TESL-EJ Teaching English as a Second or Foreign Language
The Electronic Journal for English as a Second Language

How Working Memory and Prior Vocabulary Knowledge Influence the Impact of Task Repetition on L2 Oral Performance: Insights into Vietnamese EFL Learners

November 2022 – Volume 26, Number 3

https://doi.org/10.55593/ej.26103a12

Thao Phuong Duong
Language Institute, Van Lang University, Ho Chi Minh City, Vietnam
<thao.dp@vlu.edu.vn>

Van Huynh Ha Le
Language Institute, Van Lang University, Ho Chi Minh City, Vietnam
<vanlhh@vlu.edu.vn>

Abstract

The present study investigates the effect of task repetition and individual differences on Vietnamese English as a foreign language (EFL) learners' lexical use and fluency in oral task performance. The study adopts a within-subjects design with forty students performing the same narrative task twice. Students also completed two prior vocabulary knowledge tests (i.e., a receptive size test and a productive level test) and two working memory tests (i.e., a backward-span task and a Vietnamese-version operation-span task). Lexical complexity was measured in two aspects (i.e., lexical sophistication and lexical diversity). Fluency was assessed in terms of articulation rate. Unlike previous studies, our study surprisingly did not reveal an effect of task repetition on lexical complexity and fluency. Interestingly, prior vocabulary knowledge and working memory appeared to be good predictors of learners' lexical complexity and fluency.

Keywords: task repetition, lexical complexity, fluency, prior vocabulary knowledge, working memory

Improving speaking proficiency is often one of the primary goals of language learners. However, in foreign language learning contexts such as learning English in Vietnam, opportunities to speak the target language are limited. This has been considered one of the reasons for Vietnamese learners' struggles with English speaking even in basic conversations (Nguyen, 2011; Bui & Nguyen, 2016). Therefore, research into techniques to facilitate Vietnamese EFL learners' verbal skills is important.

Research suggests that task repetition is a potential technique to develop oral performance. It has been widely shown that task repetition can foster oral syntactic complexity, accuracy, and fluency (CAF) (for a review, see Bygate, 2018) with the most robust effect found in fluency

rather than other aspects (Ellis et al., 2020). Recently, a few studies have started to look at the improvement in lexical complexity in addition to CAF in oral task repetition (e.g., Fukuta, 2016; Khatib & Farahanynia, 2020; Wang, 2014). However, the findings remain mixed, which might be due to differences in the lexical complexity measures applied or the influence of learners' individual differences, e.g., working memory, as shown in Ahmadian (2013). Yet, how individual differences such as in working memory or prior vocabulary knowledge influence multiple aspects of lexical complexity and CAF remains less explored in oral task repetition, which warrants more studies.

Further, few task repetition studies have been conducted in the Vietnamese context, e.g., a recent study by Newton and Nguyen (2019). Given that task-based language teaching (TBLT) has been officially selected as one of the main teaching approaches in the National Foreign Languages 2020 project (Nguyen, 2017) and Vietnamese EFL teachers have begun to adopt TBLT in their classrooms (e.g., Phuong et al., 2015; Nguyen, Newton, & Crabbe, 2018; Nguyen & Jaspaert, 2021), research into TBLT techniques such as task repetition within the Vietnamese context is worth exploring. This paper aims to explore the impact of task repetition and individual differences regarding prior vocabulary knowledge and working memory on multiple aspects of lexical complexity (e.g., lexical sophistication, lexical diversity) and fluency. Findings obtained from this paper can contribute to task repetition theory and provide significant pedagogical implications for English teaching in Vietnam.

Literature Review

The Impact of Task Repetition on L2 Oral Performance

Task repetition, i.e., repetition of either "the same or slightly altered tasks - whether whole tasks or parts of a task" (Bygate & Samuda, 2005, p.43), has received increasing attention in the SLA field as a useful technique to improve different aspects of oral performance (i.e., complexity, accuracy, or fluency (CAF)). Such improvement is often attributed to speakers' shifting their attention from a focus on meaning (i.e., what to say) in the first task performance to a focus on forms (i.e., lexical and grammatical forms) in the repeat performance (Bygate, Skehan, & Swain, 2001). Also, as learners can rely on previously conceptualized content and reuse linguistic features encoded in the first performance, they can speed up processes of language retrieval with less effort in the repeat performance (Dörnyei & Kormos, 1998).

