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Exploring the Impact of Flipped Learning in the Japanese English Language Classroom

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Abstract

This pilot study investigates the implementation of flipped learning in a Japanese university setting, specifically within an English language course. It focuses on three main areas: students' perceptions of flipped learning, their adherence to this teaching approach, and its impact on academic performance. The study involved 76 first-year nursing students enrolled in a 15-week general English course. Overall, results indicated positive student perceptions, varying engagement that generally increased over time, and a slight correlation between engagement in flipped learning and improved performance outcomes on assignments and tests.

Keywords: Flipped learning, Flipped approach, Communicative teaching

1. Introduction

In recent years, flipped learning has emerged as an innovative teaching method with the potential to fundamentally change the traditional classroom experience. Although earlier forms of flipped learning are cited as occurring in the late 1990s[1], the method is commonly attributed to the seminal work of two high school educators, Jon Bergmann and Aaron Sams. They first implemented flipped learning in 2007 as a means to provide students with better access to course content[2]. In this context, flipped learning primarily involved having students watch pre-recorded lectures before class, which then allowed more time for interactive activities in the classroom[2]. Since then, the approach has evolved considerably and has been adopted by educators across various disciplines[3,4].

According to the Flipped Learning Network[5], flipped learning is "a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter." In practice, this method essentially involves two key components: pre-class preparation and in-class activities. First, students independently engage with course content outside of class, often through digital resources or assignments. This self-study is then leveraged in the classroom, where the focus shifts to mastering the material through collaborative and interactive activities. In this way, flipped learning not only encourages student autonomy but also allows educators to adopt a more student-centered approach in class.

Central to the success of flipped learning are four pillars, or principles, developed by the Flipped Learning Network to guide its implementation[5]. The first pillar, *Flexible Environment*, emphasizes providing access to course content in multiple ways. In class, this may involve rearranging seating and the classroom layout to better suit various activities. Outside of class, students are free to choose when and where they study. The second, *Learning Culture*, involves shifting away from the traditional teacher-centered model towards a learner-centered approach. In-class time should focus on interactive tasks and engage higher-order skills[3]. *Intentional Content*, the third pillar, requires educators to strategically determine what content students can explore independently in order to maximize the use of in-class time for active learning. The last pillar, *Professional Educator*, highlights the vital role of teachers as facilitators who guide, provide formative feedback, and adapt instruction to enhance the student learning experience. Together, these pillars form the foundation of flipped learning and assist educators in making the most of its implementation.

Although flipped learning has gained much popularity in the field of STEM, research into this method in the field of ESL and EFL is still in its infancy[3,6,7]. Nevertheless, there has been growing interest in flipped learning among TESOL professionals[8], as researchers and educators continue to explore ways in which the approach may benefit English language learners. One of the primary advantages of implementing flipped learning is that it enables a shift towards communicative teaching in ESL/EFL settings. In making this shift, less interactive tasks such as grammar exercises and vocabulary memorization can be reallocated to self-study, freeing up classroom time for more engaging activities such as pairwork and group discussions[3,7]. In doing so, flipped learning has been shown to improve students' performance[9], while also encouraging more speaking and engagement in class[10,6].

Another advantage of flipped learning is its ability to personalize the learning experience and promote learner autonomy[11]. One way this can be achieved is through the self-study component of flipped learning, as students set the pace of their studies and can use various resources to assist in the learning process. For example, the use of video captions, digital flashcards, or text-to-speech software can help students customize their learning to suit their individual needs and preferences[7]. This aspect of flipped learning may be particularly beneficial in accommodating the varied language proficiency levels among English language learners within the same class.

Despite these advantages, some concerns with implementing flipped learning have been addressed in the literature. A notable challenge is the transition to this approach in settings where teacher-centered instruction is the norm[3,12]. Students accustomed to traditional teaching methods may find it difficult to adapt to the more active, self-directed

learning model promoted in flipped classrooms. Many students may even prefer passive, lecture-style learning and resist the additional effort required in the flipped model to prepare for in-class activities effectively[4]. This concern may be particularly valid in the context of Japanese classrooms, where active learning models for English studies have struggled to take hold[13].

