

Initial findings from a massive open online course for oral English skills development in China

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English language proficiency has become increasingly important in Chinese society, as high-stakes English tests play a gatekeeper role, restricting access to the best universities and employers. However, despite efforts to bolster acquisition of English in China, inequalities remain and students from inland and rural areas are disadvantaged. The inherent advantages of Massive Open Online Courses (MOOCs), including their ease of scalability to large student numbers and their lack of required resources on the user side, lead naturally to the inference that supplementation of current foreign language education programmes with the use of targeted MOOCs could potentially be a boon to both teachers and students. This paper reports on initial findings from “Oral Communication for EFL Learners”, a MOOC hosted on the Chinese XuetangX platform in Autumn 2014 with over 25,000 students in the initial cohort. Analysis of user engagement patterns and the results of a survey given to users who completed the course suggest that the initial goals of the course were not met in full, and that much work remains in order to refine and optimize MOOC design and realize the lofty ambitions of MOOC proponents.

Keywords: China; English as a foreign language (EFL); massive open online classes (MOOCs)

The teaching of English in China

There is a voracious demand for English in East Asia, as demonstrated by the growth of the private EFL industry (He, 2010; Park, 2009; Piller, Takahashi, & Watanabe, 2010) and the rapid expansion of EFL in public schools, both in classroom contact hours and earlier starting ages (G. Hu & McKay, 2012; Nunan, 2003). Unfortunately, this fervour has often left schools in poorer regions overwhelmed with a lack of trained teachers, ineffective resources, and confusion as to how curricula are to be implemented (Li & Baldauf, 2011; Sakamoto, 2012). Furthermore, it has been suggested that the curricula themselves are often influenced by political or economic concerns and based on intuition rather than empirical research (G. Hu & McKay, 2012; Y. Hu, 2007; Li, 2011).

Within this context of increased focus on teaching English in the region, China can be seen as an exemplar. A national census conducted in 2000 found that over 390 million Chinese reported having learned English (Wei & Su, 2012); this number exceeds the entire population of the United States and will probably have increased in the decade-and-a-half since the census was conducted. The pressure from this shift toward teaching English is not borne solely by government programmes. It has been estimated that China’s private English language training market will reach the equivalent of 21 billion dollars in 2016 (Xiang, 2014).

Many students from China study English in order to pursue further education at institutions in English-speaking countries. In the 2013-14 academic year, 274,439 students from China were studying in the United States, which amounts to 31% of the

US total international student enrolment (Institute of International Education, 2014). China represents the largest provider of international students to the United States, and has held this position since the 2009-10 academic year.

High-stakes English language tests play a key role in Chinese society; two of the most important are the National College Entrance Exam (NCEE), which is taken at the end of secondary school and of which English constitutes a major section, and the College English Test (CET), the passing of which is included in graduation requirements from many major universities and is often required by employers hiring new graduates (Adamson & Xia, 2011). These high-stakes tests, however, reveal deep inequalities in the teaching of English across various groups in China. Students from universities in the more developed coastal areas in eastern China generally score higher on the CET (Yan & Huizhong, 2006), and urban students have more access than their rural counterparts to private tutoring, which has been shown to improve English scores on the NCEE (Zhang, 2013).

Research has identified several sources of inequality in EFL provision in China. G. Hu (2005) found advantages for students from coastal (as opposed to inland) provinces and capital (as opposed to non-capital) cities: EFL began earlier in coastal provinces and capital cities, and teachers in these areas were better trained and used more modern pedagogical approaches. Other studies note that the Han majority ethnic group has more access to English-medium instruction (G. Hu & Alsagoff, 2010), and that ethnic minorities, for many of whom English is the second foreign language after Putonghua, fail the CET in disproportionate numbers and are thus unable to graduate from university (Adamson & Xia, 2011).