Research has confirmed the robust effect of task repetition on oral fluency (Ellis et al., 2020) but findings on the effect of task repetition on lexical complexity are mixed. While there has been no consensus in defining lexical complexity, recent vocabulary research has often used lexical complexity as an umbrella term to cover several lexical constructs such as lexical density, number of lexical errors, lexical sophistication, and lexical diversity (Kyle, 2020). For instance, Gass et al. (1999) found that task repetition could enhance lexical sophistication. In particular, learners could use a wider range of words and more low-frequency words after repeating the same narrative task three times. Similarly, Kim et al. (2018) found that L2 learners could produce more low-frequency words as well as more words with a higher age of acquisition on the third time of repetition. On the other hand, Fukuta (2016) found that task repetition could lead to improved lexical diversity and lexical accuracy. He showed that when advanced learners repeated the same picture-prompted narrative task after a one-week interval, they could use a broader variety of words and speak more accurately at the second time of repetition. However, despite using the same tasks as Gass et al. (1999), Wang (2014) did not find an effect of task repetition on lexical diversity, which might be due to differences in the learners' proficiency level (i.e., intermediate vs. advanced) between the two studies.

A few recent studies have started to investigate both fluency and lexical complexity. For example, while Khatib and Farahanynia (2020) found that task repetition improved learners' fluency but not lexical sophistication and lexical diversity, Fukuta (2016) only reported the effect of task repetition on lexical diversity but not fluency. These findings appear to indicate a trade-off between lexical complexity and fluency. However, as the number of studies remains scarce and the measures vary across the studies, e.g., subjective measures by Khatib and Farahanynia vs. objective measures by Fukuta, how task repetition influences lexical complexity and fluency remains ambiguous and thus warrants further research.

Individual Differences as Moderating Factors

Working memory

Working memory (WM) is commonly conceptualized as a cognitive system that involves "temporary storage and manipulation of information activities that is assumed to be necessary for a wide range of complex cognitive activities" (Baddeley, 2003, p.233). While Juffs and Harrington (2011) have shown that learners' WM capacity can regulate input processing, some scholars have shown that there is a link, albeit weak, between learners' WM and language production. For instance, learners with low WM capacity tend to speak less fluently and less accurately than those with higher WM capacity (e.g., Ahmadian, 2013; Fehringer & Fry, 2007; O'Brien et al., 2006). This indicates that there is a relationship between WM and aspects of L2 oral performance such as fluency and accuracy. However, to the best of our knowledge, very few studies have explored the relationships between WM and lexical complexity in L2 oral performance.

Vocabulary knowledge

The link between learners' vocabulary knowledge and L2 oral performance has been widely confirmed in previous studies. For instance, learners with a greater prior vocabulary knowledge tend to speak more fluently and use more low-frequency and diverse words (e.g., de Jong et al., 2012; Uchihara & Saito, 2019). However, most of the studies have focused on either receptive (e.g., Uchihara & Clenton, 2018) or productive vocabulary knowledge (e.g., De Jong et al., 2012; Uchihara & Saito, 2019) rather than both. Recent studies (e.g., Enayat & Derakhshan, 2021; Clenton et al., 2020) have started to explore both vocabulary knowledge aspects but the findings are mixed. Enayat and Derakhshan found that learners with a greater productive vocabulary tended to speak more fluently while those with a greater receptive vocabulary tended to use more low-frequency words. Yet, the researchers only employed experienced raters to assess lexical use and fluency, which makes it difficult to justify the link between vocabulary knowledge and objectively measurable aspects of lexical complexity and fluency. Clenton et al. (2020) found that only productive rather than receptive vocabulary knowledge significantly related to learners' fluency. Yet, how receptive and productive vocabulary knowledge predicts lexical complexity has not been studied.

Research Rationales and Research Questions

The literature review has revealed several gaps. First, task repetition was found beneficial for improving either L2 lexical complexity or fluency, but little research has investigated both measures together. Further, no study has examined the links among vocabulary knowledge, working memory, L2 lexical complexity, and L2 fluency via repetitive tasks. The present study aimed to fill those gaps. The following research questions were formulated to guide the study:

RQ1: What is the effect of task repetition on learners' lexical complexity and fluency in L2 oral tasks?

RQ2: To what extent do L2 learners' prior vocabulary knowledge and working memory moderate the effects of task repetition on L2 learners' lexical complexity and fluency?

Methodology

Design

The study adopted a within-subjects design with *task repetition* as a within-subjects variable. All participants performed a narrative task and repeated the same task two days later without being advised that the task would be repeated. They also completed two tests of prior vocabulary knowledge and two tests of working memory. The three dependent variables were two lexical use measures (i.e., lexical sophistication, lexical diversity) and one fluency measure (i.e., articulation rate). The scores of two prior vocabulary knowledge tests (receptive and productive) and two working memory tests (backward-span and operation-span tasks) are moderating variables.

