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Investigating multi-faceted aspects of vocabulary and oral ability

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De Jong 2013

The research resulted in the culmination of an edited volume (vocabulary and the four skills) which served to demonstrate and support the multi-faceted construct view of vocabulary knowledge.

The research reported four findings: (i) based on comparisons of results with earlier studies (e.g. De Jong, 2013) relations between vocabulary knowledge and fluent speech ay to some extent be proficiency dependent. This can be followed up in future research designed to investigate the potential interaction between proficiency level and the relation between vocabulary knowledge and fluency; (ii)some degree of overlap exists between the productive vocabulary used in response to a productive vocabulary task as well as a speaking fluency task. This does not, however, suggest that this finding would be consistent across all proficiency levels. A series of studies of participants at different proficiency levels with the same tools employed in the current study might help shed some light on this finding; and (iv)  the responses in (delayed) picture naming might relate to vocabulary knowledge in terms of speed and automaticity of retrieval (i.e. in vocabulary skills).

Vocabulary

Vocabulary  multi-faceted oral  ability

The words second language speakers choose to use when speaking may have consequences for their speaking fluency (e.g. Seifart et al., 2019). Several studies (e.g. De Jong et al., 2013; De Jong & Mora, 2017; Miralpeix &Muñoz, 2018; Milton et al., 2010; Segalowitz & Freed, 2004; Uchihara & Saito, 2016) explore how the relation between vocabulary knowledge and fluent speech can be evaluated objectively. Such evaluation is important because of the variety and volume of second language speakers, especially in English, whose fluency needs to be assessed, with the importance vocabulary plays in such assessment being absolutely central: '...while without grammar very little can be conveyed, without vocabulary nothing can be conveyed' (Wilkins, 1972, pp. 111-112). Measures of vocabulary knowledge and fluency provide stakeholders, such as those involved in research, pedagogy, and assessment, with essential information to discriminate between users of second languages and their respective proficiency levels. Much research, therefore, is needed to explore the specific features necessary to distinguish between second language users with different levels of language ability. The study we report here adds to this body of research by examining the relationship between the vocabulary knowledge of pre-intermediate Japanese learners of English and their oral fluency.

I present a small-scale study in which I employ various vocabulary knowledge tasks and fluency elicitation tasks. I compare the results from several elicitation tasks not conventionally employed together in the hope not only that this combination of tasks is better suited to the users whose second language I measure, but also that the findings are informative in our investigation of how vocabulary knowledge relates to aspects of second language fluency.

The aim is to explore the potential relationships between the knowledge elicited from a productive vocabulary knowledge task and the aspects of fluency elicited from speaking (fluency) tasks. The second aim is to compare the vocabulary produced in response to the productive vocabulary knowledge task with the vocabulary produced in response to the speaking (fluency) tasks. I also explore findings from earlier papers on fluency in two additional respects, by: (i) comparing receptive knowledge with aspects of fluency; and (ii) exploring the speed and retrieval automaticity, and so including response latency and response duration measures in picture naming tasks in the investigation. The current study, therefore, focuses on the following four questions:

1.       Can productive vocabulary knowledge task scores predict aspects of speaking fluency?

2.       Can receptive vocabulary knowledge task scores predict aspects of speaking fluency?

3.       To what extent do vocabulary skill measures (e.g. response latency and response duration in picture naming tasks) predict aspects of fluency?

4.       Is there an overlap between vocabulary used in response to the productive vocabulary task and the vocabulary used in the speaking fluency task?

## Methodology

### Participants

The participants in the study were 30 pre-intermediate undergraduate adult L1 Japanese learners of English (M age = 19, SD = 1.3) with an average of 6.5 years' experience of learning English in a school environment; learners had received L2 English instruction for approximately 3-4 hours a week from L1 Japanese teachers in Japan. They did not use English regularly outside of the learning context. Their X_Lex scores (M= 4048, Range=2400-4800) also showed they were of a pre-intermediate proficiency.

The current study was designed to further investigate the extent to which vocabulary knowledge and skills can predict aspects of fluency using several tasks. We have reported on an experiment in which the participants carried out three speaking tasks, and responded to tasks designed to capture their vocabulary skills (picture naming to measure lexical retrieval speed and delayed picture naming task to measure articulation speed), as well as two vocabulary tasks (a productive vocabulary task (Lex30; Meara & Fitzpatrick, 2000), and a test of vocabulary size (X_Lex; Meara & Milton, 2003). We also included an analysis in which the vocabulary used in response to the speaking fluency tasks was correlated with the vocabulary knowledge and skills measures. We can now respond to each of our four research questions.

