

The Use of Band as a Transformative Tool for Homework

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This study examined student academic performance and perceptions of homework in relation to the use of smartphone technology among Japanese EFL students. 41 students in 2 classes of an English seminar participated in the study. The study employed a pretest–posttest control group design to discover if the use of Band, a smartphone community forum service, for homework has an effect on students' performance and perceptions. One class of 27 participants used the service, and the other section of 14 participants did not use it over a semester. Data were collected by using reading tests, questionnaires, and interviews. The findings showed that although the Band group did not have a better posttest result, it had more positive responses towards and became more willing to complete homework than did the control group.

この研究では、英語のセミナークラスにおける大学生の学力と、バンドというスマートフォンフォーラムを用いた宿題への意識を調査した。参加者は大学生41名で、事前事後調査統制群法を用いた。データ収集はテスト、アンケート、及びインタビューで行った。その結果、バンドを用いたグループは、宿題に対しより肯定的な反応を示し、また、より前向きに宿題を完成させようとしていることが明らかになった。

Is homework necessary? Teachers' responses to this question might be different. Some teachers say yes because they see homework as an important learning tool. Others think that homework does more harm than good by causing stress to everyone involved. Still other teachers cannot give a specific yes or no answer. Instead, they consider the purpose, amount, and type of homework before having students make time outside of class to do the work (Buchel, 2016).

Research has shown that assigning homework to students has two benefits. First, homework provides students with the opportunity to hone their academic skills, which in turn raises academic achievement. In a review of 20 studies comparing achievement of students given homework with those given no homework, the average high school student doing homework performed better than most of the students in the no-homework group (Copper, 1989; Copper, Robinson, & Patall, 2006). Second, carefully designed homework can stimulate students' positive attitude and encourage them to take responsibility for their own learning (Zimmerman & Kitsantas, 2005).

To the contrary, a few studies provide evidence that shows no support for assigning homework. Baker and LeTendre (2005) found a negative correlation between the amount of homework assigned and student achievement (as cited in Kohn, 2006). In another study, Bembenuddy (2010) examined the role of self-regulation in predicting homework completion. He reported that students who were highly self-regulated took a more active approach to completing homework than students in the same course who were less so.

Although researchers are still debating whether or not giving homework benefits students' academic performance, other researchers have discussed the educational value of the time students spend on homework versus different types of homework. Paul (2011) argued that based on a parent survey, the time spent on homework is less important for student test scores than the type of homework assigned. Vatterott (2010) identified five characteristics of good homework:

1. Purpose. The homework should serve an academic purpose. For example, it should help students to check understanding or apply the knowledge and skills that are being taught in the classroom.
2. Efficiency. Students should demonstrate what they have learned through the assignment without spending a lot of time.
3. Ownership. The assignment should give students options. They should choose what they want to complete.
4. Competence. Students should feel successful when they complete the assignment.
5. Aesthetic appeal. The homework should be enjoyable.

In countries where students do not need English for daily life, English teachers give homework to help students practice and learn English outside of class (Ohashi, 2016; Paudel, 2012). Amiryousefi (2016) conducted a survey of 46 English teachers from two institutes in Iran about their perspectives on the benefits of homework. The majority of the teachers believed that homework helped EFL students in many ways, such as reviewing materials, preparing for exams, and using what they have studied in their English classes for communicating. However, many students do not care a lot about homework (Maharaji & Sharma, 2016). They refuse to do their homework or just do it for a grade because they think the type of homework they do is not engaging. One possible solution to this problem is to find an approach that keeps students engaged and motivates them to do their homework. Social networking applications like Facebook and Twitter are two examples of technology that can make homework more engaging for students. When students participate in an online activity knowing their classmates are reading and responding to their work, they put more effort into homework (Gregory, Gregory, & Eddy, 2014; Kitsis, 2008).

This study was aimed at exploring the impact of one type of social networking service, Band (<http://band.us>), a community application that was developed to facilitate group communication, on the performance and perceptions of Japanese students enrolled in an English seminar. The study was guided by the following research questions:

- RQ1. Does the use of Band for homework improve students' reading comprehension?
- RQ2. What are students' perceptions and attitudes towards using Band for homework?

Method

Subjects and Course Description

A total of 41 male students (18-21 years old) majoring in engineering, science, architecture, and business communication at an urban 4-year private university in Japan participated in this study. There were 27 students enrolled in one class and 14 students enrolled in another class of an English seminar in the semester in which the study took place began.

