

Students' Behaviors and Perceptions Using an LMS

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ABSTRACT

In order to gain an insight on the students' learning behaviors and perceptions towards using a Learning Management System (LMS), this study was conducted in a Japanese university where the usage of LMS is not common. The students' homework results and survey responses were analyzed to understand the impact of implementing a curriculum with homework submission on an LMS. The author argues that technology can be effectively used in the curriculum to increase learning engagement of students at home and improve the relationship between the students and instructor. In addition, the researcher found students to feel generally positive about using an LMS in class even when they are not familiar with such systems. Issues discussed in the study can provide some ideas for educators to improve their teaching through the usage of an LMS, especially where there is currently no usage of technology.

INTRODUCTION

In 2011 the Ministry of Education, Culture, Sports, Science and Technology in Japan announced The Vision for ICT in Education (MEXT, 2011), which advocates the implementation of technology in the school curriculum. Although many universities in Japan have been making attempts to make better use of technology, the majority of courses seems to be organized based on the traditional materials and activities, using textbooks and hand-written learning activities. One of the tools to make learning more effective is a Learning Management Systems (LMS), which is an online tool that can help instructors manage content and track learning results. Despite the potential benefits of using an LMS, such as Moodle, Blackboard, and Google Classroom, there are limited numbers of studies that have been conducted in Japanese universities to look into the effect of using such tools. The action research project described in this paper is an attempt to address this gap. The purpose of the study was to gain an insight into the behavior of university students when required to use an LMS to submit homework. It was hoped that this would help the researcher to better understand how the use of digital platform affected the students' behavior, satisfaction, and perception towards their learning.

LITERATURE REVIEW

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Using LMSs in Higher Education

As with any sector in the world, there has been a rapid expansion of the usage of technology in the education field. Since the early 2000's, the LMS market has boomed, resulting in a very wide range of platforms available for universities. Typically, an LMS offers a range of technological tools to improve both pedagogical and administrative activities of instructors. It is generally a web-based application that supports producing, delivering, and maintaining educational materials, enrolling and administrating students, and reporting the performance of students (Dagger, O'Connor, Lawless, Walsh, & Wade, 2007). Furthermore, it is a tool that can be used to support learners 24 hours a day and provides an online educational environment with various activities such as quizzes and questionnaires (Goh, Hong, & Gunawan, 2013).

Since the mid-2000s, LMSs have been widely used in many academic institutions in the United States; it was found that 90% of the higher academic institutions in the United States provided their courses and programs on an LMS platform (Jones, Morales, & Knezek, 2005). Other countries have followed a similar trend with a high usage rate of technology in the curriculum. For example, Abdallah (2010) reported that 96% of the Arab universities adopted LMS platforms to provide real-time support and an online learning environment. On the other hand, Japan has fallen behind this trend. As Murakami (2016) points out, "use in Japanese universities remains minimal. Despite recent government initiatives to incorporate ICT into the education system, many students have never even heard of an LMS by the time they matriculate." (p.26)

Advantages and Disadvantages of Using an LMS

As mentioned earlier, MEXT has been advocating more usage of technology in the curriculum ever since it announced The Vision for ICT in Education (MEXT, 2011). This is due to the many advantages of implementing technology in the classroom. Some of the benefits related to implementing an LMS, which is a part of the technology encompassed by the Vision for ICT, are the positive perceptions that may lead to more efficient ways of teaching, better access to learning content, and enriching students' learning experiences. TLTTeam (2011) categorizes the advantages of using an LMS into five categories. The first is the benefit of centralized learning; all content is available 24/7 from any location, which ensures consistency in the delivery of content and evaluation of students. Accessibility to content on their mobile devices can support learners who would otherwise not study when they do not have a book with them. The second is the benefit of having tools to track and record the students' learning performances. The instructor can analyze the data to determine areas of success and areas for needed improvement easily. Third, technology makes evaluation immediately accessible through automated grading functions. Instructors can review study results to not only determine the success levels but also get information on the time taken to complete each course and its components; this data may imply what students are easily understanding or struggling with. Fourth, LMSs provide the flexibility to allow the administrator or instructor to keep upgrading new content on the LMS, which allows for appropriate alteration of curriculum as needed. Finally, an LMS simplifies the learning process. All content and learning activities can be managed in one place, integrating and enriching the students' learning experiences.

