From Planning to Launching MOOCs: Guidelines and Tips from GeorgetownX

Dedra Demaree(✉), Anna Kruse, Susan Pennestri, Janet Russell, Theresa Schlafly, and Yianna Vovides

Center for New Designs in Learning and Scholarship, Georgetown University, 3520 Prospect St. NW #314, Washington DC 20057, USA
{dd817, alk34, sqp, jsr49, tbs27, yvll}@georgetown.edu

Abstract. This paper presents guidelines and tips from the Massive Open Online Course (MOOC) creation process at Georgetown University's Center for New Designs in Learning and Scholarship (CNDLS). Topics address the initial planning phase; core elements for MOOC design; the overall instructional design process; the video planning and production process; documentation; copyright; and quality assurance. This paper is meant to provide general guidelines and points to consider but is not intended as a complete guide for MOOC creation.

Keywords: Guideline · Instructional design · MOOC · Online course

1 Introduction

In December 2012, Georgetown University (GU) established ITEL (the Initiative for Technology-Enhanced Learning), an internal grant program administered through the Center for New Designs in Learning and Scholarship (CNDLS). ITEL projects explore new approaches to interactive learning, including the redesign of large introductory courses, cross-disciplinary learning environments, and the development of massive open online courses (MOOCs [1]) in partnership with edX. MOOCs are free and open to anyone and intended for a general audience. CNDLS administers the MOOCs using a team-based approach in conjunction with the GU faculty and other campus partners such as the library. The CNDLS MOOC team includes specialists in project management, videography, graphic design, and instructional design.

As of April 2014, GU has launched two MOOCs (Globalization's Winners and Losers: Challenges for Developed and Developing Countries in the fall of 2013, and Introduction to Bioethics in the spring of 2014), has a third MOOC (Genomic Medicine gets Personal) ready to launch in June 2014, and two more launching in the fall of 2014 (The Divine Comedy: Dante's Journey to Freedom, and Terrorism and Counterterrorism). The GU MOOCs are hosted on edX and are referred to as GeorgetownX courses.

Since the initial planning of the first GeorgetownX course, CNDLS has maintained an effort to document our MOOC creation process, develop instructional design templates, streamline workflow, and conduct research on the efficacy of our design process (the details of the research plan are beyond the scope of this paper). This paper provides

G. Vincenti et al. (Eds.): eLEOT 2014, LNICST 138, pp. 68–75, 2014.
DOI: 10.1007/978-3-319-13293-8_9

some general guidelines and points to consider while planning a MOOC. This paper is intended to give a sense of the overall course planning and production process, and is not to be taken as a complete guide.

2 Initial Planning

Before MOOC content is created, there are several pre-planning steps that are critical for informing the process. These planning steps were adopted from a homework assignment in an ELI (Educause Learning Initiative) short course on Designing and Delivering a Quality MOOC [2] and the checklist the course utilized was adapted from Ray Schroeder [3].

- It is critical to identify the purpose of the course and the target audience, and be familiar with the open education philosophy [4] of a MOOC.
- A timeline should be created with detailed tasks (see section four of this paper).
- Plan should be made for communications such as marketing the course to potential enrollees, managing regular emails to enrolled students, and using social networking (not addressed in this paper).
- The objectives for offering the course should be identified, including determining the optimum time frame for the course, and conceptualizing a course design (such as open, structured, or non-linear – the GeorgetownX courses are all in a structured format meaning students are encouraged to progress linearly through the course on a specific timeline) and release format (for examples releasing all the content at launch or releasing it on a week-by-week basis).
- Broad learning outcomes should be specified along with how they will be assessed and what level of achievement will be considered acceptable for receiving a course completion certificate.
- An assessment should be made of needed and available resources including technologies, general staffing and specialized human resources needs, space needs (such as for filming), what kind of assessments and feedback will be desired for students during the course, and how the course materials will be archived and/or repackaged after the initial deployment of the course (for example, GU is repackaging some MOOC content on DigitalGeorgetown which includes a GU Institutional Repository).
- Plans should be put in place for both faculty and staff development and handling potential needs of enrolled students, including plans for dealing with disruptions or challenges.

