

Supporting students' participation in collaborative activities via the development of new approaches to teaching

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Abstract

This study examined English classroom environments with active learning methods in Japanese high schools. Students learned English using a paper-based quiz during group discussions. We administered a questionnaire to the students, and the results indicated that 45% of the students would like to use information and communication technology (ICT) tools such as computers and tablets to study English in a classroom. Therefore, we propose active learning methods with ICT tools to enhance creativity, problem solving ability, and knowledge during student activities in group discussions using Google Applications.

Keywords: learning english; high school students; active learning; information and communication technology tools; Google Applications

Introduction

In 2008, the Japanese Ministry of Education, Science and Culture announced that English would be introduced in elementary schools as a regular class for fifth and sixth graders. English is taught as a compulsory second language subject in Japanese junior high schools and high schools. English teachers in Japanese junior high schools and high schools teach English by writing on a blackboard, and most English classes tend to consist of passive learning. Passive learning is prevalent in traditional teaching, where a teacher is the only source of knowledge, and involves lecture style instruction, which is considered to be less effective in cultivating communication skills.

In the 21st century, English education will embed information and communication technology (ICT) in academia as well as active learning in student activities in a classroom. In this study, a quiz method during group discussions was implemented in a Japanese high school in the Fukuoka Prefecture as a student activity in an English class. The results suggest that active learning methods that embed ICT tools into student activities in a classroom can be effective. Technology can be used as a tool to aid students in their active learning. Active learning involves providing opportunities for students to talk, listen, write, read, and reflect meaningfully on the content, ideas, issues, and concerns of an academic subject¹. Several activities to

aid student learning can be performed in a classroom; these activities are listed as follows.

Group discussions

Students who participate and contribute in group discussions take time to develop their ideas and are influenced by their previous experience in a subject and their level of personal and intellectual maturity. Students can solve their subject problem with other students and expand their knowledge during a group discussion. Students who participate in and contribute to group discussions can learn and be influenced by their peers' knowledge and previous experience in a subject. By working together, they can also solve problems within their group. In addition, these students can increase their personal knowledge of not only the subject discussed but also other topics.

Quizzes

Quizzes can be used in group discussions to create conversations. Quizzes can be conducted by students who create questions to ask other students in their group. They can then evaluate and discuss the answers together in their group.

The remainder of this paper is organized as follows. Section 2 discusses our proposal to use ICT tools in student group activities. Section 3 discusses the English class active learning method. In Section 4, an experiment for a group work discussion using a paper-based test is presented because computer resources in a classroom were limited. Sections 5 discuss the results of the experiment, and Section 6 presents our conclusions.

Proposal to use ICT tools in group work

In recent decades, increasing numbers of new ICT tools have been developed for collaborative technology, including online applications to enhance collaboration². The effectiveness of online applications has been evaluated for diverse disciplines, including foreign languages³ and education⁴. Of the newly developed online applications, Google Docs and Google Form are especially promising tools for collaboration⁵. Google Docs is more enjoyable to use than Microsoft Word. It is also useful and interesting for users to edit papers and write paragraphs. Students can write longer essays and write collaboratively more sufficiently with Google Docs than with Microsoft Word⁶. Google Forms is an extension of the Google Spreadsheets

application. It allows users to quickly create a web-based form, such as a survey, and deliver it via the web. Google Forms can be shared with others for collaborative purposes not only for creating and editing forms, but also for reviewing the survey responses. In higher education, many educators have begun to explore the educational merits of Google Docs and Google Forms⁷.

Many benefits of using Google Docs and Google Forms are apparent because students show enriched learning experiences for such assignments compared to assignments without Google Docs and Google Forms. In addition,

introducing Google Docs and Google Forms changes the means by which students communicate during group discussions⁸. Google applications, such as Google Forms and Google Docs, have been studied by multiple researchers. This study suggests that Google Docs and Google Forms methods are more suitable than conventional methods for student activities in group discussions because they enhance creativity, peer assessment, problem solving, and extend knowledge (Figure 1).