Despite these potential benefits of implementing an LMS, there are also some possible disadvantages. Although mobile technology is now an integral part of modern life and university students are part of the millennial generation, leveraging the mobile device's portability and affordability can still seem intimidating for some learners; computer literacy or mobile technology literacy can affect

the outcome of using an LMS in the curriculum. In addition, infrastructures play an important role in the success of a program with an LMS. For example, limited access to Wi-Fi or not having an above-mediocre device may hinder learning. Taleb and Sohrabi (2012) argue that "[f]rom the viewpoint of university students, factors such as: having a mobile phone with various capabilities, having a long life battery charging and access to the internet and ability to pay for high technology mobile and different services, have significantly affected the mobile phone use in students' academic affairs." (pg. 1107)

RESEARCH QUESTIONS

This study investigates whether the advantages of using an LMS in the university curriculum outweigh the disadvantages for students studying English. The study focuses on the perception of students who generally experienced a curriculum with an LMS for the first time. In order to better understand their behavior and perceptions of the usage of an LMS, two research questions were developed. First, will students study consistently because their study is managed on the LMS? Second, will students have a positive perception towards the usage of LMS?

METHOD

The Research Environment

The current study took place at Showa Women's University, a private women's university in Tokyo, for the duration of four semesters. The data was collected between April 2017 and July 2019. Different students participated in the study in each semester. The instructor self-paid and used an LMS platform named *edulio*, operated by a private company in Japan, to manage content such as lecture materials, have students submit homework, and foster communication between the instructor and students online.

There were three types of homework done online: read-aloud submissions, quizzes, and writing assignment submissions. Read-aloud tasks and quizzes were required biweekly, and students would alternate between these tasks. Writing submissions were optional and was recommended for submission with the read-aloud tasks. Although optional, there was an incentive for students to submit their writing because the final exam had an essay portion and students were allowed to bring in graded writing assignments for reference. Grading for the quizzes was done automatically on the LMS, so the students were able to see their score instantly on the platform. Read-aloud and writing submissions were graded by the instructor and comments were written on the system for students to see.

Content management was mainly done in two ways: uploading documents used in class and offering audio files for students to practice reading aloud. All lecture materials including presentation files and movie clips used in class, were posted on the platform within 24 hours of the lecture. In addition, sample audios for read-aloud tasks, which were on the publisher's website were placed on the LMS in order to improve accessibility to the mp3 files. The main goal was to create a one-stop-for-all experience for the students so they would visit the platform often and make full use of it.

Finally, communication between the instructor and students was mainly done on the platform as well. Mass emails and private messages were sent through the LMS, and surveys were also conducted within the system. A major benefit of having messages and surveys on the platform was that the students were forced to read the messages when they logged in to do their homework. This helped the instructor

make sure that the students were getting the messages online. In addition, the researcher believes this system provided a good collection rate of the end-of-the-semester surveys.

Participants

202 first-year non-English majors who were taking English as a required course took part in the study. The university did not offer an institution-wide platform for course management. In a survey conducted in 2019, only 17.5% of the participants claimed to have used an LMS in other courses at this university. Thus, for many students, this English course was the first and last experience taking advantage of an LMS.

Data Collection

The students' homework data were collected over 14 weeks of each semester. The data were collected and downloaded through the teacher's administrative account of the LMS, and later analyzed for homework completion rate and average score. An online survey within the LMS was also conducted and collected after each semester. The response collected was about the self-reported amount of home study students' engaged in every week during the course and their perceptions towards their improvement of English. Furthermore, a follow-up survey was conducted in October 2019 to ask about their experience of using an LMS in the English course.

Analysis and Results

In order to understand the student's behavior of using the LMS for homework submission, the students' homework submission rate was analyzed. The university advocated giving about 90 minutes' worth of homework or self-study per week for their English courses. Students took two English courses every week, of which one class was the class this research was conducted in. Therefore, if the weekly amount of homework and study-study was over approximately 45 minutes, the researcher interpreted the result as satisfactory.

First, the homework submission rate was analyzed. Based on the data from the LMS, the majority of students submitted homework on time (see Table 1). In addition, the average score for the tasks was 83.8% for the quizzes and 94.3% for the read-aloud tasks, meaning the students generally performed well and submitted homework on time. Next, the self-reported amount of time studying at home, which was collected at the end of each semester, was checked (see Table 2). In the week when the students had an online quiz as homework, the students also had to prepare for an in-class vocabulary test. Therefore, when looking at the amount of time students spent on the quiz and vocabulary test preparation combined, the majority of students studied over 30 minutes, which is satisfactory given that the goal of the instructor was to have students study about 45 minutes per week. In other weeks, students were to submit a read-aloud file and also work on their writing. More than half of the students practiced their read-aloud for over 30 minutes. In addition, many students submitted their optional writing task, and therefore, the general trend was for the students to study around, if not more, the 45 minutes goal set by the instructor.

