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Discussion Course Model Using Online Educational Resources to Enhance EFL Learners' Motivation and Critical Thinking

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Abstract: This paper concerns the implementation and utilization of online educational resources (OERs) in a course model that aims to enhance Japanese EFL learners' motivation and critical thinking. The course model incorporates components of OERs, flipped teaching, OER learning support systems, and digital storytelling. Following a four-week project, the course model was found to have influenced students' motivation and critical thinking.

Keywords: Online educational resource (OER), flipped classroom, OER learning support system, digital storytelling, critical thinking, motivation

1. Introduction

There is general agreement among foreign-language researchers and instructors that course models should meet the requirements of "vigorously changing societies" in the twenty-first century (Chan, 2010; Kong, 2014; Gut, 2011). To achieve this goal, foreign-language courses must develop information literacy and critical thinking skills, along with communicative proficiency, in the target foreign language. The growth of digital culture in the twenty-first century drives both instructors and students to use online educational resources (OERs). Despite the challenges of controlling difficulty levels, instructors have shown increasing interest in new, authentic Creative Commons–licensed video content such as TED Talks, YouTube, and so on. The study reported in this paper focused on a flipped discussion course for Japanese university students using a supporting system to help students work with game-based vocabulary learning through OERs, equipped with automatic quiz generation and learning portfolios. On the basis of a four-week pilot experiment, we conclude that the course model—still in progress—can enhance learners' motivation and critical thinking.

2. Background

2.1 Online Educational Resources (OERs) as Teaching Materials

Following the long history of the "open movement" for educational resources (Nakajima & Ono, 2014; Ono & Nakajima, 2014), massive open online courses (MOOCs) and online educational resources (OERs) have been adopted worldwide (Allen & Seaman, 2014). Among the top 100 universities, 81 initiated their own MOOCs in 2015 (Shigeta, Sakai, Tsuji, Inaba, & Hiraoka, 2016), suggesting that MOOCs have become standardized educational resources. On the other hand, OER use is not quite as widespread. Allen and Seaman (2014) note that in the United States in 2014 only half of higher education institutions were working to actively use OERs. There are several reasons why OERs have not been extensively utilized thus far.

Three aspects should be considered in order to capture the characteristics of OERs for use in foreign-language teaching: (i) authenticity, (ii) diversity, and (iii) multimodality. Regarding (i), most will agree that the materials should be authentic. However, topics that are too highly contextualized and

specific might reduce students' motivation to learn something new. Similarly, students can learn the various complexities of linguistic forms or the diversity of English as indicated by (ii). However, it might be difficult for beginners or those who are not interested in the topic to obtain complex linguistic knowledge. Regarding (iii), instructors are willing to employ videos available online. For example, TED Talks have become popular online resources for discussion or debate tasks in Japanese secondary-school foreign-language courses. TED videos are direct examples of presentation models used as teaching materials and visual aids for learning authentic English and other linguistic aspects. Ono, Nakajima and Ishihara (2017) argues for the merits of diversity of OER in terms of students' self-study based on their interest by observing how students choose the TED videos.

2.2 Digital Literacy and Critical Thinking

Information literacy and critical thinking are two important skills to possess in the twenty-first century (Kong, 2014; Gut, 2011). Processes specific to information literacy include gathering, synthesizing, analyzing, interpreting, and evaluating information (Kong, 2007; Price, Becker, Clark, & Collins, 2011). Collecting OERs on a single topic leads students to perform these processes to create and construct new knowledge.

Critical thinking is the ability to think reflectively and make skillful judgments about what information is reliable and what actions should be taken (Ennis, 2002). This paper largely adopts Hirayama and Kusumi's (2004) formulation of critical thinking in relation to Japanese students. According to their quantitative research, critical thinking comprises four subcategories: (i) awareness of logical thinking, (ii) inquisitiveness, (iii) objectiveness, and (iv) evidence-based judgement. In addition, Hirayama and Kusumi (2004) claim that belief bias negatively affects learners' ability to draw logical conclusions. However, more "inquisitive" students are able to escape belief bias.

