

A prototype reading coach that listens: PROJECT LISTEN Overview

Alex Hauptmann, Jack Mostow, Steve Roth, Matthew Kane, Adam Swift

School of Computer Science
Carnegie Mellon University
Pittsburgh, PA 15213-3890

What: Project LISTEN attempts to reduce illiteracy by using speech recognition technology in a reading coach.

Who: We are a team of reading specialists, speech technology experts, educators and human-computer interaction experts at Carnegie Mellon University, working with second grade children in Pittsburgh public schools who have difficulties learning how to read.

Why: Illiteracy costs the economy an annual \$225 billion dollars [literacy] in corporate retraining, lost competitiveness, and industrial accidents. Recent advances in speech recognition technology [huang-csl93] have provided the opportunity to attack illiteracy using computers that listens to oral reading and help struggling readers.

How: After carefully studying reading experts, we developed a prototype reading system and iteratively refined it with feedback from about 100 second grade children as described in [Mostow-EVELYN2-aaai93, Mostow-LISTEN-video93, Mosto resulted in the prototype reading coach demonstrated at the ARPA 1994 Human Language Technology workshop.

How well does it work? A preliminary experiment provided very encouraging results for the potential effectiveness of the system [Mostow-Emily-aaai94]. Another experiment evaluating the effectiveness of the speech recognition component also

showed that the technology is mature enough to help struggling readers in this task [Hauptmann-Evelyn2-eurospeech93, Mostow-Emily-aaai94].

Immediate Future: We are currently engaged in the process of scaling up the system for extended use. This includes further improvements on the accuracy of the system, making it useable with large amounts of text, possibly modifying the text dynamically, and further exploiting the motivational power of computers.

A six minute video summarizes the current state of our research [Mostow-video-aaai94].

Spinoff Applications: This work applies to several important areas in addition to children's reading instruction, including adult literacy, English as a second language, and foreign language learning. It opens the door to a new generation of intelligent tutoring systems that can listen to their students.

REFERENCES