Given the importance of high-stakes English language testing in China, inequalities in access to English teaching represent a major area of concern. As such, the development of high-quality programmes for EFL that are capable of wide distribution across geographical and ethnic borders would accomplish a great deal in improving the lives of students in disadvantaged situations. One such solution may lie in the massive open online class, an idea which has received much interest in recent years.

Massive open online classes

Massive open online classes (MOOCs) first appeared on the educational landscape in 2008, with a University of Manitoba course on connectivism by George Siemens and Stephen Downes. This 12-week online course was opened to the public, and attracted 2,300 students (Toven-Lindsey, Rhoads, & Lozano, 2015). Although the course attracted some attention in the connectivist learning literature and motivated other open online courses of similar scale (e.g., Kop, 2011), MOOCs did not enter the mainstream consciousness until Stanford University's 160,000-student artificial intelligence course in 2011 (Martin, 2012). Within about two years the two current largest for-profit MOOC providers, Coursera and Udacity, had both been founded and had attracted investment well into the tens of millions of dollars (New, 2013). Combined with edX, a non-profit MOOC provider also founded in 2012, total user registrations for these three big MOOC platforms passed 24 million in mid-2015 (edSurge, 2015).

Scholars have argued that MOOCs represent a disruptive technology in education that allows for progression from centuries-old classroom paradigms such as the "sage on the stage", where an instructor lectures to a group of students with little interaction or attention paid to individual differences (Crow, 2013). Another proposed benefit of MOOCs is that they allow learners from disadvantaged backgrounds with poor access to resources to obtain a world-class education (Kay, Reimann, Diebold, & Kummerfeld,

2013). MOOCs are also scalable to classes of any size, and require little in the way of additional resources after the initial investment is made. They are offered on free platforms and students need only an internet connection in order to participate.

However, as MOOCs are a recent phenomenon, empirical research regarding learning outcomes is only just beginning to appear. Much of the published research is correlational, theoretical, or descriptive in nature (e.g., Breslow et al., 2013; Do, Chen, Brandman, & Koller, 2013; Toven-Lindsey et al., 2015), resulting in a current state of knowledge where little can be stated about how course design is causally related to student outcomes. Although Glance, Forsey, and Riley (2013) conclude that common MOOC designs are based on solid pedagogical principles such as mastery learning (Bloom, 1984) and retrieval practice (Karpicke & Roediger, 2008), an analysis of 76 randomly selected MOOCs found that existing MOOCs tend to perform poorly when evaluated according to instructional design principles (Margaryan, Bianco, & Littlejohn, 2015). Further, a review of published literature by Hew and Cheung (2014) showed that instructors tend to organize MOOCs along the same lines as traditional university courses with only slight modifications such as the ability to pause and rewind lectures.

User engagement with MOOCs has been a major focus of research, with a large-scale comparison of over 200 MOOCs indicating a median completion rate of 12.6% (Jordan, 2015) and several studies finding that partially or completely disengaged users make up the majority of all registrations (e.g., Belanger & Thornton, 2013; Breslow et al., 2013; Milligan, Littlejohn, & Margaryan, 2013). Kizilcec, Piech, and Schneider (2013) classified active learners of three computer science MOOCs (totalling just under 100,000 users) into four categories reflecting different levels of engagement. The largest category in all three courses (including over 70% of users in two of the three) was that of *sampling* learners who only watched a few video lectures and did not complete any exercises. The smallest category in all courses (under 10% in all three) was *auditing* users who followed the course by watching videos for the majority of the duration of the course, but rarely or never completed exercises. The other two categories, *completing* users who finished the majority of assessments, and *disengaging* users who completed assessments in the beginning of the course before dropping off and disappearing from course activities, made up the remainder of learners.

Reports of MOOC user demographics also suggest that the goal of reducing inequality in access to education is not being reached. Rather than providing high-quality education to disadvantaged learners, users tend to be disproportionately male, living in wealthy developed areas, and well-educated, with most already holding an undergraduate degree or above (e.g., Kizilcec et al., 2013; Kizilcec & Schneider, 2015; Stanford Online, 2014).