2.3 Learning Support System

The learning environment in this study utilized the learning management and support system YouTutors (Nakajima & Ono, 2014; Ono, Nakajima & Ishihara, 2017). The system starts with an automatic quiz generator (AQG), which allows instructors to save time developing online quiz modules for vocabulary. The instructor simply has to copy the URL of a TED Talk and paste it into the box in the interface. After receiving feedback from users and students, we made some important modifications: (i) a more user-friendly interface, (ii) learning management system (LMS) functions such as class management and portfolios, (iii) more gamification factors, and (iv) learning-behavior visualization. The system is able to connect to an online dictionary. Ono and Nakajima (2017) quantitatively and qualitatively examined YouTutors' effect on learners' motivation. Our revised system interface is shown in Figure 1.

The game mode adopted here is a "fill-in-the-blank" mode, which we can also call a "typing" mode. In this game, users listen to a video and type the words they hear. The first version had two other distinct modes; however, we will skip these because they are not relevant to our research goal. Figure 2 shows a screenshot of the typing mode.

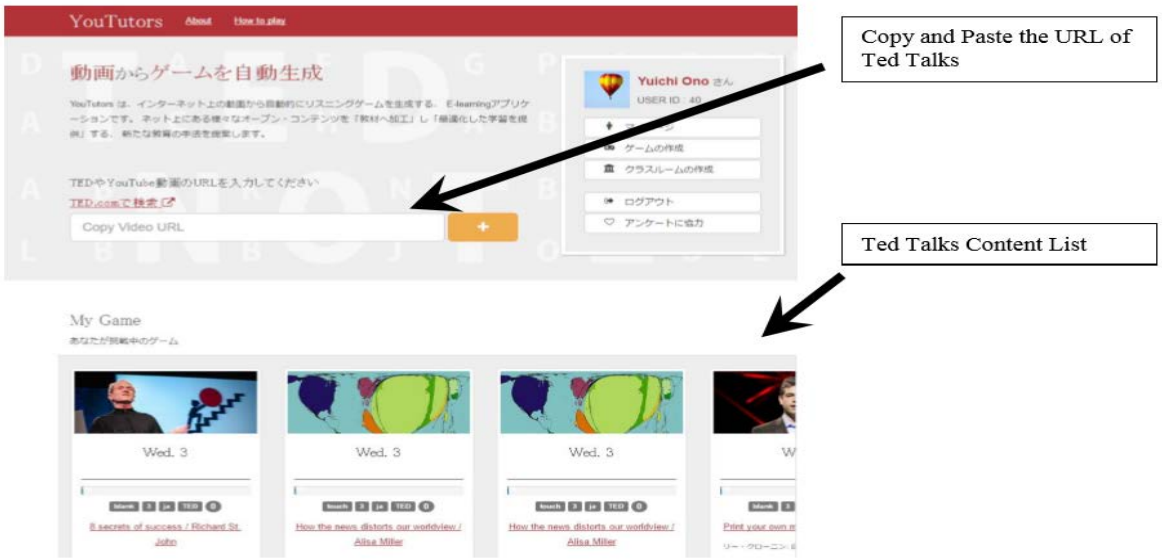

Figure 1. Screenshots of the First Page of YouTutors.

