper and more meaningful learning for Deaf and hard of hearing students.