Participants

Forty Vietnamese third-year university students (aged 19-21, 20 males and 20 females) participated in the study. They study English as a foreign language at the university where the authors are teaching. A call for voluntary research participation was announced to all third-year students. They all had previously completed 6 years of mandatory English instruction from secondary school to high school and A1 and A2 English level courses at the university before participating in the study. Their English proficiency level was expected to range from an A2 to B1 level.

Oral Task

The present study used a narrative task in which participants were asked to describe their most recent vacation trip. The instructions for the oral task were as follows: "Orally describe your recent vacation. You have 3 minutes for preparation with note-taking being allowed and 3 minutes to speak. No other materials are allowed during the task performance." Three minutes of planning time were assumed to be adequate for task repetition, according to Li, Chen, and Sun's (2015) findings.

Prior Vocabulary Knowledge Tests

Participants' prior vocabulary knowledge was tested on two aspects: receptive and productive vocabulary knowledge. We used Nguyen and Nation's (2011) English-Vietnamese Vocabulary Size Test (VST) to measure the participants' receptive vocabulary size. The test contains 140 items with samples of 10 items per 14 frequency bands of 1,000 words. The VST is a frequency-based test which aims to assess learners' ability to recognize the meanings of words amongst the options given. Following Duong et al. (2021a), the present study used the short version of 70 items instead of 140 items as in the orginal version. Our study also demonstrated a high level of internal consistency (Cronbach's alpha =.87, n = 40) of items in the test. An example item in the Vocabulary Size Test is below:

see. They **saw** it.

a. cắt
b. đợi
c. thấy
d. bắt đầu

We also adopted Laufer and Nation's (1999) Productive Levels Test (PLVT) to evaluate the participants' knowledge of productive vocabulary. This is a controlled production test which asks learners to complete the sentence with a word that fits the context and first letter(s) given.

The scores obtained from this test are assumed to reveal learners' ability to produce words at the 2000, 3000, 5000 and 10,000-frequency levels as well as academic words. A good internal consistency was found (Cronbach's alpha = .94, n = 40). An example item in the PLVT is below:

The thieves threw ac_____ in his face and made him blind. (Answer: acid.)

Working Memory Tests

We used a backward-digit span task to evaluate the participants' working memory. The backward-digit span task is a complex working memory task that examines learners' ability to store as well as manipulate information. In total, the backward-digit span task has 8 spans with 2 sets per span. Each set consists of sequences of digits ranging from 2 to 8 digits, which were pre-recorded in Vietnamese (see Figure 1). Participants were asked to listen to these sequences and repeat them immediately to the researcher in the reverse order that the digits were presented. Participants had to stop the test if they could not repeat at least one set of digits per span correctly. The total score of the backward span task equals the total number of sets correctly recalled (max = 16).

Table 1. Two Spans, Each Containing Two Sets of Numbers in the Backward Digit-Span Task.

4 digits	7	2	8	6	
	6	4	3	9	
5 digits	4	2	7	3	1
	7	5	8	3	6

We used a Vietnamese version operation-span task to assess participants' executive and attention-regulated WM capacity (Duong et al., 2021b). The task requires participants to perform arithmetic operations and remember the Vietnamese word displayed after each operation (see example below)). The task has 15 sets with 2 to 6 operation-word strings per set. After completing each set, participants had to write down the words on an answer sheet in the presented order.

Example of an equation and paired word:

(9:3) + 2 = 5 (Đúng hay Sai) – Núi

We decided to use non-verbal working memory tests as Juffs and Harrington (2011) have pointed out that non-verbal tests can help reduce the cognitive demand of language comprehension often found in verbal WM tests, but still accurately reflect verbal WM capacity.

Lexical Complexity and Fluency Measures

In line with previous studies (e.g., Gass et al., 1999; Kim et al., 2018; Fukuta, 2016; Wang, 2014), we focused on two aspects of lexical complexity: lexical sophistication and lexical diversity. In the present study, lexical sophistication was operationalized as the percentage of low-frequency words in learners' oral output (Kyle, 2020), with low-frequency words defined as those belonging to the third or beyond 3,000 frequency level (K3+ level) (Uchihara & Clenton, 2018). The proportion of K3+ in the texts were analyzed using the Vocab Profile function at https://www.lextutor.ca/vp/comp. We lemmatized the participants' oral texts using Familizer/Lemmatizer function at https://www.lextutor.ca/familizer/ before perfoming the K3+ analysis given that participants at an A2-B1 level are assumed to have mastered word inflections.

