

Conference Proposal  
The MOOC “Level-Up”: Hybrid Learning to Prepare Students for Advanced Coursework  
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Hybrid educational models have been developed in response to research finding that students in online college courses often under-perform relative to students in the same courses taught in a face-to-face format. College students in online-only classes are more likely to drop out and less likely to reenroll in future semesters, while students in hybrid courses perform more like students in face-to-face classes (Xu and Jagers 2011; Jagers and Xu 2010). Hybrid courses typically combine both online and face-to-face elements – often in a synchronous format – to offer more student support than a typical online course while still offering the benefits of an online course such as schedule flexibility, reduced instructor time commitment, and the ability for students to learn at their own pace.

In this project, we explored whether a hybrid learning experience could be effective if, instead of integrating the online and face-to-face elements, we presented them sequentially with a fully online experience providing the foundational knowledge and background needed to help students be more successful in the face-to-face part of the course. We tested this by providing students with a MOOC-based short course that they were assigned complete at the beginning of their traditional, in-person campus course. We called this hybrid mini-course a “level-up”, and we piloted the level-up model in the spring 2018 semester with 2 classes at Duke University. Our goals for this pilot project were:

1. Provide all students the opportunity to gain foundational knowledge online at the beginning of an advanced undergraduate course
2. Present the material in a format that would not take away from in-class instructional time
3. Create a learning experience that would be completed at the beginning of the semester, but that students could refer to throughout the semester as needed
4. Structure the learning experience to be somewhat self-paced so students with different backgrounds can work at different paces, but time-bounded so all students complete the material by a given point in the campus course

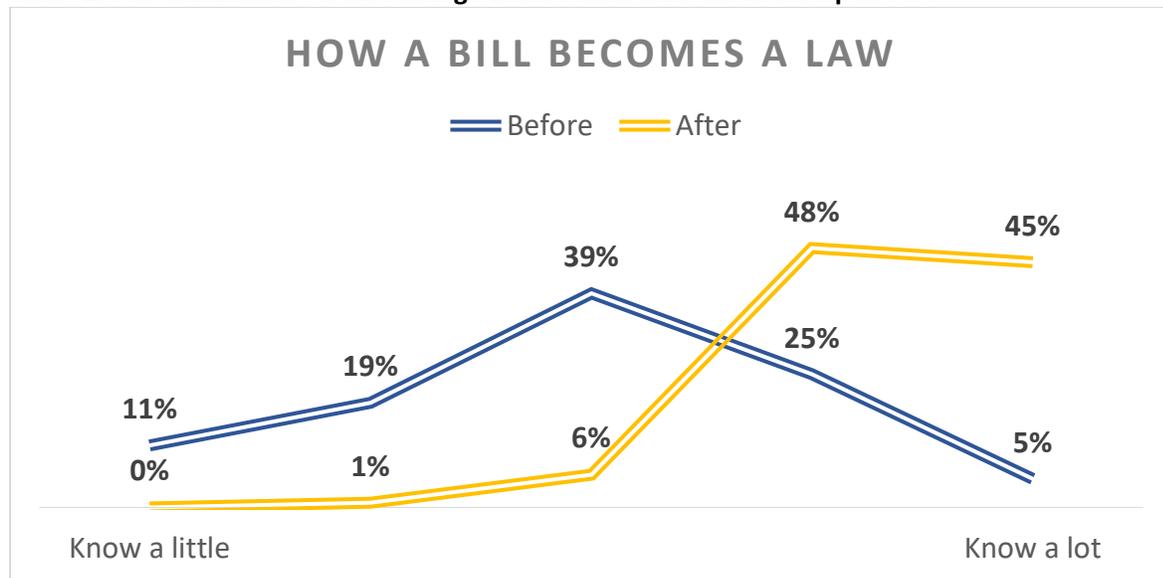
In the spring of 2018, Duke Learning Innovation (the department at Duke supporting teaching and learning) worked with two professors from Duke’s political science and public policy departments to create a MOOC on introductory U.S. civics. The MOOC followed the typical structure of video lectures followed by quizzes. The MOOC is a fairly short course - 3 weeks/modules of content with 5-6 videos in each module. In the pilot, each video was followed by a short quiz although subsequent iterations of the course will include fewer quizzes. For this pilot, the course was hosted by Coursera but was only available to Duke students. Students were required to complete the MOOC either before the semester started (during winter break) or within the first 2 weeks of class. There was a 5% penalty from their final grade for failing to do so; only one student out of 123 failed to complete the course as required.

To evaluate the extent to which this experiment achieved the stated goals and improved learning outcomes, we conducted a survey with all the students who were enrolled in the two classes about one month before the end of class. The survey asked students to identify the most and least useful topics they learned about in the MOOC (open-ended questions asked before students were prompted with questions about any specific topics from the course), to self-evaluate how much they knew about various topics before and after taking the class, and to provide some data on how they used the MOOC course.

