『長崎国際大学論叢』 第22巻　2022年３月　59頁～73頁

研究ノート

Observations of On-Demand Curriculum Using MOOC Curriculum Methodology

Thom RAWSON*, J. Patrick OWATARI-DORGAN, Brendan VAN DEUSEN and Tomoko KOYAMA
（Nagasaki International University, Department of International Tourism）

MOOC カリキュラムの方法論を用いたオンデマンドカリキュラムの考察

ローソン・トム，大渡ドーガン　ジョン，ヴァンドゥーセン・ブレンダン，幸　山　智　子
（長崎国際大学 人間社会学部 国際観光学科）

要　旨

Covid-19 のパンデミック下における日本の私立大学生のニーズを反映して、研究者たちは2020年の秋学期を迎えるにあたり、スピーキングとリスニングに焦点を当てた入門英語演習クラスのためのオンデマンド型カリキュラムの開発と実践を始めることにした。カリキュラムの初期段階で収集されたデータと講師の観察に基づき、研究者たちは学びの経験と全体的な学生の取り組みを改善することを目的として、カリキュラムの重要な要素をいくつか修正することにした。修正したスピーキングとリスニングのカリキュラム（第２版）と、新たに開発したリーディングとライティングのカリキュラムを実施する間、研究者たちは学生のパフォーマンスおよび学習教材への明確な取り組みに関するデータと観察の収集を続けた。こうした情報を総合的に分析した結果、これらのカリキュラムは学生にメリットをもたらす可能性がある一方、学生のパフォーマンス、取り組み、満足度を向上させるためには修正が必要であることがわかった。この研究はパンデミックへの直接的な対応として始まったものではあるが、研究者たちは、継続的な開発が必要であり、パンデミック後の教育環境においても非常に有益であることを確信している。

キーワード

MOOC、オンデマンド、Moodle、LMS、セルフアクセスコースウェア

Abstract

Reflecting the needs of university students at a private university in Japan during the Covid-19 pandemic, the researchers elected to begin development and implementation of an on-demand style curriculum for the teaching of speaking and listening focused introductory English exercises class prior to the fall semester of 2020.　Based on collected data and instructor observations during that initial deployment of the curriculum, the researchers elected to revise several key elements of the curriculum with the goal of improving the learning experience and overall student engagement. During the implementation of the second version of the speaking and listening curriculum as well as a newly developed reading and writing version, the researchers continued to collect data and observations on student performance and apparent engagement with the learning material.　Initial analysis of this information in aggregate suggests that these curriculums have potential benefits for students but require meaningful modifications to improve learner performance, engagement and satisfaction.　While this work was embarked upon in direct response to the pandemic, the researchers are convinced that on-going development is warranted and could prove highly beneficial

in a post-pandemic educational environment.

Key words
MOOC, on-demand, Moodle, LMS, self-access courseware

Background and Environment

The JSPS funded research project (18K02924) "*Development of a Massively Open Online Course (MOOC) for Language Training to Support the Globalization of the Hospitality Services Industry*" began the process of learning the methodology for designing and developing Massive Open Online Courseware. However, the arrival of the Covid−19 pandemic in early 2020 changed the direction of the research as the team members struggled to meet the sudden requirements of distance learning at the university. As a result, the lessons learned in the MOOC research began to be applied in designing and developing an on-demand curriculum for standard English Exercises classrooms. Through extra efforts made by the research team both during the spring semester, and also during the mid-semester break during the summer of 2020, a set of extensible and re-usable on-demand curriculum for learning English began to unfold.

The first iteration of the courseware launched in the fall of 2020 for the listening and speaking portions of the English Exercises curriculum. Based on lessons learned during that process, the curriculum was then revised for the spring of 2021. At that time, the decision was made to introduce on-demand components for the corresponding reading and writing courses. Over the summer of 2021, the curriculums were both revised and the third edition of the listening and speaking courses and the second edition of the reading and writing courses were launched for use in the fall of 2021.

These courses are delivered using Moodle. Moodle, which is the world's most popular learning management system, is the university's secondary LMS and has been in use since 2014. Before this research began, the LMS was primarily used in the delivery of blended learning classes in support of face-to-face lessons. However, the transition to online learning in the spring of 2020 was made simpler for the faculty who were familiar with the platform. Also, the research team working on the MOOC project was also given a leg-up because the transition from MOOC development to on-demand courseware did not involve a complete relearning of procedure and process as many of the steps coincided.