In the Japanese educational system, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) has pushed for adopting more communicative teaching styles, encouraging educators to move away from the traditional grammar-translation method that has been predominant since the late 1980s[13, 14]. However, critics have argued that the transition has largely been unsuccessful, with many Japanese secondary schools still relying on conventional teaching methods that entail passive learning[13, 15]. As a result, Japanese students frequently enter university unaccustomed to active, learner-centered classrooms and may naturally expect to receive lecture-based classes[16]. The issue is further compounded by the fact that Japanese students commonly view university as a respite from intense academic pressures[17]. This attitude could lead to a reluctance to engage in the pro-active, self-directed learning key to flipped learning.

Given this cultural context and the reported benefits of flipped learning, there is a compelling need to explore how this approach might be effectively implemented in the Japanese university setting, particularly in English language classes. This pilot study aims to investigate the outcomes of applying aspects of flipped learning in such a context, with the hope of contributing to the limited body of research on flipped learning both in TESOL and the Japanese context. The research will specifically focus on assessing students' adherence to the flipped approach in starting assignments before class as well as their perceptions of engaging in this pre-class preparation. The study will also examine the potential impact that the flipped approach has on students' performance on assignments and tests.

2. Methods

2.1 Participants

The study involved a convenience sample of 76 first-year nursing students (74 female, 2 male) enrolled in a general English course at Kanazawa Medical University. Student ages ranged from 18 to 21 years (average 18.8 years). As a single-group pre-post study, the research did not include a control group. All participants experienced the same teaching methods and received the same course materials for the duration of the study. Grading standards were also kept consistent across students. At the start of the study, no information was known about the students' prior experiences or familiarity with flipped learning practices.

2.2 Description of the Course

The study was conducted within a four-skills English course aimed at developing students' foundational communication skills in English. The course was held over 15 weeks (excluding holidays), with classes meeting once a week for 90 minutes each. Classes were co-taught by two native English-speaking teachers and primarily followed a communicative teaching style. In-class activities included vocabulary practice, partner dialogues, scaffolded conversations, pronunciation exercises, and group work. The textbook for the course was "English Firsthand Success," which is rated at an A2 level on the Common European Framework of Reference (CEFR) for Languages. In addition to the textbook, Google Classroom served as a platform for managing grades, interacting with students, and delivering assignments and surveys. Student performance was measured throughout the course using weekly assignments and oral speaking tests.

2.3 Description of the Flipped Learning Practice

As described previously, flipped learning is based on pre-class preparation which then enables interactive and

engaging studies in class. In this study, the pre-class preparation consisted of weekly assignments made available to students one to two days before class. The assignments corresponded to Units 3-12 of the course textbook and included self-study exercises related to vocabulary, listening, grammar, and short readings. Students accessed assignments through Google Forms, which were set up to provide automatic feedback as well as the option to repeatedly resubmit to improve scores. Starting assignments before class, or engaging in the flipped learning practice, was encouraged for its intrinsic benefits, and not enforced through grading. Students who did not begin assignments before class were still allowed to submit them the following day.

2.4 Data Collection Process

Two types of online surveys (administered through Google Forms) were employed to collect longitudinal data. The first type (herein referred to as the *Perceptions Survey*) contained Likert scale questions to assess students' perceptions of the flipped learning practice. This survey was completed at two separate points during the course (Week 8 and 14) to capture any shifts in students' attitudes towards pre-class preparation.

The second type of survey (herein referred to as the *Engagement Survey*; see Figure 1) was designed to track students' adherence to the flipped learning practice. The survey was administered 10 times in conjunction with assignments for the course (Assignments 3-12). It was positioned at the beginning of each assignment and required students to indicate their starting time by selecting from options 授業の前 (Before class) or 授業の後 (After class). For Assignments 3-8, students received surveys one day before class. Upon reviewing student feedback on pre-class preparation, surveys for Assignments 9-12 were made available to students two days before class.

Figure 1

この課題を授業の前に取り組んでいますか。それとも授業の後に取り組んでいますか。*
Are you working on this assignment before or after class?

