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Learning English through a Challenge-Based Learning Project during the COVID-19 Pandemic

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Abstract

This study focuses on challenge-based learning (CBL) with native Japanese undergraduates from Waseda University in Tokyo (n=27). The study was implemented from May 2021 to November 2021 using Zoom and the SNS programs Facebook and Line for added support. Pedagogical training focused on helping students find solutions to many world issues in the 21st century, such as SDGs, AI, society, Cross-cultural IQ, and global leadership. In addition, throughout the Zoom online program, training in higher-order thinking skills and oral presentations were emphasized. Finally, survey results disseminated to the student participants (July 2921) are presented. The survey focused on gauging students' opinions about their virtual learning experiences during the COVID-19. Some of the notable survey results included: (1) 92% of students felt the online classes improved their oral production skills; (2) About 80% of students felt that they acquired seven 21st century skills; (3) About 74% of students acquired higher-order thinking skills; and (4) 96% of students felt the interaction with campus crusade for Christ (CCC) members helped them change their worldviews and improve English proficiency. The results indicated that CBL could effectively provide ample opportunities for students to use English regularly and improve their higher-order thinking and oral productions skills even during the COVID-19.

Keywords: higher-order thinking skills, flipped learning, Challenge-based Learning

1. Introduction

The COVID-19 pandemic has significantly impacted all aspects of society, particularly education. As a part of sustaining academic continuity during the pandemic, virtually all institutions and universities have switched from face-to-face classrooms to videoconferencing (Nguyen & Nguyen, 2021). The switch to online learning has resulted in various platforms such as Zoom and YouTube, the main tools used in the present study. Research has shown teachers have exhibited positive opinions toward studying through online education using Zoom. For example, Dau (2022) examined teachers' methods and perceptions of teaching English to

children in Vietnam during COVID-19. According to the results, teachers' three most popular platforms were Zoom, Zalo, and YouTube. Despite some reported challenges, many teachers expressed enthusiasm for remote instruction. Serhan (2020), on the other hand, found that students negatively viewed Zoom use, although flexibility was cited as a significant benefit of using Zoom for education. Obari (2021) found that a combination of blended learning, such as hybrid learning with Zoom virtual classroom instruction, could effectively increase native Japanese undergraduates' English competence.

The present study focused on improving cross-cultural communication skills and widening the worldviews of university students for developing intercultural awareness and 21st-century skills through online learning using Zoom. The 21st century has already brought astonishing technological achievements with the Internet of Things, AI Cyber-physical systems, VR/AR/MR, and Big Data (Learning analytics). As a result, our lives have been transformed in many ways, and education is dramatically affected. The paradigm shift is now taking place because of the following factors: advancement of ICT and mobile technologies, crowd environments, developments of AI/IoT, and COVID-19As. As a result, the teacher's role has changed to that of a mentor, a facilitator, and a curator to deal with 21st-century skills. Digital technologies have changed life, communication, thinking patterns, channels of influence on other people, social skills, and social behaviors. Therefore, it is crucial to learn how to successfully transform into new language education to prepare for the digitalized society. A constructivist approach to flipped learning can motivate students by activating their brains to create new knowledge and reflect more consistently and deeply on their language learning experiences.

Furthermore, Bloom's higher-order thinking skills training is vitally important in education (Figure 1). The 21st century faces an unpredictable future, with creativity the key to education. This research includes two research questions.

(1) How could we integrate 21st-century skills into language education?

(2) How could we train the students to develop higher-order thinking skills?

So, how can online learning with Zoom and interaction with campus crusade members for Christ (CCC) contribute to enhancing higher-order thinking skills in language education? Ten tools were included in this study to support students who created PowerPoint slides and digital stories in preparation for becoming digitalized citizens – (Horizontal Report 2021, a YouTube video on AI and Society, Cross-cultural IQ, Global leadership, Worldviews, Ontology and Epistemology, Science and Theology, World Heritage sites, 17 SDGs, and Global issues

from the Oxford Martin School).