These findings suggest that MOOCs, in their current state, may still be far from realizing their potential to revolutionize education, and that much work remains to be done in order to identify and refine principles of effective MOOC design. Regardless, there is clear interest from users regarding the potential of MOOCs for improving language abilities, even in content knowledge courses: Kizilcec and Schneider (2015) found that 30% of learners in a sample of 14 science and humanities MOOCs reported the desire to improve English skills as a factor in choosing the MOOC. Given that a significant proportion of the learners in those MOOCs may have been native speakers of English, the figure is likely to be much higher when considering only non-native speakers. To this aim, S. Wu, Fitzgerald, and Witten (2014) have developed a tool to support English language learners in content knowledge MOOCs, focusing on improving academic language through knowledge of collocations; findings regarding its effectiveness, however, have yet to be published.

Empirical research regarding MOOCs specifically designed for foreign language education is even scarcer than that for content knowledge MOOCs, with only theoretical papers and descriptive case studies available at this point. Martín-Monje, Bárcena, and Ventura (2013) reported on one of the first language learning MOOCs, which was held on the Miríada X platform and aimed to teach EFL to over 23,000 registered users, most of whom spoke Spanish as a first language. Despite claims that MOOCs can function to flatten and democratize education, the users were disproportionately educated, with over 55% already holding a university degree and only approximately 9% having no experience with higher education. The course included several peer-to-peer activities which required users to record and upload oral presentations and then rate other users' presentations; these activities were received positively, but only a minority of participants completed them.

Another English language learning MOOC, discussed by S. M. Wu and Lee (2014), was hosted on the Coursera platform but restricted to users from a single university in Singapore. This course focused on developing academic writing skills and was entirely voluntary for all members of the university community, including students and staff. Wu and Lee found that, as with previous observations of MOOC engagement, initial interest and participation in the course was high but tapered off very rapidly. Categorization of users according to an adapted version of the engagement patterns developed by Kizilcec et al. (2013) revealed that only about 14% of users attempted any of the in-video quizzes or practices and only 12% of that subset (reflecting 19 users out of the total enrolment of 1096) remained engaged throughout the entire five-week period. Connectivity among students was also lower than expected, with all responses to posts on the discussion forum provided by instructors rather than peers.

With the rapid expansion of EFL in China and the associated scarcity of trained teachers and proper classroom resources (Li & Baldauf, 2011), a scalable, effective, and rapidly deployable programme for EFL is sorely needed. Although it appears that MOOCs have yet to fully realize their potential, their inherent advantages, including their ease of scalability to large student numbers and their lack of required resources on the user side, suggest that supplementation of EFL programmes with the use of well-designed targeted MOOCs could potentially be a boon to both teachers and students across the country.

Methodology

Relevant to the issues regarding inequality in EFL provision in China mentioned above, Tsinghua University has been partnering with the Weixin Education Fund since 2003 to send professors to under-resourced counties every summer in order to train the local English teachers. This partnership produced a video course and series of textbooks in 2009, and then in 2013 the idea of creating a MOOC to address these issues was put forward. Sponsorship from Google China followed and the first Chinese MOOC aimed at teaching oral English skills, *Oral Communication for EFL Learners* (OCFEL), was developed by a team at Tsinghua University and opened to the public in September 2014. OCFEL was hosted on the Chinese-language XuetangX platform, which uses the Open edX framework and thus closely resembles the main edX site.

The initial aim was to produce a MOOC that could be used to train teachers in under-resourced areas, leveraging the strengths of scalability and remote access to expand the scope of the teacher training programme. As development continued, the goals shifted slightly to encompass English language training for a general, rather than teacher-specific, audience.

OCFEL was structured as an eight-unit course, with a new unit released every week. Units each consisted of seven to nine video components, including explanations of new vocabulary words and phrases, a cultural focus section explaining an aspect of Western culture, and several listening comprehension quizzes associated with the videos. Each unit followed a theme, such as hobbies, relationships, and reasons for learning English, and all units concluded with an exercise section, including multiple-choice questions and dictation tasks.