◯ 授業の前 (Before class)

◯ 授業の後 (After class)

2.5 Data Analysis Process
Student Perceptions

In the Perceptions Survey, students responded to six statements concerning flipped learning. Responses were recorded using a 4-point Likert scale, with 1 indicating agreement (そう思う) and 4 disagreement (そう思わない). The guiding survey question and statements (S1-S6) were as follows:

授業の前に課題を始めることについて、以下の記述にどの程度賛成しますか？
To what extent do you agree with the following statements concerning starting assignments before class?

S1. 授業内容の理解を深めることができる。
   I can deepen my understanding of course content.

S2. 授業の内容を覚えるのに役立つ。
   It helps me remember the content of the lesson.

S3. 課題の点数アップにつながる。
   It leads to higher scores on assignments.

S4. 授業で英語を話すことに自信が持てるようになる。
I have more confidence in speaking English in class.

S5. 授業での活動をより楽しめるようになる。
I can enjoy classroom activities more.

S6. 授業での活動をよりスムーズに行えるようになる。
I can participate in classroom activities more smoothly.

To better assess correlation, survey responses were sorted into three groups based on the students' level of engagement with the flipped learning practice: High Engagement Group (7-10 assignments started before class), Moderate Engagement Group (5-6), and Low Engagement Group (1-4). Responses from students who never started assignments early were excluded from the analysis. Average response scores for each survey statement were calculated across all three engagement groups. These averages were then compared between surveys to observe any changes in the students' perceptions. A paired t-test was additionally conducted to determine the statistical significance of any changes in average response scores.

Engagement with the Flipped Learning Practice

Data collected from the Engagement Survey was used to calculate the total number of students who had engaged or not engaged in the flipped learning practice for each assignment. Totals were charted onto a bar graph with a trend line to depict any patterns in engagement across the ten assignments.

Impact on Assignment Scores

To assess the impact the flipped learning practice had on assignment scores, students' scores were first categorized into two groups based on whether the student had engaged in flipped learning or not. The average scores across all ten assignments were then calculated for each group and displayed on a bar graph to help visualize differences. An unpaired t-test comparing the two sets of average scores was also conducted to verify whether differences between the groups were statistically significant.

Impact on Test Scores

To assess the relationship between students' engagement in the flipped learning practice and their test scores, each student's average test score was calculated and correlated with their total flipped learning engagement during the course. This data was displayed using a scatter plot with a line of best fit to identify potential trends. The strength and direction of the correlation were quantified using a Pearson Correlation test. The P-value was also calculated to determine the statistical significance of the relationship.

3. Results

Student Perceptions

Figures 2.1-2.3 below show the average response scores for statements 1-6 (S1-S6) from Survey 1 and Survey 2 for each engagement group. When examined together, we see that average response scores across all three groups consistently fell within the scope of agreement (scores 1 and 2 on the Likert scale) in both surveys. Despite this uniform agreement, there was a broad shift towards disagreement as the course progressed, with responses for nearly all statements increasing in score from Survey 1 to 2 for all three groups.

In Figure 2.1, we see that the High Engagment Group generally indicated comparatively more agreement with all statements. Agreement was particularly strong for being able to participate in classroom activities more smoothly (S6). However, by Survey 2, students' agreement had unexpectedly weakened, especially in regards to having more confidence in speaking English in class (S4). For this statement, the average score rose from 1.33 to 1.67, nearing a statistically significant difference (p-value: 0.08).

