INTRODUCTION

The Faculty of Applied Science and Engineering at the University of Toronto has undertaken a variety of online teaching projects over the past year. Our Instructional Technology Office has supported the development and delivery of a MOOC (massive open online course) delivered on the EdX platform; the development and delivery of two first year engineering calculus courses; and several projects aimed at developing reusable digital learning objects (usually referred to as RLO’s or DLO’s). The development of DLO’s is leading to an increasing use of inverted classroom teaching, and other non-traditional approaches.

We generally select highly experienced instructors who have been successful in their teaching for these types of projects. Prior to launching into their respective projects, the instructors involved in these projects received training and support based on the current understanding of best practices in the delivery of online learning. This included attending programs such as the University of Toronto Course Design Institute which has a significant component dedicated to the design of online learning experiences. The instructors also regularly consulted with the Director of Online Strategy for the University and worked closely with personnel in the Instructional Technology Office.

While this preparation was certainly helpful, it did not fully prepare the instructors for the differences between in-person and on-line teaching. This paper discusses two projects in particular: a MOOC called “Our Energetic Earth” which was delivered in the fall of 2013; and a set of two first year engineering calculus courses that were available to our students for credit during the 2013/14 academic year.

MOOC PROJECT

In the Fall of 2013 we developed and delivered our first Massive Open Online Course (MOOC). A MOOC is free to anyone in the world who wants to sign up, there is no enrolment limit, and we do not grant credit for the course. If a participant completes the course they get a certificate of completion. The “Our Energetic Earth” MOOC took about 6 months to prepare and was delivered over a 6 week period. The instructor (B. Karney) was supported by two teaching assistants and the Instructional Technology Office. The course had 10,857 registrants of whom 458 completed the course for the certificate. Interestingly there were 9,397 people who completed the week 6 quiz, but most of these participants did not complete enough other work to earn the certificate. Also 2,827 new people have viewed the course materials in the time since the course was ended (people who were not originally registered for the course). This is typical of a MOOC and suggests people are engaging with the material beyond a traditional course paradigm.

Since the “recognition value” of the certificate was low (in our view) we thought the majority of people participating would be interested in learning and not so interested in the evaluation through certificate and quizzes. However, we were surprised at how many of the complaints were about the quizzes being too hard. Surprisingly, a number of students were doing the quizzes within an hour of the week’s material being posted. In other words, they were quite ready to challenge the quiz before the learning exercises, which might at least partly explain why they found the quizzes challenging.

We were disappointed to what extent “evaluation” played a big role in people’s minds, although this may have been the vocal minority rather than the silent majority. Our initial impression was that people would be engaging in a MOOC purely for the learning outcomes. Though in retrospect we might have expected evaluation would be highly valued given the emphasis this has in most educational systems. It is interesting to note that research at UoT and elsewhere suggests that 80 to 85% of MOOC participants have an undergraduate degree [1], suggesting that the majority of participants have been successful learners in higher education where assessment is usually the key indicator of success.

The videos for this project were 15 to 20 minutes in length. Some people loved the videos but fewer people watched the videos than did the quizzes, so that was a surprise and a bit of disappointment. Again, it appeared that there was more interest in completing the evaluation than engaging in the material.