Students' grades were calculated through a combination of objective measures, including listening comprehension quizzes, unit-concluding exercises, and two listening examinations, all of which were automatically graded by the XuetangX platform, as well as some more subjective measures including a rating of discussion forum participation calculated by course staff and a final speaking examination which required students to record a short monologue that was graded for clarity and coherence by course staff.

User engagement

A total of 28,372 users registered for the first OCFEL course, but the demographics did not reflect the original goal of providing education to under-resourced areas. Instead, the most developed areas of China also provided the largest numbers of students, with over 6,000 from the Beijing/Tianjin area, nearly 3,000 from Guangdong, and over 4,000 from Shanghai and surrounding areas. This may reflect better internet access and/or awareness of the XuetangX platform and MOOCs in these areas, despite efforts to promote OCFEL to learners in under-resourced areas.

From this total, 4,584 users (16.2%) completed at least one graded item, and 1,189 users (4.2%) passed the course with a final grade of 50% or above, receiving certificates of completion. The full distribution of final grades is shown in Figure 1. User engagement patterns were analysed according to categories adapted from previous research (Kizilcec et al., 2013; S. M. Wu & Lee, 2014), and results are shown in Table 1.

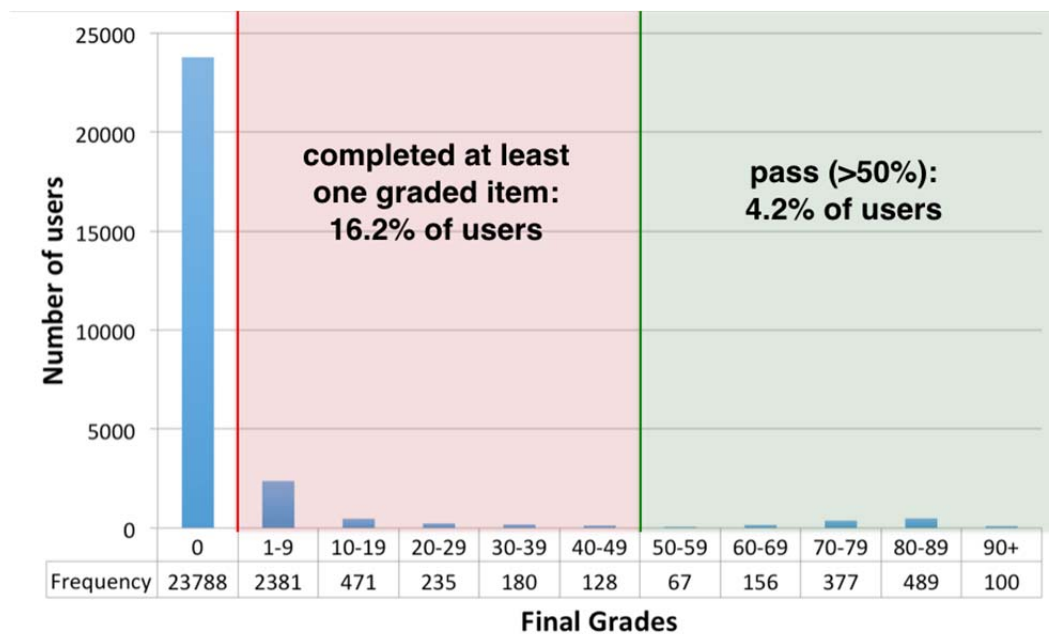


Figure 1. Distribution of final grades across all registered users

Table 1. Categorization of users by engagement patterns

Category	Number of Users	Proportion of Total Users
Engaged	587	2.1%
Interested	902	3.2%
Attempted	477	1.7%
Explored	2,299	8.1%
Disengaged	23,788	83.8%

Note: *Engaged* = completed at least 60% of both quizzes and exercises and both final exams; *Interested* = fulfilled at least two of the four engaged qualifications; *Attempted* = completed at least 60% of quizzes and exercises for the first three weeks, but did not continue the same level of engagement throughout the course; *Explored* = completed at least one quiz or exercise in the first two weeks; *Disengaged* = did not complete any graded items. The categorised users do not total 100% because some users did not fit any of the categories (e.g., users who only completed a single exercise from the final unit).

