E-learning and Young Learners: A Flipped Classroom Approach

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This study was conducted to investigate the effects of teaching English to children using a flipped classroom approach. 31 students between 6 and 14 years old participated in the study that involved them assessing the effects of a flipped classroom on their own learning. The participants' homework results and survey responses were also analyzed to assess the correlation between the students' homework results and their perceptions of satisfaction, remembering, self-efficacy, motivation, and self-control. The results of the survey showed that students had a positive impression of the flipped curriculum in this context. As this study is one of the first to look at the use of a flipped classroom in this context, we also discuss the potential implications of this study for helping teachers to better meet the English language needs of young learners in Japan.

本研究では、反転授業を用いた英語教育の効果を論証する。英語を学習する6歳から14歳の31名の生徒が本研究に参加し、反転授業の効果と自らの学習について評価した。研究に参加した生徒が実施した宿題およびアンケート結果を分析し、生徒の宿題達成度と満足度、語彙学習の効果、自己効力感、モチベーション、および学習における自己管理に対する認識の相関関係を分析した。本研究の調査では、生徒が反転授業を肯定的に捉えていたことが分かった。また、本研究は、小学生の英語学習に反転授業を導入した初めての研究のひとつとなりうる。よって、本論では、日本の児童の英語需要を満たすための提案を論じる。

Since 2011 the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) has announced two curriculum changes that will have a significant impact on how English is taught in elementary schools (ESs) in Japan. In 2011, MEXT announced the Vision for ICT in Education (MEXT, 2011), which advocated the implementation of technology in the school curriculum. Then, in 2014, they released the English Education Reform Plan (MEXT, 2014) aimed at reforming English education in Japan by 2020. One of the central goals of this plan is to increase the number of English class hours taught in public ESs. Despite the potential positive effects of both of these changes, reactions to these plans by teachers in Japan have been mixed. To begin with, ES teachers have expressed concerns over the usage of technology in the classroom (Matsubara, Fujii, Oga, & Usami, 2017). The teachers surveyed said that they lack both confidence and experience in regards to using classroom technology. They also expressed concern with the prospect of having to teach more English in their classes (Kambaru, 2016). Many teachers said they did not feel that their English was good enough to conduct more lessons in English.

As a result of these concerns, there has been a significant increase in the number of teaching materials that are being developed by Japanese companies as a way of helping teachers to better integrate technology into their classes. One of these new approaches to teaching that has shown a lot of potential is the flipped classroom. Matsubara et al. (2017) reported a study of the potential benefits of flipped classrooms in the Japanese ES environment in the math and science courses at ESs in Takeo City, Saga. This is the first study at public schools in Japan that utilizes online homework. Although the study started in 2014, it is still in progress. The results of the midterm survey showed that students felt a flipped curriculum helped to deepen their understanding of the topics introduced in the class. Also, a weak correlation has been found between the number of hours the class was flipped and how positive students felt about presenting their ideas in class.

Despite the potential benefits of using flipped classrooms to teach English, to date, there have been no studies looking at the effectiveness of using flipped classrooms for

teaching English to young learners in Japan. The action research project described in this paper is an attempt to address this gap. The purpose of the study was to monitor the experiences of young learners at a language school in Tokyo during their time studying in a flipped curriculum. It was hoped that this would help the researchers to better understand how the use of digital materials in the language classroom affected students' satisfaction, motivation, sense of self-efficacy, and self-control.

A New Curriculum: A Technology-Oriented Setup

Flipped Learning

Flipped learning is defined as "a pedagogical approach in which direct instruction moves from the group learning space to the individual space" (Flipped Learning Network, 2014, boxed definition). In other words, students learn about new concepts at home and come into the classroom ready to use their newly acquired knowledge. In doing so these students are better prepared to participate in hands-on or interactive learning activities in the classroom. Flipped learning is generally achieved by delivering curricular content in the form of online preclass videos; students watch these lectures and learn about the content contained in the lecture as part of their homework assignment (Fulton, 2014). One of the benefits of utilizing a flipped classroom is that it allows teachers to increase the amount of opportunities students have to produce meaningful output in the classroom (see Figure 1).

