Critical cultural awareness and learning through digital environments

James D. Dunn[1]

Abstract. Students with cultural and linguistic competence are needed to navigate an increasingly globalized society. This study collected and analyzed cultural awareness data from students who communicated with people of other cultures through Virtual Reality (VR) environments. Students from a private university in Japan engaged in directed communication with other students from the USA using an online virtual chat program. A questionnaire based on the Global Perspectives Inventory (GPI) was used by the students to self-report their views on the intercultural interactions and give a metacognitive analysis of their intercultural competence/knowledge of intercultural phenomena. In addition to directed communicative objectives, students were given the chance to engage in free conversation in the digital space created by the software to facilitate intercultural critical cultural awareness skills. Early findings show that students were able to improve critical cultural awareness through a virtual experience.

Keywords: virtual reality, critical cultural awareness, gamification, critical thinking.

1. Introduction

Japan's Ministry of Education, Culture, Sports, Science, and Technology (MEXT) has put forth a call for students to develop their cultural and linguistic skills to competently navigate an increasingly globalized society. Toward this end, MEXT has stipulated a goal for students to be developed as global human resources capable of being a valuable member of society in multiple cultural contexts (MEXT, 2011).

While communication tools such as Skype and other software have been used to help foster cultural awareness, non-VR methods of digital communication, while

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useful for intercultural communication, have limitations, such as participants feeling disconnected and having no sense of physical presence with their partner (Gregersen & Youdina, 2009; Ip, 2011; Shachaf, 2008). This research was designed to collect and analyze students' perceptions of cultural awareness from students communicating with people of other cultures through the online virtual chat program, Big Screen. It was hypothesized that students who engaged in directed communicative tasks in a VR space with individuals from a variety of locations and cultures from around the world using an online virtual communication space would improve in their self-reported cultural awareness scores on the GPI-based questionnaire. Student answers to an intercultural communicative competence questionnaire were analyzed to elucidate their communicative competence and metacognitive-awareness development over multiple sessions of two directed communication tasks and one free conversation task.

2. Method

2.1. Context and participants

This study is being conducted over the spring and fall semesters of the 2019-2020 academic year at a private Japanese university. Professional contacts from the USA were sourced during the 2018-2019 academic year as a path to connect with high school and university students of other cultures. Two American students, one university and one high school, were chosen as participants as they each already possessed a VR headset and were willing to meet the standard three sessions minimum for the study. The students in Japan, all of whom were non-native English speakers, were recruited from compulsory second year English courses and aviation English courses respectively. Thus far, three student participants have successfully performed all communication sessions and completed the post-questionnaire (Table 1), with more students currently waiting to start their participation. The Japanese Participants (JPs) were paired with the same Foreign volunteers (FVs) throughout their culture-sharing session to normalize the development of questions and answers and to allow for the natural progression of information sharing through the three sessions. Based on recordings of the last interaction sessions, the information participants shared ranged from cultural knowledge in explaining a Japanese TV show to their partner, intracultural knowledge through asking their partner about their culture, and intercultural knowledge in answering the questions of the FV. All sessions were online utilizing a free VR gathering space software, Big Screen.

Table 1. Student participants

Participants in Japan				
Gender	**Age**	**Self-Reported English Level**	**Area of Study**	**Nationality**
JP1: Male	19-22	Advanced	Aviation	Japanese
JP2: Female	19-22	Advanced	Aviation	Japanese
JP3: Female	19-22	High-Intermediate	Physical Education	Japanese
Participants in The USA				
Gender	**Age**	**Self-Reported English Level**	**Area of Study**	**Nationality**
FV1: Male	15-18	Native	Psychology	USA
FV2: Male	15-18	Native	High School Student	USA

2.2. Questionnaire design and purpose

A questionnaire based on the GPI (http://www.gpi.hs.iastate.edu/) was used to allow students to self-report their views of the intercultural knowledge and cultural awareness along aspects such as understanding the other's culture, studying with people of other cultures, and the ability to work with people of other cultures. This questionnaire was chosen because it narrows the focus of interpersonal aspects into two sub-domains; knowledge of other cultures (Questions 1 and 2), and the ability to interact with people of other cultures (Questions 3, 4, and 5).