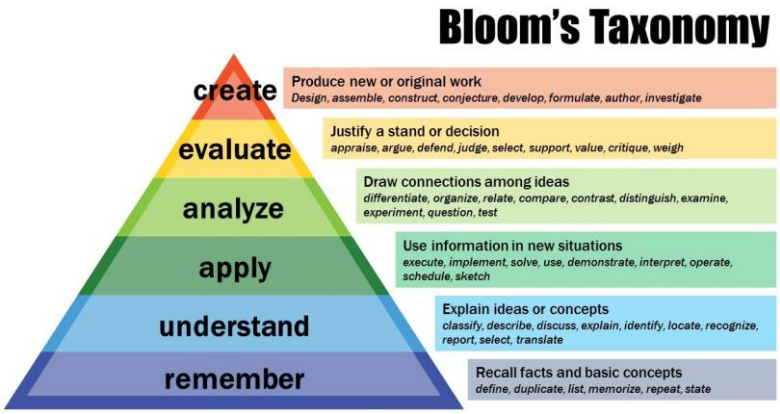

Figure 1: Bloom's Taxonomy

2. Literature review

Alan Turing (1950) once said, "I propose considering the question, 'Can machines think?'". Turing invented computers in the 1930s and soon became fascinated by the idea that computers might one day be intelligent. In 1950, he published a scientific paper on whether a machine could 'think.' The paper introduced the 'Turing test' (Wooldridge, 2018, p.6). Ninety years have passed since the invention of the computer. Nowadays, artificial intelligence (AI) has intervened in every aspect of our lives in the 21st century. AI today is everywhere, and it will soon become ever more prominent because AI software can reliably and efficiently make better decisions than people in a vast range of settings. In the future, AI will be invisibly embedded everywhere in which decisions are made (Wooldridge, 2018, p.44).

Recently, AI speakers can be experienced efficiently and smoothly using hand-held devices, enhancing the construction of broader learning environments and viewpoints (Kepuska & Bohouta, 2018). AI/mobile technologies have succeeded in transforming learning methodologies. One such methodology adopted in recent years is blended learning (BL) (Obari, Lambacher, & Kikuchi, 2020). BL combines traditional face-to-face classroom methods with computer-mediated activities, resulting in a more integrated approach to language learning. AI, mobile devices, and social media are the key components of the next generation of this novel wave of educational instruction. Digital content is also transforming and expanding as AI, and mobile technologies develop and improve. The growth of mobile social networking sites (mSNS) has enabled teachers to considerably increase the number of ideal learning opportunities through experiential learning activities with the help of these emerging technologies. For example, while the students were making presentations, the peer evaluation with the mobile device was used to assess students' presentations. This activity helped students engage more in oral production with quick feedback from peers. In addition, flipped lessons

were put into practice which focused on the presentations with digital storytelling and discussions in the classroom after students gained sufficient comprehensible input about the assigned tasks. As a result, their listening, speaking, and writing skills, to some extent, were reinforced. The students studied worldviews and held discussions with CCC (Campus Crusade for Christ) members, which helped them change their worldviews through online, face-to-face interactions at the breakout room.

Learning 21st-century skills (Figure 2) should be integrated into training, and 90% of students agreed it helped broaden their skills. Various digital technologies were used to understand different topics, and the distinction between the classroom and outside-class activities was distinguished. Each student could gain as much comprehensible input outside of the class through assignments and engage more in interaction and discussions with critical and creative thinking as they could inside the classroom. Whether it is a virtual interaction or not, most important in learning English is human interaction and how much comprehensible input we can gain from multiple learning sources, whether analog or digital.

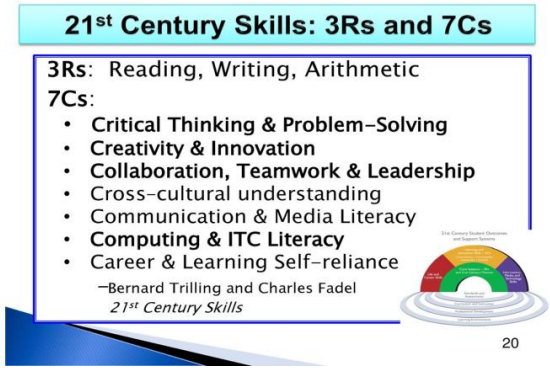

Figure 2: 21st Century Skills: 3Rs and 7Cs

3. Methods

All universities in Japan decided to teach classes using virtual learning environments with Zoom, TEAMS, Webex, and other learning tools, from May 2020 to January 2021. The lead author of this study taught ten classes at three universities, mainly with Zoom and Facebook. This section will describe how the students struggled with virtual learning and show its advantages and disadvantages from student feedback on a questionnaire.

3.1 Training procedure

(1) All students at three universities had their English lessons using real-time virtual learning with Zoom and Facebook. The learning materials were uploaded on Facebook in advance.

(2) Students engage in real-time learning with Zoom, listen to the author's mini-lectures, and participate in breakout sessions with more active discussions about the contents.

(3) Students prepared PowerPoint slides about their assigned work and delivered several presentations in front of all the students. However, they sometimes joined breakout sessions with four students and gave their presentations with peer assessment using PeerEval software on smartphones.

(4) Flipped learning was conducted throughout the semester, actively engaged in presentations and discussions about the contents assigned in advance.

(5) Students learned presentation skills by downloading the video contents of Successful Presentation by Oxford University Press. Each unit consisted of 8 units containing 3-minute video content.