The university Moodle platform has hosted over 4,000 students since it began being used at the institution. Typically just over 1,000 students are active on a yearly basis. In addition, over 60 faculty and staff have registered for the platform. About 30 faculty members are active on the platform each year. The majority of student users experience the university's Moodle platform during their freshman and sophomore years. The number of active juniors and seniors is fewer due to the use of a different platform for other courses, although the number of students using Moodle in their 3rd and 4th years is not

zero.

In another new advancement in the MOOC development project, Matomo analytics tools were connected to the Moodle platform allowing the tracking of user access in the fall of 2020 prior to the implementation of the first round of on-demand courses. Figure 1 shows the trends for site visits over time since September of 2020. The peaks occur at the beginning of the fall and spring semesters with a drop in usage during the spring break (February to March). There was a sharp climb in usage in April of 2021 when the on-demand curriculum for the listening and speaking course expanded to 10 classes. April of 2021 was also the time of implementation for the first reading and writing on-demand course.

Users primarily access the Moodle platform with a standard web browser. There is an even distribution between the Google Chrome browser, the Microsoft Edge browser, and the Mobile Safari browser made by Apple shown in Figure 2. Over 50% of users access the platform using Windows 10 with different versions of iOS for Apple iPhone claiming the next largest share (Figure 3). Despite the number of Android phones used around the world eclipsing the iPhone usage in most markets, Japan has an unusual trend of very few Android devices and a majority of iPhone users.

The Moodle platform at the university is also connected with a custom Moodle mobile application specifically developed and themed for users at the university. This mobile application is part of the Moodle suite of products and the source code is available for theming for an annual development and maintenance fee. The download trends for both the iOS and Android versions of the application reflect the trend of Japanese users and Apple devices. Of the active users since April 1, 2020, the most popular devices are made by Apple with the first time download count of about 1,280 devices seen in Figure 4. In Figure 5, the Android platform download statistics show considerably fewer at around 130 active devices.

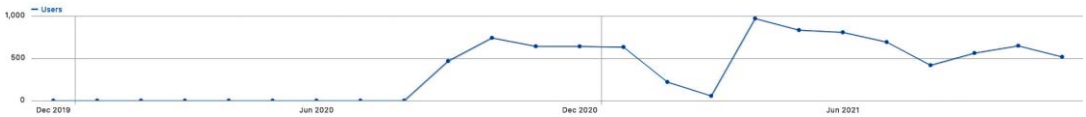

Figure 1. Moodle site visits tracked September 2020 through October 2021

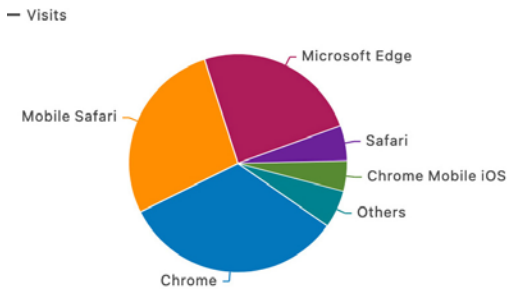

Figure 2. Browser distribution

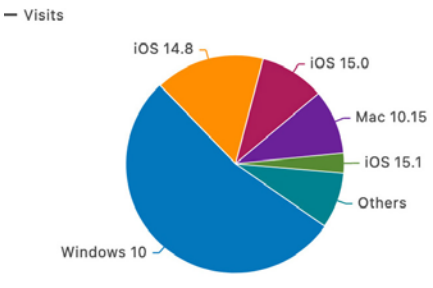

Figure 3. Operating system distribution

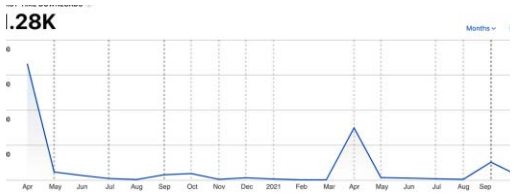

Figure 4. Apple device first-time download statistics: April 1, 2020, to October 1, 2021