User engagement patterns in OCFEL thus resembled those in the English language training MOOC studied by S. M. Wu and Lee (2014), with disengaged users constituting by far the largest category of students, and the explored category roughly three times the size of the remaining other three categories, all of which were similar in size. These patterns suggest a high level of disengagement with course material, much like past studies of content knowledge MOOCs in other contexts (e.g., Belanger & Thornton, 2013; Breslow et al., 2013; Milligan et al., 2013). Learners' engagement with each unit, as measured by number of users who watched a video or completed one of the components of the unit (Figure 2) shows a large drop-off after Unit 1, with a gradual decline in participation for the following units. A review (Table 2) suggests that users who completed the unit-summarizing exercises for Unit 1 did not necessarily go on to complete the whole course and receive a course completion certificate. However, users who completed exercises for later units were much more likely to complete the whole course.

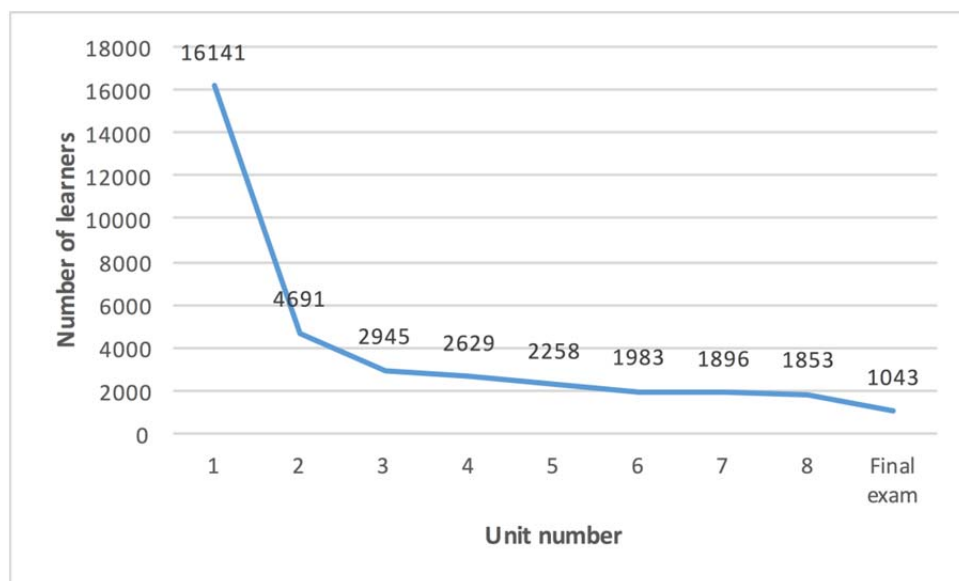


Figure 2. Learner participation by unit

Table 2. User engagement with exercises

Unit	Percentage of total users completing exercise	Correlation (Pearson's r) with receiving course completion certificate
1	11.3%	.58
2	6.9%	.75
3	6.3%	.79
4	6.2%	.79
5	5.4%	.85
6	5.1%	.86
7	5.1%	.85
8	4.8%	.88
Any unit	11.9%	.57

Correlations between users' scores on the different components of OCFEL and users receiving a course completion certificate were also calculated. Average scores on quizzes displayed a correlation of $r = .86$ with receiving a course completion certificate, average scores on exercises correlated at $r = .87$, score on the final listening exam correlated at $r = .95$, score on the final speaking exam correlated at $r = .68$, and discussion forum participation score correlated at $r = .72$. The lower correlations for the final speaking exam and discussion forum participation are of note here, as these data imply that many students who were otherwise engaged with the course to a high enough degree to complete it paid less attention to these two components, both of which were subjectively graded by course staff.