Figure 2.1
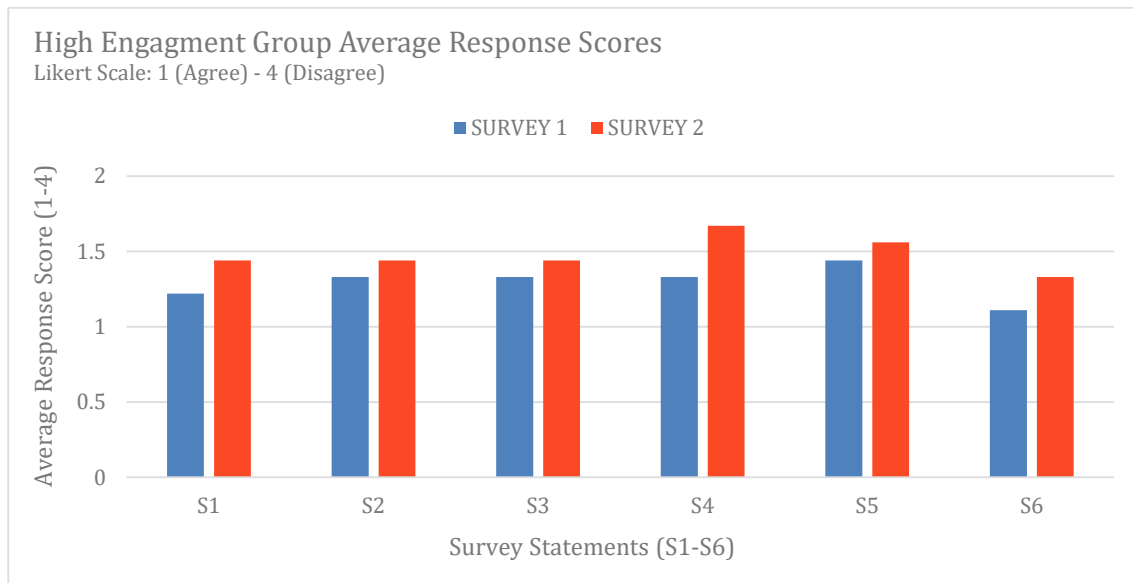
The Moderate Engagement Group, see Figure 2.2, showed mixed responses. However, as with the High Engagement Group, students tended to show less agreement by Survey 2. This shift towards disagreement was again particularly true for students' sense that flipped learning leads to more confidence in speaking English (S4). While the change in opinion for this statement was notable (1.47 to 1.76), the difference was not great enough to reach statistical significance (p-value: 0.06). Agreement generally waned between the surveys, but there was one exception to this trend; by Survey 2, more students agreed that the flipped learning approach could deepen their understanding of course content (S1).

Figure 2.2
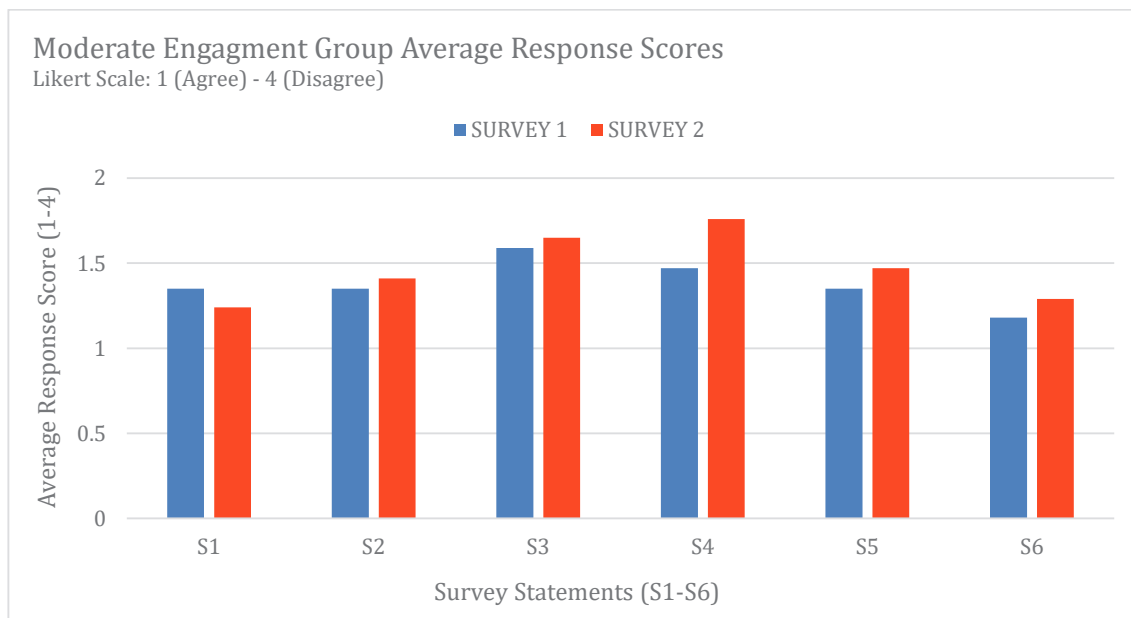
In Figure 2.3, responses from the Low Engagement Group reflected the general pattern observed in the other two groups: students' initial agreement with the statements about flipped learning slightly diminished by the second survey. However, unlike the High and Moderate Engagement Groups, this adverse change was most pronounced for students' perception that pre-class preparation can lead to higher scores on assignments (S3). While this represented the largest difference (1.57 to 1.91) between the surveys, it did not reach statistical significance (p-value: 0.07).

