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Clinical and Translational Physiology: Student perception of processed based learning to create an Authentic learning experience.

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*"I loved how this subject focussed so strongly on understanding and application. Particularly with the team tasks it promoted utilisation of material from lectures and application to different models. Having assessments that required us to find a new area of research encouraged students to also have an in depth knowledge of mechanisms and be able to understand what happens with normal physiology and when things go wrong which I loved. "*Student feedback comment 2021.

Clinical and Translational Physiology is a newly launched subject in semester 2, 2021. It is a third (final) year and capstone subject in the physiology major in either Bachelor of Science or Bachelor of Biomedicine at The University of Melbourne with 266 enrolled students in the cohort. From initial conception through the implementation the subject was designed to be blended and modular in presentation. Design principles consciously aligned to demonstrate The University's graduate attributes of 'Academic Distinction' and 'Integrity & Self-awareness', especially in challenging students to apply knowledge learned during their degree to look over the horizon at emerging scientific research. Student learning focuses on a process-based rather than content-based learning approach. The subject description in The University's handbook indicates that students will "explore the nexus between clinical conditions and bench research."

Working in teams, students examine the limits of contemporary research to formulate their own explanation of the underlying pathophysiology and propose novel research approaches to better understand the mechanism of physiological regulation and dysregulation. Built around three self-contained modules each with a series of assessment tasks which scaffold the learning allows students to complete one project in its entirety before moving onto the next project. Each module is tightly linked to research interests of the Department of Anatomy and Physiology presented as 'lectorials' and case studies by clinicians and researchers. These are discussed by students in a team setting, culminating in a group presentation. Assessment includes: (a) comprehension of assigned reading, (b) team projects and (c) individual assessments of learning content. In addition to the module assessment, students complete an individual research proposal.

An end of semester survey showed that respondents were generally satisfied with the subject, with 81% agreeing that both the case studies and teamwork components were Authentic and beneficial to their learning. Seventy nine percent of students would recommend the subject to future students. Using a Likert scale, items that assessed attitude towards online lectures showed that students had a 74% positive attitude towards online lectures (score of 26 out of 35). The case studies were seen as an authentic, challenging and meaningful application of past learning (81% - 20.4/25). Students acknowledged that the reading task helped prepare team members for the team assignment (66% - 23/35).

Of the students who responded to our survey (41% of enrolled students) a proportion of students indicated in the qualitative feedback that the idea of proposing new and novel research a daunting task. While most (if not all) of the students had previously been evaluated at the "analyse" and "evaluate" levels of Bloom's taxonomy – where students are being asked to integrate information from a number of sources, but where the outcome may be considered "knowable"- the uncertainty of the transition into the "create" level of the taxonomy – where often the answer is unknowable, is uncomfortable for students. Being assessed on the quality of their reasoning, rather than simply finding the correct answer elevates these assessments to "Authentic" assessment.