

## Working Memory and Phonological Short-Term Memory in the Acquisition of Academic Formulaic Language

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**Abstract :** This study examines the correlation between knowledge of formulaic language, working memory (WM), and phonological short-term memory (PSTM) in Chinese L2 learners of English. This study investigates if WM and PSTM correlate differently to the acquisition of formulaic language, which may be relevant for the discourse around the conceptualization of formulas. Connectionist approaches have led scholars to argue that formulas are form-meaning connections stored whole, making PSTM significant in the acquisitional process as it pertains to the storage and retrieval of chunk information. Generativist scholars, on the other hand, argued for active participation of interlanguage grammar in the acquisition and use of formulaic language, where formulas are represented in the mind but retain the internal structure built around a lexical core. This would make WM, especially the processing component of WM an important cognitive factor since it plays a role in processing and holding information for further analysis and manipulation. The current study asked L1 Chinese learners of English enrolled in graduate programs in China to complete a preference ranking task where they rank their preference for formulas, grammatical non-formulaic expressions, and ungrammatical phrases with and without the lexical core in academic contexts. Participants were asked to rank the options in order of the likeliness of them encountering these phrases in the test sentences within academic contexts. Participants' syntactic proficiency is controlled with a cloze test and grammar test. Regression analysis found a significant relationship between the processing component of WM and preference of formulaic expressions in the preference ranking task while no significant correlation is found for PSTM or syntactic proficiency. The correlational analysis found that WM, PSTM, and the two proficiency test scores have significant covariates. However, WM and PSTM have different predictor values for participants' preference for formulaic language. Both storage and processing components of WM are significantly correlated with the preference for formulaic expressions while PSTM is not. These findings are in favor of the role of interlanguage grammar and syntactic knowledge in the acquisition of formulaic expressions. The differing effects of WM and PSTM suggest that selective attention to and processing of the input beyond simple retention play a key role in successfully acquiring formulaic language. Similar correlational patterns were found for preferring the ungrammatical phrase with the lexical core of the formula over the ones without the lexical core, attesting to learners' awareness of the lexical core around which formulas are constructed. These findings support the view that formulaic phrases retain internal syntactic structures that are recognized and processed by the learners.

**Keywords :** formulaic language, working memory, phonological short-term memory, academic language

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