Figure 2.3
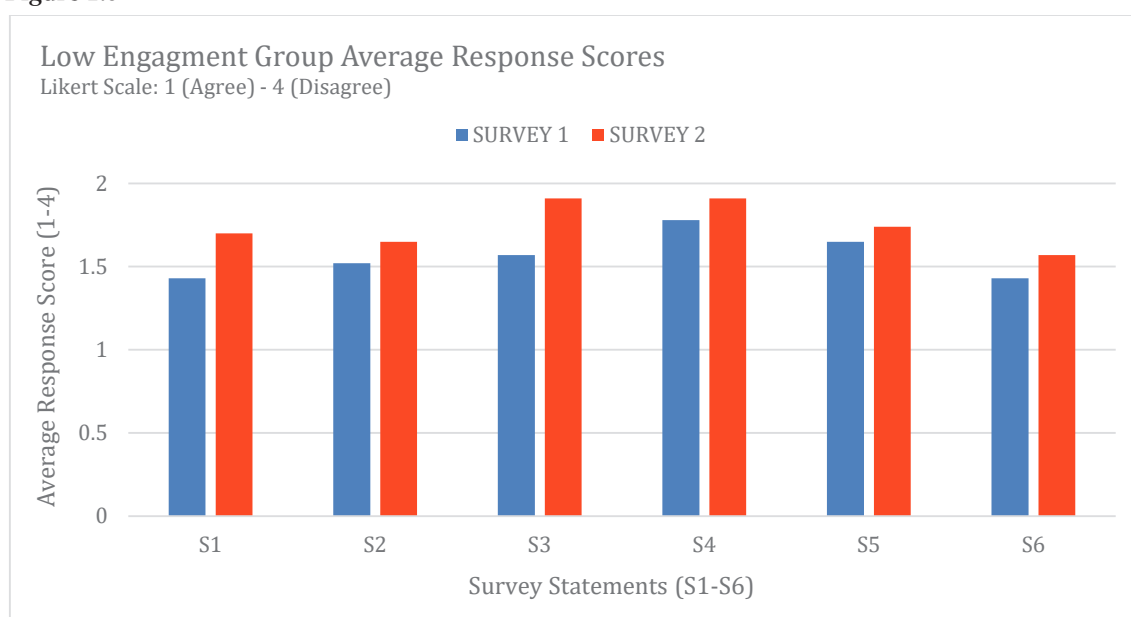
In comparing the average response scores, we can also observe certain group characteristics. The Low Engagement Group consistently gave the highest average response scores, suggesting the least agreement with the positive statements about flipped learning. Conversely, the High Engagement Group generally had the lowest scores on Surveys 1 and 2, indicating stronger agreement. Surprisingly, this group also showed the highest cumulative change in average response scores, suggesting that those most engaged in the flipped learning practice may be the most sensitive to its perceived impact over time.