2.3. Questions

The questions utilized in the questionnaire are as follows:

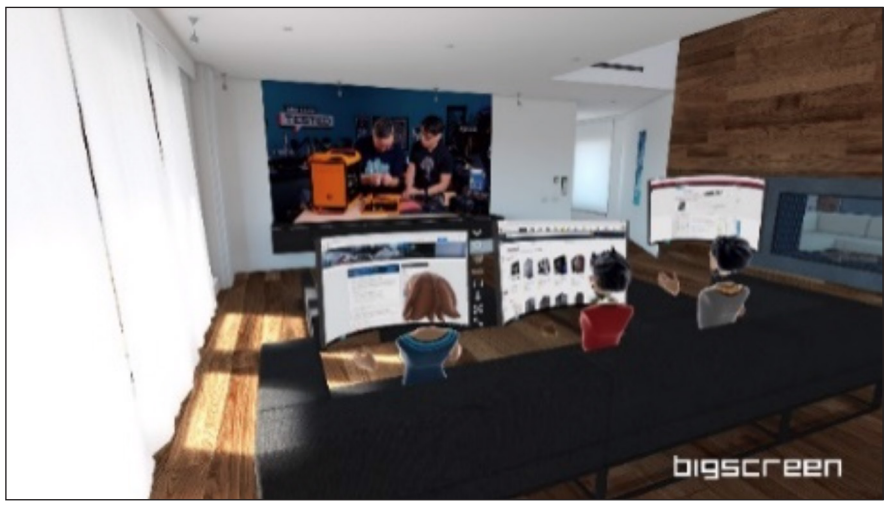
- I feel that I know many things about other cultures;
- I feel that I can understand personalities of people from other countries well;
- I feel that I could study with people from other countries well;
- I feel that I could work with people from other countries well; and
- I feel confident in my ability to communicate with people in another country.

All questions were answered using a Likert Scale from 1, completely disagree, to 5, completely agree, with a 'no opinion' answer available on each question. All questions were input online using a Google Forms questionnaire. As part of the questionnaire, all students digitally signed a consent form that was provided in both English and Japanese. All sessions were attended by the Japanese student, a foreign student from the USA (virtually), and the researcher.

3. Data collection

At the outset of the study, the JPs were asked to complete a pre-study questionnaire based on the GPI created by the researcher. After the last session, the participants were asked to complete a post-questionnaire.The same questions were used in the pre- and post-questionnaires to help elucidate changes in the students' views on intercultural competence. Students were asked to spend three, 30-minute sessions in a private virtual conversation space created by the research leader utilizing the Oculus Quest VR headset (https://www.oculus.com/) which was obtained through an inter-departmental research grant from the researcher's university. The virtual space was created utilizing the free VR software, Big Screen (Figure 1), which allowed students to share and explain short clips of Japanese television variety shows that can be confusing to non-Japanese people.

Figure 1. Big Screen VR[2]



Students were paired according to their availability and students continued all three sessions with the same partner. Due to limitations in finding foreign participants, FV2 participated in two, three-session blocks.

These students then carried out initial introductions and an environment setup during the initial virtual chat session in a free talk manner. Student conversations were recorded and will be analyzed at a later date.

2. Reproduced with kind permission from © 2019 Bigscreen, Inc; https://bigscreenvr.com/

The second session consisted of engaging in a directed chat session where the JPs shared and explained Japanese cultural aspects through short Japanese television clips. These activities are in correlation with MEXT's (2011) guidelines for Japanese students to become cultural ambassadors. As such, the television clips from Japanese variety shows were chosen by the JPs according to their interest and existing knowledge. The participants were allowed to choose the clips to help minimize instances of silence that may have arisen if the JP was unfamiliar with the particular variety show.

The final session involved students explaining another Japanese television clip that consisted of a popular comedy show that was chosen by the researcher. After the final session, students were asked to complete the GPI-based questionnaire again. Due to the early nature of this data, scores were compared in the pre- and post-questionnaires for changes in attitudes. Once more data has been collected, and answers will be analyzed to measure changes in student self-perception of intercultural knowledge and development of cultural awareness.