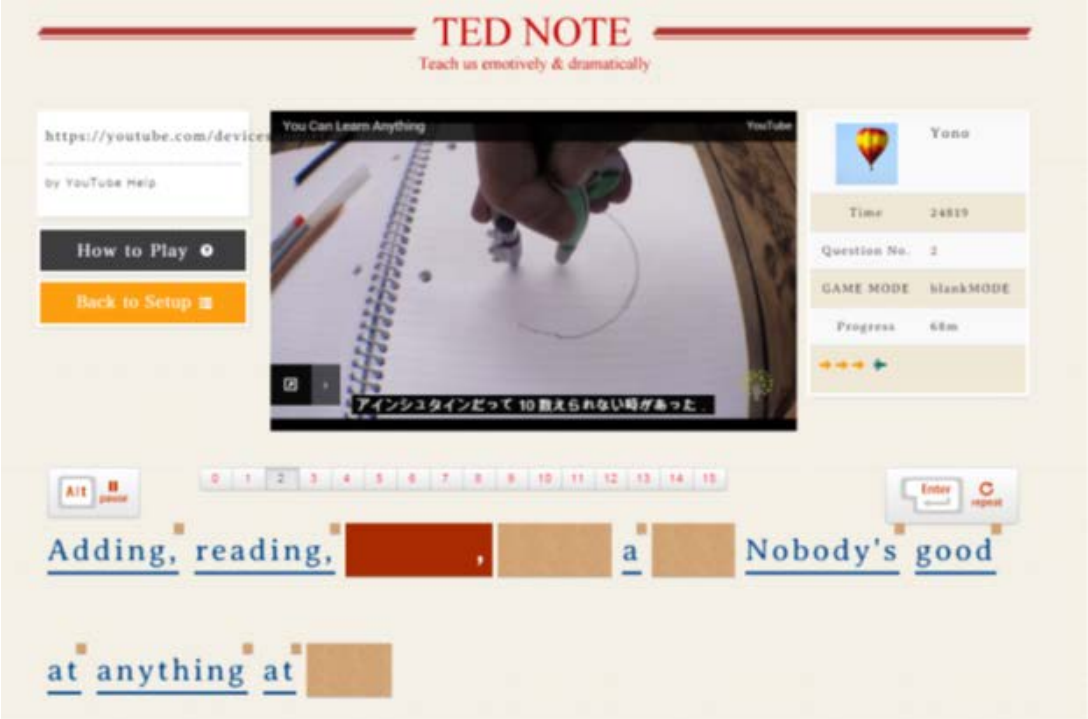

Figure 2. Game Interface.

2.4 Course Design

The course design is composed of the following components: (i) flipped classroom, (ii) jigsaw-based discussion, and (iii) digital storytelling (DST).

2.5 Flipped Classroom

The flipped classroom model is a pedagogical approach to blended learning in which the traditional model of classroom lecture followed by homework is reversed and often supplemented by instructional videos (Garrison & Vaughan, 2008; Khan, 2012; Tucker, 2012). In our course model, instead of conducting traditional face-to-face lectures in the classroom, instructors select ready-made OERs, or educational videos on the Web (e.g., Kahn Academy, TED Talks, iTunes U, YouTubeEDU). In the

actual lecture, the instructor acts as a facilitator for students, who engage in various problem-solving activities that require them to apply the knowledge they acquired by completing their homework. This approach facilitates a more efficient use of class time in which the classroom is more "active" and "communicative."

2.6 Jigsaw-Based Discussion

Jigsaw-based discussion is a cooperative learning strategy. The content of the lesson is subdivided into different pieces of information. Then, it is given to groups of students who explain their respective pieces to each other, thus completing the jigsaw puzzle (Aronson & Patnoe, 1997). Figure 3 shows our teaching model in which the subtopics are given as questions about information from the text.

In the first step, students form "expert" groups in which they focus on one subtopic or question, and then research and discuss it. The students become "experts" on their assigned subtopic or question. Then, the students from all of the "expert" groups form a new group to teach their peers based on their findings and discussions. Eventually, all members of the groups will have learned from each expert group discussion, obtaining mutual benefits.

Figure 3. Jigsaw-Based Discussion.