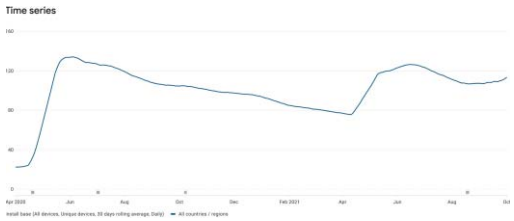

Figure 5. Android device installation statistics: April 1, 2020, to October 1, 2021

Course explanations

The English Exercises curriculum at the university consists of four required courses given in the first year to every student. There are two courses in the spring semester, and two courses in the fall semester. The "reading and writing" course has the title "English Exercises IA" or "English Exercises IIA" depending on the semester. The "listening and speaking" course has the title "English Exercises IB" or "English Exercises IIB" also depending on the semester. Despite the divisions in the areas of English study between the classes, there is no hard requirement for either of those courses to focus on only those areas specifically. For example, it is fine to have listening and speaking components in the reading and writing sections and vice versa. However, the guidelines are there to help the faculty when designing the course content for each semester.

The usual number of classes per semester for each course is 15. In normal face-to-face classes, attendance is taken during the class each week and students receive their attendance by touching an access card to the attendance system sensor that has been installed in each classroom. However, since on-demand classes are not held in a physical space, the design of the attendance was modified to accommodate the online environment. Students are given a series of weekly activities and assignments to complete in the Moodle course and upon completion of these activities are marked as "present" for that particular week. The time range for completion of this attendance requirement is typically 7x24 hours weekly.

Listening and speaking courses

The English Exercises IB and IIB classes focused on listening and speaking. The class used a textbook with an online component. Each week, students were assigned vocabulary, listening, or grammar activities to complete online. In addition, students also had to complete an online speaking activity by recording themselves talking about a topic from the current unit of the textbook and replying to other students. This was done on the website Flipgrid. A more detailed description of the design of the English Exercises IB and IIB courses can be found in a previous publication on developing on-demand courseware (Rawson et al, 2021).

To adapt the course for on-demand learning, further changes to the original curriculum designed for the fall of 2020 were made in the spring of 2021. These changes included replacing the majority of the explanation videos with a series of explanation "lessons" using a click-through approach. This decision was taken for two reasons; the first reason was that there was no verifiable manner to determine if students were actually watching each

part of each video each week. The second reason was to allow for a more multilingual style of explanation with regards to the weekly activities. The "lesson" activity in Moodle provided a self-paced step-through activity by which students could view explanations for the different activities.

A second more significant change was made to make use of H5P in the one remaining video each week. H5P is a library of interactive activities that can be inserted and embedded in various ways inside the Moodle LMS framework. In the case of the on-demand courses, the weekly introduction videos were transformed from simple "view only" videos to "interactive videos" with embedded questions students need to answer while watching the video. This added the key missing information about student video interactivity; did they actually watch the video and understand it? Using the interactive video activity, asking questions about the content of that video during the video, and also by requiring "full marks" for proceeding to the next activity, a reasonable assurance that students engaged with the content could be predicted.

To provide a consistent learning experience, each class followed a similar weekly format. Only one activity was available at a time, so students knew exactly what to focus on at any time. Attendance was counted if a student completed all the activities within one week. A typical example of a weekly class session might be as follows:

1. Watch the introduction video and correctly answer the embedded questions.
2. Click through the lesson activity explaining the goals for the week.
3. Complete a series of online language practice activities including vocabulary, listening, grammar, and real example stories.
4. Click through a lesson activity explaining the week's speaking activity.
5. Complete the speaking activity by recording a short video using FlipGrid.

Figure 6 shows the progression of users in a select number of the on-demand courses over the past three semesters. The English exercises courses are divided into three "levels" based on a proficiency test taken during the first week of enrollment at the university. While there are no hard and fast lines for what constitutes a "basic" level student, a "standard" level student, and an "advanced" level student, it is safe to assume that stu-

