ACSME 2022 Special Issue – Editorial

Guest Editors:
Assoc Prof Dino Spagnoli[a], Dr Alexandra Yeung[b], Dr Magdalena Wajrak[c], Dr Damian Laird[d], and Dr Reva Ramiah[e]

[a]School of Molecular Sciences, The University of Western Australia, Perth, WA 6009, Australia
[b]School of Molecular and Life Sciences, Curtin University, Bentley, Perth, WA 6102, Australia
[c]School of Science, Edith Cowan University, Joondalup, WA 6027, Australia
[d]School of Mathematics, Statistics, Chemistry & Physics, Murdoch University, Perth, WA 6150, Australia
[e]Office of the PVC, Faculty of Science and Engineering, Curtin University, Bentley, Perth, WA 6102, Australia

The 2022 Australian Conference on Science and Mathematics Education (ACSME) was finally held in Perth, three years after the original decision was made to bring the conference west. COVID-19 had a massive impact on the tertiary education sector with many of us still feeling the aftershocks of a rapid change to online modes of teaching and learning. The conference organisers were determined to create an in-person conference that so many of us were craving during the COVID years. The theme of the conference was "An Education for All: Accessible, Equitable, Sustainable". A hybrid conference format was challenging to administer but we were very glad that we took this decision, as it allowed accessibility to those that could not make it to the conference due to funding restrictions or teaching commitments.

The authors in this special issue have presented very different studies on different aspects of STEM tertiary education. Field trips are an important part of the agriculture and earth science disciplines and there is a study on the development of virtual field trips. Laboratories are a major part of any science tertiary education curriculum and there is timely analysis of student grades of wet laboratories on overall failure rate. Finally, the format of meaningful learning for bioscience students and their perceptions of meaningful learning are explored.

The paper by Suresh Krishnasamy, Millicent Smith, Edward Narayan, Ammar Abdul Aziz and Eleanor Hoffman develops and evaluates a virtual field trip for students in agriculture. Field trips are an expensive part of the agriculture curriculum. Moreover, students that have other commitments such as childcare and work often find it hard to take the time to travel the long distances for field trips. Therefore, the development of a virtual field trip can help provide a more sustainable and accessible mode of teaching. Although the students surveyed in this study did not want the virtual field trip to replace the in-person experience, they did have positive reflections. Students reflected that the virtual field trip was an active learning experience, relevant and authentic.

Sheila Doggrell provided analysis of the allocation of marks to wet laboratories and its affect on the academic performance of students in the biochemistry discipline. Students perform well on their laboratory, and this was a moderate predictor of academic performance in the exam. However, further modelling by allocating a higher overall percentage of marks to the exam would cause the failure rate to increase. The allocation of marks to wet laboratories can have a major effect on the percentage of students who pass courses. This paper presents an interesting discussion on the allocation of marks to wet laboratories and potential future implications.

Daniel Andrews, Emile van Lieshout and Bhawana Bhatta Kaudal present an interesting analysis of the results of a survey completed by 321 students to determine which class formats (lectures, workshops, laboratories) and delivery modes (online, face-to-face) they believe

maximise opportunities for meaningful learning. As educators try to utilise more online learning, this study provides the student voice on what they value in their education. In-person workshops and laboratory classes were rated highly. Barriers to meaningful learning included a lack of engagement, difficulty in facilitating peer and educator interaction, and a lack of opportunities to confirm understanding.

We hope that you find the papers in this special issue interesting and thought provoking.

References

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