



# Significant determinants of student retention and efficient engagement strategies in LMOOCs

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**Abstract.** This article provides evidence of critical factors of student retention in Language Massive Open Online Courses (LMOOCs). The study used multiple sources: tracked retention data (n=43,000), survey data in correlation with tracking data (n=400), and qualitative data (174 informants) from a survey (Friðriksdóttir, 2018, 2021a, 2021b). The data came from learners in seven courses and across different delivery modes in the LMOOC program Icelandic Online (IOL, <https://icelandiconline.com>). First, analysis of the tracking data revealed low overall completion rates and that retention was highest in the blended mode of delivery. The analysis also uncovered a specific dropout pattern and pattern of user engagement. Second, the survey study identified six content-related and four tutor-related engagement factors and that learners' differing goals for course participation influenced retention. Finally, qualitative data analysis revealed intrinsic and extrinsic motivational factors responsible for course completion, whereas non-course-related factors affected retention among dropouts. Overall, the study identified multi-ranged determinants of student retention.

**Keywords:** LMOOC retention, content factors, tutored factors, Icelandic Online.

## 1. Introduction

This paper briefly summarizes a research project on LMOOCs presented in Friðriksdóttir's (2018, 2021a, 2021b) previous articles. In this study, critical factors of retention in LMOOCs were considered within the context of IOL, a free and open web-based online program for L2 Icelandic learners developed at the University of Iceland. This Computer Assisted Language Learning (CALL)

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program offers seven free, self-directed, interactive courses (CEFR A1-C1) and features an integrated tracking system that monitors students' behavior from the time they enter a course until they leave. Around 270,000 learners worldwide have attended the program since the launch of the first course in 2004. IOL's design relies on diverse second-language acquisition pedagogical principles (Arnbjörnsdóttir, 2004; Arnbjörnsdóttir, Friðriksdóttir, & Bédi, 2020) which are evident in the content structure and the strategies used for instruction and practice. The courses are delivered in three learning modes; an open self-directed mode, a blended mode, and a distance mode. A human tutor offers guidance in the blended and distance modes, while the open self-directed modes do not.

This study addresses the issues of low retention rates (Jordan, 2015) and attrition patterns (Reich, 2014) in LMOOCs in relation to a course's learning materials and the lack of empirical studies based on large-scale, long-term, computer-based tracking data (Gillespie, 2020). The study also addresses concerns that LMOOCs lack engaging pedagogy and design strategies for the L2 learners (Colpaert, 2014; Sokolik, 2014). They also lack direct guidance and support from a tutor in such a learning environment (Ross et al., 2014). These issues might explain the high attrition rates in LMOOCs. More evidence is needed from LMOOC learners themselves, who may provide significant insight into their own engagement patterns (Doiz, Lasagabaster, & Sierra, 2014).

## 2. Methods

This research study employed mixed methods. First, tracked retention data (n=43,468) was collected over eight years from learners in all seven IOL courses and the three delivery modes of two courses to gain an insight into student retention and overall online behavior in IOL. Data mining and Learning Analytics (LA) were employed in the analysis of this data.

Second, a survey instrument and a questionnaire were used to provide information about learners' experiences of various course-specific elements and other motivational factors. Six content-related factors were investigated: curated and sequenced course structure, clear and salient learning objectives, gradual and scaffolded presentation of input, continuing storylines, form-focused and scaffolded presentation of grammar, and variety in types of learning objects. Additionally, four tutor-specific factors were examined: a detailed introduction to the program, private interaction with the tutor, a set syllabus, and overall tutor support during the course (Friðriksdóttir, 2021c, p. 27). The factor of learners' initial goals for

participation was also explored. Survey data (n=400) and retention data (n=400) on each participant were analyzed separately and then merged.

Finally, an open-ended questionnaire was distributed through the survey among learners with an aim toward generating insight into why learners either complete a course or disengage earlier. This data (174 informants) was analyzed for common themes.

### 3. Results

Firstly, the tracking data analysis (n=43,468) showed low completion rates across all courses and delivery modes (2.4 to 18.2%), and that the blended learning modes were more effective in retaining learners than the other delivery modes studied. Furthermore, through the mining of this data and the use of LA, the study identified a pattern of attrition among non-completers as well as a pattern of user engagement across all courses and modes. The findings showed that students frequently drop out early in these courses, but that they also may disengage toward the end (Friðriksdóttir, 2018, 2021c).

Secondly, the survey study (n=400) identified six content-related factors that most participants considered important for their engagement with the course, i.e. curated and sequenced course structure, clear and salient learning objectives, gradual and scaffolded presentation of input, variety in types of learning objects, continuing storylines, and form-focused and scaffolded presentation of grammar. When the survey data was measured against the tracking data, three of the content factors were found to have a positive impact on student retention: curated and sequenced course structure, gradual and scaffolded presentation of input, and variety in types of learning objects. Similarly, most participants considered the four tutor-related factors important for their engagement, i.e. set syllabus, private interaction with the tutor, detailed introduction of the program, and overall tutor support. All of these factors had a positive impact on retention in the blended mode, but none of them did in the distance mode (Friðriksdóttir, 2021a, 2021b, 2021c).

Thirdly, the results showed that over half of the learners (n=400) began the program with the intention of completing the full course while the rest did not, and that the goal to complete a course had a significant impact on actual completion.

Finally, analysis of the qualitative data (112 informants) from the course completers revealed various motivating factors for continuing with the course, such as

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interesting course material or an interest in the language or culture. Furthermore, statements from learners (62 informants) who intended to complete a course but disengaged earlier show that factors unrelated to the course, such as time constraints, affected retention (Friðriksdóttir, 2021a, 2021b, 2021c).

## 4. Discussion and conclusions

Collectively, this study contributes wide-ranging data from different sources on the engagement behavior and perspectives of LMOOC learners in the context of their learning materials. This large-scale, long-term, empirical tracking study provides detailed information on learners' online behavior, the timing of student attrition, as well as the extent to which non-completers engage with the course material. This finding highlights the benefits of exploring tracked progress within LMOOCs. Furthermore, the survey study's findings that IOL's engagement strategies and the presence of a tutor may be crucial for learner engagement highlight the value of CALL design and tutor support in LMOOCs. Results also showed that learners join a course with different goals for participation, which bears discussion in relation to retention. The qualitative data analysis, moreover, sheds light on a diverse group of students in this learning environment and revealed broad individual perspectives on critical factors of LMOOC retention and attrition. This study informs design directions for course developers and instructors in LMOOCs. Future research possibilities based on the findings of this study include an investigation of the benefit of supplementary resources in LMOOCs for student retention and learning outcomes.

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