We first asked whether productive vocabulary knowledge task scores predict aspects of speaking fluency. In broad terms, the findings from the current study are to some extent consistent with earlier fluency studies (e.g. De Jong et al., 2013; De Jong & Mora, 2017). The current study, while using different productive vocabulary knowledge measures, supports De Jong et al.'s (2013) finding that a higher vocabulary score correlates negatively and significantly with the number of silent pauses (Lex30). Regarding this specific correlation, we suggest it relates to Lex30 tapping into aspects of fluent speech if our pre-intermediate participants potentially used a similar set of highly frequent items from the same or similar frequency bands for the written and fluency tasks. In using Lex30, the current study supports Clenton et al.'s (2019) suggestion that it appears more aligned to the ability to use the words than other productive vocabulary knowledge tasks. This

implication we feel is borne out by the significant correlations between the vocabulary used in response to the speaking fluency task and the Lex30 score (Table 11.4), because participants' lexical resource appears to be shown both in response to Lex30 and to the speaking fluency task. We suggest, however, that at higher levels of proficiency, such overlap might not exist to this same extent between productive vocabulary knowledge task corpora and speaking fluency task corpora, because of the vocabulary size of highly proficient users. While we appreciate that our finding might be exclusive to the proficiency of the participants in the current study, we suggest that this interpretation is important because the Lex30 task might tap the vocabulary knowledge available to such proficiency groups. Clenton et al. (2019) suggest that some aspects of vocabulary acquisition might lag others if certain aspects of vocabulary knowledge (e.g. form, which we believe Lex30 accesses) come before others (e.g. semantic, and grammatical knowledge, which the PVLT accesses). We also sense that the current study confirms that Lex30 scores predict aspects of fluency at a pre-intermediate level of proficiency for the specific participants examined in the current study. However, we suggest future studies explore suggestions (e.g. Webb & Chang, 2012; Zhang & Lu, 2013) that aspects of vocabulary knowledge develop inconsistently with increases in proficiency. We propose that for studies involving higher-level learners, a test such as the PVLT (alongside other productive vocabulary tasks such as Lex30) might help to inform the extent to which the quality of vocabulary knowledge develops with increases in proficiency.

Our second research question explored the findings from earlier papers on fluency (e.g. De Jong & Mora 2017) that found a significant correlation between receptive vocabulary knowledge task scores and one aspect of speaking fluency. The current study, however, did not find any significant correlations between receptive vocabulary knowledge task scores and the various aspects of speaking fluency. We refer readers to the discussions of our first and second research questions in this case, because we believe that the lack of correlations with the receptive vocabulary measures might relate to the specific proficiency level of our participant group and that this might relate to differences in developing lexicons. Previous fluency related studies (e.g. De Jong et al., 2013; De Jong & Mora, 2017; Miralpeix & Muñoz, 2018) have examined more proficient participants. Such higher-level participants might have developed a receptive vocabulary resource which, we suspect, while not only being larger than that of the pre-intermediate participants that were the focus of the current study might also be more closely related to their productive vocabulary knowledge. The lack of any significant correlation between Lex30 and X_Lex (r=.371) might support this finding and runs somewhat counter to earlier Lex30 studies (e.g. Fitzpatrick & Clenton, 2010; Fitzpatrick & Clenton, 2017) that show significant correlations between the receptive and productive vocabulary measures. We suggest that follow-up studies explore this specific finding with perhaps leaners of different (lower and higher) proficiency participants.

Our third research question explored the extent to which vocabulary skill measures (e.g. response latency and response duration) predict aspects of fluency. This specific question investigates Qian's (2002) suggestion that vocabulary knowledge relates to speed and automaticity of retrieval. The findings here all relate to the timed picture naming tasks in which participants were required to name pre-primed pictures presented on a screen. Our investigation showed three significant

correlations. First, it yielded a significant moderate correlation between response latency-delayed picture naming and the number of silent pauses per second in the speaking tasks ($r=.37$, $p <0.05$). Participants who were slower in their response in naming pictures used more silent pauses in their speaking performances. Second, there was also a significant correlation between response latencies in delayed picture naming and mean syllable duration ($r=-.44$, $p <0.05$). This negative correlation is counterintuitive, in that fast picture-naming speed is related to a slow articulation rate (long syllable duration). The findings we report here differ from those reported in De Jong et al (2013), who found ten significant relations (with $n=179$), the largest being .32. We speculate that such differences may relate to the different participant proficiency levels and the sample sizes. We suggest that the three findings we report in this chapter are worthy of further examination in additional studies to determine whether aspects of fluency, such as automaticity of retrieval and speed of naming, relate differently at different proficiency levels.

Our fourth and final research question asked whether the vocabulary used in response to the productive vocabulary task predicted the vocabulary used in the speaking fluency task. Our findings here show that there is some overlap between responses to the Lex30 task and the speaking fluency task at levels 2 and 0 of the Academic Spoken Word List (ASWL; Deng et al., 2017). This finding, however, should be tempered by the comments we presented earlier in our discussion (e.g. Fitzpatrick & Clenton, 2010) that speaking output may not mirror written output. The current study, however, was originally designed to test our first research question, to evaluate the extent to which productive vocabulary knowledge predicts aspects of fluency with perhaps a measure appropriate to the specific proficiency of our participant group. We maintain that this specific finding is, however, worth exploring further and that future such studies could, of course, adopt a spoken Lex30 format in order to test this specific claim. We suggest, however, that there are potential limitations to this finding that rely on comparing data from the productive vocabulary knowledge task with the speaking fluency task. For our pre-intermediate proficiency participants, we propose that this kind of approach might fit if we can observe some overlap. However, with a highly proficient group, we argue that there might only be limited overlap between the productive vocabulary knowledge task and the speaking fluency task. Arguably, because of the limitations of the lexical resource, this approach might only be relevant for lower proficiency levels. We wonder, therefore, until which proficiency levels this specific approach is relevant. We might suppose that, up to a specific proficiency, Lex30 provides a useful sign of the available lexical resource. The extent to which this finding can relate to other proficiencies and to other productive vocabulary tasks would, we feel, be worthy of further exploration.

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