COMPARING LEARNER COMMUNITY BEHAVIOR IN MULTIPLE PRESENTATIONS OF A MASSIVE OPEN ONLINE COURSE

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ABSTRACT

Massive Online Open Courses (MOOCs) can create large scale communities of learners who collaborate, interact and discuss learning materials and activities. MOOCs are often delivered multiple times with similar content to different cohorts of learners. However, research into the differences of learner communication, behavior and expectation between multiple presentations is scarce. This is of importance to MOOC developers, academics and moderators, as an understanding of these differences could have an impact on content provision, community moderation, course delivery, learner interactions, and completion rates. This case study of two presentations of a Futurelearn History MOOC examined learner activity data, and pre and post course learner survey results (n=10,449). Differences in learner survival rates, behavior, expectation, recruitment, experience of online learning, demographic makeup, reasons for non-completion, and comment activity were identified. These results form a preliminary exploration of learner community differences between multiple MOOC presentations that guide future analyses by identifying areas of comparative interest and importance.

KEYWORDS

Massive Online Open Course, Online Learners, Online Education, Learner Community Behavior

1. INTRODUCTION

Massive Open Online Courses (MOOCs) are a relatively new learning phenomenon where learners access freely available online educational multimedia resources online, and connect with large numbers of other learners asynchronously via social networking tools such as discussion forums (Liyanagunawardena et al., 2013). These forums are used to facilitate course understanding, support learner problem solving, and build a community of learners. MOOCs are often repeated in multiple presentations with new cohorts of learners. Exploring and identifying where learner and community behavior is different between these instances can help MOOC moderators, academics and administrators in their development, implementation and evaluation of MOOCs. This paper provides a comparative analysis of learner behavior and demographics in two presentations of the same MOOC. It contributes an understanding of differences in learner community behavior across multiple presentations of a MOOC, and forms a preliminary basis for further work within this space.

Although there have been comparative analyses across different MOOCs, comparative research is lacking on learner behavior, communication, and demographics within repeated presentations of the same MOOC. This could have an impact on MOOC content design, resource provision, community moderation, course delivery, learner / educator interactions, and completion rates. Comparative research across multiple MOOCs has explored learner activity rates and peer interaction (Hew, 2015), forum activity (Brinton et al., 2013), and pedagogical practices (Toven-Lindsey et al., 2015). However, little research has been conducted into repeated iterations of the same MOOC. Previous research into repeated versions of a MOOC has explored demographic variables (Liyanagunawardena et al., 2013), and has found that participation initially declines by 43% between the first to the second MOOC presentation (Ho et al., 2014). However, little comparative information as to community and learner activity, communication, survival and behavior, with a focus on multiple presentations of the same MOOC is available. MOOC providers often have data across multiple MOOC presentations; however, at present it is unknown which comparative variables are of importance, and what are the implications of differing MOOC learner populations.

2. RESEARCH AIM

This research aims to examine differences in learner communication, behavior, demographics and survival across multiple presentations of a MOOC; the inaugural presentation, and the second presentation. It questions whether different cohorts of MOOC learners behave differently, and in what way. Identifying variables for comparison across MOOC presentations could help future research and guide content provision, community moderation, course delivery, learner / educator interactions, and completion rates.

3. METHODOLOGY

Two presentations of the 'Irish Lives' MOOC were delivered on the Futurelearn platform in September 2014 (P1) and March 2015 (P2) by Trinity College Dublin, Ireland. This was a six week Irish History MOOC, with four hours recommended study time per week. Assessment was based on two peer review essays, and completion of MOOC steps. A pre course and post course survey were administered to learners in both presentations. The pre course survey consisted of 20 questions related to demographic information, experience of online learning, expectations of online learning, and interest in history. The post course survey included 29 questions on course activity and satisfaction with online learning experience. Table 1 describes the sample of the pre and post course surveys, and the total number of joiners within both MOOC presentations (a joiner is defined as a learner course enrolment). Both presentations of the MOOC had the same content and moderation, except for one addition in the first step of P2 where learners were asked to introduce themselves.

Table 1. Number of participants in pre course and post course survey responses and response rates

MOOC presentation	Total Number of Joiners	Pre course survey participants	Post course survey participants
P1	18,264	3,834 (20.9%)	1,722 (9.4%)
P2	11,085	4,458 (40.3%)	435 (3.9%)

4. RESULTS

The results of the comparative analysis of multiple presentations of the Irish Lives MOOC suggest differences in learner survival, expectation, recruitment, experience of online learning, demographic makeup (age and gender), and educational level. Additional variables that suggest difference in MOOC presentations include reasons for non-completion, learner activity types, and comment activity.

4.1 Learner Demographics, Experience, Expectation, and Recruitment

The pre-course survey described significant differences between the two presentations in gender, age, educational level and experience in online learning. Table 2 describes how learners from P1 were older, had a lower educational level, and the majority were geographically based in Ireland. A greater percentage of learners were female and from the United States in the P2. It also describes that P1 had less experience of online learning than P2.