Following Malvern and Richards (2002), we defined lexical diversity as "the variety of active vocabulary developed by a speaker" (p.87). We decided to use the HD-D index to evaluate

lexical diversity because this index has rarely been used in previous studies although this index has been proven as effective as other indices (e.g., MTLD, vocD) in assessing lexical diversity in spoken discourse regardless of text length (Kyle, 2020). The HD-D index "represents the sum of probabilities that each type in a text will occur in a 42-word sample at least once" (Kyle, 2020, p.460). We used TAALED (Tool for Automatic Analysis of Lexical Diversity) (Kyle, Crossley, & Jarvis, 2020) to calculate the HD-D index with word types chosen as the lexical units. According to Kyle (2020), lower HD-D value means more diversity.

We determined learners' fluency by measuring their articulation rate, defined as "the rate at which learners can produce referential content on tasks" (Lambert et al., 2020, p. 7). This means introductory and ending utterances within the oral performances (e.g., "Hello, my name is …" or "Thank you for your listening") were omitted. The software program Praat 6.1.42 (Boersma & Weenink, 2013) and Syllable Nuclei Praat script (de Jong & Wemp, 2009) were used to count the raw number of syllables, the phonation time which equals total speaking time minus pauses. We also inspected the Praat spectrogram while listening to the extracts of speech to identify and label syllables that were not recognized by the software on a corresponding grid to guarantee the accuracy of the automatic calculation. The articulation rate was calculated by dividing the total number of syllables by the phonation time.

Procedure

The data collection procedure included two one-to-one sessions. Individual speech was recorded using a handheld audio recorder in a private office. On the first day, the participants completed the informed consent forms and performed the first oral task. They were given three minutes to prepare for the oral task, during which they were permitted to take notes. The researcher collected their notes right after they completed the oral task. The participants were asked to keep the content of their oral task confidential. Two days later, the participants performed the same oral task in three minutes. They also had 3 minutes for preparation, with note-taking permitted. One day later, participants took the backward-digit span test which lasted approximately 8 minutes. Following that, they had a ten-minute break and then completed the operation-span task which lasted about 30 minutes. Two days later, all participants completed the receptive and productive vocabulary knowledge tests in a paper-and-pencil format.

After all data was collected, the 80 oral narratives were transcribed. Half of the transcripts were transcribed by the first author and then cross-checked by the second author and vice-versa.

Statistical Analysis

The screening of preliminary data showed that the HD-D scores, the K3+ proportions, and the articulate rates were normally distributed. Pearson's correlation tests revealed insignificant correlations between these measures: HD-D vs. K3+ proportion (r = .03, p = .70), HD-D vs. articulate rate (r = .02, p = .85), K3+ proportion vs. articulation rate (r = -.08, p = .41). Therefore, we decided to compute three separate one-way repeated measures ANCOVAs for lexical diversity, lexical sophistication, and articulation rate. Examination of boxplots and histograms provided no signs of outliers for any of the models. Also, the assumption of homogeneity of variance-covariance was met for all models as the Levene's tests were not significant ((p > .05). Therefore, ANCOVAs are appropriate to answer our research questions.

For each model, all participants completed an initial oral task and a repeat oral task; thus, *task repetition* (initial vs. repeat) was a within-subjects factor. Covariates were scores of the working memory tests and the prior vocabulary knowledge tests. Pearson bilateral correlation tests revealed weak correlations between the covariates (below .70), indicating a low possibility of multicollinearity. Thus, we decided to include them all in the regression models.

Results

The Effect of Task Repetition on L2 Learners' Lexical Use and Fluency

The descriptive statistics (see Table 2) shows improvements in lexical sophistication, lexical diversity, and fluency measures. However, ANCOVAs showed that the improvement found was insignificant: lexical diversity ($F(1,34) = .455$, $p = .504$), lexical sophistication ($F(1, 34) = .017$, $p = .896$), and articulation rate ($F(1, 34) = 1.344$, $p = .254$).

Table 2. Descriptive Statistics of Oral Performance Measures.

	Immediate task				Repeat task			
Measures	Min	Max	Mean	*SD*	Min	Max	Mean	*SD*
HD-D	.40	.86	.66	.11	.39	.81	.62	.12
K3+ proportion	3.60	19.51	11.22	4.40	5.72	20.10	12.50	3.84
Articulation rate per second	2.19	4.22	3.49	.42	2.00	5.09	3.64	.58

The Role of Prior Vocabulary Knowledge and Working Memory

To explore the mediating role of prior vocabulary knowledge and working memory for lexical use and fluency and in immediate and repeat tasks, separate one-way ANCOVAs were performed with adjusted p-values (see Appendix for the mean scores and standard deviations on the receptive and productive vocabulary knowledge tests). We also calculated the regression coefficient (β) using SPSS to determine the degree of change in the outcome variables (i.e., lexical complexity and fluency) for every 1-unit of change in the predictor variables (i.e., task repetition, prior vocabulary knowledge, and working memory).

