A COMPUTER BASED SELF LEARNING STUDY PACKAGE FOR UNDERSTANDING ORBITAL BEHAVIOUR IN CHEMICAL BONDING

A PROJECT REPORT PRESENTED BY

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Abstract

Computer animation, simulation and 3D modeling seem to be one of the most effective ways to teach fundamental topics in G.C.E Advanced level Chemistry, orbitals shapes, orbital overlaps, hybridization and molecular shapes. For this purpose computer based instructional resources must be developed by educators for proper curriculum in Sri Lanka. In this project I prepared a computer based self-learning package for a few selected topics in General Chemistry for advanced level syllabus by using 3Ds MAX and Flash MX. In the evaluation process, efficiency of the study package was evaluated and the enhancement of the students' understanding by using computer-assisted teaching methods and learning styles of the students on their acquisition of knowledge were investigated. The students were randomly distributed into control and experimental groups and their knowledge about above concepts was assessed by a pre-test comprising fifteen multiple choice questions. After this test, the experimental group received computer-assisted teaching and the control group was taught by traditional teaching methods for one week on the related subject. After one week of teaching, the students were tested again with the same type of different fifteen questions. Visualization abilities and the understanding of related subject of the experimental group were significantly enhanced when analyzed with control group post test marks. The independent two-sample *t*-test was applied for the evaluation of the results of the study and there was a significant difference in the understanding of the experimental group.