

EDITORIAL

Pedagogical Invention to Improving Student Learning: From Individual Experiences to Evidence-based Practices

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With a sense of excitement and trepidation, I begin to write this Editorial, the final piece for November/December issue of the AJSOTL. I am excited as this is my first Editorial for AJSOTL since I joined its Editorial Board in 2018, this is also the reason for my slight apprehension. Fortunately for me, this issue contains interesting articles and reflections on teaching and learning. As I read on, excitement took over, and I considered myself honoured to be given the task to write this Editorial. From individual experimentations to curriculum revisions incorporating various pedagogies, the manuscripts showed caring and determined teachers adopting and adapting their teaching practices to try to engage students in active learning. The changes and adjustments were not forced on these teachers due to external emergencies, like the current situation with COVID-19. Instead, the impetus to transform came from their own accord as they identified needs in their students and opportunities to improve student learning.

The hard work done by these teachers and the fact that they had written them up for publication signified that teaching and learning are no longer an individual endeavour with no one knowing what happens behind the closed door of a classroom. Furthermore, the process of collecting data and evidence to ascertain whether and why some pedagogies are beneficial while other teaching innovations are less effective, that is, evidence-based practices common in most academic writings, has become a standard deployed in the articles. With the data and evidence collected, analysed, written up and now published, the scholarship of teaching and learning (SoTL) has been made more apparent, extending the reach and benefits of these teaching and learning innovations for more teachers to adopt and adapt.

It is worth reminding our readers that the authors highlighted in this issue are risk-taking, learning-centric teachers as there may be ‘hazards’ associated with trying something new. Many teachers realise that the teaching-centred approach can lead to passive learning, not helpful to students in the 21st Century. However, experimenting with learning-centred pedagogies may result in negative feedback from students, equally not helpful to an academic career. Our teachers here, while making changes in teaching and learning within their respective disciplines to benefit their students, are pioneers by opening up the study of teaching and learning to the same scrutiny and academic vigour as any discipline-specific research.

There are five full-length Articles and five Reflections on Practice in this issue. Four articles describe pedagogical interventions to improve student learning, ranging from an identified learning issue in a course, to trying a new approach in a programme, to making the learning of transferable skills more apparent for postgraduate students, to a curriculum and pedagogy overhaul to incorporate interdisciplinarity in the education of PhD students. The fifth article highlights the importance of professional development for teachers with detailed analysis of data and evidence collected from a formalised training programme. The five Reflections on Practice, despite being initial experiments to improve teaching and learning, are significant in showcasing how individuals’ effort and perseverance can make a difference in engaging students to improve their learning.

A brief description of the five Articles and five Reflections now follows.

Lee, Chew, and Yeong identified a learning issue with statistics and graphical representation in their undergraduate Life Sciences class. To help their students improve, they switched to a context-based approach to teach such skills by making the assessment more relevant to students’ endeavours beyond that of the course. They deployed a mixed method approach to analyse students’ group presentations and individual reports in relation to data processing, analysis, and representation. A perception survey asking students to reflect skills they used in the module was also conducted. The authors concluded that context-based instruction could be an

effective way to foster the learning of competencies as their students had adopted a pragmatic approach to apply what they had learned to complete their assignments.

In their Pharmaceutical Sciences programme, **Ng, Liew, and Phoon** made use of an in-class Educational Group Game (EGG) to motivate students in to learn through interaction and collaboration with peers. Detailed statistical tests were conducted to examine any differences in the pre- and post-tests data to ascertain the effectiveness of the intervention—the adoption of the EGG pedagogy—compared to the traditional worksheet exercise. A validated instrument (Intrinsic Motivation Inventory) was used to gauge any changes in the levels of motivation of students. Students in the study demonstrated a significant increase in interest (intrinsic motivation) and perceived choice towards the EGG compared to the worksheet, with a decrease in both direct and indirect performance-related extrinsic motivation. These encouraging observations suggested the EGG could provide an affective learning environment for students to learn by eliciting their intrinsic motivation.

