THE EFFECTS OF THREE METHODS OF COMPUTER-BASED INSTRUCTION (CBI) ON PSYCHOMOTOR PERFORMANCE OF COLLEGE STUDENTS

by

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Abstract

The availability of computer systems has resulted in an increased use of computers for teaching and learning in education. Computers and peripheral hardware enable educators to incorporate video, sound, and animation into instruction. Authoring software provides another level for computer use by allowing educators to develop and use multimedia instruction and programs designed for specific learning outcomes. New technologies, such as the micro computer as an instructional tool, are providing teachers and learners the opportunity to explore alternative ways to learn (Hansen, 1995). If these new technologies are to become an effective component of the teaching-learning environment, educators and media developers must have access to research-based information that will guide them in selecting and developing appropriate media and instructional applications.

Since most learning begins as a cognitive process (Schwaller, 1995), research dealing with instructional methods tends to focus on the cognitive domain, which would more likely yield results that would pertain to a large number of disciplines, educators, and media developers. Unfortunately programs such as technology education, which include experiential

activities as an integral part of the learning process (Korwin & Jones, 1990), should not rely on cognitive performance alone as the sole indicator of successful completion of the learning objectives.

In the Technology Education classroom, hands-on experiential activities add value to the instruction and require various degrees of psychomotor performance. While psychomotor learning should not be considered the sole purpose of technology education, it is a most viable and significant aspect of learning and performance in technology education. Effectively presenting psychomotor content to the learner could increase performance of instructional objectives, thus providing an enriched learning environment.

This study was designed to investigate the effect of visual-only, verbal-only, and visual/verbal instructional methods utilizing Computer-Based Instruction (CBI) as the vehicle, on the performance of psychomotor skills and knowledge. An investigation of the relationship between presentation mode, gender, and psychomotor performance based on direct product evaluation was conducted.

Analysis results suggest that during instruction, the level of performance of a psychomotor task increases with the use of visual/verbal CBI. In addition, gender did not significantly influence the level of performance regardless of the presentation mode. Secondary analysis of the data suggest that visual/verbal CBI has no significant influence on the level of performance after a time interval of approximately 11 days. Post-treatment survey results indicate participants had a higher level of satisfaction with the visual/verbal CBI.

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The completion of this task leaves me feeling as though I am ending a long journey replete with trials of skill, strength, and knowledge. In a sense that is exactly what has transpired during this adventure. While I feel as though I have accomplished something significant, I also realize that without the unending support and assistance of many others, this journey could not have been successful. My advisor, committee members, professors, colleagues, friends, and family all contributed in very important and essential ways. I wish to express a heartfelt gratitude to all who have supported me.

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"The important thing is not to stop questioning. Curiosity has its own reason for existing. One cannot help but be in awe when he contemplates the mysteries of eternity, of life, of the marvelous structure of reality. It is enough if one tries merely to comprehend a little of this mystery every day. Never lose a holy curiosity."

Albert Einstein

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