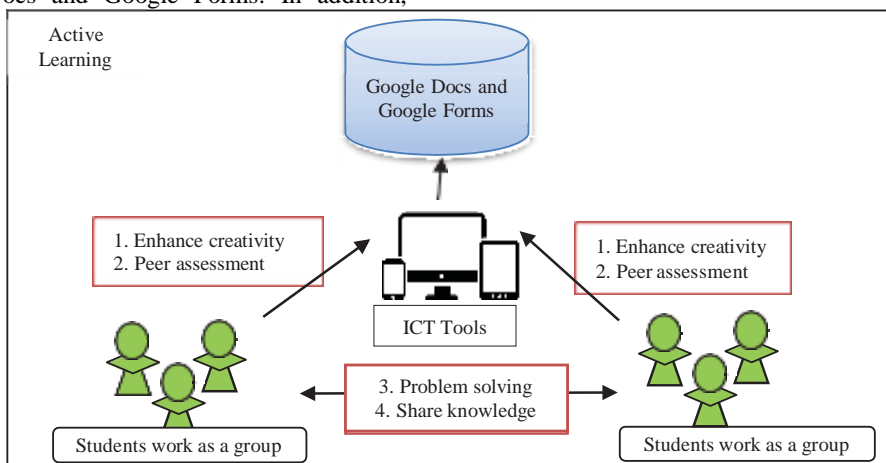


Fig. 1. Model diagram of student group activities with Google Docs and Google Forms

(1) Enhancing creativity in group discussions

During group discussions, students work in groups to complete projects such as creating quizzes and completing assignments. The contents of these projects can be provided via pictures, audio, or movies. Students can work together in groups while using the Internet and ICT tools (such as laptops, mobile phones, and tablets), which let students communicate via chat rooms and edit their projects together in real time. During the project, students can complete tasks using Google Docs and use Google Forms to make quizzes. In group discussions using Google Forms and Google Docs, students can share their ideas, knowledge, and opinions with each other, which enhances their creativity.

(2) Peer assessments

Students can evaluate their peers using Google Forms in real time. For example, students can undergo active learning by creating a quiz in Google Forms together with other students collaborating in real time. After they have finished creating their quiz, students can share the quiz link with another group via email, chat rooms, or social media. Students can create assignments in document format using Google Docs.

(3) Problem solving with Google Docs and Google Forms

Google Docs and Google Forms can be used for student activities to solve problems in real time by communicating directly with other students. Students can share the quiz form with another group member and can send their Google Docs and Google Forms via email, links, and embed html, as well as sharing in Google+, Facebook, and twitter.

(4) Sharing knowledge

When students work together in a group, they can share their knowledge with each other and group members using chat rooms in the Google Application.

1. The English class active learning method

1.1 Problem solving for English learning in a Japanese high school

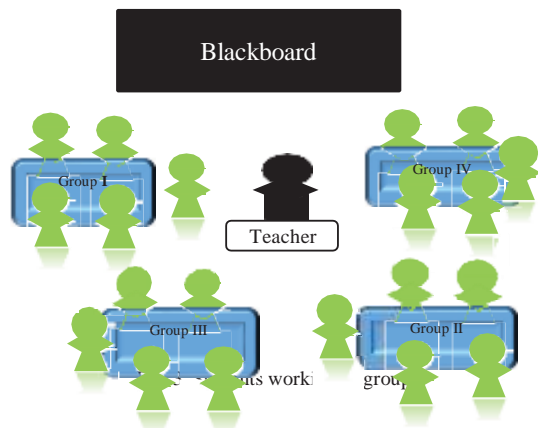
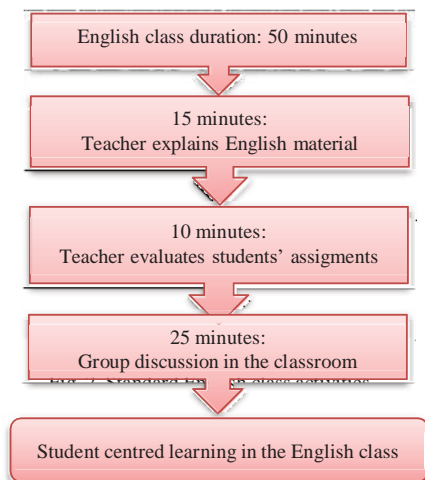
Based on observations in Japanese high schools, each 50-min English class is divided into (Figure 2):

- 15 minutes for the teacher to explain the English material using a projector, computer, and/or blackboard;
- 10 minutes for the teacher to evaluate the student assignments with the students working in pairs; and
- 25 minutes for group discussions.