In his Article, **Chan** discussed the importance of postgraduate students learning transferable skills within the context of their courses. Adopting the authentic learning approach, Chan introduced a series of authentic tasks in a group setting and simulated a conference-based authentic learning environment as part of the continuous assessment of his postgraduate applied physics course. Analysis of 10 years of student end-of-term quantitative feedback showed a statistically significant improvement of the feedback scores after the course had switched to the authentic learning structure from the traditional one. Correspondingly, the study has ascertained the receptiveness of postgraduate students to learning-centred pedagogy and authentic assessment.

The common notion of PhD programmes only concentrating on disciplinary research was altered by **Rashid and Lim** in their major overhaul of the curriculum and pedagogy of their PhD programme through the introduction of a course focusing on interdisciplinarity. With worldwide issues getting more and more complex, working only within individual disciplines is no longer sufficient to handle the related difficulties and challenges, let alone coming up with viable solutions. Hence this Article is deemed both timely and relevant. They adopted the “Integrated Model of the Interdisciplinary Research Process” designed to promote interdisciplinary thinking, and blended learning was introduced for students to practise interdisciplinarity by collaboration. By analysing a myriad of qualitative and quantitative data collected from students’ work and perception surveys, they concluded that the model and blended learning had functioned synergistically to help students think and act in an interdisciplinary way.

Last but not least in the list of Articles is the paper by **Zheng, Leow, Veerappan, and Koh** describing their work to identify key factors to improve professional development for instructors to become cognisant with, and fully deploy Problem-Based Learning (PBL). The study focused on a group of relatively junior instructors who had received training to conduct classes in PBL within a three-year period. Using outcomes from the training exercises together with the portfolios submitted by the participants for analysis, their findings reinforced the necessity to strengthen the questioning skills of instructors in the PBL classroom. Furthermore, the findings also pointed to the need to reinforce the support for instructors beyond the prescribed period of training. This deep-dive into the effectiveness of specifically designed professional development programmes for teaching and learning is uncommon; the findings can be useful to others with such responsibility to review similar programmes.

Three of the Reflections included in this Issue were conducted by individual teachers while a couple were done by teams. The individual reflections were outlined first, followed by the team practices.

Lin examined the peer review process by observing a peer review activity in her writing class. Drawing from the literature, she had focused on five features of effective peer review: *specificity, focus, awareness, attention* and *intention* in her observation. Her initial conclusion is that the peer review process can be quite complex and context-dependent, and peer feedback is a socially constructed classroom practice that requires planning and practices on the part of the instructor to truly benefit students. **Park** experimented with a multimedia tool to enhance sociolinguistic competence of second language Korean for learners outside Korea. Using semi-structured interviews and journaling, the study revealed that the tool had impacted selected learning behaviour, and students' receptive ability was developed through interaction between prior knowledge and newly acquired knowledge using the tool. However, with no enhanced sociolinguistic competence in production detected, further experimentation would be required. **Musib** tried to identify whether the use of 3D-printed medical device models and prototypes was beneficial to engineering students in learning specific subjects or concept. Student responses from a perception questionnaire showed positive effectiveness of using the 3D printed models in teaching as they had facilitated visual, tactile, and interactive learning.

In a medical management and counselling (MMC) course, **Han and Yap** redesigned a tutorial to facilitate interactions between students and the teacher and engage students in problem-solving. Through a questionnaire, students responded that the tutorial had facilitated their learning of MMC skills as they preferred the hands-on activities and interactions with the teacher. Interesting, significant improvement in students' confidence was also reported. **Lam, Luu, and Chong** reflected on the design and implementation of an online, non-credit course, "Effective Online Writing". Deploying a mixed-mode approach to data collection and analysis, they found that by aligning the course with learners' motivations for enrolment—content's perceived usefulness, technological affordances, self-efficacy and timing—students' awareness and registration for the course could be improved. Furthermore, using learner-centric activities to increase students' engagement with the materials would result in progress.

This is a relatively packed issue with a variety of experimentation and interesting results supported by both direct and indirect evidence to ascertain the effectiveness of the various pedagogical interventions. Readers will be able to gather some useful tips, techniques and pedagogies to try out in their classes, online or physical.

With December just around the corner, I take this opportunity to wish everyone happy holidays and a healthy and safe 2021.

ABOUT THE AUTHOR

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