3 Common Core Elements for GeorgetownX MOOCs

Following best practices for online course design, CNDLS created a list of common core elements for our GeorgetownX courses. With these elements forming a common base for learning design and assessment, course design teams and faculty are better able to focus their time on experimentation within the MOOC space, ultimately enabling evidence-based learning design decisions for deeper learning. (Note this list does not include the communications plan, including managing emails, Facebook, and Twitter.)

Elements for the overall course:

- Use GeorgetownX Syllabus Template (including a course description with key learning outcomes, descriptions of faculty, a detailed course content outline, expectations for participation, certification, and faculty communication, netiquette guidelines, and academic integrity)
- Pre- and post-course surveys which include demographics, reasons for enrolling in the course and desired outcomes, and the Communities of Inquiry survey [5] for assessing the course design (along with the course analytics)
- Asynchronous engagement using frequent prompts for students to post on the Discussion Board and polling questions throughout the course
- Self-assessment questions where students compare their answer against an instructor-written response and grade themselves based on a provided rubric
- Objective questions such as multiple choice, multiple mark, numerical input, and dropdown for both formative and summative assessment
- Orienting banners for the course and for each sub-section
- Navigation instructions on every course page

Elements to include on the course Landing Page:

- Welcome text and video from lead faculty
- Links to course surveys
- Guidance on how to get started as a student in the course
- Handouts section including syllabus and learning checklist

A Course Overview as the first section to orient students including: What is the course about? What does the course include? What will I learn in the course? How do I use the course features?

Recommended section-level course structure includes:

- Introduction including learning outcomes, and video lead-in
- Transcribed video content with learning objectives stated, a placeholder for student notes (CNDLS uses the edX discussion boards), and faculty-provided notes
- Aligned formative assessment questions for each video
- Conclusion and Looking Ahead section including what to expect next, and a placeholder for student questions to be posted via the discussion boards including instructions on how to up-vote questions
- Summative quiz or exam questions for the section and/or homework assignments
- A placeholder for faculty and/or teaching assistants to respond to the most highly up-voted questions from students on the discussion boards.

4 Creating a Timeline

Several factors contribute to the substantial amount of time needed to complete preparations for a MOOC. Faculty and course team members should be prepared to

dedicate a significant amount of time to planning, filming, reviewing footage, creating assessments, etc. Substantial time is required to create video content, including adding graphics and transcripts to the videos. The instructional design process is lengthy and involves coordination with many other aspects including scripting and filming. Time also needs to be devoted to training a team of people to build out the course including creating, testing, and proofreading assessments within edX.

In order to maintain instructional alignment, scripts for video production and other courseware projects (assessment design, site architecture) need to be based on a detailed course alignment document to ensure that individual teams are able to work relatively independently and stay on track with the timeline.

Once the overall course outline and syllabus has been created, edX recommends putting together a single representative week of the course within edX (including text, video and assessments). This Mock Week is an excellent way to test the workflow and estimate timing for producing the remainder of the course.

All content should be ready by at least 2 weeks before the course launch date to allow time for testing, quality assurance, and so forth. Table 1 below shows a sample, fairly fast-paced, 6 months timeline for creating a high-impact MOOC.

5 Instructional Design Process

CNDLS adheres to instructional design principles and a design-based research [6] approach in the development of the curriculum for each GeorgetownX course. This is conducted with the intention of increasing learner engagement and therefore retention and achievement of the desired learning outcomes. The instructional designers at CNDLS identified access, retention, and achievement as factors that influence learner activity in MOOCs. The key factors influencing a learner's own desired learning outcomes are learners' academic goals, confidence, and feeling of connectedness to the learning environment [7].

