Bulletin of Special Education
2014, 39(1), 85-109

Selecting an Appropriate Pointing Device or Individuals with Cerebral Palsy by Using an Internal Evidence-based Approach

Ting-Fang Wu
Assistant Professor,
Graduate Institute of Rehabilitation Counseling,
National Taiwan Normal University

Yun-Ting Chang
Teacher,
Tatung Elementary School

Ming-Chung Chen
Professor,
Dep. of Special Education,
National Chiayi University

Chien-Huey Sophie Chang
Associate Professor,
Graduate Institute of Rehabilitation Counseling,
National Taiwan Normal University

ABSTRACT

Purpose: Computers have become a crucial tool for accessing new information, maximizing human potential, and redefining power and control in the twenty-first century. Computers are essential to the successful integration of persons with disabilities into the mainstream community and for these persons to pursue academic and vocational objectives. However, standard personal computing systems, such as regular keyboards and mice, cannot meet the needs of individuals with severe disabilities, particularly individuals with physical impairments such as cerebral palsy. Assisting individuals with cerebral palsy in selecting the most appropriate device to meet their personal needs remains a challenge during rehabilitation. This study explored the effect of an internal evidence collecting procedure, which involved integrating a single subject research design and scientific tools, on selecting appropriate pointing devices for individuals suffering from cerebral palsy. **Methods:** To provide a concrete procedure for simulating the pointing device selection process in this study, a Computer Access Assessment framework was proposed. The Computer Access Assessment framework comprises five major steps for selecting appropriate devices: needs identification, assessment, candidate device selection, training, and follow-up. Three clients with cerebral palsy participated in this study. A single sub-

ject alternative treatment design was adopted to collect and compare the performance of pointing devices for clients with cerebral palsy. Two instruments, the Computer Access Assessment for Persons with Physical Disabilities and Computerized Assessment Tool, were used to collect data. Visual analysis was conducted to analyze the performance of each device in the experiment. The major criterion for assessing performance was accuracy. The other parameters, namely speed, ratio of path to distance, and movement units, were auxiliary when making the final decision. **Findings:** According to the results of the visual analysis, all three clients with cerebral palsy acquired an appropriate pointing device by using the internal evidence-based process. **Conclusions/Implications:** The results of the experiment indicated that the scientific tools, the Computer Access Assessment for Persons with Physical Disabilities and Computerized Assessment Tool, can be employed to collect objective evidence. The process of collecting internal evidence proposed in this study exhibited effectiveness in facilitating the selection of an appropriate pointing device for individuals with cerebral palsy. Finally, future studies are suggested to verify that the device can perform effectively in real situations.

Keywords: internal evidence-based approach, single subject alternative treatment design, individuals with cerebral palsy, computer access assessment, computer pointing devices