Engagement with the Flipped Learning Practice

Figure 3 shows total engagement in the flipped learning practice over ten assignments (HW3-12). Engagement was fairly inconsistent during the initial assignments. However, when we zoom out and examine rates of engagement over the span of all ten assignments, there is a noticeable increasing trend. The calculated slope of this positive trend line is 2.90. In contrast, the trend line for the number of students not engaging in the flipped learning practice shows a general decrease (slope = -3.78). A crossover point can be seen at the sixth assignment (HW8), where the number of students engaging in the flipped learning practice (n=38, 53.52%) surpassed those not engaging in it (n=33, 46.48%). Overall, engagement for the second half of assignments (HW8-12) was higher, suggesting a possible positive shift in student attitudes towards the flipped learning practice.

Figure 3

Engagement with Flipped Learning Practice
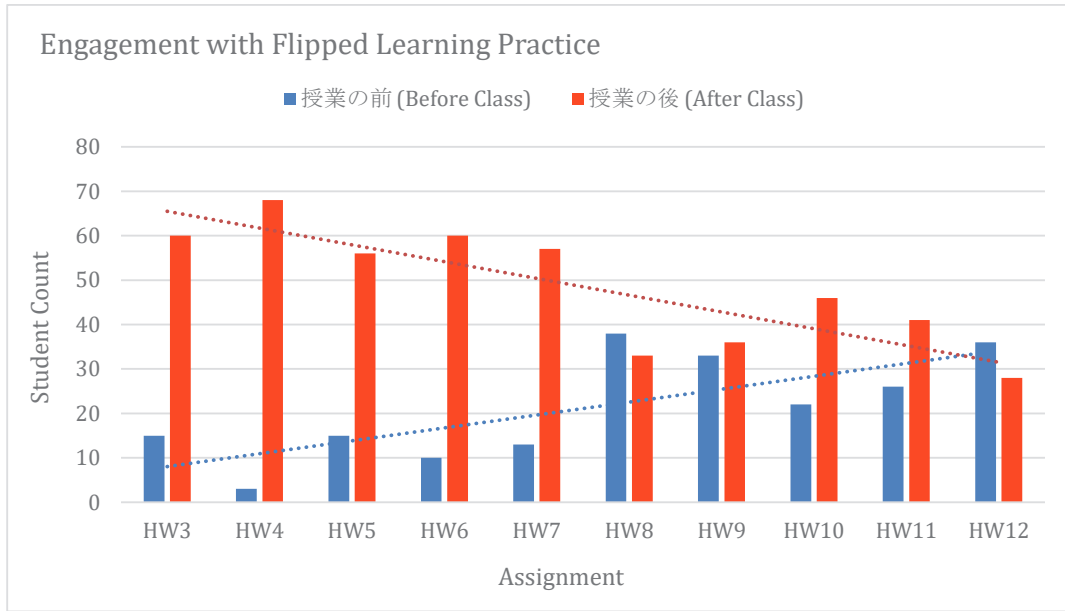
Impact on Assignment Scores

In assessing the impact of the flipped learning practice on assignment scores, a comparison of the two groups (Engaged in FLP and Did Not Engage in FLP) revealed a consistent trend towards higher scores for those who engaged in flipped learning on assignments. The average scores for each group are illustrated in Figure 4.

