Comparing lexical complexity using two different VE modes: a pilot study

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Abstract. The aim of this study is to compare how two different Virtual Exchanges (VE) contribute to language learning in a Japanese university context. Task-Based Language Teaching (TBLT) using VE has been a focus in this study. There are huge advantages of using technology in language teaching such as increasing language use opportunities, feedback, and others (Lee, 2016). However, many recent TBLT and VE studies have focused on students' interaction in the classroom (Hagley, 2020). This study investigated whether two different types of VEs have the potential to promote 'real-world communication' in a university context. The findings show that there was no significant difference regarding lexical complexity between both modes. The result suggests that both modes are unlikely to enhance students' vocabularies.

Keywords: virtual exchanges, task-based language teaching.

1. Introduction

VE has incorporated TBLT in some instances but others have focused more on supplementing classwork with VE to allow students to participate in international interactions. Hagley (2020) notes that unless VE is incorporated into the syllabus, "EFL often became an academic activity with few chances to use English in real-world communicative events" (pp. 74-75). Ribeiro (2016) argues that in studies on synchronous computer-mediated communication, there has not been enough attention paid to the interaction between Non-Native Speakers (NNS) and Native English Speakers (NES). To solve this, the current study focuses on interactions between NES and NNS using Synchronous VE (SVE), with an online chat, and

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Asynchronous VE (AVE), with a forum discussion in the TBLT framework. This study refers to the question:

> RQ1. Are there any differences in lexical complexity between the discourse produced using SVE and AVE when NES interact with NNS?

This research explores how VE can be utilized effectively by English instructors in the TBLT framework to enhance college students' communicative abilities.

2. Method

2.1. Participants

Eight participants took part in this research. They were all university students and over 18 years old and signed consent forms to take part in this study. The participants were divided into a target group of L1 Japanese students of English (N=7, one male and six females) and an L1 British English interlocutor participant. According to self-reported information in a background questionnaire, the target group were pre-intermediate (equivalent to TOEIC Listening and Reading 550), their mean age was 20 years old (range 19-21), their average length of living abroad in English-speaking countries was one week (range zero to three weeks), and the average time spent studying English was 9.7 years (range six to 17 years). I targeted pre-intermediate students because most students in Japanese universities are pre-intermediate level.

2.2. Instruments

In this research, two decision-making tasks (see supplementary materials, Appendices A and B) and a background questionnaire (see supplementary materials, Appendix C) were used as research instruments.

2.3. Data collection

The data collections were conducted remotely several times on different dates. I divided the seven participants in the target group randomly into two groups, Group A and Group B. One interlocutor worked on tasks with seven students (three from Group A and four from Group B). Each student in the target group was asked to do two different decision-making tasks with the same interlocutor. The students in Group A were to work on a task for 20 minutes using SVE, the online chat (Zoom)

first, and then AVE, the forum discussion (Microsoft Teams). The Group B students were to work on a task using AVE, forum posting (Microsoft Teams) first, and then on another task using SVE, the online chat (Zoom). For the forum posting task, each group posted their opinions at least three times a week. In order to resolve the effect of posting order, the modes of VE and tasks are counterbalanced.

3.   Results

3.1.   Lexical complexity

Lexical diversity is one of the measurements of lexical complexity. In the current study, I will follow McCarthy and Jarvis's (2007) definition of lexical diversity as "the range and the variety of vocabulary deployed in a text by either a speaker or writer" (p. 459).

To analyze lexical diversity, there are some measurements, for example the Type-Token Ratio (TTR), Guiraud's Index (Root TTR), D (VOCD-D), and the Measure of Textual Lexical Diversity (MTLD). However, TTR, Root TTR, and VOCD-D are predisposed to be affected by text length (DeBoer, 2014). As a result, the current research employed MTLD, because this metric can measure various text lengths. The mean number of words written using SVE was 116.57 words per group, ranging from 59 to 177 words. The mean number of words produced using AVE was 123.28 words, ranging from 19 to 202 words. Therefore, texts varied considerably in length. To calculate the MTLD value, the computational software Coh-Metrix 3.0 was used.

3.2.   Results of lexical complexity between SVE and AVE

In this research, eight participants took part in total. They were divided into two groups: a target group (N=7) and a group of intercalators (N=1) for the target group. The discourse of the target group was measured on the same dependent variable (i.e. the MTLD value) under two different conditions (i.e. SVE and AVE). For this research design, a paired-sample t-test was thought to be the most appropriate test. In order to judge whether the data set in the current research met with the assumptions of a paired-samples t-test, the difference between the two VE forms (SVE and AVE) was initially calculated. Then, the assumption of normality and no outliers was confirmed. As evaluated by inspection of a boxplot, outliers were not seen. The different scores were also normally distributed, as shown by

Shapiro-Wiki's test, *p*=.063>.05. As a result, to examine differences using MTLD between SVE and AVE, it was calculated that a paired-samples *t*-test was the most appropriate statistical test. Descriptive statistics for MTLD in discourse in SVE and AVE are illustrated in Table 1. The results of a paired-samples *t*-test indicated that there was no statistically significant difference between the MTLD scores in the two VE modes, *t*(6)=1.181, *p*=.282.

Table 1.   MTLD using SVE and AVE

SVE (Chat)		AVE (Forum)	
Mean	**SD**	**Mean**	**SD**
64.52	18.46	54.09	12.63
Note. N=7.			

4.   Discussion

The current research was motivated by a desire to explore how different modes of VEs can be utilized effectively in the TBLT framework. Shiroyama (2021) argues that more than one mode of VEs is insufficient. Considering this, this research investigated the discourse features using two different forms of VEs and focusing on lexical complexity. Regarding task types, Shiroyama (2021) criticized that several studies used open-ended tasks, whereas this research employed decision-making tasks.

Regarding lexical complexity, this study was not consistent with Hwang's (2008) study. She states that the AVE group produced 'a richer vocabulary' as well as 'more complex written language' compared with the SVE group. However, any comparison between this research and Hwang's study requires caution. First, Hwang used different groups for the two modes. Consequently, the different result might have come from the difference in the participants in each group. Second, Hwang examined lexical complexity by analyzing lexical diversity as 'the square root of the double number of tokens' while this study employed lexical diversity calculated using the MTLD. The different types of activity (i.e. discussion in the case of Hwang's research) may have affected lexical aspects of participants' language production.

5.   Conclusions

This research has examined the potential for the integration of different forms of VEs and TBLT. The finding in this research indicates that there was no statistically

significant difference regarding lexical complexity using SVE and AVE. For future research, firstly it will be necessary to examine not only lexical complexity and grammatical complexity points, but also fluency and accuracy to be able to effectively utilize VE within the TBLT framework. Another direction would be to focus on students' language production when they work with different proficient interlocutors because today many young people tend to use language exchange applications i.e. Hello-Talk, Tandem. Conclusively, it is necessary to discover the ways in which VE can assist language learners to enhance their target language abilities.

6.   Acknowledgements

7.   Supplementary materials

https://research-publishing.box.com/s/nzocd9h2tpisqy11id81ax77dmtdalyu

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