Table 2. Demographic Information and Experience of Online Learning

	P1	P2
Gender*		
Male	1,605 (41.9%)	1,608 (36.1%)
Female	2,030 (52.9%)	2,656 (59.6%)
Other	4 (0.1%)	8 (0.2%)
Age**		
0-35	652 (17.8%)	858 (20.1%)
36-55	1,324 (36.2%)	1,552 (36.3%)
56+	1,680 (45%)	1,869 (43.7%)

Educational Level*		
Primary	110 (3.1%)	75 (1.8%)
Secondary	950 (26.6%)	1035 (24.8%)
Third Level	2,512 (70.3%)	3,061 (73.4%)
Geographical Location		
Ireland	1,679 (46.2%)	975 (22.7%)
US	844 (23.2%)	1,754 (40.9%)
UK	652 (17.9%)	861 (20.1%)
Other	455 (12.5%)	691 (16.1%)
Experience of Online Learning*		
Yes	1,045 (27.2%)	1,559 (35%)
No	2,592 (67.6%)	2,736 (61.4%)

*p<0.001 **p<0.01

Significant differences in learner expectation also emerged in the responses 'learn new things', 'try out learning online', and 'supplement my existing studies'. P1 learners expected to try out learning outline to a greater extent than P2 learners, whereas P2 learners had a greater focus on career and study development. There were observed differences in how learners were recruited in P1 than P2. Learners from P2 were recruited to a greater extent from online sources, whereas P1 learners were recruited from print media and word of mouth. The post-course survey results found that there were significant differences in learner dropout rationale between the two MOOC presentations. These differences were apparent in the responses 'didn't have enough spare time' and 'couldn't keep up with the course', with P1 having significantly higher responses to these questions (p>0.01). Significant differences were also identified in 'satisfaction with learner activity'. P2 learners enjoyed discussing content with other learners more than P1.

4.2 Learner Survival

Activity data extracted from the Futurelearn website found that there was a much higher dropout of students in the first day of the MOOC in P1 than P2. Figure 1 describes the day of the last step that a learner was active within. The majority of P1 dropouts were in the first day of the MOOC compared with the end of the first week in P2. This finding suggests that the behavior of learners in the first presentation of a MOOC can differ from the second. In effect, P1 learners tend to drop out earlier than P2 learners.

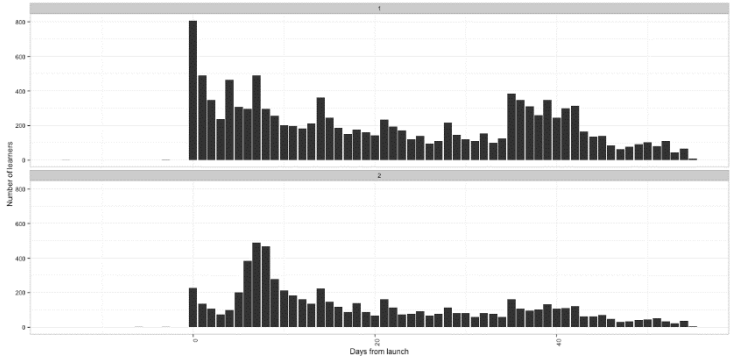

Figure 1. Comparing last step progress in P1 and P2

4.3 Learner Behavior

Comparing the number of learner comments in each step of the MOOC identified some interesting results (see Figure 2). Although most of the results are very similar, a spike can be seen in the third step of the first week in P2. This was due to the inclusion of additional text asking the learners to introduce themselves that was not in P1. This finding demonstrates how a small change in MOOC content across multiple presentations, can drive changes in learner comment behavior.

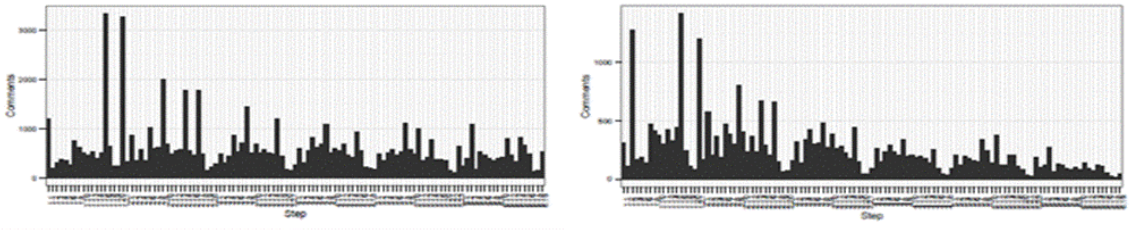

Figure 2. Comparing the number of comments in each step of the MOOC between P1 and P2

Learner behavior also differed between the two presentations, in particular between social learners (a learner is one who has made at least one comment) and participating learners (a learner who has completed the majority of the steps). P1 had greater numbers of social learners (41%) and participating learners (25%) than P2 (36%;16%).

5. DISCUSSION AND CONCLUSION

This research suggests that MOOC iterations can differ in learner expectation, learner recruitment, experience of online learning, demographic makeup, reasons for non-completion, learner activity types, comment activity and learner survival. Identifying these variables could have implications for MOOC design, implementation and evaluation. The practical implications of these results suggest that pre course surveys could be analyzed prior to the commencement of the MOOC to guide MOOC moderation. Post course surveys and MOOC data analysis can identify areas of importance for future MOOC iterations. We are curious to discover whether similar findings of difference will be apparent using data from other MOOCs. The following research questions have emerged from this analysis that warrant these future investigations:

- Are learners from inaugural presentations more motivated to complete or comment on a MOOC than subsequent presentations (i.e. social and participating learners)?
- Are inaugural learners more likely to drop out earlier than second presentation learners, and if so, why?
- Does experience of online learning differ across multiple presentations, and if so, why?
- Should MOOCs be compared across their presentation iteration rather than as an aggregate (i.e. first presentations be compared with first presentations, second with second)?
- Are there patterns of demographic differences across MOOC presentations, and if so why?
- Does learner activity and satisfaction with learning activities differ between presentations?

This research described differences in demographic composition, survival, communication, activity, and behavior between MOOC presentations. The research is limited to one case study, however future research will examine these questions in additional MOOCs. This could determine whether there are common behavioral differences in MOOC presentations which could have an impact on their design and implementation.

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