The patterns of user engagement in OCFEL reflect high levels of initial enthusiasm marked by large numbers of registrations and higher participation at the beginning of the course; this enthusiasm then gradually dissipated over time as only dedicated students remained engaged with the course to completion.

Questionnaire results

From 1,187 students who received a course completion certificate, 300 users were selected through random stratified sampling of different levels of final grades (i.e., 50-59, 60-69, etc.). The selected users were invited to complete a Chinese language questionnaire regarding their experiences with OCFEL, and 221 responded (a response rate of 73.7%). Demographic data for questionnaire respondents are shown in Tables 3a to 3d. This section reports noteworthy findings.

It is important to note that this questionnaire was only sent to users who received course completion certificates, so results may not be representative of all MOOC users, especially given the large numbers of low-engagement users as detailed in the previous section.

Questionnaire respondents appeared to have a strong interest in MOOCs in general. 68.8% of respondents had previous experience with at least one other MOOC, with 9.1% having experience with ten or more MOOCs. This interest in and experience with MOOCs appeared to reflect a high level of engagement with MOOCs in general: 49.3%

had received course completion certificates from at least two MOOCs in the past, and 4.5% reported having completed ten or more MOOCs. Respondents also reported taking courses in diverse subject areas, including literature and art (49.3% of all respondents), social sciences (39.8%), natural sciences (26.2%), and engineering and technology (24.9%). These findings suggest that high-engagement users who continue with one course to completion are likely to be high-engagement users in other courses, indicating a much smaller number of dedicated MOOC users than inflated registration numbers would imply.

Table 3a. Gender distribution of questionnaire respondents

Gender	Number of respondents	Percentage of total respondents
Male	91	41.2%
Female	130	58.8%

Table 3b. Age distribution of questionnaire respondents

Age range	Number of respondents	Percentage of total respondents
>= 65	0	0.0%
55-64	1	0.5%
45-54	10	4.5%
35-44	22	10.0%
25-34	71	32.1%
15-24	116	52.5%
<= 14	1	0.5%

Table 3c. Educational background of questionnaire respondents

Educational background	Number of respondents	Percentage of total respondents
Elementary school	0	0.0%
Junior high school	2	0.9%
Senior high school	10	4.5%
Junior college	19	8.6%
Bachelor's degree	122	55.2%
Master's degree	35	15.8%
Doctorate	32	14.5%
Other	1	0.5%

Table 3d. Occupation of questionnaire respondents

Educational background	Number of respondents	Percentage of total respondents
Student	122	55.2%
Teacher	41	18.6%
Full-time employment (non-teacher)	46	20.8%
Other	12	5.4%
Total	221	100.0%

Low course completion rates are a concern for many MOOCs, and four factors that encouraged course completion were mentioned by more than 50% of respondents: immediate applicability of course content for career or study purposes (64.7%), easy-to-use and attractive course design (62.4%), avoidance of time-wasting activities (54.8%), and the presence of famous professors or universities (53.9%). On the other side, the top four factors preventing course completion were lack of time (67.4%), low willpower (41.2%), unreliable internet connection (34.8%), and losing interest in the course (27.6%). As OCFEL was a language education course, the obvious immediate applicability of course material to career or education contexts may have encouraged users to complete the course; such links may be more difficult to imagine in content knowledge courses, other than with students studying the same topic in a MOOC and in offline courses. Efficient use of time was also an important factor for respondents, with 28.5% spending 3-6 hours per week, 44.8% spending 1-3 hours per week, and 12.2% spending fewer than one hour per week studying with various MOOCs. With this limited amount of time and a multitude of courses available to attract users' attention, it appears that successful MOOCs may need to quickly establish and demonstrate how users will benefit from the course through time-efficient material in order to increase completion rates.