(6) Professor Weakley from the US was invited as a guest lecturer several times and engaged in virtually teaching worldviews, global leadership, and cross-cultural IQ. He also actively took part in the breakout sessions and interacted with many students. Sometimes his students joined the virtual classroom from the US every three weeks and enjoyed discussing the cross-cultural differences between Japanese and Christian-oriented values. These sessions were most important for students to learn their worldviews.

(7) Several lectures from Oxford University professors about scientific realism and worldviews, and the students prepared PowerPoint slides with more presentations and discussions using Zoom breakout sessions (Figure 3).

Figure 3: A sample Zoom lesson.

3.2 Presentation Assessment with PeerEval

(1) Students delivered 5-10-minute English presentations about the assigned tasks with PowerPoint slides.

(2) All students had their presentations evaluated by their peers using the PeerEval software on a smartphone, with six items being assessed about presentation skills. After each presentation,

immediate feedback was provided with comments about improving their presentation skills (Figure 4).

(3) Students were highly engaged in learning the contents of the cross-cultural issues and worldview studies, including the advancement of AI.

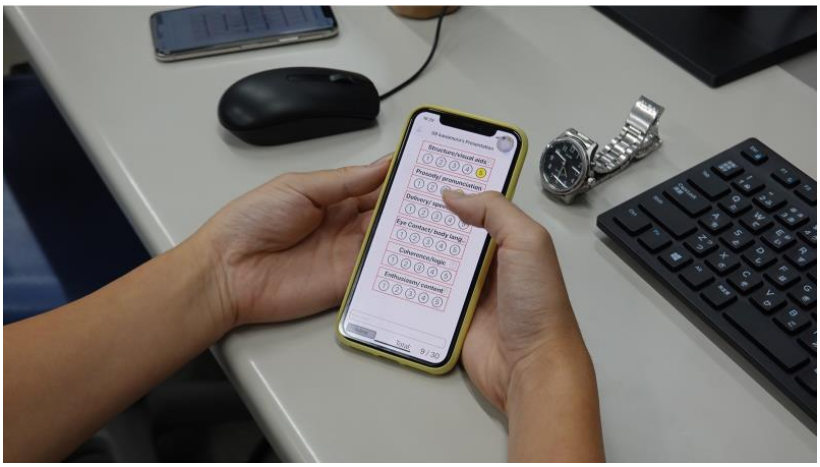

Figure 4: Peer Eval Assessment with a smartphone

3.3 Feedback on the student questionnaire

Questionnaires on virtual online learning asked if participants (n=27) of this study acquired the 21s-century skills or not.

(1) Did you develop critical and problem-solving skills? (n=27)

a. 96% agreed

b. 4% neutral

(2) Did you develop the skills of creativity and innovation? (n=27)

a. 85.2% agreed

b. 14.8% neutral

(3) Did you develop the skills of collaboration, teamwork, and leadership? (n=27)

a. 85.2% agreed

b. 14.8% neutral

(4) Did you develop the skills of cross-cultural understanding? (n=27)

a. 81.5% agreed

b. 11.1% neutral

c. 7.4% disagreed

(5) Did you develop the skills of communication and media literacy? (n=27)

a. 88.9% agreed

b. 11.1% neutral

(6) Did you develop the skills of computing and ICT? (n=27)

a. 81.5% agreed

b. 14.9% neutral

c. 3.6% disagree

(7) Did you develop the skills of career & self-reliance? (n=27)

a. 77.8% agree

b. 18.5% neutral

c. 3.7% disagreed

(8) Did you acquire higher-order thinking skills? (n=27)

a. 74.1% agreed

b. 25.9% neutral

(9) Did the interaction with the campus crusade for Christ (CCC) members at the breakout room help you improve your English proficiency? (n=27)

a. 92.6% agreed

b. 7.4% disagreed

(10) Did the interaction with CCC members at the breakout room help you change your worldviews and become more interested in foreign cultures? (n=27)

a. 96.3% agreed

b. 3.7% neutral

(11) Did the visiting professor's lectures change your worldviews and help you to improve your English proficiency? (n=27)

a. 91% agreed.

b. 9% disagreed

(12) Was the virtual presentation at the breakout room with Zoom effective in learning English? (n=27)

a. 92.5% agreed

b. 7.5% neutral

(13) What type of lessons do you like most? (n=27)

a. 18.5% Face to face lesson

b. 55.6% Synchronous Online Zoom lesson

c. 7.4% Hybrid lesson

d. 18.5% Video-on-demand lesson

4. Results/Findings and discussion

Virtual online Zoom lessons were carried out for two terms in two classes. According to the survey questions about 21st-century skills from questions (1) to (7), almost 80% ~95% of students agreed that they developed seven 21st-century skills, enjoyed the Zoom lessons, and felt it effectively taught English. Question (8) about acquiring higher-order thinking skills indicated that only 3/4, 75% of students could develop it, but 1/4, 25% did not think so. For future research, the reason for not developing this skill must be more researched. According to questions (9) to (11), more than 90% of students agreed that interacting with foreign English speakers a lot every three weeks helped them enhance their English-speaking ability and keen on learning other cultures. In addition, by observing the online classroom, students were highly engaged in interaction in English to develop their higher-order thinking skills for the digitalized society.