Table 1. Listening and speaking course statistics

Year	Semester	Level	# Of Modules	# Of Enrolled Learners	# Of Completed Learner (s)	% Of Completion	# Of Visits	Total Time Spent	Class Avg
2020	2	1 Basic	124	36	23	64%	N/A*	N/A*	61
2021	1	1 Basic	158	40	22	55%	N/A*	N/A*	50
2021	2	1 Basic	158	39	0	in progress	1,434	6:21:26	79
2020	2	2 Standard	124	30	23	77%	N/A*	N/A*	74
2021	1	2 Standard	158	36	31	86%	N/A*	N/A*	77
2021	2	2 Standard	158	37	0	in progress	1,249	5:36:51	87
2020	2	3 Advanced	124	35	29	83%	N/A*	N/A*	75
2021	1	3 Advanced	158	37	35	95%	N/A*	N/A*	91
2021	2	3 Advanced	158	36	0	in progress	1,072	5:46:08	89
							*data unavailable		

dents are ordered based on their scores in the placement test and then rational divisions of students are made to make up the class sizes. Typically, the sizes run between 25～45 students.

Table 1 also shows the completion percentages for the initial two semesters of the on-demand courses. "Completion" in this case is defined as having finished the majority of the activities in the course and receiving a score of 60% or higher. The completion percentages for the advanced courses are generally above 83%, and the standard courses are generally between 70～80%. However, the basic level courses experienced fewer completions per class.

One speculation is the level of understanding of the process for completing an on-demand course seems to be lower in students grouped in the basic level classes. Faculty overseeing the courses reported more cases of students misunderstanding or having no idea how to take even the first step toward completing the on-demand course in the basic level classes, whereas the standard level and advanced level seemed to follow the course materials more independently.

Analysis of the speaking videos

Over the course of each semester that the project operated, students demonstrated a significant amount of meaningful communication using FlipGrid. The amount of communication output by individual students varied widely from class to class based primarily on their overall English level. This trend can be clearly seen in Figure 6 based on information collected from FlipGrid.

While this figure doesn't directly represent the output of individual students, it does show the total output of all students in the class on a per-unit (represented by weeks) basis. There is a negligible gap between the total output of students in the lowest level class and students in the intermediate class. When the data is normalized for the number of students participating in the activity on a weekly basis, the gap diminishes to the point of insignificance. On the other hand, there is a very large and noticeable gap between the

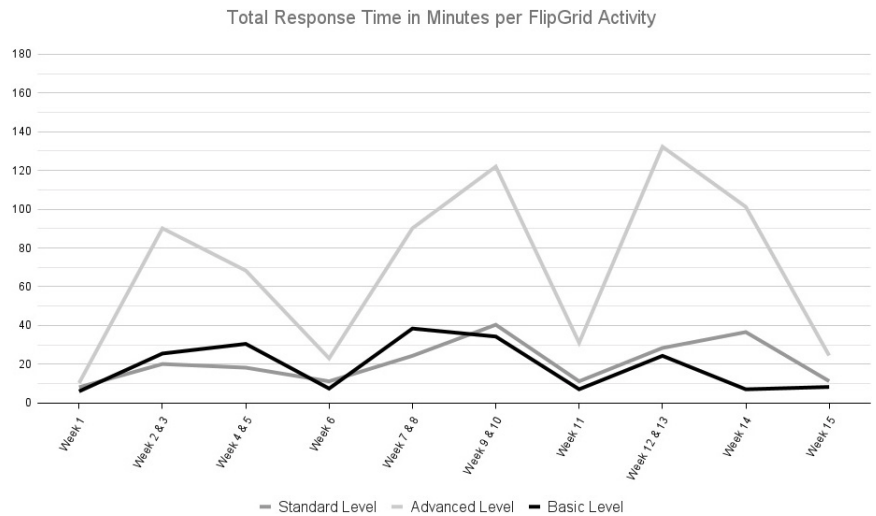

Figure 6. Total response time in minutes per FlipGrid activity

total output of the students in the advanced classes and the intermediate classes. There are several precipitous drops in output across all of the classes. These drops represent units in which students were not asked to record replies to each other. As a result, each student only recorded a single video on these weeks rather than multiple videos. If the graph is normalized for those periods, it shows a relatively steady level of output across all units.

