Learning from a MISTAKE (MISconception Teaching Animations in Knowledge Extension)

Presenters: Alistair V. Dias (Associate Professor, Teaching Stream), Maria Papaconstantinou (Associate Professor, Teaching Stream), Bill Ju (Associate Professor, Teaching Stream), University of Toronto

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Abstract:

The use of traditional animations in biology-based courses to explain scientific processes has increased significantly over the last number of years, however their effectiveness in undergraduate learning is still not completely clear. In addition, the best approach to using and implementing these videos to harvest their true learning potential for students is still up for debate. We have recently started to explore the answers to these questions in the Human Biology Program at the University of Toronto using a novel approach. Two versions of animated biology video content were developed in three different undergraduate courses: one version that was "traditional" correctly explaining a theory, process or study and one version that used "planned misconceptions" or "mistakes" explaining the same theory, process or study. The approach to using and evaluating these two versions of videos in each course were all unique. In turn, this provided an opportunity to gauge if there were advantages of using one style of animation over the other, which animation styles students were more comfortable with and which animation styles generated greater student engagement. All of these points will be discussed but most importantly we will attempt to identify which video version, "traditional" or "mistake" better reinforced student learning of key concepts. Finally, audience engagement will be solicited through the viewing of small clips from both video versions (in varying order) and going through small working exercises (e.g. iclicker) to gauge understanding of key concepts in each course example.