1.2 Active learning quiz method in the group discussion

The active learning method in this experiment in the English class involved a paper-based quiz during the group discussion. A paper-based quiz method was used because there was only one laptop and one projector in the class is described in Figure 4.

classroom and the Internet connection could only be used by the instructor. Figure 3 shows how the group work method was adapted to the English class. Based on the class size, the teacher divided the students into groups, with each group consisting of four to six students. The teacher then instructed all group members to create one question each (4–6 questions in each group) and to write their questions down on a piece of paper in English. This paper was then passed to another group who answered the questions, also in English. The original group then reviewed and analyzed the answers to their questions. Students reviewed their peers by correcting and scoring their peers' papers. As a result, students received peer review results, participated in group discussions, solved a problem, and received and shared knowledge from and with other students. The group discussion active learning quiz method in the English



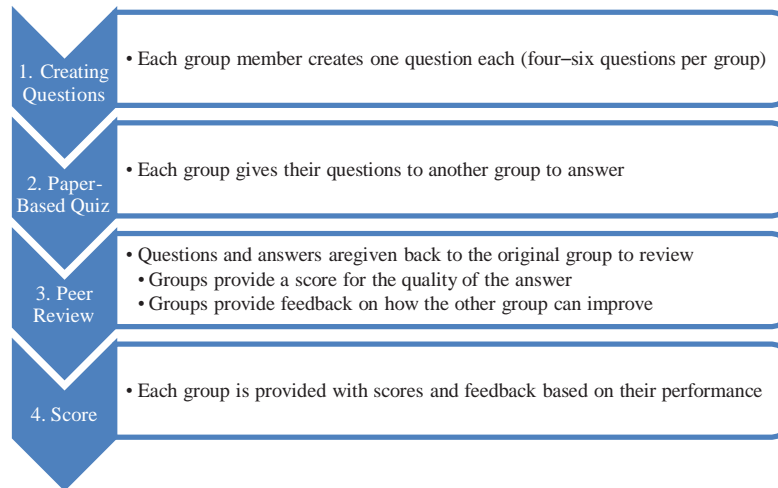


Fig. 4. Active learning with the quiz method in group work.

2. The experiment

The experiment was designed to examine the method described in Sections 3.1 and 3.2. This experiment was conducted in a first year class of a Japanese high school in the Fukuoka Prefecture. Active learning was conducted in the English class with the aim of making the students active in the classroom so that they could share knowledge and personal opinions.

- Participants

The class consisted of 33 first year Japanese high school students studying English. All students were 16 years old, with students identifying their gender as follows: 16 females, 16 males, and 1 non-answer.

- English curriculum in Japanese high schools

In this Japanese high school, the English course is divided into two parts: English Communication three times a week and English Expression two times a week. The duration of each English class is 50 minutes, where each class is conducted in both English and Japanese. The Japanese academic calendar is divided into three semesters, each of which is four months in length.

- The English classroom environment

The classroom was fairly typical and was equipped with a projector, a network computer, an audio system, and a blackboard. The teacher in the English class taught English using the projector and blackboard to explain the material.

The teacher implemented the active learning method involving group discussions and quizzes, as explained in Section 3.2.

- Data analysis methods

The active learning method was used in the questionnaires, and quantitative data were collected. The quantitative data were converted into percentages, and response categories were combined where appropriate.

3. Results and Discussion

The students’ perceptions were gathered via a questionnaire. Quantitative data from the questionnaires are fully reported in Tables 1 and 2. Table 1 shows the students’ perception of their English class based on a questionnaire with short answer type questions. Many answers were the same among the students and different answers were collected.

Table 1. The results of the short answer questionnaire.

No	Questions	Students Feedback
1	Please tell me about your English teacher’s teaching method in the classroom.	<ul style="list-style-type: none"> • The teacher uses the blackboard, computer, and projector to conduct the English class. • The teacher reads English words out loud and students repeat the words two times in the classroom. • The teacher evaluates the students’ assignments. • The teacher conducts the class in the English language.
2	Do you have any ideas to make the English class environment more fun and exciting?	<ul style="list-style-type: none"> • Discuss topics with friends in group activities. • Speak English with a foreigner. • Use computers, laptops, and the Internet in group activities.
3	What kind of English classes do you want to take?	<ul style="list-style-type: none"> • English classes that are enjoyable and fun. • English classes that have group activities and active learning. • English classes that are easy to understand. • Every student speaks English in the classroom. • English classes that are interesting. • Students want to give feedback, such as opinions and comments, concerning the teacher’s explanations.