It's worth noting that the average output of individual students on a unit-by-unit basis is fairly short. Using the aforementioned normalized values, we see that students in the lowest level and intermediate classes spoke for roughly five minutes on a weekly basis and students in the advanced class spoke for an average of 19 minutes each week. To the outside observer, this amount of output may seem short. On the other hand, the researchers and instructors involved in the program believe this may exceed the amount of output by students in previous, traditional communication courses conducted at the institution. Since class attendance is dependent on the completion of this activity, students might complete the activity in this environment who would otherwise have avoided it during a traditional class. As such, it can be inferred that students are doing more speaking over the course of the class. One must also consider that this output is fully recorded and therefore subject to a much greater level of evaluation by the instructor. Since the students are aware that the instructor is evaluating the output, it is safe to assume that students might be working to produce a higher quality of output than they would under normal, unobserved classroom conditions. If this is the case, it is reasonable to suggest that the output found in this element of the on-demand curriculum could be of higher value than the output found in traditional classroom environments.

Access frequency patterns

Using the tools provided in the LMS, the researchers were able to create a heat map using student access data. There are three sets of heat maps that cover the levels of English classes taught in the program. Each figure contains a heat map for course access during the fall semester of 2020, the spring semester of 2021, and the fall semester of 2021 which is currently in progress. Figure 7 shows the access maps for the advanced level students over 3 semesters, Figure 8 shows the access maps for the standard level students over 3 semesters, and Figure 9 shows the access maps for the basic level students over the same period.

These figures represent the times at which students accessed the content of the courses most frequently. The relative darkness of the shading in each square shows how many times the course was accessed during a given time period over the entirety of the semester. These figures helped the researchers to identify trends in how and when students are completing the course material.

The researchers were able to identify a trend in all three levels of English classes taught as part of the program. In all three levels, there is a considerable increase in the number of accesses of the course at the most popular times during the spring 2021 and fall 2021 semesters. As a result, the darkest shading in the corresponding heat maps represents a much higher number of accesses of the course. While the cause for this dramatic increase in access frequency cannot be precisely

determined, the researchers suspect that it is the result of changes made to the courses between the fall 2020 semester and the spring 2021 semester. Specifically, the researchers believe that changing from video explanations to bilingual text explanations in a step-through lesson format increased student interactivity in the course since more clicks were required to complete each activity. Students may also have checked explanations multiple times which would also result in a corresponding increase in access data.

In the advanced courses seen in Figure 7, the data seems to indicate that students generally accessed the course immediately prior to the class and during the designated class period. While there is an indication that some work was done outside of these times, students at this level obviously preferred to complete the coursework during the time allotted on the official school schedule despite the on-demand design of the course. This method of completing the content of the course could be related to the relatively high overall completion rates of students at this level.

Students in the standard-level courses seen in Figure 8 demonstrated a slightly different access pattern across all semesters of the program. At the standard level, students were much more likely to complete some coursework in the evenings prior to their scheduled class time. Moreover, the students also continued to work on the course materials after the designated class time. Based on this set of data, it could be said that the students in the standard level were somewhat more likely to take advantage of the on-demand nature of the course and complete content at their own pace.

For the basic level classes seen in Figure 9, the researchers identified a more extreme version of the trends found in the standard level. While students were still quite likely to work on course content during the scheduled class time, they also tended to do a considerable amount of work in the evenings prior to

Figure 7. Course access heat map - advanced level

the designated class time. As stated in the discussion of the heat maps for the standard level classes, this indicates that students at this level are more willing to work at their own pace and take advantage of the on-demand nature of the class. The researchers also believe that this trend may be the result of students taking more time to complete the activities successfully at this level. As such, it can be understood that on-demand teaching is more advantageous for students studying at this level.

Figure 8. Course access heat map - standard level

Figure 9. Course access heat map - basic level

Course questionnaire results

Students were surveyed on the impressions of the course given a standard 13 question course questionnaire. The questions are categorized into four areas. Those areas are:

1. Attitude toward the class (Questions 1–2)
2. About the content of the class (Questions 3–5)
3. Method of teaching (Questions 6–11)
4. Level of understanding and satisfaction (Questions 12–13)

To look back at pre-pandemic questionnaire results for the same standard level class in the spring of 2019, figure 10 should be consulted. Students reported very high levels of satisfaction across the 4 categories.

In a strange occurrence, the students in the fall 2020 standard listening and speaking class submitted zero (0) responses to the course questionnaire in the on-demand course. This was the course with the explanations made using multiple lecture videos each week. Despite multiple attempts to get the students to report their impressions, 0 replies were received. The cause of this anomaly has not yet been discovered, however, the effects are immeasurable at this time.