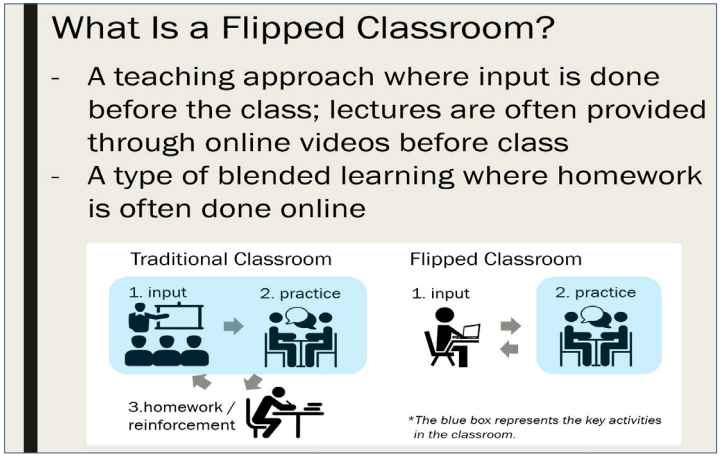

Figure 1. The traditional classroom vs. the flipped classroom.

Advantages and Disadvantages of a Flipped Classroom

The potential advantages of the flipped classroom include an improvement in student engagement, student motivation, student attitudes toward learning, and the quality of teacher-student interactions (Gross, Pietri, Anderson, Moyano-Camihort, & Graham, 2015; Rotellar & Cains, 2016). Although contextualized research about the flipped classroom is still limited, one recent case study examined the results of implementing a flipped classroom at a community high school in Michigan. The results of this study showed that after the introduction of a flipped classroom there was a significant decrease in the number of students who were failing their core subjects, including a 33% drop in students who failed English and a 31% drop in those who failed mathematics (TechSmith, n.d.). There was also a 66% drop in the discipline rate in the 1st year after the introduction of the flipped classroom (TechSmith, n.d.).

Another potential advantage of the flipped classroom is the capacity for customization (Fulton, 2012). In the flipped classroom, students can study the topics at home at their own pace. Teachers are also better able to customize the curriculum and incorporate in-class activities based on their students' needs into their lessons. The digital nature of the flipped classroom makes it possible for teachers to see how students did on their homework assignments, which can give teachers an insight into student difficulties. Instructors can then design their lessons based on this data. In this way, a flipped curriculum can help instructors make logical pedagogical decisions and use classroom time more effectively and creatively.

Despite the potential benefits of the flipped classroom, there are also some possible disadvantages. Johnson (2013) argued that the success of the flipped classroom is reliant on students' discipline and commitment to self-study. As the in-class activities are designed based on the assumption that the students study at home, the flipped learning curriculum will not work without the students investing time in their own education. In addition, Wallace (2014) believed that students need to be willing to use technology and have the skill sets necessary to navigate their way through the learning platform being used to deliver the flipped classroom. In addition, there is also the potential for problems outside of the students' control. For example, students need a stable Internet connection at home to be able to participate fully in the flipped classroom (Johnson, 2013). This may disadvantage certain socioeconomic groups of students. Parents also need to be familiar with the device and platform the young children are using in order to provide support when necessary. Finally, the instructor also needs to have a certain level of computer literacy to design or teach in a flipped-learning curriculum (Johnson, 2013). Instructors

who are not comfortable with technology may struggle to create the online materials and to utilize the students' learning data effectively.

Research Questions

This study was an attempt to investigate whether the advantages of a flipped classroom outweigh the disadvantages for young Japanese learners studying English. The study was focused on the perception of students who are experiencing a flipped curriculum for the first time. In order to better understand their perceptions of the flipped classroom, three research questions were developed:

RQ1. How satisfied will students be in a flipped classroom?

RQ2. What will students' perceptions be of their self-efficacy, motivation, and their ability to remember information in a flipped classroom?

RQ3. Will there be a relationship between the amount of work students are doing at home and their perceptions of the flipped classroom?