From Table 1, we see that the English teacher’s teaching methods include using the blackboard, computer, and projector to conduct the class. For practice speaking the English language, the teacher reads English words out loud and asks the students to repeat the words twice. The teacher gives students take-home assignments and evaluates the assignments during the next class. The English teacher sometimes conducts class in simple English because students cannot understand more difficult English words. In the second question, we asked students their opinion about ways to make class more exciting and fun. Many students answered that they wanted to have group activities with their friends, to speak English with foreigners, and to use ICT tools, such as computers, laptops, and the Internet, during group activities. The third question concerned the English classes they wanted to take. Students want to take enjoyable, interesting, and fun English classes, classes including group activities, classes that involved easy-to-understand English materials, and students want to communicate with the

teacher to discuss classes and how they could be improved. The questionnaire was written in English. Fifteen questions were asked with the choices for answers being: “yes,” “average,” and “no.” We calculated the results of each question as a percentage of the total number of answers. Table 2 shows the results of the students’ responses to the questionnaire that was distributed after the group discussion, the quiz activity. The percentage of students who answered “average” to liking quiz activities in English class was 51%. The percentage of students who did not use ICT tools in their English class was 76%. The percentage of students who answered “yes” that they would prefer to study English using group discussions was 48%, and the percentage who said “yes” that they would prefer to do assignments as groups (as opposed to individual assignments) was 67%. In addition, students who answered “yes” that they would like to use ICT tools such as a computer or tablet to study English in the classroom was 45%

Table 2. Questionnaire results after the student group quiz activity.

No	Question	Yes	Average	No
1	Do you feel happy in English class?	64%	30%	6%
2	Do you feel bored in English class?	6%	18%	76%
3	Do you like the teacher's teaching method in the classroom?	58%	42%	0%
4	Do you use technology tools (such as computers, tablets, or laptops) in the classroom?	9%	15%	76%
5	Do you like to study using group discussions in English class?	48%	46%	6%
6	Do you like it better when the teacher gives assignments in groups rather than as individuals?	67%	24%	9%
7	Would you like to use a computer or tablet to help you study English in the classroom?	45%	36%	18%
8	Do you like quiz activities in English class?	40%	51%	9%
9	Do you like the teacher to explain English only using the blackboard?	18%	61%	21%
10	Are you shy when speaking English?	9%	51%	40%
11	Do you understand what your teacher says in English during class?	36%	58%	6%
12	Should all classrooms have a projector, computer, and an Internet connection?	37%	33%	30%
13	Do you find difficult words in the English textbook?	46%	45%	9%
14	Is it difficult for you to memorize English words and phrases?	40%	51%	9%
15	Did you get good scores on English examinations (such as the mid-term and final examinations)?	12%	67%	21%

There are limitations to this English study because Japanese high schools often lack adequate technology tools, i.e., they have a limited number of computers or do not provide an Internet connection in the classroom. In the classroom used in this study, there was only one laptop, one projector, and a LAN cable for Internet connection that could only be used by the English teacher. This study examined the effect of active learning methods in the English class based on quizzes on paper in the group discussion. In our experiment, students learned English with a paper-based quiz during group discussions. Table 1 indicates that some students want to discuss topics with friends in group activities using computers, laptops, and the Internet in the group activity, and Table 2 shows the results from the questionnaire after the group activity. Based on the result where the students answered that they would like to use ICTtools in group discussions, quiz activities can be embedded for student group activities using Google Docs and Google Forms to enhance creativity in the group discussion, peer assessment, and problem solving and to share

knowledge in real time.

Conclusions

The Japanese Ministry of Education, Science and Culture has announced that English is to be taught as a compulsory second language subject in Japanese junior high schools and high schools. English teachers in Japanese junior high schools and high schools teach English by writing on a blackboard, and most English classes tend to consist of passive learning. Currently, Japanese high schools are being adapted to include the active learning method, which has been studied by multiple researchers. In this study, we implemented an active learning method via a paper-

based quiz based on the English class environment. In the classroom, the ICT tools were limited such that there was one laptop, one projector, and an Internet connection that could be used only by the teacher. The results of the experimental English study in the Japanese high school were examined via a questionnaire. The results of the questionnaire indicated that students would prefer to do assignments as groups (as opposed to as individuals) and would like to use ICT tools such as computers and tablets to study English in the classroom.

In the future, Japanese high schools will provide computers and Internet connections in the classroom and will implement active learning with ICT tools to enhance group work and allow students to share their knowledge and opinions in group activities in the classroom. Today, many online applications have been developed such as Google Applications. We propose embedding active learning methods such as the quiz activity in group work using Google Applications. There are many functions in Google Applications that can enhance students' creativity when making quizzes and completing assignments in English class, e.g., students can do peer assessments in real time, students can solve problems in real time by communicating in real time, and students can share knowledge with each other and with group members.

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