Figure 4

Average Scores on Assignments
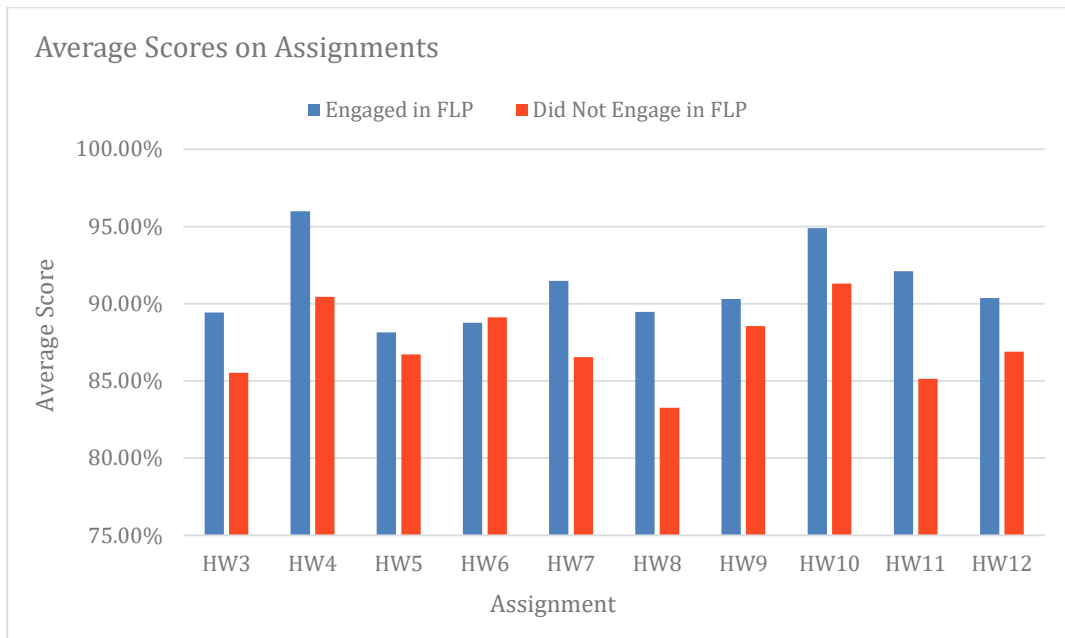
The average difference in scores across all assignments was 2.51, indicating a general advantage for those who engaged in the flipped learning practice; with the exception of the fourth assignment (HW 6), students who used the flipped approach outperformed those who did not. An unpaired t-test was used to confirm the significance of the difference in scores between the two groups, and it yielded a p-value of 0.0040. This result is considered very significant by conventional criteria.

Impact on Test Scores

The scatter plot with a line of best fit (Figure 5) demonstrated a positive linear relationship between the number of times students engaged in the flipped learning practice and their average test scores. As the line progresses along the x-axis (representing the frequency of engagement in flipped learning), there is a gradual increase on the y-axis (representing test scores). The statistical analysis, including a Pearson Correlation test, yielded a correlation coefficient of 0.288 and a p-value of 0.0116. This suggests a moderately significant positive correlation between the degree of engagement in the flipped learning practice and average test scores. While the correlation is not strong, it is significant enough to indicate that increased engagement in flipped learning has a positive impact on students' test scores.

Figure 5

Average Test Score and Total FLP Engagement
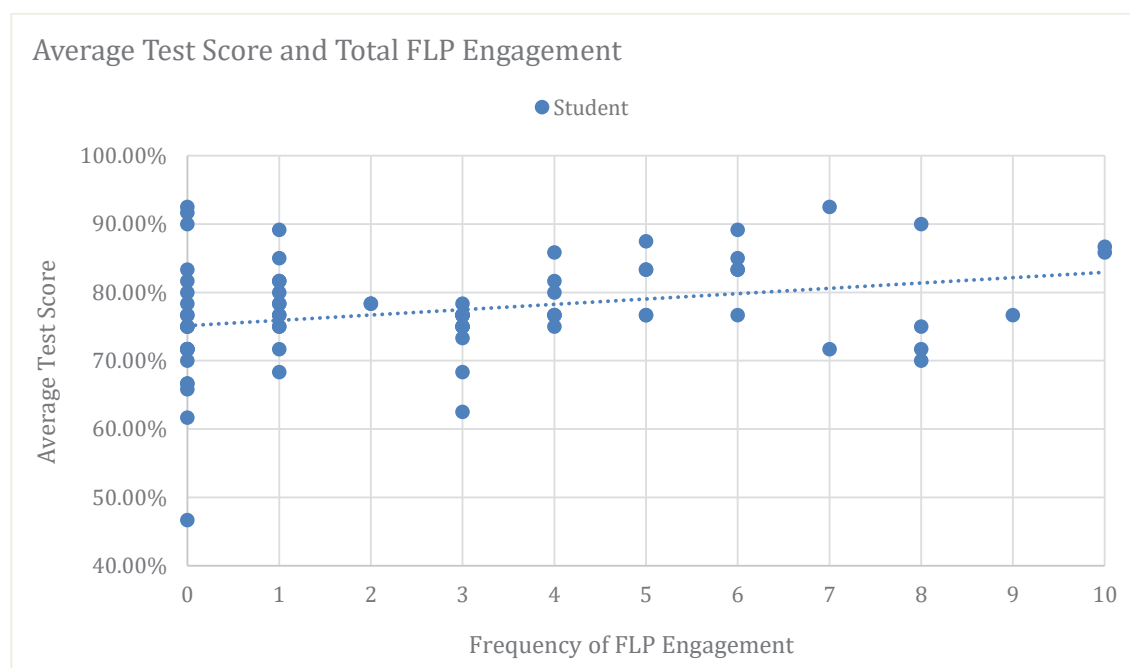
4. Discussion