Method

The Research Environment

The current study took place at a private language school in Setagaya, Tokyo. The school utilized apps and e-learning for home study and the classes were based on a blended-learning curriculum organized around the textbook *Our World* (National Geographic, 2014). The homework for the course was mainly conducted online using a platform called the Rakuten Learning System (RLS). For a typical homework assignment, students would watch a video of a lecture or listen to some songs in English and then complete some comprehension questions using the learner management system. Students were able to redo the comprehension questions multiple times and their homework was only considered to be complete when they got a 100% score on the online quiz.

In addition, students were required to study vocabulary at home using a vocabulary learning application called *maname* (Rakuten.rakuten.co.jp/app/maname/). The application allowed students to use a variety of question types (multiple-choice questions, typing questions, and a cloze test) to study vocabulary. The app also included an aspect of gamification in which students could collect items and cute characters to decorate a "room" in their app. This was seen as a way to motivate students to study more than the amount assigned by their teacher. The app used spaced repetition to help students better memorize the words they were studying. The vocabulary items covered by the application were taken from the vocabulary lists of the six junior high school textbooks certified by MEXT. During the study, students were required to answer a minimum of either 300 or 500 vocabulary questions a week, depending on the number of videos they had to watch that week. This was done to control the amount of homework students were required to do every week. Although there was no maximum limit, students were required to do at least 2 hours of homework each week.

At the beginning of each class, the instructor looked at the data from the students' homework and reviewed some of the key concepts that students may have had trouble with, based on the questions they were not able to answer correctly on the first try. The instructor also administered short vocabulary quizzes to help encourage students to practice their vocabulary at home. The instructors prepared each lesson under the assumption that students were prepared to show what they had learned at home and to use their new vocabulary and phrases in the classroom. Compared to a more traditional language classroom, this approach places more of the responsibility to learn vocabulary and grammar on the students. In-class lessons focused on speaking and writing activities.

Participants

31 students between the ages of 6 and 14 took part in the study. Twenty of these students were 9 or 10 years old. Students and parents provided consent to the school to collect data with the understanding that the data collected would be anonymous, that individual student names would not be published, and that the data would be analyzed collectively. The students in this study followed the general language curriculum of the school and were not required to do anything special as part of the study.

Data Collection

The students' homework data were collected over 3 months: April, May, and June of 2018. Three sets of data were collected: the number of *maname* problems solved, the homework completion rate on the RLS, and the number of attempts it took for the students to get 100% on the RLS quiz. The data were collected and downloaded through the teacher's administrative account. A paper-based survey was conducted and collected in June 2018 either before or after the students' lessons. Students were told that their responses would not affect their grade or be reported to their parents. The survey consisted of 25 Likert-scale questions. Students were asked to respond to the questions using a scale of 1 to 4: 1 was *disagree* and 4 was *agree*. Ten of the questions asked about the students' satisfaction with studying at RSE Junior, their self-efficacy towards

studying English, and how well they were able to remember what they were studying. Six questions asked about intrinsic motivation, and nine questions asked about the students' perception of self-efficacy in the flipped classroom. The survey was given in Japanese. Questions on self-efficacy, remembering effectively, intrinsic motivation, and self-efficacy were taken from previous studies to ensure the reliability and validity of these questions (Mizumoto, 2011; Mizumoto & Takeuchi, 2008; Oxford, 1989); a few words and phrases were slightly modified to fit the research setting. The questions about the students' satisfaction studying at RSE Junior were created solely for the purpose of this research study.

Analysis and Results

Based on the student responses in each category of the survey, the mean and standard deviation were first analyzed (see Table 1). Questions with a mean of above 3 with a standard deviation under 1 were interpreted as the students having a positive response to that question. As indicated in Table 1, we found that the students were generally satisfied, had a sense of self-efficacy, were motivated, and had a sense of self-control. However, for the questions that focused on how well they were able to remember what they were studying there was a high standard deviation and the mean was under 3. This was interpreted to mean that some students felt that they had difficulty remembering the information they were studying.

