The effectiveness of implementing active teaching strategies in a large, mixed cohort, anatomy and physiology class

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We co-teach first year anatomy and physiology to 320 allied health students studying four different programs (Occupational Therapy, Physiotherapy, Speech Pathology, and Sport and Exercise Science). The cohort is comprised of just over half first-in-family students, with diverse academic backgrounds. The Overall Position (OP) scores ranged from 1 to 22 (ATAR 99.95-35), with just under half of OP15 (ATAR 87) or lower. In the past, the subject was delivered as 3 lectures and a 2 hour practical session per week. The result has been a high level of student under performance, attrition and disengagement. We decided to replace the physiology practical classes with workshops comprising active teaching strategies such as role plays, simulations and case studies. The intention was to present materials in various formats to engage the different learning styles, and enhance student performance and retention. The activities were part of flipped classroom delivery and designed as the 'explain and elaborate' components of the 5E's framework. Students completed an anonymous questionnaire seeking their attitude to the learning activities. Responses were registered using a four-point Likert scale and analysed for differences in the frequency of responses. In addition, academic performance in 2014 was compared with that for 2015, when the initiative was implemented.

Students studying Sport and Exercise Science were most likely to agree, while students studying Physiotherapy did not agree that the role plays were helpful. Students studying Sport and Exercise Science, and Occupational Therapy were equally most likely to agree that both the simulations and case studies helped with concepts, while students studying Physiotherapy and Speech Pathology were less likely to agree that the simulations were helpful. Academic performance increased across all cohorts by 23 percentage marks when comparing the equivalent on-course quiz results achieved in 2014 and 2015. Student retention also improved with a reduction in subject failure rates from 30% in 2014 to 20% of students in 2015. In conclusion, students found the range of learning activities useful for learning the content in the physiology component of these subjects. The students performed better in on-course assessment and the retention rate was increased. This teaching strategy is part of the shape of higher education in future as it has now been shown to be successful in increasing student

engagement and success in these subjects and will be further developed and refined in coming years.