The analyses (see Table 3) revealed that operation-span task scores were a strong predictor of K3+ proportion in the immediate ($p < .001$, $\beta = .196$) and the repeat task ($p < .001$, $\beta = .220$). As for lexical diversity, it was shown that receptive vocabulary knowledge scores significantly predicted lexical diversity in the immediate ($p = .006$, $\beta = -.009$) and the repeat task ($p = .006$, $\beta = -.008$). The negative coefficients indicate that participants with higher receptive vocabulary scores are more likely to earn a lower HD-D index.

For fluency, the analysis showed a positive association was found between backward-span task scores and learners' articulation rates ($p = .005$, $\beta = .094$) in the repeat task, indicating that participants with greater phonological storage and processing capacity tended to speak faster in the repeat task.

Table 3. One-Way Ancovas for Lexical Sophistication, Lexical Diversity, and Fluency Measures

			K3+ proportion				HD-D index				Articulation rate			
		df	***F***	***p***	η_p^2	**Power**	***F***	***p***	η_p^2	**Power**	***F***	***p***	η_p^2	**Power**
Receptive	Immediate	1	.649	.426	.019	.123	21.79	**<.001**	.391	.995	4.214	.048	.110	.514
	Repeat	1	.214	.646	.026	.152	8.42	.006	.199	.805	2.885	.099	.078	.379
Productive	Immediate	1	3.52	.069	.094	.446	3.09	.088	.083	.401	8.955	.035	.208	.828
	Repeat	1	.699	.409	.202	.128	2.66	.112	.073	.354	1.365	.251	.039	.206
Forward-span	Immediate	1	.002	.967	.000	.050	.046	.832	.001	.055	.098	.756	.003	.061
	Repeat	1	.005	.942	.000	.051	.039	.845	.001	.054	.001	.971	.000	.050
Backward-span	Immediate	1	.014	.907	.000	.052	.155	**.**696	.005	.067	2.74	**.**107	.075	.363
	Repeat	1	.009	.924	.000	.051	.004	.949	.000	.050	9.155	**.005**	.212	.836
Operation-span	Immediate	1	13.59	**<.001**	.286	.948	1.29	.264	.037	.197	2.13	.154	.059	.294
	Repeat	1	26.49	**<.001**	.438	.999	.473	.496	.014	.103	.134	.717	.004	.065
Error	Immediate	34												
	Repeat	34												

Note. p-value was set at 0.025.

Discussion

The Effect of Task Repetition on L2 Lexical Use and Fluency

We found no significant improvement of learners' lexical sophistication which seems inconsistent with Gass et al. (1999) and Kim et al. (2018), who discovered that task repetition had an effect on learners' lexical sophistication. Yet, they only focused on the effect of task repetition on the third time but not on the second time as we did. Thus, more research with different numbers of repetition is needed to have more insight into the effect of task repetition on lexical sophistication. In addition, the effect of task repetition on lexical diversity was not found at the second time of repetition as shown in Fukuta (2016), which might be explained by the differences in lexical diversity measure (i.e., Guidraud vs. HD-D index) and task interval (i.e., one week vs. two days) between the two studies.

In addition, against our anticipation, task repetition did not facilitate learners' fluency, which is inconsistent with the commonly reported finding that task repetition is effective for fluency improvement (Bygate, 2018). As task engagement has been widely considered an important element for the success of task performance (e.g., Aubrey, King, & Almukhaild, 2020), we assume that learners' level of task engagement might have been low because participants in our study did not follow a task-based program and were not informed about the repeat performance or the reason for repeating the same task.

The Role of Prior Vocabulary Knowledge and Working Memory

Concerning prior vocabulary knowledge, our findings suggest that receptive vocabulary knowledge may be a good predictor of L2 learners' lexical complexity and WM may be a good predictor of L2 fluency. In particular, participants with higher receptive vocabulary scores were more likely to use a wider range of words in their repeat performances than those with a smaller lexicon score. This finding is surprising given that previous studies often demonstrate that productive rather than receptive vocabulary knowledge is a strong predictor of lexical diversity (e.g., Uchihara & Clenton, 2018). We postulate that the small variance in the participants' scores of productive and receptive knowledge in our study might be a reason. However, caution should be taken in generalizing this finding to learners at higher proficiency levels (e.g., intermediate-advanced EFL learners).

Additionally, differences in vocabulary knowledge tests used (i.e., Productive Levels Test in our study vs. Lex30 in Uchihara & Clenton, 2018 and Clenton et al., 2020) might be another reason for the different study results. As each vocabulary knowledge test has a distinct format (e.g., form-recall format in Productive Levels Test vs. word association format in Lex30) and is designed based on different corpora, scores from different tests should be interpreted with caution.