The course was designed to draw students' attention to various problems in modern society and help them practice giving their own opinions using the vocabulary, expressions, and sentences they learned through reading passages related to several major global issues such as human rights and refugees. There were six reading passages designed for use with intermediate-level students, whose vocabulary is limited but rapidly improving. The reading passages were assigned in advance as homework to give students more time to prepare. Each passage contained 400-500 words and was focused on one single issue. The approach used during the class time was to divide students into small groups of four or five students each. The teacher gave each group a paragraph of that week's reading passage with one or two discussion questions before having them offer their opinions to other group members and practice writing down relevant notes together. After students discussed the paragraph within their expert group, during the same class period, the teacher formed new teams with one student from each expert group. Each student in the new team presented a report about the paragraph he or she learned from the expert group.

Research Design

The researchers employed a pretest-posttest control group design to discover if the use of Band increased the effectiveness of homework for these learners. One section of the English seminar course was randomly assigned by the researchers to the experimental group (G1) and the other class to the control group (G2). The experimental group of 27 students used Band for homework, and the control group of 14 students did not use it.

Band is a Korean mobile community forum application created by Naver Corporation and made available on iOS and Android. It was officially launched in Asia in 2012 and expanded to the U.S. market 3 years later. Around the world, Band now has at least 16 million active users who organize and access their teams or clubs on devices including smartphones, tablets, and laptops. In school, Band allows teachers to create a separate, nonsearchable space where students easily stay connected with each other using their

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smartphones. On the Band platform, students can create posts on specific topics, leave comments, share photos, and chat with one student or all students in the class in a group chat. Unlike other messaging services, Band has a membership system that gives administrators certain privileges, including admin-only posting, deleting other members' content, and approving or disapproving membership.

The class met once a week for 90 minutes over a 16-week semester for lectures and activities exploring important challenges facing the world today. Class time was not enough to deepen students' knowledge of that week's reading passage. To allow students more time to find information and focus their attention on what was important in the text, an assignment was given. Students were asked to make a *wh*-question about the reading passage of that week and provide the answer to the question.

For G1, the 1st week was used to allow the students to join the class Band group. Before assigning Band-based homework, the teacher held a 10-minute introductory session with a PowerPoint presentation and checked to make sure all students had a smartphone. Students were then asked to (a) download the Band application to their iOS or Android smartphone, (b) sign up with their English first name, email address, and password, (c) look for a confirmation email in their inbox and click the link in the email to verify their email address, and (d) enter the invite code provided by the teacher so they could join the class Band group. The teacher supported the students while they worked through the steps.

Starting from the 2nd week of the semester and every other week thereafter (2, 4, 6, 8, 10, 12), all students in both groups were asked to read a text and write down one original question they had and the answer to it. The teacher provided students with sentence starters such as "When was _____?", "Where is _____?", and "What does _____?" Students' questions were used in the following class for a small-group review activity.

Outside of class, G1 students first posted an original question that had not been used by any of their classmates on Band (see Figure 1). Second, each student selected one question posted by a classmate to answer. Also, they checked, coached, and praised at least three of their classmates' responses to the other questions. The students in G2 who did not use Band wrote down a question and answer on a card provided by the teacher. Then they submitted the completed card to the teacher during office hours.

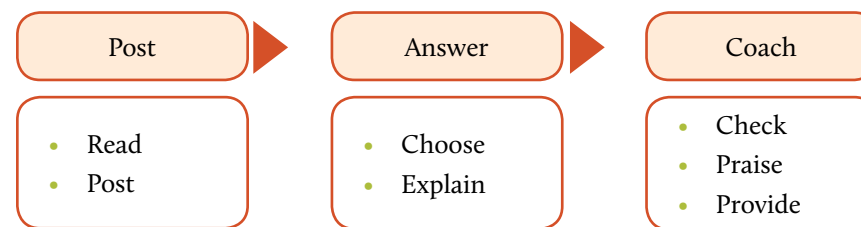


Figure 1. Homework procedure.

At the beginning of the following class meeting, the teacher distributed one prepared comprehension question card with the answer to the question on the other side of the card to each student. Then the teacher had students practice asking and answering questions in a quiz-quiz-trade procedure for 10 minutes. Students stood up, found a partner, and decided who was A and B. In pairs, student A started by reading their question to student B and asking student B to answer the question. Student B listened to A's question and answered the question; if student B did not know the correct answer, he was expected to ask A for the answer. Student B then read his question and asked student A if he could answer it. Finally, student A and B exchanged cards and found new partners.

Instrumentation and Data Collection Procedure

The researchers used surveys, interviews, and reading comprehension tests as data to answer the research questions. They obtained informed consent from the students before collecting the data. Students' ability to understand and use vocabulary words, opinions, and arguments from the reading passages were measured by their performance on two tests: a pretest and a posttest. The pretest took 30 minutes and was administered to all 41 students in the 1st week, and the posttest was administered in the 15th week. The researchers designed the test questions considering the instructional objectives of the course and the specific content covered by each individual question. The tests were identical, except that question order was different. Each test had 30 items, worth one point per item, presented in two formats: multiple choice and short answer (one or two sentences). The same pretest was given to a small group of students who did not participate in the study on two separate occasions. The test-retest stability coefficient was 0.93. A *t* test was used to determine whether the average test score of the experimental group significantly differed from that of the control group.