Table 1. Mean and Standard Deviation of Survey Results (N = 31)

M / SD	Satisfaction	Self-efficacy	Remembering effectively	Motivation	Self-control
M	3.50	3.06	2.63	3.76	3.11
SD	0.77	0.87	1.06	0.49	0.89

Note. Questions were answered on a Likert scale of 1 to 4: 1 was *disagree* and 4 was *agree.*

A correlation analysis between the students' responses to the survey questions and their performance on the homework was done in order to determine the relationship between the students' perception of the course and the amount of self-study they were doing at home. The correlation analysis results are shown in Table 2. The researchers interpreted correlations above 0.5 as strong and 0.3 to 0.5 as moderate. A strong correlation over 0.5 was found between the students' perception of how well they were able to remember what they were studying and the amount of *maname* vocabulary practice they were doing as well as the number of times students took the quizzes. A moderate correlation of between 0.3 and 0.5 was seen between the number of words studied on *maname* and the students' satisfaction with studying at RSE Junior, their perception of self-efficacy, and their perception of self-control. There was also a moderate correlation between the students' RLS completion rate and their perception of self-control as well as their ability to remember effectively. On the other hand, there was a negative correlation between the number of times students had to repeat the RLS assignments and their intrinsic motivation as well as with their satisfaction studying at RSE Junior.

Table 2. Correlations Between Performance on Home-Study Materials and Self-Assessment

Variable	1	2	3	4	5
Maname	**0.48****	**0.36***	**0.59****	0.28	**0.53****
RLS completion rate	-0.03	-0.02	0.30	-0.15	**0.46****
RLS redoing assignments	**-0.38***	0.16	**0.53****	**-0.47****	-0.04

Note. Variables: 1 = Satisfaction studying at RSE Junior; 2 = Self-efficacy towards studying English; 3 = Remembering effectively; 4 = Intrinsic motivation; 5 = Self-control. RLS = Rakuten Learning System (online homework platform). Bold indicates a moderate or strong correlation.

*$p < .05$. **$p < .001$

Discussion

The results of this study showed that overall, students had a positive impression of the course and the flipped classroom, including a high degree of satisfaction, positive opinions about their self-efficacy, intrinsic motivation, and a positive impression regarding the amount of self-control they had. From the data and our personal experiences with the class, it seems that the flipped learning curriculum was able to create a positive learning experience for this group of young learners. This shows the potential that the flipped classroom has for the Japanese English language learning context.

However, although students reported high levels of satisfaction and motivation, the responses were not as favorable in terms of their perception of how well they were able to remember the materials taught in the flipped classroom. It could be that this

was a result of their lack of familiarity with this method of learning, the amount of material that they were being asked to cover at home, or just a lack of self-confidence about studying English. There was no control group in this study, so it is not possible to determine if the students' responses to this question would differ from those studying in a traditional classroom. It is also unclear if the students' perception of having difficulty remembering the materials would actually result in them doing worse on assessments designed to measure the amount of vocabulary or grammar they were able to learn during the course of the semester.

Finally, there was a clear correlation between the amount of work that students did at home and their perception of the course. This is also in line with the results of Matsubara et al. (2017). Although it is unclear if students are doing the homework because they enjoy the course or enjoy the course more because they are doing the homework, it is clear that students need to be encouraged to complete the homework for the flipped classroom to be effective.

Conclusion

In this study we looked at how satisfied students in a flipped classroom were, what the students' overall perception towards their self-efficacy, motivation, and their ability to remember information was, and whether there was a relationship between the amount of work students do at home and their perceptions of the flipped classroom. The statistical results showed that students generally had a positive impression of the course including a high degree of satisfaction, positive opinions about their self-efficacy, intrinsic motivation, and a positive impression of the amount of self-control they had. Furthermore, moderate correlations were found between the amount of different types of homework students were doing at home and their perceptions of the flipped classroom.

One possible limitation of this study is the validity and generalizability of the survey. While many of the questions used had been validated in previous studies of older students, most of the students in this study were under 10 years old, so the questions in the survey could have been cognitively challenging for them, leading them to answer the questions in unexpected ways. Despite this possibility, analysis of the data gathered from the surveys showed that the students' answers to the survey questions matched the observations of the researchers during their interactions with the students. However, for future studies, it would be beneficial to conduct a pilot study to better validate the constructs being measured by the survey, something that was not possible to do with this study. Another limitation of this study was the lack of a control group. As the researchers were observing an already established class, they were not able to 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. Despite this weakness, the overall positive results from the survey do show that young Japanese students are able to thrive in a flipped classroom environment and help to show the potential of using the flipped classroom for language teaching in Japan.

