

A Learner's Experience of a Massive Online Open Course (MOOC)

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During this academic year, several free courses have started being offered online by Stanford University, MIT and others. Most notable, perhaps, was the Autumn Quarter Artificial Intelligence class at Stanford, ai-class, taught by Peter Norvig and Sebastian Thrun. Both are Google fellows, Norvig being the co-author of the standard contemporary textbook on AI, and Thrun now leading the Google self-driving car project, having won the \$2 million DARPA Grand Challenge prize for Stanford with a car called Stanley. Thrun reports that he offered his Stanford course free to students anywhere in the world. It recruited 160,000 students, of whom 23,000 completed the course. This compares with the 200 who enrolled for it at Stanford, where the annual tuition fees are now about \$40,000. Thrun also reports that most of the Stanford students preferred the online offering: only about 40 of the original 200 continued to attend the conventional course. He also mentions that the best grades were achieved by students outside Stanford. Thrun has decided, after this experience, to concentrate his teaching efforts on Udacity, a for-profit educational start-up he has co-founded. He has also left his tenured chair at Stanford – though denies that this has to do with the Udacity venture. Udacity's work has been widely reported in newspapers and other news media, and this publicity has obviously helped its recruitment. In fact, enrolment was kept open after an article about Udacity was published in the New York Times and the assessment on the course adjusted to allow for late enrolments.

Of course, Open Educational Resources (OERs) are not a new phenomenon. MIT has been offering Open Courseware for some years and other universities followed suit. But what is being offered here is different: something with a novel business model that appears to compete head-on with conventional courses. I have personally been interested in the practical uses of AI since I did my Masters, specialising in natural language processing. I also became interested in e-Learning and in a peripheral way, I have also been following the recent successes in robotics. That is why I accidentally came across a video of Thrun's announcement at the Digital Life Design Conference about the foundation of Udacity and decided to take its first two courses in the February-April 'hexamester': a first level introductory programming course in building a search engine taught by David Evans of Virginia Tech, and a third level course in programming a robotic car taught by Sebastian Thrun himself. The first level course had no prerequisites. Each hexamester lasts seven weeks, with one unit each week. Each unit, except the last, had homework, for which the deadline was the Tuesday of the week following the beginning of the unit. The last week was for the final exam. I offer in this paper an account of my experience of taking these courses.

Enrolment was incredibly easy, only requiring my name, e-mail address, agreement of terms, and a choice of passwords. It probably took less than a minute in total. After enrolment, I was able to access the course material. This consisted of short video presentations interspersed with interactive quizzes, for which the solutions were immediately available. The quizzes were multiple choice, or short programming exercises,

which were automatically marked after submission. These quizzes could be attempted as many times as needed, but did not count for the overall grading of the course. The videos had optional subtitles, and these became available in a large number of different languages as the course progressed. The transcripts of the videos were also made available. I personally found that I could scan the transcripts more quickly than watching the videos, but can see why that might not suit everyone.

At an early stage in the course, it was announced that these materials were being made available under a Creative Commons Licence (which means the material can be used, shared and repurposed). There was a separate section of the website that provided announcements, and there was also a discussion forum available where students could discuss course content and make other contributions. These contributions were numerous and often very helpful, and they included items from the course instructor and from the teaching assistant on the course. Another section reported on the progress the student had made in each of the units of the course – recording the number of exercises correctly attempted and videos viewed, and giving the results for the homework attempted, after the automatic grading was completed (usually very rapidly after the deadline.)

During the week, the homework for a particular unit was published and students were able to submit it online for assessment at any time before the deadline. Unlike the unit quizzes, the answers for these were not immediately available, but only became available after the deadline. To begin with the exams and homework were given equal weighting, but this was altered when late enrolments were allowed. Students who scored better in the exam than in the homework kept the exam mark as the overall grade. The lowest homework mark was also not counted in the grading. In the introductory programming course homework, some parts were more challenging than others – these were given up to three stars, depending on how challenging they were. A similar scheme was used in the final exam, and performance at these tasks was used to determine the level of certification offered for the course. Needless to say, discussion of the homework and the final exam was monitored on the discussion forums. Discussion was allowed and encouraged on the forums, but no solutions could be published. This was stricter in the case of the final exam. An honour code system was in force, and seemed to work remarkably well.

The standard of the course materials was very good – some very complicated concepts were introduced in manageable chunks, with students being encouraged at every opportunity. PowerPoint was not used – all the notes were handwritten with what looked like a transparent hand and electronic pens in different colours – some more legibly than others, but all understandable. Some errors were made, but these were often corrected very rapidly.

Overall, the experience was very positive, and though I wasn't able to devote a great deal of time to the courses, I did manage to get my two certificates of completion, of which I am very proud!

Author Biography

Tony Valsamidis works in the School of Computing & Mathematical Sciences at the University of Greenwich, specialising in information systems and databases. Prior to this he was employed in the Information Science Department in the School of Informatics at City University where he lectured on database management systems and data representation and management. Tony's interests lie in parallel computer architectures, computational and corpus linguistics, information retrieval and information systems.