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Dissertation Abstract

The purpose of this study was to compare the effect of traditional instructional methods versus traditional instructional methods plus a computer based instruction (CBI) on knowledge acquisition of human musculoskeletal anatomy, student satisfaction and usefulness of the learning environment scores, and the relationship between time studying and knowledge acquisition. Student scores on pre and post-test upper and lower extremity multiple choice and practical examinations were used to determine significant differences between the two conditions. For knowledge acquisition, there were statistically significant mean increases from pre-test to post-test in lower and upper extremity written and practical examination scores for both groups combined, the traditional only group, and the traditional plus CBI group. Post-test scores were statistically significantly greater in the traditional plus CBI group compared to the traditional only group. For satisfaction, participants utilizing traditional instructional methods plus CBI had increases in post-test scores compared to pre-test. Students reported that the addition of a CBI was more satisfying than previous experience and appeared to enhance the learning environment. For usefulness, post-test scores indicated that the addition of the CBI continued to be useful in the learning environment compared to the mean pre-test scores. For study time, there was a statistically significant difference between the two conditions. The traditional plus CBI groups studied significantly more than the traditional only groups. There was no statistically significant difference in study time between the upper and lower extremity course content; however, time spent studying explained a statistically significant proportion of knowledge acquisition. From these results, it may be inferred that the addition of the CBI improved student motivation and enhanced instruction. The fact that additional time spent studying in the CBI group was spent actually using the CBI demonstrates that the CBI was an important contributor to the increased knowledge acquisition in the CBI group. Although the supplemental use of the CBI demonstrated improved knowledge acquisition and student attitudes, the scope of the study only included upper and lower extremity human musculoskeletal anatomy, participants were from one institution, the sample size was relatively small, a convenience sample was utilized, and study times were self-reported.