Enhancing the commencing student learning experience with innovative learning and teaching approaches and peer support systems

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For the last 20 years I have been committed to driving improvements in many aspects of student learning with the primary aim of optimizing outcomes for students and empowering them to achieve their aspirations through study at university. Victoria University (VU), Melbourne Australia, has a very diverse commencing student population, with varied academic and socio-cultural backgrounds and needs. This poses challenges and creates opportunities for both students and academics.

Typically a number of issues exist, namely: 1) diverse learning and communication styles; 2) different educational backgrounds; 3) unfamiliar learning contexts; 4) linguistic plurality; 5) social isolation; and 6) pressures from family and work. These issues are further compounded by limited support systems to assist with acculturation into the complex culture of university. Typically, 40% of Biomedical Sciences students at VU are classified as low socio-economic status, almost half are born overseas and two-thirds report speaking a language other than English at home. A large proportion of these students report being overwhelmed by the volume of coursework, feeling socially isolated and experiencing difficulty in adjusting to university (Tangalakis *et al.*, 2012). Almost one-quarter of these students require significant support and intervention to improve their academic literacies.

Physiology is complex but core foundational content taught into the first year of biomedical and allied health courses. For students from non-traditional backgrounds, this complexity is heightened and support mechanisms need to be put in place to assure successful learning outcomes, timely progression, social and course connectedness - all integral to a positive first year experience and retention (Topping & Winterhoff, 2001). At VU we have developed a number of strategies to enhance the learning experience for these 'at risk' students. Largely these are focused on peer mentoring programs in various formats.

The success of Peer Assisted Study Sessions (PASS) was compared across two 'at-risk' cohorts, mature-age Paramedic students who had not studied for a significant period, and Biomedical Sciences students. Both cohorts reported the PASS program helped them to develop: better understanding of the content; confidence in approaching their studies; important transferable study and time management skills; and social networks. Importantly their marks were higher and their fail rates lower compared to that of students who did not attend any PASS sessions (Hryciw *et al.*, 2013; Tangalakis *et al.*, 2017).

In a separate program, formalised cross-year peer mentoring scenarios were embedded into the curriculum to: improve the learning environment through peer support; improve laboratory and research skills of students through a student-centred, problem-based learning approach; enhance the development of graduate capabilities such as teamwork, problem solving and communication skills; and develop course connectedness. In Peer Assisted Laboratory Learning (PALL), commencing students (mentees) worked alongside 3rd year students (mentors) on an experiment. Survey results showed that both 3rd year mentors and 1st year mentees benefitted. For the 1st year respondents: 71% agreed that they performed more effectively in the lab working with 3rd year peers; 50% had gained more confidence with 42% asking more questions; and 42% agreed their lab skills had significantly improved. For the mentors, 76% agreed they were able to more effectively communicate with mentees so they could better understand key concepts (Tangalakis *et al.*, 2013).

In a third initiative, commencing Biomedicine students (mentees) undertaking the core unit Research Methods worked collaboratively with 3rd year students (mentors) undertaking the unit Growth & Aging, on a research project investigating the physiological and psychosocial factors of aging. Mentors presented their research project orally and as a written abstract, which were peer critiqued by the mentees. Subsequently mentors and mentees worked together to examine data from a pre-designed experiment. Together they identified limitations and re-designed the study to address them, and executed the experiment in the following laboratory class, with findings contributing to their respective assessments. Again students reported improved skills and confidence.

The approach to improving the student learning experience is multi-faceted. Enabling academic staff to enhance their approaches to learning and teaching though motivation, inspiration and professional development is also pivotal. As part of an OLT grant, 'Professional Development Program to Embed Inclusive and Explicit Teaching Practices in HE First Year Subjects', sessional and academic staff with little or no formal teaching qualifications were trained in the use of 'Advancement *via* Individual Determination' (AVID) teaching strategies for Higher Education (AHE) - a range of customized socratic, collaborative, interrogative and small group strategies. Survey results were overwhelmingly positive with 90% of respondents reporting that students appeared to be more engaged. Comments included: "Activities were successful in that the students were

talkative, animated, and excited."; "AHE [explicit teaching] strategies have helped me to facilitate activities that are interactive and engaging" (Tangalakis *et al.*, 2014). In addition, engagement with content has been further enhanced through the embedding of blended learning and flipped-classroom approaches.

Finally, assessment in higher education must enable students to demonstrate not only their discipline knowledge but the development of higher order skills, such as critical thinking and problem-solving. As co-leader of the 'Assessing Student Learning' group within the Bioscience Education Australia Network (BEAN), (formerly known as CUBEnet), I have been collaborating with Dr Philip MacKinnon (ACER) on a project to enhance the capability of Biomedical Sciences educators to scaffold and assess the higher order thinking skills of students through improved assessment design (Tangalakis *et al.*, 2016), with the ultimate aim of enhancing student learning and producing work-ready graduates.

In conclusion, an engaging learning experience with good student outcomes requires a multi-faceted approach – peer support systems, passionate and inspiring teaching staff, engaging teaching and learning strategies, and assessments which prepare students to be work-ready.

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