TABLE 1
Homework Submission Rate and Average Score

Homework Activity	Submission Rate			Quality Average Score
	On time	Late	Not submitted	
Quiz (set of 5 questions from textbook)	93.7%	5.4%	1.0%	83.8%
Read-aloud (a passage of appx. 400 words)	88.1%	5.4%	6.6%	94.3%

TABLE 2
Self-reported Amount of Time Studied at Home

	Quiz	Vocab Test Preparation	Read-aloud
Under 30 min.	84.3%	13.8%	30.7%
30-59 min.	14.3%	57.5%	53.6%
Over 60 min.	1.3%	28.8%	15.7%

After taking a look at the students' data on homework and self-study, a survey was analyzed in order to get an insight into the students' perception towards the usage of LMS. The short survey consisted of seven Likert-scale questions. 202 students were asked to respond to the questions using a scale of 1 to 3 where 1 was “disagree” and 3 was “agree.” They were informed that their responses will be analyzed and used for research collectively, making sure an individual would not be identifiable; 102 students responded to the survey. In addition, there was a free response section allowing students to explain in Japanese any thoughts they had about using an LMS in class. All questions were created solely for the purpose of this research study. Based on the student responses in each category of the survey, the mean and standard deviation were first analyzed (see Table 3). Questions with a mean of above 2.5 with a standard deviation under 1 were interpreted as the students having a positive response to that question. As indicated in Table 3, the findings show that the students were generally satisfied with their experience using an LMS: they believed the LMS helped them improved their English, made them work hard consistently, helped them submit their work on time, made them study longer or harder, helped them study efficiently, and allowed them to contact the instructor more easily. The question, "Overall, do you think it's good to have an LMS?" received the highest score among the questions listed, receiving a 2.78 mark, which means the students had a positive perception towards the usage of LMS.

TABLE 3
Mean and Standard Deviation on Survey Results

Question	Mean	SD
Do you think having the homework on the LMS helped you improve your English?	2.69	0.55
Do you think having an LMS make you work hard consistently?	2.54	0.54
Do you think having an LMS helped you submit your work on time?	2.67	0.65

Do you think you studied harder/longer because we had an LMS?	2.60	0.63
Do you think you studied more efficiently because of the LMS?	2.58	0.66
Do you think you could contact the instructor more easily because of the LMS?	2.60	0.66
Overall, do you think it's good to have an LMS?	2.78	0.48

Finally, free response comments were categorized into positive or negative comments and summarized (See Figure 1 and Figure 2). According to Figure 1, the most frequent positive comment made by students was about the individual feedback they were able to receive on the platform. Because the platform was available 24/7, the instructor was capable of providing feedback whenever students submitted optional homework. In addition, the platform allowed for private messages to be sent easily, and students were able to clarify any issues they had about the comments they received. Furthermore, results show that not only were comments made about the functions of the LMS, such as the convenience to manage work progress or contact the instructor easily, but comments on motivation to study were made. 27 students mentioned that as a result of the many functions on the LMS, they felt "motivated to study."

FIGURE 1
What I Like About Using an LMS
(n=102)

