

Students' achievements and motivation on "molecular shapes" at G.C.E. (A/L) chemistry: a case study in Mawanella educational zone, Sri Lanka

A.S. Ajmeer¹, W.D. Chandrasena² and A.C.A. Jayasundera^{3*}

¹*Postgraduate Institute of Science, University of Peradeniya, Sri Lanka,*

²*Science Education Unit, Faculty of Science, University of Peradeniya, Sri Lanka,*

³*Department of Chemistry, Faculty of Science, University of Peradeniya, Sri Lanka*

**acaj@pdn.ac.lk*

The evaluation reports published by the Ministry of Education reveal that the students' performance on "molecular shapes" in chemistry at the G.C.E. (A/L) examination is considerably low. It reveals that only 32% of students answered correctly to the questions of molecular shapes. This tragic situation could affect students' university entrance too in Sri Lanka as students have to obtain high marks at the G.C.E. (A/L) examination for university admission. However, there is a dearth of research on the above aspect in remedying the situation. Thus, this study aimed at exploring students' achievement and motivation on "molecular shapes" at the G.C.E. (A/L). This was conducted at Mawanella Educational Zone in Kegalle District. The findings of this study will help in remedying the issue and to increase achievements in chemistry especially in the unit of molecular shapes. Both quantitative and qualitative methods were used in the data collection process. A convenience sampling technique was used in selecting the sample for the study. The sample consisted of 87 G.C.E. (A/L) students and six chemistry teachers from three schools. A questionnaire was used to investigate the students' achievements and motivation. Interviews were used to explore the teachers' opinions. The data analysis was conducted using MS Office Excel 2013. The results revealed that 83% of students were of the opinion that chemistry is not hard while 44% of students had selected chemistry as their preferred subject. Around 52% of the students had selected inorganic as a preferred section in chemistry and 51% of students agreed that they can understand "Molecular Shapes" if they work hard. Many students (94%) accepted that the theory related to concepts of molecular shapes is clear. However, students' achievement in molecular shapes is at a low level. Hence, though students have the enthusiasm towards molecular shape, still they are poor in elucidating the molecular shapes due to lack of hands-on experience in the learning process. According to teachers, most of the lessons in this aspect are conducted using the lecture method. Thus, students are in a problematic situation as it is difficult for them to imagine three dimensional orientations in the shapes of molecules. If students are taught with a lot of teaching aids and some animated programmes using new technology, they may find easy to grasp the concepts. Thus, a new approach of teaching is suggested to overcome the issues in the lessons of molecular shapes at the G.C.E. (A/L) to enhance students' meaningful learning.