Questions regarding discussion forum usage revealed interesting insights regarding these high-engagement users. Despite the presence of thousands of peers, only 52.5% of respondents reported asking questions in the discussion forum when faced with difficulties related to MOOCs; 81% reported that they attempted to find information on their own. Further, many of these high-engagement users did not participate fully in the discussion forum: 67.4% of respondents often or sometimes viewed others' posts on the forum but did not themselves reply or post new topics, and 7.2% never viewed the discussion forum, despite 82.3% strongly agreeing or agreeing with the statement "instructors and teaching assistants were helpful on the discussion forum". These findings accord with the low levels of engagement in peer-to-peer activities reported in previous language education MOOCs (Martín-Monje et al., 2013; S. M. Wu & Lee, 2014).

Conclusion

There is an obvious demand for accessible, high-quality EFL programmes in China, and the results from OCFEL, the first MOOC targeted at such learners, reflect this demand. Over 28,000 users registered for the course, and similar registration numbers have been

repeated in subsequent offerings of the same course. At the same time, the goal of increasing opportunities for learners in under-resourced areas was largely not met, as the most developed areas of China also provided the largest numbers of registered users.

Despite the high registration numbers, OCFEL suffered from similar problems to those reported in both content knowledge and language education MOOCs. Enthusiasm was high at the beginning of the course, but quickly faded as many users stopped engaging with the course, and only a subset of learners continued to the end. Even these high-engagement users who persisted with the course and received a completion certificate did not necessarily engage with all components of the course, with many users not completing the subjectively-graded final speaking exam or participating in the discussion forum. For these users, OCFEL may have functioned similarly to the use of textbooks, recordings, and other offline and online materials for independent studies, that is, the community aspect of the MOOC and its potential to connect learners was largely ignored.

Given the magnitude of the financial resources invested into MOOCs by universities and providers and the growing awareness among the general public, it is clear that MOOCs will remain a part of the educational landscape for the time being. However, many of the lofty ambitions championed by proponents of MOOCs have yet to be fully realized, with low levels of engagement remaining a major concern for most courses and user demographics doing little to combat inequality in access to education. OCFEL, the first MOOC in China aimed at developing oral English skills, encountered similar issues and remains a work in progress. It is hoped that the findings from this study will assist future MOOC designers and instructors in developing language education MOOCs that better address the needs of users.

Implications for language education MOOC designers

Despite the enormous registration numbers for MOOCs that have attracted so much attention both in the media and in academic circles, typically only a small subset of users will remain engaged with a course until completion. Language education MOOCs, including OCFEL, have not been an exception to this trend. As such, future course designers should focus more on high-engagement users and disregard the large numbers of users who will sign up and participate only in the first week, if at all. Engagement patterns in OCFEL indicated steep declines in participation after the first unit that were followed by much flatter trends that continued until the end of the course.

The survey of course completion certificate recipients included in this study provides some insights for course designers aiming to appeal to these high-engagement users. With MOOCs requiring no expense of resources from users other than time, efficient use of time was naturally an important topic for these high achievers. Future language education MOOCs should be designed to maximize time spent in pursuit of an obvious goal, such as improving language used for business, education, or in a specific domain such as chemistry or medicine. Filler activities which serve mainly to lengthen the course and have little pedagogical value should be avoided, or at least clearly marked as optional. More than half of all respondents spent a total of three hours or less each week across all of the MOOCs in which they were enrolled; a language education MOOC that intends to appeal to high-engagement users should aim for a weekly time commitment of perhaps an hour or two at most.

Finally, the demographics of OCFEL and other language education MOOCs suggest that existing courses are failing to reduce inequality in access to education for users in under-resourced areas. It is not clear whether the over-representation of users

from more developed areas reflects better access to computers and the internet, increased awareness of MOOCs and online education platforms, or some unknown factor present in previous courses that reduces appeal to users in less developed regions. Further research is needed in order to determine how MOOCs can be better developed or promoted in order to begin to fulfil the promise of providing more equal access to education for users in all locations.

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