

INVESTIGATING FIRST-YEAR CHEMISTRY STUDENTS PERCEPTION OF THE RELEVANCE OF PRACTICALS AT THE UNIVERSITY OF THE SOUTH PACIFIC, FIJI

Lara Wakeling^a, Mani Naiker^a, Romila D. Gopalan^b, Tevita Voro^b

Presenting Author: Lara Wakeling (l.wakeling@federation.edu.au)

^aSchool of Applied and Biomedical Sciences, Federation University Australia, Ballarat VIC 3352, Australia

^bSchool of Biological and Chemical Sciences, University of the South Pacific, Suva, Fiji

KEYWORDS: chemistry laboratory, chemistry practicals, first year students

BACKGROUND

The laboratory component of any science course is a long established way of teaching students more than just concepts. Laboratories provide ways to not only visualise and strengthen theories learned in the classroom, but to gain agility in handling laboratory equipment.

The University of the South Pacific (USP) is a regional university owned by 12 member countries, supported through 14 campuses spread over an area of 30 million square kilometers of the Pacific Ocean, with 20,000 students enrolled. At USP, CH102 (Reactions/Principles of Organic Chemistry) is delivered as a compulsory first year chemistry course for those who wish to complete a Bachelor of Science (BSc) Degree Program, with a major or minor in chemistry.

AIMS

In this investigation, we seek to analyse and rationalise the thoughts, experiences and perceptions of chemistry practicals by undergraduate students at USP.

DESIGN AND METHODS

This study involved using a questionnaire based survey (with ethics approval) that involved a mix of qualitative and quantitative responses. It contained 10 questions as described by Naiker, Wakeling and Aldred (2013), with the key changes being: in question 5 the weighting was 20 % not 32% and the Chemistry course being CH102; in question 9 the 'other assessable components' referred to were tutorials and tests. The questionnaire was given to first year chemistry students from the University of the South Pacific, Fiji, who were recruited to complete the survey (hard-copy) during their second week of Semester 2 in 2012. Descriptive statistics were formulated and qualitative results were grouped by theme, with quantitative data analysed using a Likert scale (1 lowest -5 highest).

RESULTS

The response rate for the survey was 58% (121/209 students) and there was overwhelming agreement (95%) by the students that laboratory practical work is essential for their learning. The key reasons noted were the benefit of seeing things for 'real' and skills development, particularly observational, teamwork and specific laboratory and safety skills. Students felt practical activities were more important (88%) to them than tutorial classes and tests. The students disliked having to write practical reports (45%) and would prefer a greater range of topics were covered. Regarding a weighting of 20% for the practical activity, there was a 50:50 split between it being 'about right' and students feeling it should be more. While 50% of students saw no barriers to successfully completing laboratory work, the main barrier was related to time management and completing reports. The key area where students felt their practical experience could be improved was in providing in-depth pre-laboratory explanations to better prepare the students and also interactive guidance in the laboratory environment to ensure students gained the most from the experience.

CONCLUSIONS

Laboratory work is considered to be essential to students studying chemistry at USP, with a key reason being that it allows a clear link between theory and practice to be made. The high regard students place on laboratory work should be balanced by an assessment weighting that reflects its importance. Importantly, students see laboratory work as providing key skills vital to their overall success.

REFERENCES

Naiker, M., Wakeling, L., Aldred, P. (2013). The relevance of chemistry practicals – first year student's perspective at a regional university in Victoria, Australia. In M. Sharma & A. Yeung (Eds.), *Proceedings of the Australian Conference on Science and Mathematics Education 2013* (pp169-173). Sydney, NSW: UniServe Science.

Proceedings of the Australian Conference on Science and Mathematics Education, University of Sydney, Sept 29th to Sept 30th, 2014, page 92, ISBN Number 978-0-9871834-3-9.