Another critical step in the instructional design process focuses on mapping learner engagement within edX to key concepts which are themselves aligned with the learning outcomes and individual assessment questions, including discussion threads. Even though it is time-consuming to achieve this level of mapping, the level of documentation is a required part of the instructional design process for all GeorgetownX courses as part of quality assurance.

The Community of Inquiry (CoI) model is used to provide consistency across the different GeorgetownX courses. The CoI model, proposed by Garrison and Archer [5], has been used to support design of and assessment in online learning environments. At Georgetown, CoI is being used to enable the researchers to create a learning analytics model that addresses different types of online presences in relation to engagement, retention, and learning outcomes to allow for more precise course design modifications in future iterations of the courses (detailed in a separate publication).

Early on in the design process, the course design team should begin thinking about and deciding on the major topics of the course and learning objectives for the course. The Instructional Design team from CNDLS works with the course team to complete a chart for aligning the content as it becomes more specific and detailed. Then, once the

Table 1. Sample course construction timeline, # indicates week of the course, sample table is for a 10 weeks course, so for example (#3, #4) means weeks 3 and 4 of the course.

Months until launch	First half of the month	Second half of the month
6	Confirm sequence of topics, begin instructional design work with faculty (#1, #2), confirm filming locations	Schedule filming dates, begin scripting, continue instructional design work on alignment with learning objectives, draft detailed course overview document, begin copyright permissions work including preliminary reading list for entire course
5	Continue scripting, begin filming, continue instructional design work	Finish filming, begin editing, discussing graphics, continue individual instructional design work, schedule filming dates/locations with faculty (#3, #4)
4	Complete filming, editing, graphics, continue individual instructional design work (#3, #4)	Mock week completed? Continue copyright permissions work, begin scripting, filming, editing (#3, #4), continue work on assessments with faculty (#3, #4), begin instructional design work (#5, #6)
3	Continue filming, editing (faculty #3, #4), continue individual instructional design work (#5, #6) begin scripting, filming, editing (faculty #5, #6)	Complete filming, editing, graphics (#3, #4, #5, #6), begin instructional design work with remaining faculty (#7–#10)
2	Begin scripting, filming, editing (#7–#10), continue work on assessments, readings	Reading list completed for entire course, copyright approval finalized, finalize syllabus (certificate requirements, etc.), all filming completed, X # of weeks drafted in edX Studio
1	Assessments completed, final edits to course sequencing, etc.: all weeks up in Studio	QA; Testing; Transcript review
0	Launch	Launch

topics and objectives are solidified (along with who will be providing instruction for each section), they work on identifying subtopics, planning content delivery and readings for those subtopics, activities that will not be assessed (discussion board, etc.), and assessments that will demonstrate accomplishment of the objectives for those subtopics (formative assessment questions, quizzes, exams and homework).

Table 2 provides a checklist for the instructional design and development tasks for GeorgetownX development.

Table 2. Checklist for instructional design and development tasks

Task
☐ Course-level learning goals confirmed
☐ Learning objectives for each class session in relation to the course-level goals confirmed
☐ Course content outline aligned with learning objectives
☐ Course material selected
☐ Course management confirmed (outputs go into syllabus)
☐ Course structure (section, sub-section, units) confirmed
☐ Learner engagement techniques (such as activities, discussion board prompts, and polling questions) determined
☐ Course components confirmed based on learner engagement plan
☐ Course syllabus and calendar of activities completed
☐ Course development within edX completed
☐ edX course environment evaluation and pre-launch testing completed

6 Video Scripting, Filming, and Editing

Prior to filming actual content, CNDLS conducts a "test filming" session to test out different locations, setups, and lecture delivery styles. Once this footage has been reviewed and an approach has been decided on, actual filming will begin.