Concerning working memory, the results show that learners' fluency was better predicted by the capacity for storing and processing digits, as reflected by the backward-span task scores. We assume a strong capacity for storing and processing digits might relate to abilities for storing and processing chunks of language, thus enhancing the speed of articulation. This finding seems to be in line with Ahmadian (2013) who also found a positive link between L2 learners' WM capacity and their articulation rate in the repeat task. However, it should be noted that learners' WM capacity was measured by the listening-span task rather than the backward-span task and the operation-span task as in our study. Second, against our hypothesis, there was not a significant link between learners' WM and lexical complexity. We assume that the task topic might be a reason. As the task of describing the latest vacation seems so familiar to the learners, they might have found it unnecessary to recall low-frequency words or to use a greater variety of words to complete the task.

Conclusion

Our study is one of the first studies that explores the effects of task repetition and individual differences of working memory and prior vocabulary knowledge on EFL learners' lexical complexity and fluency in the Vietnamese context. The findings indicate that task repetition did not influence lexical complexity and articulation rate at least in the first repetition. Yet, individual differences in WM and prior vocabulary knowledge played a significant role in predicting L2 learners' lexical diversity and articulation rate.

Our findings, however, need to take into consideration some limitations. First, the participants were A2-B1 students in a university in Vietnam, which limits the generalization of the findings. Second, as the study stopped after exploring the effect of repetition at the second occurrence of the task, it remains unclear to what extent task repetition has an effect from the third or subsequent task occurrences. Additionally, our study only focused on a spontaneous narrative task with limited speaking time (3 minutes). Future studies exploring other types of production tasks (e.g., dialogic tasks, tasks with prompts) and tasks with unlimited speaking time are warranted. The spontaneity of the oral performance should be interpreted with caution. There is a chance that participants performing the oral task earlier might have shared the task content with later participants, although they were explicitly asked to not do so. Finally, as the study only focused on one aspect of fluency, the findings cannot be generalized to other fluency constructs (e.g., pausing, repairs).

From the pedagogical perspective, our findings suggest that EFL teachers might pay attention to vocabulary knowledge and working memory differences in students when teaching speaking skills. For instance, teachers are encouraged to test learners' prior vocabulary knowledge using vocabulary knowledge tests and provide additional supports to low-level learners (e.g., beginner or A2-B1 level) to expand their vocabulary knowledge before training them for better lexical use and fluency in speaking. Unlike vocabulary knowledge, it might be more challenging for teachers to cater for individual differences in WM in typical language classrooms. For example, if the lesson goal is to enhance fluency, one realistic solution might be to provide tasks with both limited and unlimited time pressure. Thus, learners with limited capacity for WM (e.g., elderly learners) still have sufficient time for task preparation.

About the Authors

Phuong Thao Duong is an English lecturer in the Language Institute at Van Lang University. She finished her PhD in Applied Linguistics at KU Leuven in Belgium. She is also a reviewer for international journals in the field of Applied Linguistics (e.g., Language Teaching Research, IRAL-International Review of Applied Linguistics in Language Teaching). Her research interests include task-based language learning, vocabulary learning and teaching, technology-supported language teaching/learning, and corrective feedback. ORCID ID: 0000-0002-0900-9357

Le Huynh Ha Van (Van Le) is an English lecturer in the Language Institute at Van Lang University, Ho Chi Minh City, Vietnam. She got a B.A in TEFL (University of Pedagogy, Ho Chi Minh City, Vietnam), an M.A in TESOL (Victoria University, Australia), and a certificate in Teaching English as an International Language (RELC SEAMEO RETRAC, Singapore). She has presented a number of international and national conferences. Her major concerns are finding solutions to problems in teaching and learning English and enhancing students' motivation. ORCID ID: 0000-0001-8473-5351

Acknowledgement

The authors wish to express their gratitude to Van Lang University, Vietnam for financial support for this research.

To Cite this Article

Duong, P. T & Le, H. H. V. (2022). How working memory and prior vocabulary knowledge influence the impact of task repetition on L2 oral performance: Insights into Vietnamese EFL learners. *Teaching English as a Second Language Electronic Journal (TESL-EJ), 26* (3). https://doi.org/10.55593/ej.26103a12

References

Aubrey, S., King, J., & Almukhaild, H. (2020). Language learner engagement during speaking tasks: A longitudinal study. *RELC Journal*. https://doi.org/10.1177/0033688220945418

Ahmadian, M. J. (2013). Working memory and task repetition in second language oral production. *Asian Journal of English Language Teaching, 23*, 37–55. http://resolver.scholarsportal.info/resolve/23337192/v23i0001/37_wmatrislop.xm

Baddeley, A. (2003). Working memory and language: An overview. *Journal of Communication Disorders*, *36*(3), 189–208. https://doi.org/10.1016/S0021-9924(03)00019-4

Boersma, P., & Weenink, D. (2012). PRAAT. http://www.praat.org

Bui, T. T. N., & Nguyen, H. T. M. (2016). Standardizing English for educational and socio-economic betterment – A critical analysis of English language policy reforms in Vietnam. In R. Kirkpatrick (Ed.), *English language education policy in Asia* (pp. 363–388). Springer.