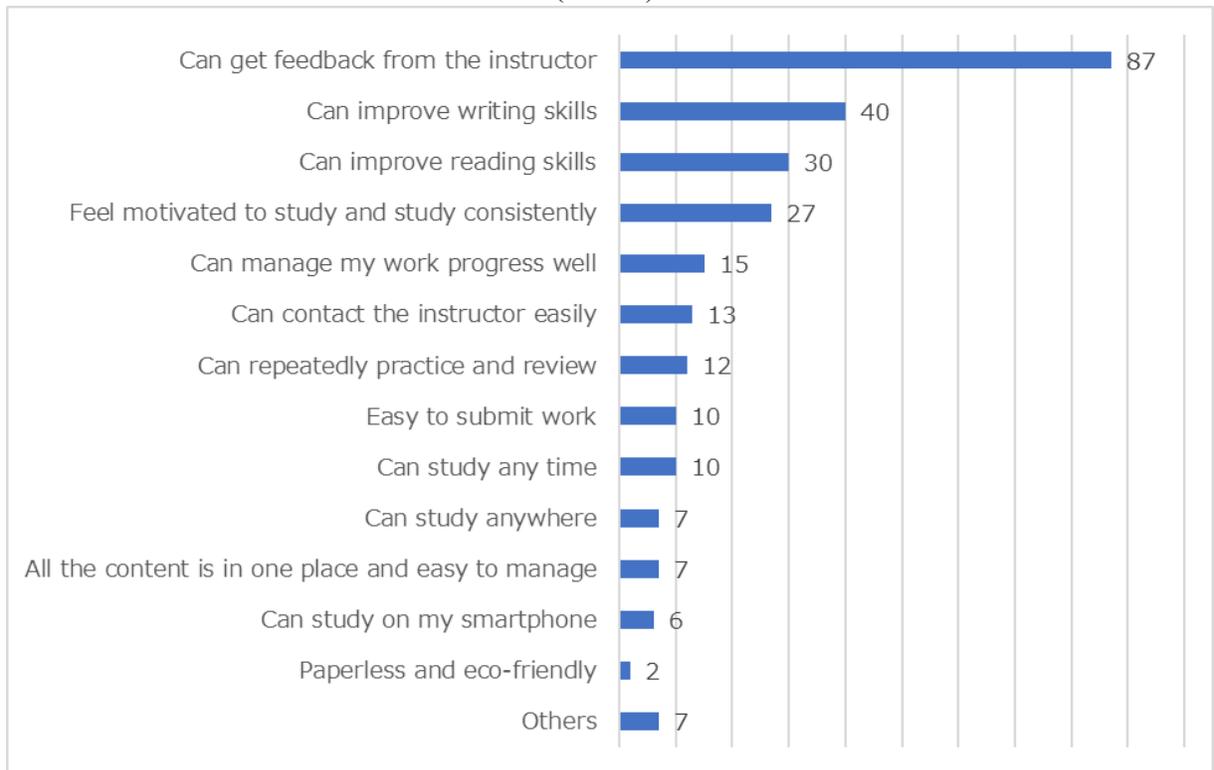
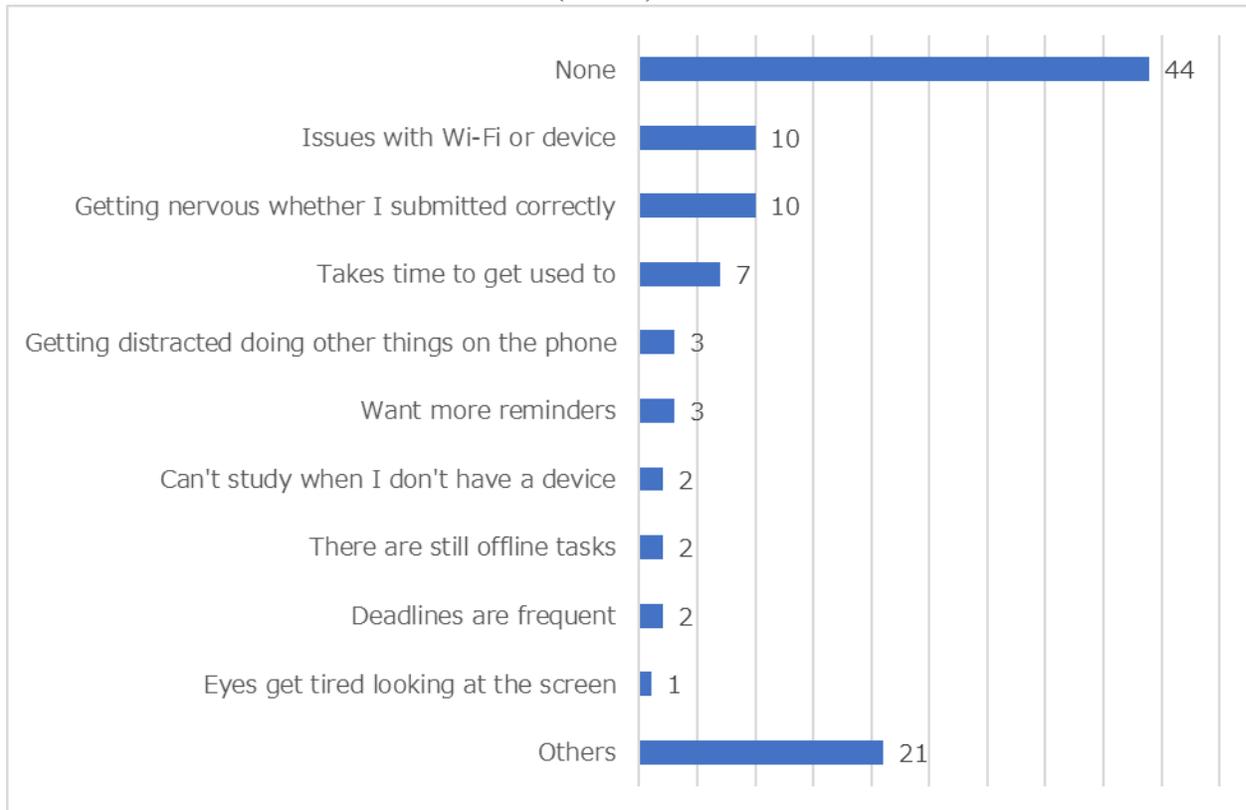