4. Results

Preliminary analysis of questionnaire data suggests that students' exposure to intercultural communicative situations in a digital space could be both beneficial to the development of intercultural awareness, and helpful in developing the students' perspectives as global citizens. Across the five questions, all scores, except Question 3 ("I feel that I could study with people from other countries well"), scored higher in the post-treatment questionnaire than in the pre-treatment questionnaire (see Figure 2, Figure 3, and Figure 4).

Figure 2. JP1 results

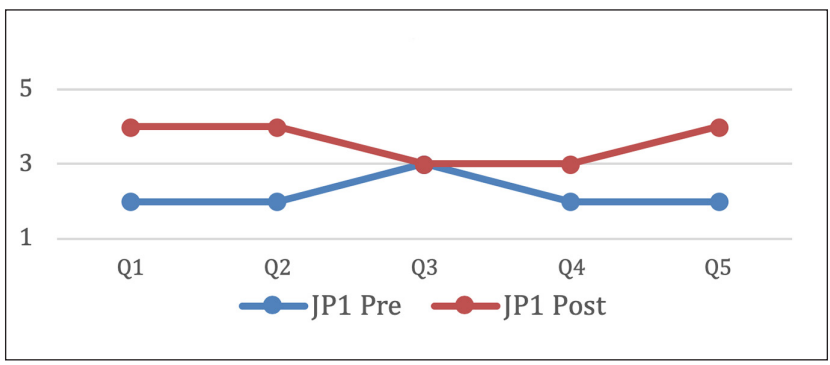


Figure 3. JP2 results

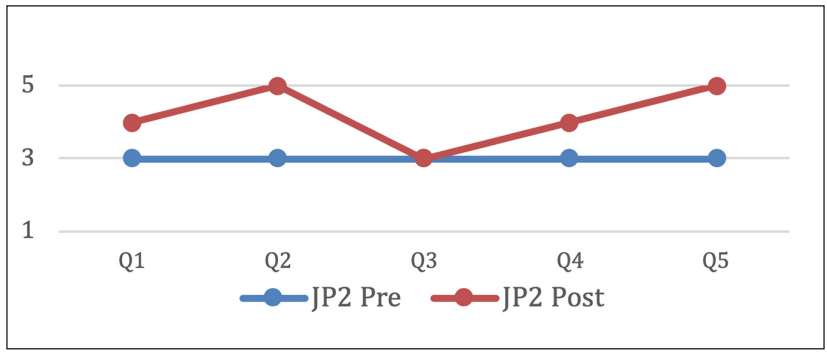
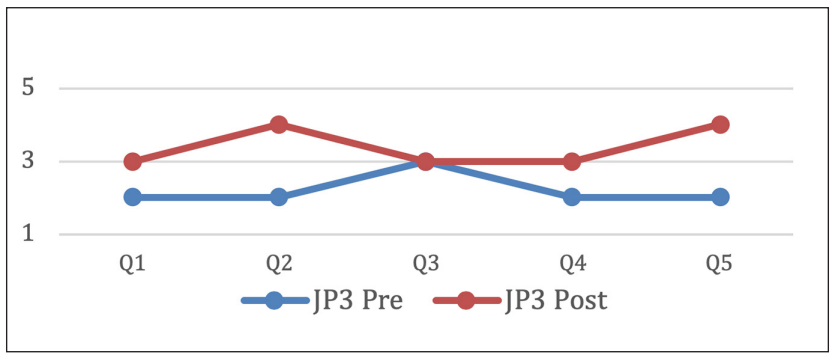


Figure 4. JP3 results



An analysis of the student questionnaires also suggests that student cultural awareness along the domains of knowledge of other cultures (Questions 1 and 2) and the ability to interact with people of other cultures (Questions 4 and 5) increased.

5. Discussion

The number of students in this study is still small due to a delay in the disbursement of grant funds, but the initial results are encouraging. Once data from a larger pool of participants can be collected, further analysis can be done to find trends and significance of changes due to the intervention. In the future, more questions will be added to further diversify and fine tune the information collected. Even though these results are still early, the initial findings suggest that VR can be a digital 'real-

world' experience for students to interact with people of other cultures and expand cultural awareness.

6. Conclusions

The results of this study suggest that interactions in VR are potentially a viable pathway to intercultural competence building and global human resource development. Future research can explore the impact of other digital based intercultural development systems which could open the doors to new courses that span the globe digitally.

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