Bygate, M., Skehan, P., & Swain, M. (2001). *Researching pedagogic tasks: Second language learning, teaching and testing.* Longman.

Bygate, M. (2018). Introduction. In M. Bygate (Ed.), *Learning Language through task repetition* (pp.1–25). John Benjamins

Bygate, M., & Samuda, V. (2005). Integrative planning through the use of task repetition. In R. Ellis (Ed.), *Planning and task performance in second language* (pp. 37–74). John Benjamins.

Clenton, J., de Jong, N. H., Clingwall, D., & Fraser, S. (2020). Vocabulary knowledge and skills can predict aspects of fluency for a small group of pre-intermediate Japanese L1 users of English (L2). In Clenton, J. & Booth, P. (Ed.), *Vocabulary and the four skills*: *Pedagogy, practice, and implications for teaching vocabulary* (pp.146–165). Routledge.

De Jong, N.H., & Wemp, T. (2009). Praat script to detect syllable nuclei and measure speech rate automatically. *Behavior Research Methods, 41*(2), 385–390. https://doi.org/10.3758/BRM.41.2.385

De Jong, N.H., Steinel, M.P., Florijn, A.F., Schoonen, R., & Hulstijn, J.H. (2012). Facets of speaking proficiency. *Studies in Second Language Acquisition*, *34*, 5–34. https://doi.org/10.1017/S0272263111000489

Dörnyei, Z., & Kormos, J. (1998). Problem-solving mechanism in L2 communication: A psycholinguistic perspective. *SSLA, 20*, 349–385. https://doi.org/10.1017/S0272263198003039

Duong, P-T., Montero Perez, M., Desmet, P., Peters, E. (2021a). Learning vocabulary in spoken input- and output-based tasks. *TASK 1*(1), 100–126. https://doi.org/10.1075/task.00005.duo

Duong, P-T., Montero Perez, M., Nguyen, L-Q., Desmet, P., Peters, E. (2021b). Incidental lexical mining in task repetition: The role of input, input repetition and individual difference. *System*, *103*. https://doi.org/10.1016/j.system.2021.102650

Ellis, R., Skehan, P., Li, S., Shintani, N., & Lambert, C. (2020). *Task-based language teaching: Theory and practice*. Cambridge University Press.

Enayat, M. J., & Derakhshan, A. (2021). Vocabulary size and depth as predictors of second language speaking ability. *System*. https://doi.org/10.1016/j.system.2021.102521

Fehringer, C., & Fry, C. (2007). Hesitation phenomena in the language production of bilingual speakers: The role of working memory. *Folia Linguistica: Acta Societatis Linguisticae Europaeae, 41*(1-2), 37–72. https://doi.org/10.1515/flin.41.1-2.37

Fukuta, J. (2016). Effects of task repetition on learners' attention orientation in L2 oral production. *Language Teaching Research*, *20*, 321–340. https://doi.org/10.1177/1362168815570142

Gass, S., Mackey, A., Alvarez-Torres, M., & Fernández-García, M. (1999). The effects of task repetition on linguistic output. *Language Learning, 49(*4), 549–581. https://doi.org/10.1111/0023-8333.00102

Juffs, A., & Harrington, M. (2011). Aspects of working memory in L2 learning. *Language Teaching, 44*, 137–166. *Language Learning, 44(*2), 136–166. https://doi.org/10.1017/S0261444810000509

Khatib, M., & Farahanynia, M. (2020). Planning conditions (strategic planning, task repetition, and joint planning), cognitive task complexity, and task type: Effects on L2 oral performance. *System, 93*. https://doi.org/10.1016/j.system.2020.102297

Kim, Y., Crossley, S., Yung, Y., Kyle, K, & Kang, S. (2018). The effects of task repetition and task complexity on L2 lexical use. In M. Bygate (Ed.), *Learning Language though Task Repetitions (pp. 75–96)*. John Benjamins.

Kyle, K. (2020). Measuring lexical richness. In Webb, S. (Ed.), *The Routledge handbook of vocabulary studies* (pp.125-142). Routledge.

