Encouraging student engagement in pre-work

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In 2016, under the blanket of the Better Teaching, Better Learning agenda and the unit enhancement initiative at Monash University, we changed our pedagogical approach to teaching human bioscience to first year allied health students by “flipping” the classroom. In doing so, we eliminated the didactic delivery of content via lectures and instead, engaged students in content through our online learning management system (Moodle) before class as pre-work, allowing us to increase the small-group face-to-face time for exploration, application and consolidation. For more information about the face-to-face classes, see Sharon Flecknoe’s poster – Treading water or developing understanding.

Pre-work in our flipped classroom

The pre-work in our flipped classroom consisted of online lessons, aka Moodle lessons, aimed at engaging the students in the basic concepts of human bioscience prior to attending face-to-face classes where they would have the opportunity to further build and apply their knowledge. The Moodle lessons (Figure 1) were constructed using a mix of videos, text, readings and questions, all designed to guide students through the content in small digestible chunks.

Figure 1: Snapshot of a Moodle lesson with introductory text, a video, a summary of the key concepts and link to the check your understanding.

“The Moodle lesson is broken down into short, specific videos and this greatly helps in understanding the greater, initially overwhelming module topic. I was surprised by how easy it was to understand what previously seemed to be hard concepts once it was broken down.”

Importance of video style

Over the course of the year (during face-to-face classes), student discussions would occasionally centre around the different video styles we had created. This prompted us to evaluate the different video styles being used to see what students found most preferable and useful to their learning. Four different video styles were used as can be seen in Figure 2. Students demonstrated a clear preference for video style C, the annotated PowerPoint slides (Figure 3).

Figure 2: Snapshot of the different styles of videos recorded by teaching staff. A. PowerPoint presentation with small view of instructor in bottom of screen; B. Full view of instructor demonstrating a model; C. “Chalk and talk” annotated PowerPoint slides (voice over only); D. PowerPoint presentation with full view of instructor.

Figure 3: Distribution of student responses to survey question about video style: Please indicate (on the 1 to 5 scale) how much you felt each of these video formats helped your learning. Video formats are indicated by letters A – D as described in Figure 2. N = 149

Figure 4: Strategies used to encourage students to engage in pre-work

Within the pre-work material, we embedded short (< 10 minutes) videos that we recorded ourselves and placed “check your understanding” questions along the way to help students gauge their progress. To follow on from their pre-work, students would complete a summative quiz (Figure 5) at the start of face-to-face classes in engineering groups. Working in groups applied enough peer pressure to encourage students to complete and attempt to understand the pre-work. We also made sure that the material in the pre-work linked with the face-to-face classes and assessments. Importantly, we always made our expectations of the students very clear each week.

“I found it actually encouraged people to get their work done, and the IFA, you feel stupid sitting there if you haven’t actually done the work. You think that you are bringing people down...”

“......after a while you get used to the pattern and then you actually learn easier and better because you do the pre-lessons, and it actually helps with the tutorials and workshops.”

“I found there was less pressure to learn because I was always engaged. I always knew what was happening and I could just learn a lot easier.”

Outcomes

Over the course of two semesters, 97.2% of students completed their pre-work prior to their first class each week. In designing the pre-work, we aimed to have students engage for approximately 2 hours each week. Analysis of Moodle lesson (pre-work) logs revealed that 85% of students spent anywhere from 1 – 3 hours each week on pre-work (Figure 6). Based on in-class experiences and survey data (Figure 7), we surmise that students engagement in pre-work has led to a perceived increase in student understanding and engagement in class materials and activities.

Figure 5: Summative quiz using IFA-AT

Figure 6: Average hours students spent on online pre-work over the course of the year. Data retrieved from Moodle lesson (pre-work) logs.

Figure 7: Distribution of student responses to survey question: The pre-class online material helped me understand the required content.

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