

The Societal Shaping of Deaf Technological Advancements

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ABSTRACT

Different social groups construct the meanings of physical difference to fit competing ideologies and interests. In the case of deafness, there are two primary ways of understanding the condition. A cultural perspective understands deafness to be a difference rather than a disability, and American Sign Language (ASL) is used as the language technology. The infirmity, or medicalised model, of deafness considers deafness to be a disability to cure or treat. Each of these two perspectives of deafness informs the kinds of technology that are developed and adopted for, by, and about deaf people. On the one hand, the infirmity model of deafness encourages technologies that “correct” the deaf body to be hearing. The cultural model of deafness, on the other hand, encourages the development of technologies that allow deafness and hearing to coexist.

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1. Introduction and Objectives

The history of deaf technology is a reflection of society's shifting perception of deafness. Initially viewed as a spiritual crisis, technology evolved from manual communication methods to medical interventions aimed at “correcting” deafness and culminating in modern devices like cochlear implants that reflect societal aspirations for normalcy and success. The evolution of deaf technology is intrinsically linked to societal views on deafness. Early ASL emerged from viewing deafness as a barrier to divine communication and led to the establishment of schools for the deaf. As perceptions shifted towards a medical model, early hearing aids and surgical interventions were developed to normalise hearing. The advent of cochlear implants represents the latest era, driven by societal values emphasising success and integration into the hearing world.

Nomenclature

The word ‘Deaf’ refers to members of a cultural group that identify as a linguistic minority, whereas ‘deaf’ refers to an audiological condition.

2. Methodology

The sociotechnical history of technological devices for the deaf can be divided into three different eras. The first era began in the 1810s, when Thomas Hopkins Gallaudet founded the first ASL school for the deaf in the United States. The second era, starting in the 1870s, is when the first early hearing assistance devices and surgeries were developed and later followed by in-ear hearing aids. The third era, beginning in the 1980s and reaching into the present, represents the increasing use of cochlear implants. Before the 1800s, deaf individuals in the Thirteen Colonies and, later, the US often faced significant social and educational barriers, with little formal support or recognition of sign language. Various sign languages and Deaf communities have existed for centuries. French Sign Language was developed in the 18th century and the world's first public school for the deaf was established in Paris in 1760. The analysis, grounded in Science & Technology Studies, draws from historical reviews and sociotechnical studies to illustrate how each era's dominant ideology influenced technological advancements for the deaf. The technologies developed, from ASL to cochlear implants, were only solutions to auditory challenges, but also responses to societal expectations and prejudices. This article was written as a short-form version of the original research by the Atomic Academic AI, reviewed by the original author and peer-reviewed openly.

3. Results

1. **Societal Perceptions Shape Technology:** The history of deaf technology underscores how societal attitudes toward deafness have directly influenced the development and adoption of technological solutions. From early sign language as a means of spiritual communication to cochlear implants as symbols of technological success, each innovation reflects the prevailing societal norms and values of its time.
2. **The Double-Edged Sword of Technological Advancement:** While technological innovations offer new opportunities for communication and integration, they also pose risks of further marginalising those who do not conform to the hearing world's norms. The push toward devices like cochlear implants can overshadow the rich cultural and linguistic heritage of the Deaf community.
3. **Accessibility vs. Assimilation:** The evolution from assistive devices to surgical interventions reveals a tension between enhancing accessibility for deaf individuals and pursuing an ideal of assimilation into a predominantly hearing society.

4. Discussion

The trajectory of deaf technology highlights a complex interplay between societal beliefs, medical advancements, and the Deaf community's responses. Each technological shift reflects broader cultural shifts, from spiritual salvation to medicalisation, and finally, to a focus on success within the norms of the hearing society. This evolution underscores the importance of recognising the social dimensions of technological development.

5. Conclusion

The history of deaf technology serves as a powerful narrative of how societal perceptions of disability and normalcy shape technological innovation. As we advance, it is crucial to foster inclusivity and respect for diversity and to ensure that future technologies enhance lives without imposing restrictive notions of normalcy. To truly understand deafness, we need to value both medical advancements and cultural perspectives. By listening to the needs and preferences of the Deaf community, we can create technologies that make society more inclusive and supportive. This balanced approach not only enhances quality of life, but also honours and preserves the unique aspects of Deaf culture.

6. Implications and Future Research

1. **Inclusive Design:** Future technological developments should prioritise inclusivity. New devices need to be accessible, affordable, and adaptable to the diverse needs and preferences of the Deaf community. Design processes should involve input from deaf individuals and strengthen engagement with the Deaf community to ensure technologies are culturally sensitive and empowering.
2. **Valuing Deaf Culture:** Recognise and value Deaf culture and sign languages as integral components of human diversity. Efforts should be made to protect and promote these cultural expressions alongside technological advancements.
3. **Educational and Policy Initiatives:** Advocate for educational and policy changes that support bilingual education (in sign language and the written/spoken language) and ensure that deaf individuals have full and equal access to information, services, and opportunities.
4. **Research and Development:** Encourage continued research into technologies that enhance communication without necessitating assimilation. This includes advancements in sign language recognition technology, improved subtitle and captioning services, and more sophisticated hearing aids that offer customisable experiences.

These four approaches can ensure that technology acts as a bridge to inclusion rather than a barrier to diversity.

7. Original Work

Burrows K. A not-so-short history of deaf technology. *London Journal of Research in Humanities and Social Sciences*. 2022;22(15):1–14.