emoTune: New AI-Based Approaches to Assistive Technology for Individuals With Autism Spectrum Disorder

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Individuals with Autism Spectrum Disorder (ASD) have difficulty with comprehension of facial expressions. Although assistive technology has been developed to help these individuals identify emotions that are portrayed through facial expressions, there are shortcomings of these existing methods. This experiment introduced a new approach to assistive technology in the form of an iOS app named emoTune that assisted users with recognizing and forming facial expressions on their own time. emoTune's effectiveness was measured by the participants' improvement on a modified BERT (Berlin Expression Recognition Test) test and self-identified images of the seven most common emotions. The participants practiced with emoTune for seven weeks and were separated into two groups: those who practiced with emoTune and those that did not (control group). Participants that practiced used emoTune anywhere from 2 to 7 days a week (10 minutes a day) to ensure regularity while providing flexibility in their time commitment. The study concluded with a final modified BERT test for comparison. Participants with autism scored lower than neurotypicals on the initial assessment and both groups (that also practiced with emoTune) demonstrated improvement in both recognition and formation between assessments.

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