Faculty should plan their notes such that video content is divided into short segments of approximately 5–7 min each. Script outlines and any notes or slides are acquired several days prior to filming. These do not need to be word-for-word scripts, but rather detailed enough outlines to allow someone who is not familiar with the content to follow along. This is critical for several reasons, such as:

- Ensuring that all needed topics have been covered;
- Keeping track of timing during the filming process;
- Confirming consistency and accuracy of terminology, numerical examples, etc.; and
- Providing a common reference point for videographers, video editors, instructional designers, teaching assistants, and others.

These scripts are also used for initial alignment of video segments to learning objectives, and to brainstorm possible assessments for each segment.

As a very general rule of thumb, a 2 h session should be sufficient to cover approximately 30 min worth of edited content. During the shoot, segments are filmed multiple times, and content may need to be filmed in multiple locations. Later retakes may also be necessary. The content should be filmed in short segments and will undergo substantial editing, so faculty need not feel pressured to deliver long sections in single takes. Because filming is very tiring, multiple sessions with the same faculty member should not be planned in a single day. Instead, CNDLS uses time following a shoot for footage review and planning.

During the filming, it is essential to have someone present who can act as a content expert, such as a TA or other course team member. This person will follow along with the outline and try to catch any omissions or mistakes, helping to avoid later retakes.

Someone else should also be present to take notes that will later aid the video team in editing the raw footage. With the video script outlines and notes, the video team can create rough edits of the footage for faculty review.

7 Documenting Course Progress

In order to coordinate the various course elements, CNDLS organizes its documents and processes using Google Drive. Folders are populated for budget, graphics, instructional design documents, meeting notes, progress reports, timelines, video, and working documents. The working documents folder includes a sub-folder for copyright materials, assessments, polling questions and discussion board prompts, scripts and notes for each week of the course, and the course syllabus.

One document CNDLS finds particularly useful for coordination is our Google spreadsheet for categorized assessments and videos. This spreadsheet contains a tab for assessments grouped by week/topic, where problems are aligned with the learning objectives, and includes the question, question type, key, provided explanation, and type of learning this assessment supports (using Bloom's taxonomy [8]). A second tab is for video links and includes the video titles, the status (i.e. needs graphics, content approved by…), and the link for viewing the video. Other tabs include progress tracking and transcription details. This document serves multiple needs: it provides a backup for all information that ends up in edX, it allows for the video team and learning design team to do development simultaneously and stay coordinated, and it provides a simple way to send content to course faculty for approval.

8 Readings and Copyright

At GU it is the responsibility of the course team to obtain copyright clearance for any readings, images, and video clips in consultation with university librarians. This process should begin as soon as possible as it can be quite time-consuming. Until clearance has been obtained, direct references to specific materials should be avoided in video content (or alternate versions should be filmed).

9 Quality Assurances

There are several different types of quality assurance that need to happen while building a MOOC.

- While filming, the course team will watch for accidental mistakes so that reshooting can happen immediately. In reviewing footage, they will check again for inaccuracies and inconsistencies. The edited video is then sent for transcription and a course team member(s) conducts a quality check of the transcript.
- With assessments, it is important to double-check the veracity of the answers to questions with determined answers (e.g. multiple choice, dropdown).

- With course resource pages and other content, a team member will need to check that all author names, readings, etc. are accurately represented.
- There will also need to be quality assurance and testing of the completed course in the edX platform. This will include running through a trial version of the course to check for any misplacements of content, functionality of all interactions, functionality of all links, and integrity of grammar/spelling.

10 Efficacy of the GeorgetownX Process

The process of developing a MOOC is a substantial time commitment. The GeorgetownX process has been carefully vetted by CNDLS for the purpose of delivering a MOOC that has strong instructional design leading to the potential for higher-than-average student retention rates and evidence of design efficacy (to be reported in a separate publication). Although the MOOC development process outlined in this paper is complex, it has the potential to lead to a high-impact student experience, achieved desired learning outcomes from their perspective, and learning objectives generated by the faculty team.

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