The aim of this study was to investigate key aspects of flipped learning in a Japanese university context, with a focus on students' perceptions of engaging in the flipped approach for assignments, their commitment to doing so, and the impact that it had on academic performance. While data from the study provides insight into the nuances of implementing a flipped approach in a predominantly lecture-based environment, the findings should be interpreted with caution, given the exploratory nature of this pilot study.

In regards to the students' perceptions of the flipped approach, the results were generally favorable. All students indicated agreement with positive statements concerning starting assignments early. However, as the course progressed, this enthusiasm waned slightly. This decrease may indicate that students initially overestimated the potential benefits of the flipped approach, and that over time, they gained a clearer understanding of how much their pre-class preparation could realistically enhance their learning and confidence in speaking English. In comparing the survey results among the three engagement groups, it was interesting but not especially unexpected to observe that the High Engagement Group reported more favorable perceptions of the flipped learning practice than the Low Engagement Group. This difference in attitudes could indicate that more frequent and consistent engagement with flipped learning leads to a greater appreciation of its benefits.

In terms of the students' adherence to the flipped learning practice, the study observed a general upward trend in engagement; as the course progressed, students increasingly made an effort to start assignments before class, with those

engaging in the flipped learning practice eventually outnumbering those not doing so by the last assignment. However, despite this positive trend, average engagement remained relatively low throughout much of the course. Interestingly, although students held positive perceptions about flipped learning and recognized its benefits, their views did not guarantee high levels of engagement with the approach. This suggests that the intrinsic benefits of flipped learning alone may be insufficient to motivate students to consistently prepare for class. Offering an extrinsic reward, such as bonus points, might be necessary to increase adherence to the practice.

Analysis of students' scores revealed a significant yet moderate correlation between engagement in flipped learning and improved performance in assignments and tests. Students who more consistently engaged in flipped learning generally achieved higher scores. This trend was evident across both assignment scores and test results, suggesting that pre-class preparation can positively influence academic performance. However, it is important to note that the correlation, while positive, was not particularly strong. Other factors, such as individual student differences in motivation, language proficiency, and self-regulation, may play an important role in determining the overall efficacy of flipped learning. As a result, while flipped learning does show promise in a Japanese context, where classes have traditionally been teacher-centered and lecture-based, its impact should be considered in conjunction with each student's learning profile and educational background.

5. Limitations

While the results of the study were generally positive, there are certain limitations that should be considered. First, the study relied heavily on self-reported data to assess engagement with the flipped approach and student perceptions, which may potentially expose the data to biases and inaccuracies. Additionally, the study's focus on a single course with a relatively homogenous group of students limits the scope of the conclusions that can be drawn about the applicability of flipped learning across different English language learners and courses.

6. Conclusion

The findings of this study may hold promising implications for the application of flipped learning methods in Japanese university settings, particularly within the realm of English language teaching. In the study, although students' adherence to the flipped approach varied considerably throughout the course, those who frequently engaged in the flipped approach for assignments were more likely to recognize and realize its advantages; those with higher commitment to flipped learning achieved higher scores in assignments and tests. However, it should be noted that for much of the course this group represented the minority. Consequently, future research should focus on steps that can be taken to increase students' adherence to flipped learning, and explore strategies to encourage a greater number of students to engage in the approach from day one. Understanding the factors that influence students early and continued engagement with flipped learning could be instrumental to maximizing the benefits of this learning model in similar educational contexts.

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