In the spring of 2021, the on-demand course changed from using many lecture videos to bi-lingual step-through lessons for explanations. The results of the questionnaire are shown in Figure 11. Just about 70% reported either 4 or 5 out of 5 for their attitude toward the class, and a considerable percentage showed neither positive nor negative attitudes at 28% reporting 3 out of 5. The content of the class was viewed favorably

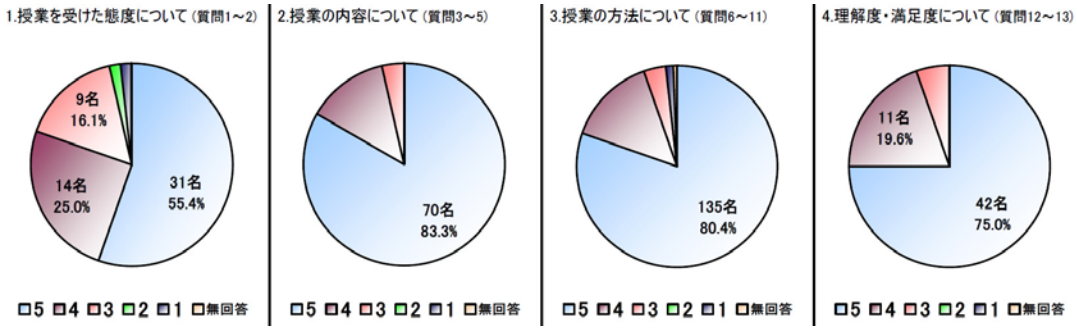

Figure 10. Face-to-face listening and speaking course questionnaire results, spring 2019

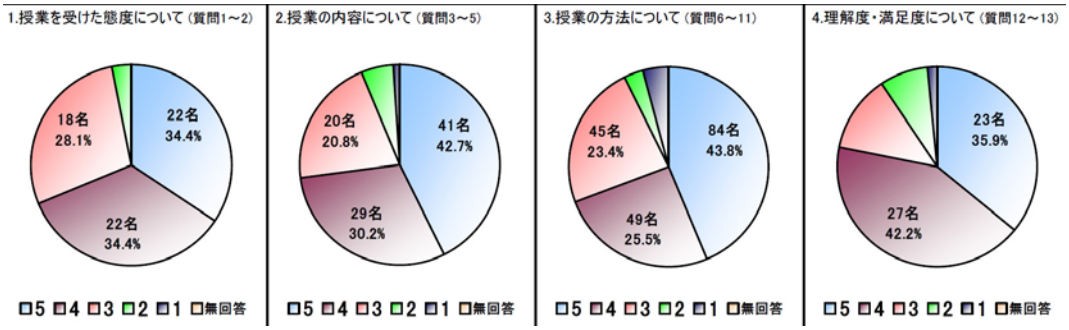

Figure 11. On-demand listening and speaking course questionnaire results, spring 2021

by about 72% of the students with 42% reporting a score of 5 out of 5. Just 43% reported satisfaction with the method of teaching as being 5 out of 5, and including 4 out of 5 the total percentage is 68%. The level of understanding shows at just under 80% with those students reporting a 4 or 5 out of 5.

The difference between this course and the face-to-face course in the spring of 2019 is a drop of about 10～15%. Students appear overall somewhat less satisfied with the on-demand course, although satisfaction is still higher for more than 50% of the class across each category. However, more data is needed before that theory can be confirmed.

Listening and speaking observations and conclusions

While it can be difficult to make definitive statements about student performance based solely on instructor observations, several obvious trends could be identified over the course of the research. In general, the overall performance of students varied most significantly based on the level of the students in a class. Despite the fact that the materials were scored primarily on effort and available for students to complete at their own pace, class level still proved to be a reliable marker of performance.

Among students in the advanced level classes, performance remained consistently high throughout the entirety of the courses. Students in these courses tended to complete a majority of the activities from the first week of class without any noticeable dropoff in completion rates or activity scores. Students in these courses often took complete advantage of the repeatability of activities within the course. Students in these courses often repeated activities until they achieved a high score. As a general rule, the students in these classes tended to be fairly engaged with the class and were fairly likely to contact the teacher if they had any trouble with the activities.

