Chapter X

A Field Study on the Role of Assistive Learning Technologies

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Abstract

Assistive learning technologies (ALTs) have gained increasing research attention for supporting physically disadvantaged learners to realize their potential in the educational process. This chapter reports on a multiple-case study that sought to explore the underlying mechanisms (i.e., the how and why issues) relating to the role of ALTs in helping students with special needs to circumvent their disabilities and integrating them into the mainstream schools. It is found that the use of ALTs enables the subjects to access the electronic learning environment, as well as improve their time management. The end result is that these students can perform their everyday (learning) tasks on par with their peers in school. The study has
also unveiled moderating factors influencing the usage of ALTs; examples are the ease of use of ALTs, and the subjects’ desire to enhance their academic and social competency.

**Introduction**

The education of physically challenged students can be made more effective by enabling access to the mainstream curriculum to the maximum extent (Hager & Smith, 2003). Catering to their unique needs by empowering special aids, assistive technology creates an educational environment to foster self-development, cooperation, positive communications, and personalization of information. An assistive technology device is defined as “any item, piece of equipment or product system whether acquired commercially off the shelf, modified, or customized that is used to increase or improve functional capabilities of individuals with disabilities” (Technical Assistance to the U.S. States Act, 1988). Assistive technologies include computerized equipment, but also simple magnifiers, splints, pointers, and ramps to offer disabled users the tools necessary to be more successful in school and at achieving independence in daily living. Assistive technology offers new opportunities for handicapped students to participate fully in the classroom settings (Tomei, 2005).

In this study, we refer to the computer-mediated hardware and software used by disabled students in learning as assistive learning technologies (ALTs). Some examples of ALTs include modified or alternative keyboards, alternative input/output devices, touch screen, voice recognition systems, graphic organizing software, and special cognitive software. ALTs are powerful tools in supporting physically output devices, handicapped students with equal opportunities to more fully participate in the teaching-learning process (Hager & Smith, 2003; Lengyel, 2003). Through the use of ALTs, many handicapped students are found to decrease their isolation and become an important part of a regular class (Cavanaugh, 2002).

Learner success has been found to depend on learners’ ability to cope with technological difficulties and technical skills in computer operation (Pituch & Lee, 2006). User characteristics have been found to affect their intention to use the technology (Chang & Lim, 2005; Venkatesh & Davis, 1996). Although many learner characteristics have been addressed, the dimension of disability has largely been ignored but definitely deserves attention (Moody & Beise, 2003). Common definitions of disability focus on health conditions, limitations on normal activities, or perceptions of disability (Moody & Beise, 2003). ALTs are a pertinent component in developing the technology literacy in the context of education. In this research, we seek to explore how and why ALTs can help students with special needs circumvent their