

FROM IMPLEMENTING 1ST YEAR ASTRONOMY IN A NEW PHYSICS AND ASTRONOMY COLLABORATIVE ENVIRONMENT (PACE)

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ABSTRACT

During 2013, the first-year laboratories at the School of Physics and Astronomy at Monash University were overhauled in-line with the SCALE UP educational approach. The Physics and Astronomy Collaborative Environment (PACE) comprises of two teaching studios that seat up to 108 students per session, with nine students seated per one table. In Semester One of 2015, the first wholesale redesign of a subject ASP1010 was implemented to fit in with the intended educational approach. Instead of three one-hour lectures and one two-hour workshop a week, our students undertook two two-hour workshops during each week. Before each workshop session, the students were required to watch a video lesson and/or read a section of the textbook to prepare for the workshops, which was tested via pre-workshop quiz. The workshops were further supported by forum discussion and Mastering Astronomy assignments, as well as non-assessed Mastering self-review quizzes.

This implementation was evaluated with multiple measures in quantitative design to investigate the students' change in conceptual understanding, as well as their attitude towards astronomy and science as a whole. Measures were also taken to compare the students' performance in the new approach to the more traditional three lecture/one workshop format undertaken in the year before. These quantitative measures are supported by qualitative research currently in progress.

In this presentation, we will broadly describe our initial conclusions from the quantitative results available. We will also present our initial design and contrast it to a variety of pragmatic decisions we had to make that shifted our original ideas into something that worked better in context of the students, the approach and the space itself. There was much interaction between the wanting for marks, the needs for learning and the nature of assessment provided. Other issues revolved around instructor-student interaction, the distribution of the students' 'pace' through the material and the changing nature of the workshop approach with respect to the conceptual content of the material presented.

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