Kyle, K., Crossley, A.S. & Jarvis, S (2020). Assessing the validity of lexical diversity indices using direct judgements. *Language Assessment Quarterly, 18*(2), 154–170. https://doi.org/10.1080/15434303.2020.1844205

Laufer, B. & Nation, P. (1999). A vocabulary-size test of controlled productive ability. *Language Testing, 16*(1), 33–51. https://doi.org/10.1177%2F026553229901600103

Lambert, C., Aubrey, S., Leeming, P. (2020). Task preparation and second language speech production. *TESOL Quarterly, 55*(2), 331–365. https://doi.org/10.1002/tesq.598

Li, L., Chen, J. and Sun, L. (2015). The effects of different lengths of pre-task planning time on L2 learners' oral test performance. *TESOL Quarterly, 49*(1), 38–66. https://doi.org/10.1002/tesq.159

Malvern, D., & Richards, B. (2002). Investigating accommodation in language proficiency interviews using a new measure of lexical diversity. *Language Testing*, *19*(1), 85–104. https://doi.org/10.1191%2F0265532202lt221oa

Newton, J., & Nguyen, B. T. (2019). Task repetition and the public performance of speaking tasks in EFL classes at a Vietnamese high school. *Language Teaching for Young Learners, 1*(1), 34–56. https://doi.org/10.1075/ltyl.00004.new

Nguyen, N. T. (2011). West wind blows: Voices of Vietnamese teachers and students of English – A case study of Nha Trang University (Unpublished PhD dissertation). Ohio University, Ohio.

Nguyen, T. N. (2017). Thirty years of English language and English education in Vietnam. classes *English Today*, *33*(1), 33–35. http://doi.org//10.1017/S0266078416000262

Nguyen, L. T. C., & Nation, P. (2011). A bilingual vocabulary size test of English for Vietnamese learners. *RELC Journal, 42*(1), 86–99. https://doi.org/10.1177/0033688210390264

Nguyen, T.B.T., Newton, J., & Crabbe, D. (2018). Teacher transformation of textbook tasks in Vietnamese EFL high school classrooms. In V. Samuda, K. Van den Branden, & M. Bygate (Eds.), *TBLT as a Researched Pedagogy* (pp.52–70). John Benjamins

Nguyen, A.T., & Jaspaert, K. (2021). Implementing task-based language teaching in an Asian context: Is it a real possibility or a nightmare? A case study in Vietnam. *ITL-International Journal of Applied Linguistics, 172*(1), 121–151. https://doi.org/10.1075/itl.16022.ngu

O'Brien, I., Segalowitz, N., Collentine, J., & Freed, B. (2006). Phonological memory and lexical, narrative, and grammatical skills in second language oral production by adult learners. *Applied Psycholinguistics, 27*, 377–402. https://doi.org/10.1017/S0142716406060322

Phuong, H.Y., van den Branden, K., van Steendam, E., & Sercu, L. (2015). The impact of PPP and TBLT on Vietnamese students' writing performance and self-regulatory writing strategies. *ITL-International Journal of Applied Linguistics, 166*(1), 37–93. https://doi.org/10.1075/itl.166.1.02yen

Uchihara, T., & Clenton, J. (2018). Investigating the role of vocabulary size in second language speaking ability. *Language Teaching Research, 24*(4), 540–556. https://doi.org/10.1177/1362168818799371

Uchihara, T., & Saito, K. (2019). Exploring the relationship between productive vocabulary knowledge and second language oral ability. *Language Learning Journal*, *47*(1), 64–75. https://doi.org/10.1080/09571736.2016.1191527

Wang, Z. (2014). Online time pressure manipulations: L2 speaking performance under five types of planning and repetition conditions. In P. Skehan (Ed.), *Processing Perspectives on Task Performance* (pp.27–61). John Benjamins.

Appendix

Table 4. Descriptive statistics of the receptive vocabulary test scores

1K – 5K (Max = 25)		6K – 10K (Max = 25)		11K-14K (Max = 20)		Total score (Max = 70)	
Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
19.70 (2.43)	13.00-25.00	14.21 (4.18)	10.00-20.00	7.32 (2.80)	2.00-16.00	42.92 (6.79)	30.00-59.00

Table 5. Descriptive statistics of the productive vocabulary test scores

2K	(Max = 18)	3K	(Max = 18)	5K	(Max = 18)	10K	(Max = 18)	UWL	(Max = 18)	Total	(Max = 90)
Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
13.75 (2.17)	10.00-18.00	8.51 (2.45)	3.00-15.00	5.20 (2.41)	0.00-10.00	2.16 (1.73)	0.00-5.00	5.72 (3.11)	0.00-12.00	34.29 (8.51)	18.00-50.00