Last year when the Zoom lesson began, only 30 % of students felt they could learn English even with virtual online lessons. This year I invited many different foreign speakers to my virtual Zoom class every three weeks (first term) and every other week (second term) to increase the amount of interaction. According to question (12), more than 90% agreed that the virtual presentations helped the students improve their English. Furthermore, questions (13) indicated that more than 55% of students liked the online Zoom lesson better than last year's questionnaire.

We assumed that the CBL project and interaction with CCC members helped students improve higher-order thinking skills and critical thinking skills. Inviting the visiting scholars during virtual lessons was more manageable as the foreign lecturer significantly helped students improve their English proficiency and become more open-minded. To some extent, future lessons could be easily integrated with AI and virtual online classes through interactions with foreign people.

5. Conclusion

Living in Society 5.0 with DX due to the rapid advancement of cutting-edge technologies, AI/VR will be playing a vital role in language education to deal with urgent, complex world problems using AI, VR, and Learning Analytics. This study provided hints for 21st-century learning to enhance higher-order thinking skills and critical thinking skills through online virtual dialogues with CCC members even during the COVID-19 crisis.

These results indicate that the integration of the CBL training program with

presentations played a crucial role in improving the students' overall language proficiency and expanding their worldviews. In addition, the students were virtually engaged in interacting more with young CCC members to study different worldviews. The results suggest that integrating the CBL project with 21st-century skills, including PeerEval, and hybrid learning with Zoom virtual classroom teaching, may be an effective way to improve the English proficiency of native Japanese undergraduates. In future research, more cognitive sides of examining higher-order and critical thinking skills, what is going in the brain, should be more carefully researched with MRI (Magnetic Resonance Imaging).

References

Armstrong, P. (2010). Bloom's Taxonomy. Vanderbilt University Center for Teaching. Retrieved from https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/.

Bernie Trilling & Charles Fadel. (2012). *21st Century Skills: In Our Life Time*. Jossey-Bass.

Dau, T. T. L. (2021). Remote Teaching amid the Covid-19 Pandemic in Vietnam: Primary School EFL Teachers' Practices and Perceptions . *AsiaCALL Online Journal*, *13*(1), 1-21. Retrieved from https://asiacall.info/acoj/index.php/journal/article/view/101

Kepuska, V., & Bohouta, G. (2018, January). Next-generation of virtual personal assistants (Microsoft Cortana, Apple Siri, Amazon Alexa, and Google Home). In the *2018 IEEE 8th Annual Computing and Communication Workshop and Conference* (CCWC) (pp. 99-103). IEEE. https://doi.org/10.1109/ccwc.2018.8301638

Kurzweil, R. (2005). *The Singularity is Near: When Humans Transcend Biology.* Abridged Japanese edition arranged with Ray Kurzweil c/o Loretta Barrett Books Inc., New York.

Le, T. T. M. (2021). A Case Study of Students' Views on Effective Online Learning. *AsiaCALL Online Journal*, *12*(5), 24-33. Retrieved from https://www.asiacall.info/acoj/index.php/journal/article/view/73

Nguyen, T. K., & Nguyen, T. H. T. (2021). The Acceptance and Use of Video Conferencing for Teaching in Covid-19 Pandemic: An Empirical Study in Vietnam. *AsiaCALL Online Journal*, *12*(5), 1-16. Retrieved from https://www.asiacall.info/acoj/index.php/journal/article/view/77

Obari, H., Lambacher, S. & Kikuchi, H. (2020, June). Utilizing AI smart speakers to improve the English skills of Japanese university students. Paper presented at *JALTCALL 2021: Remote Teaching and Beyond*, Aomori, Japan.

Hiroyuki, O. (2021). The Integration of 21st Century Skill and Virtual Learning with COVID 19. *AsiaCALL Online Journal*, *12*(3), 22-27. Retrieved from https://asiacall.info/acoj/index.php/journal/article/view/30

PeerEval: Retrieved from https://peereval.mobi/

Serhan, D. (2020). Transitioning from face-to-face to remote learning: Students' attitudes and perceptions of using Zoom during COVID-19 pandemic. International Journal of *Technology in Education and Science*, 4(4), 335-342.

Trilling, B., & Fadel, C. (2009). *21st Century Skills: Learning for Life in our Times*. John Wiley & Sons.

Turing, A. M. (1950). Computing Machinery and Intelligence. *Mind* 49,433-460.

Wooldridge, M. (2009). *An introduction to multiagent systems*. John Wiley & sons.

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