Abstract

Project Title: Development and Usability Testing of Adapted and Interactive Video Interventions for Students with Intellectual Disabilities

Absolute Priority: Technology and Media Services for Individuals with Disabilities – Steppingstones of Technology Innovation for Children with Disabilities

CFDA Number: 84.327A

Purpose: The purpose of the Phase I Steppingstones of Technology project is to develop an innovative technology-based approach based on the principles of universal design for learning that enables access and participation of students with intellectual disabilities in appropriate challenging academic curriculum. This technology will allow enhancing existing content-based videos in any subject area with adapted and interactive features such as regular text, highlighted text, and/or picture-symbol captioning; verbal and visual cuing; interactive hyperlinks in order to search the video for answers; and built-in testing activities in various formats. The project intends to: 1) initiate and refine the design of the key elements of adapted and interactive video-based media tool through the iterative development process; 2) conduct the usability testing of an adapted and interactive video interventions with middle and high school students with intellectual disabilities; 3) revise and adapt the technology innovation based on the results of the expert panel review and usability testing; and 4) complete the final product and recommendations for further development and research of the effectiveness of the innovative technology-based approach.

Method: Over two-year period, the development of the innovative video-based educational approach will emerge through the iterative process based on the formative evaluation steps: Initial Planning and Design (Step I), Expert Panel Review (Step II), Revisions and Adaptations

(Step III), Usability Testing with Students (Step IV), and Evaluation and Dissemination (Step V). In collaboration between George Mason University and Fairfax County Public Schools, the usability testing will be conducted in a suburban middle and high school setting with students with intellectual disabilities (12-18 years of age). Employing rigorous single-subject research methods, approximately 12 students will test the feasibility resulting in possible positive academic outcomes of adapted and interactive video features. Through multiple baseline and alternative treatments designs, various adapted and interactive video features will be explored in the following groups: (1) regular verbatim captioning and regular key idea captioning; (2) highlighted verbatim captioning and highlighted key idea captioning; (3) picture-symbol verbatim captioning and picture-symbol key idea captioning; and (4) verbal cuing and visual placement; as well as searching the video for answers on factual comprehension.

Outcomes: The project will ultimately result in universally designed technology-based instructional materials that will support improvements in academic outcomes of students identified with intellectual disabilities. Anticipated outcomes include: (1) key features for the adapted and interactive videos having potential to improve educational results of students with intellectual disabilities; (2) the iterative product development process as reflected in the Alpha and Beta prototypes, as well as the final technology innovation; (3) utilization of original and adapted interactive videos across subject areas by middle and high school students with intellectual disabilities; (4) the results of expert panel review and usability testing incorporating single-subject and qualitative data; (5) completion of the final technology-based product for video enhancement; (6) published reports and national, state, and local presentations on the process and product of the proposed development project; and (7) recommendations for further development and research of the effectiveness of the innovative technology-based approach.