The performance of students in the standard and lower-level courses was noticeably less consistent over the course of each semester. In both levels, student performance and completion rates tended to slowly increase during each semester. In many cases, students in these classes would not fully complete the first few weeks of assignments in each semester. As the course progressed, an increasing number of students would tend to complete the assignments for the week. This increase in completion was usually the result of considerable prompting by the instructor and the Academic Affairs department at the school. Additionally, students in these courses often did not take full advantage of the repeatability of activities. Many students in these courses did not continue attempting activities until they received a high score. Additionally, students in these courses were often somewhat disengaged with the course. Students in these classes rarely contacted the instructor for assistance and often waited a considerable amount of time before addressing problems.

Reading and writing courses

The English Exercises IA and IIA on-demand courses, which focused on reading and writing skills, consist of three weekly activities: vocabulary study, extensive reading (ER), and a short report writing assignment.

Vocabulary is practiced using WordEngine.jp, an online vocabulary website. After

taking a short placement test that checks the current vocabulary level of the student, users study vocabulary aimed at their unique level in a spaced-repetition format. Each week, students are required to study words in a flashcard format achieving "correct responses" (CR) in the practice. They are assigned a weekly score based on meeting the required CR goals for the week.

For Extensive reading, students use Xreading.com, an online digital library of English graded readers. Students freely choose books from a range of genres and levels. Consistent with the basic principles of ER (Day et al, 1998), students are encouraged to choose books they found interesting and could understand easily in order to read many words at a natural pace. After finishing a book, students take a simple five-question quiz designed to confirm their understanding of the book. If a passing score of 60% is achieved, students receive credit for the words read. Students are given a weekly score based on meeting the goal of a specified number of words. The word goals are different for each of the levels of the course. Basic level students have a lower goal than standard students who also have a lower goal than advanced students.

The last step for the weekly activities in the reading and writing class is to prepare a weekly activity report. The report is made using the Moodle database activity. The activity has a number of fields that the student must complete. These fields include:

- Reporting the number of correct responses (CR) they received while studying vocabulary for that day.
- Reporting the number of words they read while reading digital books for that day.
- Reporting the titles of any books they have read for the day.
- Writing a short English report based on any one of the books they have read recently. These reports vary from week to week with different goals and different books being used each week.
- Reporting their impression of their level of effort for the current week. The range includes "poor", "below average", "average", "above average", and "excellent".

Much like the speaking and listening course, H5P interactive videos and step-by-step click-through lessons were made to guide students through the on-demand weekly activities. Students are given a list of instructions for each week and upon completion of each of the instructions, the student qualifies for an "attendance" mark. A typical example of a weekly class session might be as follows:

1. Watch the introduction video and correctly answer the embedded questions.
2. Click through the lesson activity explaining the how-to study vocabulary and the goals for the week.
3. Study vocabulary for a self-managed amount of time (usually 15 minutes).
4. Click through the lesson activity explaining how to do the reading and the goals for the week.
5. Read books in English for a self-managed amount of time (usually 30 minutes).
6. Click through a lesson activity explaining the week's activity report.
7. Complete the activity report. The ac-

tivity report has specific instructions for the week's English report based on one of the books the student has read.

Table 2 shows the initial data for the reading and writing on-demand course. There was one pilot course in the first semester of 2021. The outcome of this trial was the least successful of the on-demand courses overall (even including the listening and speaking courses). Less than half of the students completed the course with a passing grade. The overall course average was well below acceptable limits. As a result, adjustments to the students' evaluation were made after the fact in order to make acceptable results.

Reading and writing observations and conclusions

There are many observations that can be made from this outcome. First, the new version of an on-demand reading and writing course did not undergo the same rigorous trials that the listening and speaking course went through. Listening and speaking courses had a companion textbook from which the lessons were derived. Students purchased that textbook and it served as a guide as they worked through the materials. Aside from a vocabulary access code and a reading access code, the reading and writing course has no such companion textbook.

The instructions for using the learning tools in the reading and writing course (WordEngine, Xreading) are lengthy and complex when compared with the instructions for the listening and speaking course (textbook activity website, FlipGrid).

Since the data shows that students in the basic course struggle with complex instructions in the listening and speaking class, it is only expected that similar struggles would be seen in the reading and writing course. The data in Figure 6 showing the currently ongoing classes also supports this theory. As is shown, the standard-level students appear to be moving more smoothly through the materials. The theory is similarly supported by reports from faculty overseeing the courses. These faculty members have observed more cases of students misunderstanding or being confused about how to begin completing the on-demand course in the basic level classes. Conversely, faculty members have noted that standard level and advanced level students seemed to follow the course materials more independently with fewer misunderstandings and questions.

