Invasive Survey of disability service organization in EAs perceive that they require more formal training when it comes to learning Non Interacting and socializing with robots

Authenticity of the technology and of the individuals using the technology is described to be beneficial for greater success in student learning.

New communication technologies include:

- Brain-machine interface (BMI)
- Sub-vocal speech device
- Social Robots
- iPad
- SmartBoard
- Speech generated communication device
- AlphaSmart

Methods

- Review of Brain-machine interface (BMI) and educational assistant (EA) in relation to disabled people literature
- Used Knowledge Share (KSV2) v2.1.3, developed by Dean Yergens (http://people.ucalgary.ca/~dyergens/ksv2.htm) to systematically review the literature
- Databases: ScienceDirect, Scopus, OVID(All), EBSCO(All), Web of Science, JSTOR
- As for BMI: 1,058 articles were found, however only 71 fulfilled the criteria (include: English, PDF available; exclude: pure technical, conference announcements, books); Kappa factor 0.99
- As for EA: 465 of the 840 articles found were included
- Used Atlas.ti 7.0.71 qualitative data analysis software

Background

New communication technologies are emerging, reshaping the way we interact with one another. They seem to improve the emotion and quality of life for disabled people.

Issues: Example of BMI

- Invasive vs. Non-invasive technology and the debate within the scientific community:
  - Invasive (based on intracranial implantation)
    - Pro: provides neural signals of the best quality and has high potential for further improvement
    - Con: carries risk associated with invasive surgical procedures
  - Non-invasive (based on recordings of EEGs from the surface of the head)
    - Pro: provides solutions for individuals without speech for simple communication with the outside world
    - Con: neural signals have a limited bandwidth
  - Authenticity of the technology and of the individuals using the technology
  - Safety – medical risks, privacy, data collection
  - Enhancements for minors and incompetent individuals
  - Inequality to accessibility

Technology & Educational Assistants

- Technology is described to be beneficial for greater success in student learning and an ameliorate for a lack of staff resource in the classroom
- With advancements in communication technology, there is a need for EAs to learn and effectively use the assistive technology
- EAs perceive that they require more formal training when it comes to learning new technology

Social Robotics in the Classroom

- Used as EAs - students receiving instructions
- Interacting and socializing with robots

Future Directions

Research under way:
- Individual face-to-face interviews with a group of special education school teachers
- Online survey of a disability service organization in Saskatchewan

Research to be performed:
- Survey of disability service organization in Calgary
- Interview with: Speech Pathologists, university students from faculties of engineering/education/health sciences, high school students involved with summer research

References