A four-statement bilingual survey using a 5-point Likert scale was administered to both groups twice, in the 1st week and in the 15th week, to gauge students' perceptions and attitudes towards smartphone homework. The statements were as follows:

1. I found homework interesting.
2. I completed 100% of my homework.
3. Homework made me think extensively about the content of lessons.
4. I approached my homework assignment twice or more between class periods.

One of the researchers interviewed the G1 students in his office at separate times during the 16th week to get insight into their experience using the Band application for homework. Seven students did not appear for an interview. A total of 20 students were interviewed for 3 to 5 minutes each. Three interview questions, adapted from the guidelines for writing successful interview protocols of Jacob and Furgerson (2012), were as follows:

1. Choose one word to describe how you feel about doing homework with Band.
2. Tell us why you selected the word to describe your feelings about doing homework with Band.
3. Is there anything else that you would like to share with us about using Band for homework?

These questions were open-ended so as to be able to elicit meaningful answers from students expressing their own feelings. The questions were arranged in increasing order of difficulty to allow the researchers to "slowly build confidence and trust with the interviewee" (Jacob & Furgerson, 2012, p. 4) and alleviate student anxiety, which might have had a negative influence on the quality of responses. After the interviews, the researchers categorized student responses into groups by identifying and combining similar phrases and sentences that conveyed students' feelings and experiences.

Results

Student Test Scores

The *t* tests performed on pretest results revealed that the difference in reading comprehension ability between the two groups prior to the treatment was not statistically significant. On the posttest, G1 students did not perform significantly better than G2 students as the alpha level was greater than 0.05.

Table 1. Summary of Test Scores

Group	n	Week1		Week 15	
		SD	M	SD	M
G1	27	4.34	57.78	4.44	78.77
G2	14	4.50	52.84	4.41	72.14
		<i>p</i> = .3142		<i>p</i> = .1811	

Note. *p* < alpha level of 0.05 declares significant; G1 = experimental group; G2 = control group.

Questionnaire Responses

As shown in Table 3, students' responses to the Likert-scale statements indicated that 55.56% of the students in G1 found homework interesting, which was 27% higher than the students in G2 who were not using the Band application (28.57%). Approximately 67% of G1 students reported that they completed 100% of their homework. Slightly more than half of the class either agreed or strongly agreed that homework made them think extensively about the course content between class meetings (85.18%) and that they completed their assigned homework more than once a week (40.74%). Overall, the responses indicated that a greater percentage of G1 students who did homework using Band also thought that homework was an interesting, beneficial activity.

Table 2. Perception Survey Results

Statement	Group	Week		Likert-scale response, %				
		1	15	SD	D	N	A	SA
I found homework interesting.	G1	2.78	3.63 ^b	0	11.11	33.33	37.04	18.52
	G2	3.00	2.86	7.14	28.57	35.71	28.57	0
I completed 100% of my homework.	G1	3.11	3.67 ^b	0	22.22	11.11	44.44	22.22
	G2	2.93	2.71	21.43	7.14	50.00	21.43	0
Homework made me think extensively about the content of lessons.	G1	3.11	4.04 ^b	0	3.70	11.11	62.96	22.22
	G2	3.14	3.21	0	14.29	57.14	21.43	7.14
I approached my homework twice or more between class periods.	G1	2.78	3.41 ^b	3.70	0	55.56	33.33	7.41
	G2	2.21	2.50	14.29	57.14	35.71	14.29	0

Note. ^b = used Band; G1 = experimental group (n = 27); G2 = control group (n = 14); SD = *strongly disagree*; D = *disagree*; N = *neutral*; A = *agree*; SA = *strongly agree*.

Interview Responses

Analysis of interview data revealed the following themes relating to the use of Band among the students: satisfaction and excitement, community, challenges using Band, and suggestions (see Table 3). Students' feelings about the use of Band for homework were generally positive though there were some criticisms.

Table 3. Responses of the Experimental Group (G1)

Theme	Theme description	Example of student responses
1. Satisfaction and excitement	Shared information with peers; easy and fun to complete homework using Band	"I shared and learned about world problems at a time good for me."
2. Community	Developed network among classmates and the teacher	"It was a place to connect everyone in class."
3. Challenges using Band	Difficult to sign up for the Band of the course	"It was not easy to join the class group."
4. Suggestions	Wanted to use it again	"We should do more activities with Band."