Table 2. Reading and writing course statistics

Year	Semester	Level	# Of Modules	# Of Enrolled Learners	# Of Completed Learner (s)	%Of Completion	# Of Visits	Total Time Spent	Class Avg
2021	1	1 Basic	164	39	17	44%	N/A*	N/A*	49
2021	2	1 Basic	162	37	0	in progress	917	3:00:10	42
2021	2	1 Basic	162	35	0	in progress	870	3:27:02	50
2021	2	2 Standard	162	35	0	in progress	514	5:24:06	84
2021	2	2 Standard	162	41	0	in progress	1,757	7:16:22	87

*data unavailable

Course questionnaire results

In the spring of 2021, the reading and writing on-demand curriculum was first introduced to a single class of students. Since there is no other comparative data available at this time, just some basic observations about the overall satisfaction of the students can be made. Just restating the categories for the questionnaire:

1. Attitude toward the class (Questions 1–2)
2. About the content of the class (Questions 3–5)
3. Method of teaching (Questions 6–11)
4. Level of understanding and satisfaction (Questions 12–13)

The reading and writing on-demand course shows just under 90% of the students have a favorable attitude toward the class as seen in Figure 12. About 85% have a positive look at the content in the class. A similar percentage reported positively about the teaching methodology. And the overall level of understanding and satisfaction with the course reported at just over 90%.

These results give the impression that students favor an on-demand approach to the reading and writing course, however, when viewing this information in light of the course completion data in Figure 12, much more research needs to be done to answer this question.

Conclusions and future directions

In conclusion, these initial studies and trials of on-demand courses need a lot more in-depth research to prove efficacy. The current data collected show some promising results with students making regular access to materials and performing required tasks on a week-by-week basis without a "live" instructor to oversee their progress. Students also report somewhat favorably in course questionnaires regarding these on-demand courses, however, there is still a gulf between perceptions of on-demand vs. face-to-face instruction.

Areas that need further research are the level of student understanding regarding the week-by-week instructions, the level of understanding about the various online tools required for completing the course assignments, and a deeper understanding of whether students benefit similarly from on-demand courses when compared with the outcomes of traditional face-to-face courses. As the on-demand curriculums continue to be used, the number of questions in need of answers continues to grow.

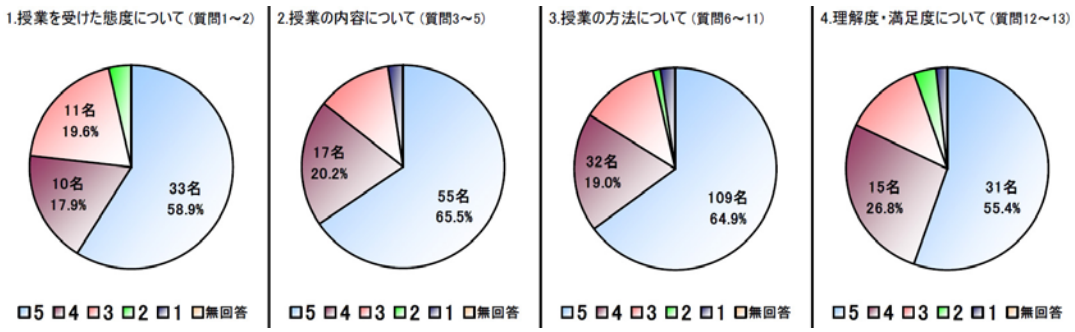

Figure 12. Reading and writing course questionnaire results, spring 2021

References

Day, R. R., Bamford, J., Renandya, W. A., Jacobs, G. M., & Yu, V. W.-S. (1998). Extensive Reading in the Second Language Classroom. *RELC Journal*, 29(2), 187–191. https://doi.org/10.1177/003368829802900211

Rawson, T. W., Owatari-Dorgan, J. P., Matsumoto, T., Koyama, T., & Van Deusen, B. (2021). Developing an On-Demand Curriculum using MOOC Curriculum Methodology. *Nagasaki International University Review,* 21, 1–15.