2.7 Digital Storytelling (DST)

The main effects of DST are illustrated in various contexts. Previous studies of DST suggest that creating digital stories can promote cognitive development, self-authoring, and identity construction (Davis, 2004; Sadik, 2008). Other merits of DST include enhancing technical skills, engaging students, and sharpening critical thinking skills (Castañeda, 2013; Sadik, 2008). For teachers, they can easily assess students' progress toward learning goals since their work is constantly recorded and reflected in every process of learning (Ono, 2014). L2 writing and multiple speech-draft recording tasks involving DST enhance learners' awareness of linguistic skills, especially writing and speaking skills (Castañeda & Rodríguez-González, 2011). Ono (2014) noted that DST reduces speaking anxiety for less confident EFL learners since they can avoid standing in front of people face-to-face by using presentation software. Ono (2014) also suggested that for high-level learners willing to speak in public, DST enhances project-based-learning (PBL) skills such as computer use and searching (computer skills); collecting, sorting, and analyzing information (information literacy); and problem-solving and critical thinking skills (academic thinking).

2.8 Course Model

Figure 4 shows the course model integrating the three abovementioned components. The flipped discussion class was conducted for three weeks (weeks 1-3). Each week, students were required to study TED Talks with YouTutors. In this project, the topic was nuclear power. The first week focused

on TED Talk presentations on the dangers of nuclear power. Then, during the second week, students studied TED Talks arguing for the positive aspects of nuclear power. During week three, the students watched any clips of TED Talks that supported their own opinions. Finally, in the fourth week, after gathering, synthesizing, analyzing, interpreting, and evaluating the information obtained through flipped discussion, students created videos presenting their opinions. During the discussion sessions in weeks 1-3, several foreign students joined the groups to facilitate the discussion.

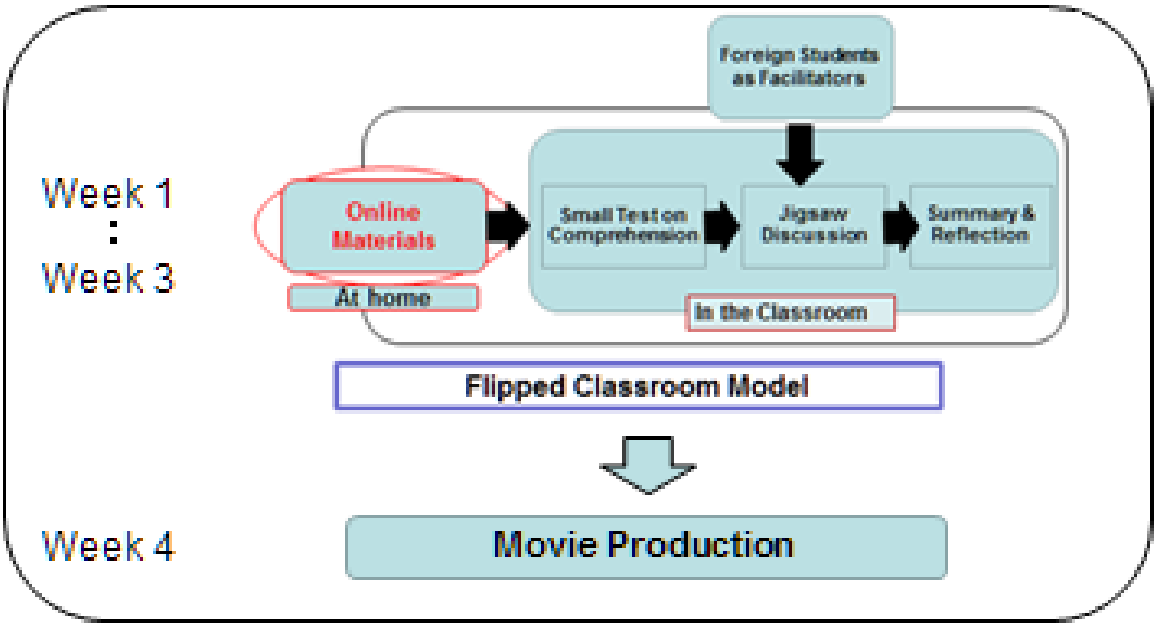

Figure 4. Course Flow.