Theme #1 Satisfaction and Excitement

Students reported that the features of Band were fun and easy to use. Examples of comments include "Band was easy to understand and use," "It was fun. I liked the emoticons and stickers," and "There were no advertisements on Band." In addition, students said they valued being able to share and learn about world problems when they had access to their smartphone, specifically: "I shared and learned about world problems at a time good for me," "It was good for asking and getting answers about the reading," and "I took a photo of the reading with my phone so I did not need a hard copy. When I finished reading, I used the app to complete my homework."

Theme #2 Community

Several students reported that using Band allowed them to stay connected with classmates and the teacher outside of class. Examples of comments are as follows: "Band helped us organize as a team," "I stayed logged in all the time and kept up with posts," "It

was a place to connect everyone in class," and "I joined a community to text questions and answers about what I had read."

Theme #3 Challenges Using Band

One student expressed uneasy feelings about joining the Band group on the first day of class. He explained, "It was not easy to join the class group on Band. The tab for 'check invite' was not on the main window." Another student said he felt annoyed at receiving notifications of new posts from Band. Furthermore, two students reported that they were confused when they used Band. The first student complained about a bar at the bottom of the class page. He did not know what he could do with it until he asked a classmate for help. The second student signed up for Band and verified his email address, but he was not in the class group when he opened the app. He later found that he had to enter an invite code so he could join the class Band group.

Theme #4 Suggestions

Two students enjoyed doing homework on Band and suggested that the teacher should incorporate Band into more activities. One of the students said, "I think we should do more activities with Band. For example, we can share our opinions on different topics."

Discussion

The use of Band in conjunction with homework did not lead to statistically better posttest scores ($p > .05$) for G1, although the mean of this group (78.77%) was higher than that of the other group (72.14%). In other words, both groups improved their reading ability to the same level, whether they used Band or not. However, both groups did a follow-up review activity in the classroom. That activity used student-generated homework questions and answers that focused on most or all parts of each reading passage. Hence, G2 might have had enough exposure to the reading to be able to fill in the gaps in their knowledge and understanding.

The survey results showed that G1 expressed greater satisfaction with homework. This finding is consistent with previous research (Wooten & Dillard-Eggers, 2013), which found that the percentage of students with online homework who rated their experience positively was higher than that of students using paper homework. One student explained that "Band was an easy and smooth way to communicate with classmates." The simple interface design drew students' attention to the board, the arguably most important feature where postings and comments are posted and bordered by lines;

other features are presented as icons at the bottom of the screen. Also, the chronological arrangement of postings with the newest on top helps students to quickly learn about their classmates' ideas.

It was also found that G1 students reported doing homework more regularly than did G2 students. A greater percentage of G1 students reported that they completed all of the homework and did the tasks at least twice a week. As Band offered a private online space for only the students and the teacher to stay connected at all times with their smartphones, students knew that their questions and comments would be seen by their peers and the teacher and they would also be able to see more examples of that week's assignment.

Results of the interview with the students and personal observations showed that homework in conjunction with Band provided elements that teachers and students want from homework: purpose, efficiency, ownership, competence, and aesthetic appeal. First, homework improved students' understanding of the reading passages assigned. Second, students did homework efficiently with a smartphone that fit into a pocket and provided easy access to Band, and the teacher simultaneously kept track of student posts and left comments directly from his device. Equally important, the use of the questions that were created by students and then included as a part of the smartphone community activity promoted learning and interest in the reading passage. In addition, students felt good about completing homework. Finally, the visual element of Band evoked students' emotions and affected their responses.

For students to use Band responsibly, it is necessary for teachers to provide a set of guidelines beforehand. Teachers should discuss with their students the issues involved in using technology. First, students need to know it is not acceptable to intentionally harm other people online. They are connected with others to work together to improve their English. Second, students must be taught to protect their identity by maintaining appropriate security on their smartphones and asking questions before deciding to share personal information.

It is important to note that a limitation of this study was the relatively small sample size. For this reason, the findings cannot be generalized to other students in other contexts. Another limitation was the question types of the posttest. The students had practiced making and answering short-answer questions for homework so they became more familiar with the short-answer questions than with multiple-choice questions. Their lack of experience with the multiple-choice format may, in turn, have affected the accuracy of the test results.

Conclusion

Based on student perceptions, we suggest that the use of a mobile community forum has a positive impact on student engagement and homework completion. With Band, students learn in a way they feel comfortable with while approaching homework efficiently in a socially aware manner. Also, teachers can easily manage students' homework and check their understanding of the work assigned so as to adapt instruction in the next lesson. For both students and teachers, the smartphone method is superior to the paper method for completing simple homework.

Bio Data

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