Case Study: A MOOC About MOOCs

# Introduction

Traditional on-campus education is often prohibitive for people with physical or mental disabilities. The increasing availability of online courses makes it possible for previously marginalized students to attain higher levels of education. The Georgia Institute of Technology (GA Tech) in the Online Master's of Science in Computer Science (OMS-CS) program is a perfect example . Their fully online, blended MOOC learning format makes postgraduate education possible. The low costs (currently $7000 for the full program) make it affordable.

In this case study, we describe a project that started with two goals. These both involved building a MOOC on an open source platform. After several iterations of researching MOOCs, we chose the Moodle platform and implemented it on Amazon Web Services (AWS). Because this was a semester-long project for a Computer Science graduate course, the primary functional requirement was to limit costs – AWS' so-called free tier is not always free! Because the project was a prototype, specific considerations customarily needed for a highly scalable MOOC were not a requirement. Proof of concept was the goal.

# A MOOC about MOOCs

## Documenting the Process of Building the MOOC on AWS

The first part of the project was to build "a MOOC about MOOCs." Because we were going to perform all the Linux systems administration steps to set up and launch the MOOC instance, those steps were documented in a MOOC. One video in that MOOC shows how to launch "5-minute Moodle" using the Bitnami Moodle Amazon Machine Image (AMI). This simple approach bypasses hours of Linux command line tasks, yet leaves the student without the knowledge of the Linux command line interface (CLI) environment. Because Moodle is not a "set and forget" application, learners will benefit from the DIY approach.

## Analyzing MOOC Log Data: Focus on At-Risk Students

The second part of the project was initially planned to be a new analysis of MOOC log data using machine learning and statistical libraries. A common goal in this type of analysis is identifying "at-risk" students who are not likely to pass a course. Some learners will sign up for MOOCs never intending to finish all the material – it is not worth expending effort to retain them. The MOOC manager will want to focus on the students who sign up with a full intent to finish. Tracking students manually is an impossible task in a well-subscribed MOOC – automated tools must be applied.  
  
After reviewing available research in this area, it became evident that nearly all published research is done by researchers using data from their own companies or universities. There have been several attempts to share MOOC log data publicly, but the challenge in terms of legal risk and standardizing a schema have been a barrier. This new knowledge led to a different approach where we documented the various ways of sharing MOOC data in a MOOC. The successful approaches were highlighted.

# Prepare Your Paper Before Styling

The multiMOOC Moodle instance successfully applies Agile and Just-in-time Teaching (JITT). As noted, we started out planning to obtain a publicly available anonymized data set. Based on press releases from the early 2010s, the Harvard/MIT Person-Course database looked like the right candidate. Once we realized this data set was not available, the search for publicly available data sets began. As it became apparent that properly anonymized MOOC data sets are the exception, not the rule, the project focus shifted.  
There are now four MOOCs in the multiMOOC Moodle instance:

* metaMOOC – The original "MOOC about MOOCs" teaching how to set up a Moodle instance on AWS
* maintMOOC – An ad-hoc MOOC documenting maintenance tasks as they come up
* buildMOOC – A MOOC showing how to build out content in a Moodle instance
* dataMOOC – A MOOC about the various MOOC platforms, highlighting an R-based analysis of a publicly available MOOC log data set

# Lessons Learned

## Increasing Diversity Through Educational Access

Several valuable lessons have been learned along the way. As noted in the introduction, MOOCs are leveling the playing field for learners. People with medical, geographical or financial challenges now have a wide range of choices from free MOOCs to nano-degree programs to blended MOOCs. Blended MOOCs involve traditional enrollment at a university that teaches part or all of the courses over the internet. This leads to a traditional degree. In the case of OMS-CS, it is the same degree and diploma as the on-campus version of the Computer Science program.

## Expanding Learner Community Through MOOCs

Talk about ww search stats vs US-based, history of reaching only developed world

Coursera financial aid, GA Tech student loans

## Just-in-time Teaching Techniques

Because someone who takes this MOOC has an understanding of managing content and the under-the-hood…

## Open Educational Resources and MOOC Licensing

Just like it sounds

## International Cooperation in MOOC Projects

Because someone who takes this MOOC has an understanding of managing content and the under-the-hood…

## Using MOOCs in Employee Training

Because someone who takes this MOOC has an understanding of managing content and the under-the-hood…

## Learning Analytics in MOOC Courses

This is a challenging area due to lack of both public data sets and common standards / schemas

## Learning Theories Applied in MOOCs

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## Learning science and educational research models

MOOCs allow greater flexibility in applying learning theories and, for group projects, team dynamics. I just learned about “Just in Time Teaching” (JITT) mentioned above, this is right inline with my own interests in Lean/Agile/teams which are already in my paper.

## Applying sound science with Machine Learning

Most common example, well covered in MOOC-based research, are attempts to analyze MOOC data and identify at-risk students. These students can be targeted with automated methods, leading to a more efficient use of resources.

# Conclusion

Several valuable lessons have been learned along the way. As noted in the introduction, MOOCs are leveling the playing field for learners. People with medical, geographical or financial challenges now have a wide range of choices from free MOOCs to nano-degree programs to blended MOOCs. Blended MOOCs involve traditional enrollment at a university that teaches part or all of the courses over the internet. This leads to a traditional degree. In the case of OMS-CS, it is the same degree and diploma as the on-campus version of the Computer Science program.

##### References

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1. G. Eason, B. Noble, and I.N. Sneddon, “On certain integrals of Lipschitz-Hankel type involving products of Bessel functions,” Phil. Trans. Roy. Soc. London, vol. A247, pp. 529-551, April 1955. (*references*)
2. J. Clerk Maxwell, A Treatise on Electricity and Magnetism, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68-73.
3. I.S. Jacobs and C.P. Bean, “Fine particles, thin films and exchange anisotropy,” in Magnetism, vol. III, G.T. Rado and H. Suhl, Eds. New York: Academic, 1963, pp. 271-350.
4. K. Elissa, “Title of paper if known,” unpublished.
5. R. Nicole, “Title of paper with only first word capitalized,” J. Name Stand. Abbrev., in press.
6. Y. Yorozu, M. Hirano, K. Oka, and Y. Tagawa, “Electron spectroscopy studies on magneto-optical media and plastic substrate interface,” IEEE Transl. J. Magn. Japan, vol. 2, pp. 740-741, August 1987 [Digests 9th Annual Conf. Magnetics Japan, p. 301, 1982].
7. M. Young, The Technical Writer’s Handbook. Mill Valley, CA: University Science, 1989.