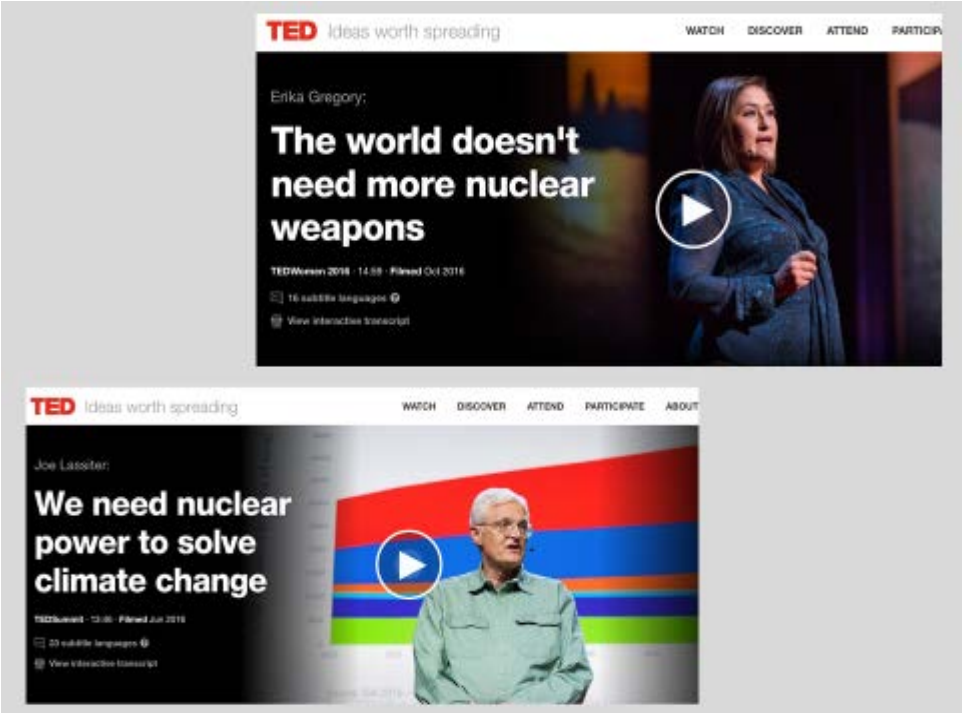

Figure 5. TED Talk Videos for Week 1 and Week 2.

3. Study

3.1 Research Question

This study aimed to evaluate the implementation of a four-week course in terms of students' motivation and critical thinking. Specifically, we attempted to answer the following research questions through pretest- and posttest-designed mixed research:

RQ1: Does the course model involving OER, flipped discussion, and DST have an effect on students' motivation?
RQ2: Does the course model involving OER, flipped discussion, and DST have an effect on students' critical thinking?
RQ3: How do students evaluate the use of OER, YouTutors, jigsaw discussion, and DST?

3.2 Participants

Forty first-year university students in Japan participated in the study (male: 16; female: 24). Since the class was created based on the results of TOEFL placement tests, the proficiency levels among the participants were controlled.

3.3 Procedure

Regarding RQ1 and RQ2, questionnaires were used before and after the project. For RQ3, a postsurvey was conducted using open-ended questions. Regarding learners' motivation, we adopted the ARCS model (Keller, 2010), which holds that that learner motivation can be analyzed in terms of four independent aspects: attention, relevance, confidence, and satisfaction. The Instructional Materials Motivational Survey (IMMS) was used as the questionnaire scale (Huang & Yoo, 2010; Keller, 2010). It consists of 36 items on a five-point Likert scale, divided into four basic components. For RQ2, we used the Critical Thinking Disposition Scale for Japanese Students (Hirayama & Kusumi, 2004). This scale has 33 questions in the following four categories: awareness of logical thinking, inquisitiveness, objectiveness, and evidence-based judgment. Average scores were compared using a *t*-test.

3.4 Results

For the motivational survey, the following results were obtained, as shown in Table 1.

