

TAKING IT TO THE STUDENTS: THE EFFECTIVENESS OF EMBEDDING CHEMISTRY DRILLS INTO RESIDENTIAL COLLEGE STUDY SESSIONS

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BACKGROUND

It is well documented in the literature that students are entering higher education courses without the appropriate skills and assumed knowledge. At one regional university students are encouraged to support their understanding of the concepts and development of their skills by completing chemistry drills. These are analogous to drills in sport where repetition increases confidence, skill and ability. However, participation rates are low as many of the students have little or no experience in studying science and hence no understanding of the advantages of practice to gain confidence and mastery. Ineffectual study habits result in a loss of confidence and consequently reduce the motivation of students to engage with their course of study.

AIMS

By including chemistry drill sessions as part of the current study program in the residential colleges this project aims to provide support to students in an environment which is inclusive and comfortable, to ensure students build confidence in their abilities, and to facilitate a culture of student engagement, participation and ownership of learning.

DESCRIPTION OF INTERVENTION

Drill sessions were designed by the unit coordinator of the first year chemistry unit and a tutor was employed to facilitate these sessions in three residential colleges in the final three weeks of trimester 1, 2014.

DESIGN AND METHODS

Quasi-experimental quantitative and phenomenological qualitative research methods were employed. A written questionnaire was administered at the end of trimester 1, May 2014. Participants included 24 on campus first year chemistry students enrolled in degrees in the School of Environmental and Rural Science where the degree programs are applied life sciences and civil engineering. The questionnaire included three Likert scale questions regarding (i) students' confidence before the drills, (ii) after the drills, and (iii) the helpfulness of the sessions.

RESULTS

Ninety six percent of participants found the chemistry drill sessions to be helpful or very helpful in their preparation for the exam. Students rated their confidence levels before and after the drill sessions and the confidence levels of 71% of participants increased by 1 or more points on the Likert scale. In addition, 75% of participants at the beginning were 'absolutely not confident' to 'not confident'; and after the sessions 75% of students were 'confident' to 'very confident' in their ability to successfully complete the examination.

CONCLUSIONS

Outreaching into the residential colleges facilitated student engagement and motivation for learning within the students study network. The embedded chemistry drill sessions increased the students' levels of confidence in chemistry and helped to develop their study skills in approaching their examinations. This indicates usefulness in taking structured drill sessions directly to students who have little or no background or skills in studying science.

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