We elected to ask students to self-evaluate their learning retrospectively, because research has found this is an effective way to measure learning gains when people are learning new material (Falchikov and Boud 1989; Lam and Bengo 2003). Prior to learning about something, people are often unable to effectively judge how much they know or don't know about the topic. We therefore asked students to rate how much they knew prior to taking the online class and how much they knew at the time of the survey. We asked about nine different topics covered in the online part of the course. A total of 94% of students (116 out of 134) completed the survey. Ten of those who did not complete the survey were not in class on the day it was distributed, and eight started the survey but did not finish it.

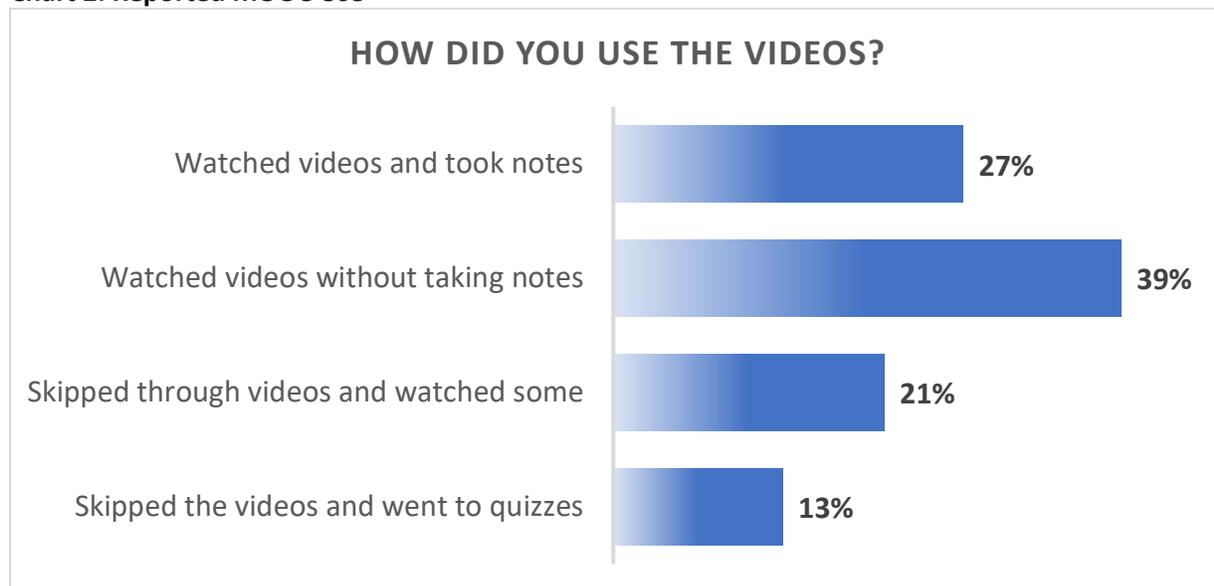
We found that students reported significant gains in their knowledge on every key concept we asked about on the survey. The nine concepts we asked about included a mix of topics that had already been also covered in the in-person class and topics that had not yet been covered, and the results were similar. The pattern shown in Chart 1 (below) is representative of the distribution of responses on all nine questions. Because the survey was a census (we included all participating students in the potential response pool) and not a sample, significance testing is not warranted to identify differences between the two measures (knowledge before and after the MOOC). The observed differences reflect the actual differences in the population.

**Chart 1: Self-Assessment of Knowledge Before and After the Level-Up MOOC**



We found variation in how students used the MOOC, shown below in Chart 2. About a third of the students skipped some or all of the videos and only took the required quizzes. Just under a third watched the videos and stopped while watching to take notes, and the rest watched most of the videos without taking notes. Because the students were only required to complete the quizzes to receive "credit" for taking the course, the MOOC ended up allowing students to essentially "test out" of topics they already knew while watching videos at whatever pace they wanted to learn about new topics. In the open-ended questions on our survey, students commented on this flexibility.

**Chart 2: Reported MOOC Use**



Finally, we found that students appreciated when the instructors made reference throughout the in-person course to where in the MOOC students could return to refresh their understanding of different topics. Students essentially used the MOOC to create their own hybrid learning experience by returning to the online content outside of class when they felt they needed to brush up on a topic.

Our pilot test of the level-up MOOC was successful in providing students with an online learning experience that provided them with the background they needed to be successful in upper-level courses in U.S. civics. This unique hybrid format of an online foundational mini-course in conjunction with an in-person advanced course has potential applicability in other subjects as well. We are currently looking to expand the model starting in the fall 2018 semester, and to conduct more experimental research by analyzing both self-reported outcomes and student assessment results.

#### References

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