Table 1: Means, standard deviations, and *t*-tests for the motivational survey.

	Pre-test		Post-test			
	M	SD	M	SD	t-test	
Attention	2.99	0.32	3.17	0.27	-3.567**	t(36)
Relevance	2.65	0.30	2.82	0.31	-2.333**	t(36)
Confidence	2.73	0.45	3.06	0.62	-2.542**	t(36)
Satisfaction	3.27	0.45	4.23	0.22	-21.412***	t(36)

Note: ***p < 0.001; **p < 0.01.

It can be observed in Table 1 that the students improved their awareness of motivation to some degree. Among the four motivational components, "satisfaction" significantly improved with an average score higher than 4.0.

Next, we will look at the results of the critical thinking survey (Table 2).

Table 2: Means, standard deviations, and *t*-tests for critical thinking dispositions.

	Pre-test		Post-test			
	M	SD	M	SD	t-test	
Awareness of logical thinking	2.86	0.38	3.33	0.33	-6.447***	t(36)
Inquisitiveness	3.74	0.57	4.45	0.47	-7.195***	t(36)
Objectiveness	3.11	0.45	3.66	0.39	-6.020***	t(36)
Evidence-based judgement	3.27	0.78	3.61	0.81	-2.140**	t(36)

Note: ***p < 0.001; **p < 0.01.

Table 2 shows improvement in the values for all four categories. Among them, "inquisitiveness" showed a significantly high score of 4.45.

Regarding RQ3, participants were asked to write freely about each component of the course. Most participants wrote positive remarks about each component (e.g., "The task was useful"). Table 3 shows common feedback for each component.

Table 3: Common feedback comments.

Component	Comments
Ted Talks	Very difficult to understand/ Japanese translation was helpful/ The presenter speaks so fast/ 15-minute movie is too long to work on …
YouTutors	Very interesting/ Dictionary function is very useful/ Visualization is amazing/ I couldn't get connected to the YouTutors from home/ Sometimes it does not run smoothly…
Jigsaw Discussion	It was fun to listen to other students' opinions/ It was very difficult for me to prepare what to speak in the discussion/ Too short to complete discussion about all the questions…
DST	Time-consuming/ It was exciting/ I practiced speaking again and again/ Fun to watch other students' movies…

4. Discussion

The results for RQ1 and RQ2 suggest that the proposed course model influenced learners' motivation and critical thinking. A closer look at Table 1 shows that the score for "satisfaction" was very high while "attention" was over the median. This indicates that good implications are drawn from the ARCS model since these two components are crucial for continuing the cycle in the motivational process.

Regarding critical thinking, we observed that the score for "inquisitiveness" was very high. According to Hirayama and Kusumi (2004), belief bias hinders students from drawing proper logical conclusions. However, more "inquisitive" students can overcome belief bias. The data shown in Table 2 indicate positive consequences for critical thinking. Needless to say, to make students "inquisitive," instructors need to provide proper topics and questions for discussion.

Importantly, the comments in Table 3 provide a lot of hints for improving the model in the near future. Specifically, the system needs to be modified so students can operate it smoothly and comfortably, since some students found it very difficult to follow the difficult Ted Talks video and it took much longer time to complete the vocabulary task. In addition, students generally had difficulty listening to the scripts in the video material, even though they liked choosing the video. These things seem to suggest that the system needs to be modified so that the gap between the task difficulty and students' proficiency level can be minimized by introducing and incorporating student's learning process data.

5. Conclusion

This study investigated implementing and utilizing online educational resources (OERs) in a course model aiming to enhance Japanese EFL learners' motivation and critical thinking. The results were affirmative, but the open-ended question data indicated that the model requires modification.

This study has limitations in that the sample size was small, and the experiment covered only four weeks. In addition, we need to further consider the nature of the critical thinking skills that might be appearing in students' performances. In conclusion, the course model has room for improvement, and the best-utilized course model should be considered in the future.

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