Figure 2 shows the negative comments received by the students. However, it is important to note that 44 students explicitly stated that they believed there were no negative aspects of using an LMS in class. However, others mentioned the issues they had with their Internet connection or devices and the anxiety they had about using the LMS. Comments in the "others" were about individual issues such as

"It was hard for me to study no matter what because I was busy working part-time." or "I used the LMS too much and ended up not doing work for other classes." An individual also mentioned that "Having an LMS is good for people who are motivated, but it looked like the LMS made studying more difficult for some of the unmotivated students." It was difficult for the instructor to notice who was having difficulty, due to the high submission rate of homework. However, individual observations such as these provided insight into what was happening outside of the classroom when students were left alone to handle their every-day tasks, including figuring out the proper usage of the LMS.

FIGURE 2
What I Don't Like About Using an LMS
 (n=102)



DISCUSSION

This study shows that students performed well, submitting homework on an LMS despite their first experience doing so. The on-time homework submission rate was high, and the grades on the homework were high, indicating that the students put effort into their learning at home. The student's efforts were also confirmed by the amount of work students were doing at home. In addition, although the lack of familiarity with technology may have frustrated some students, they generally had a positive impression of using an LMS. The lack of a control group made it difficult to determine how these would differ from students studying in a more traditional learning environment. However, from the data and personal experiences with the class, the researcher believes that the usage of LMS contributed to creating a positive learning experience for this group of students.

An important finding from this study, which was not anticipated when the research did the literature review, was that many students felt particularly positive about the interaction with the instructor on the LMS. Although the survey was anonymous, a few of the students who had a positive experience signed off on their comments and made it look like a thank you message to the instructor. Because the students were aware that the survey was conducted after the grades were submitted, they should not have felt like this would boost their grades; thus, this may indicate that the students felt like they have a friendly relationship with the instructor. In Japanese universities, instructors often do not provide office hours, and therefore, it may be difficult for students to reach the instructors. There was no office hour offered by the instructor in all the classes where the research was conducted. However, with the LMS in place, students may have felt closer to the instructor, and thus, it may not be too much to say that the LMS helped build rapport and trust with the instructor. As Weimer (2010) says, when students feel a rapport with their teachers, motivation to study is higher. Unfortunately, there is not sufficient data to do a correlation analysis, but the sense of rapport between the instructor and students may have led to the high submission rate, satisfactory quality of homework, and a decent amount of time spent on the homework.

An important limitation of this study is the lack of a control group as the researcher did not make the curriculum changes necessary to do a comparative analysis. Therefore, it is unclear how the responses of the participants in this study would differ from those in a more traditional classroom with the same educational content. However, despite these weaknesses, the overall positive results from the survey do show that university students can thrive in an environment where they are required to use an LMS for homework submission and help to show the potential of making better use of an LMS when teaching in Japan.

CONCLUSION

This study looked at how a group of university students in Japan behaved when required to submit homework online, and what the students' perception towards the curriculum was. The homework submission rate and the amount of time students studied outside of the class was satisfactory. In addition, the statistical results from the survey showed that students generally had a positive impression of a course that utilizes an LMS. Therefore, the study shows the potential that an LMS has for the Japanese English language learning context in universities. While this research shows the potential of usage of an LMS in the Japanese university students' English language learning context, the utilization of the LMS is still below the satisfactory level. Implementing a full instructional design and doing an empirical study with technology would be the recommended next step. This study illustrates the potential of a soft introduction of using the LMS by setting up homework assignments on an online platform. Although more research would be needed, it is suggested that making small changes in the curriculum can lead to a more significant change in student improvement in the future.

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