A Data-Driven framework for the advancement of disabled persons'

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Introduction.

Augmentative and alternative forms of communication technologies provide the opportunity to offer people with disabilities who have complex communication needs with access to express themselves and communicate without difficulties. This project explores the use of data technologies to improve and advance the lives of disabled persons' using natural language processing, deep learning models and electronic augmentative and alternative communication systems. The fundamental objective of the project is to give speech to a larger number of people who may have lost the ability due to natural causes or unforeseen events, and to overall make it easier for disabled people to communicate through technology.

Framework

Alternative Augmentative Communication (AAC) is a viable form of intervention for children who struggle with verbal communication. According to the American Speech-Language-Hearing Association AAC involves substituting speech or writing with unaided and/or aided symbols. AAC provides the necessary supports to make functional communication possible for those with limited verbal language ability. Individuals with autism spectrum disorder (ASD) benefit greatly from AAC and communicative technologies. Approximately 23% of individual appear to have linguistic limitations and difficulties with speech functions.

Method.

This project utilized ACC technologies like the Makaton. The study administered augmentative devices across several sessions. Typically, a pair of words were shared and taught new keywords and reviewed. Warm-up exercises were commenced before the communicative therapy. Hands on human interaction was implemented such as prompting participants to touch a portion of his or her body as the instructor verbally guided the name of the body part they touched. This exercise is to support the connectivity between the participant and the auditory commands requested. Steps where implemented to help guide the process. Step one focused on showing tangible and images simultaneously with the auditory cues. Step two requires participants to identify by choosing an image or tangible object based on verbal cues. Step three requires participants to gain leverage over more cumbersome tasks of identifying objects and images using either verbal or physical signs.

Results.

The results of this study suggest that Alternative Augmentative Communication intervention promotes language development and appropriate social behavior in disabled persons'. Results

are still on going.