This research has shown the potential of the flipped classroom in the Japanese English language learning context for young learners; a possibility for further research is the role that parents play in the flipped classroom. An earlier mentioned disadvantage of a flipped curriculum was the setup, which works only when the students come to class prepared, so there is more responsibility placed on the students, which requires self-discipline. In the case of young students, parents tend to take on an active role to remind students to do their work before class. Further research is required to learn about the appropriate home environment necessary to set up a flipped classroom successfully.

Despite the need for more research, we feel that this study illustrates the potential of using the flipped classroom to help meet the learner needs of young English language learners in Japan. This is something that will become even more important in the future as the curriculum changes of MEXT's Vision for ICT in Education and English Education Reform Plan go into effect. Web-enhanced instruction in a flipped classroom curriculum has the potential to not only improve the young learners' smooth transition from the ES to junior high school English course but also to develop their overall perception of responsibility for their own learning. This will not only help them to become more proficient speakers of English but may also help to cultivate their autonomous learning skills, which are important life-long skills.

Bio Data

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References

Flipped Learning Network. (2014). *Definition of flipped learning*. Retrieved from https://flippedlearning.org/definition-of-flipped-learning/

Fulton, K. (2012). Upside down and inside out: Flip your classroom to improve student learning. *Learning & Leading with Technology, 39*(8), 12-17.

Fulton, K. (2014). Flipping the classroom. *Principal Leadership, 15*(1), 50-55.

Gross, D., Pietri, E. S., Anderson, G., Moyano-Camihort, K., & Graham, M. J. (2015). Increased preclass preparation underlies student outcome improvement in the flipped classroom. *CBE—Life Sciences Education, 14*(4), 1-8. https://doi.org/10.1187/cbe.15-02-0040

Johnson, G. B. (2013). *Student perceptions of the flipped classroom*. Vancouver, Canada: University of British Columbia. Retrieved from https://open.library.ubc.ca/collections/ubctheses/24/items/1.0073641

Kambaru, A. (2016). Japanese elementary school teachers' perceptions about English teaching. *The Tsuru University Review, 83,* 11-20.

Matsubara, S., Fujii, D., Oga, C., & Usami, S. (2017). 武雄市「ICTを活用した教育」第三次検証報告書 (*Takeo city education utilizing ICT: The third report of verification*). Retrieved from https://www.city.takeo.lg.jp/kyouiku/docs/20170324kyouiku03.pdf

MEXT. (2011). *The vision for ICT in education: Toward the creation of a learning system and schools suitable for the 21st century*. Retrieved from http://www.mext.go.jp/component/a_menu/education/micro_detail/__icsFiles/afieldfile/2017/06/26/1305484_14_1.pdf

MEXT. (2014). *English education reform plan corresponding to globalization*. Retrieved from http://www.mext.go.jp/en/news/topics/detail/__icsFiles/afieldfile/2014/01/23/1343591_1.pdf

Mizumoto, A. (2011). The effects of self-efficacy on self-regulated vocabulary learning. *Kansai University Faculty of Foreign Language Studies Publication, 5,* 36-56. https://doi.org/10.1080/17501229.2013.836206

Mizumoto, A., & Takeuchi, O. (2008). Exploring the driving forces behind TOEIC scores: Focusing on vocabulary learning strategies, motivation, and study time. *JACET Journal, 46,* 17-32.

Oxford, R. (1989). *Strategy inventory for language learning (SILL)*. Retrieved from https://richarddpetty.files.wordpress.com/2010/03/sill-english.pdf#search=%27Strategy+Inventory+for+Language+Learning%27

Rotellar, C., & Cains, J. (2016). Research, perspectives, and recommendations on implementing the flipped classroom. *American Journal of Pharmaceutical Education, 80*(2), 1-10.

TechSmith. (n.d.). *Redefining learning throughout an entire school*. Retrieved from https://www.techsmith.com/customer-stories-clintondale.html

Wallace, A. (2014). Social learning platforms and the flipped classroom. *International Journal of Information and Education Technology, 4*(4), 293-296.