The present study’s review on past studies in Malaysia reveals lexical paralysis as the main reason for students’ inability to master English as a second language. Notably, numerous studies found that direct vocabulary instruction is effective for increasing students’ vocabulary size while some studies found conflicting results. In addition, direct vocabulary instruction is not given serious attention and emphasis in a second language classroom. In view of all this, this study aimed to examine the impact of a rich, systematic, structured and principled Contextualised Word Family (CWF) Model of direct vocabulary instruction on students’ vocabulary size and guided essay writing test scores based on their proficiency levels. It also examined whether there was any significant difference in students’ vocabulary size before and after the treatment and significant difference between genders. Besides, the study also evaluated the relationships between students’ vocabulary size and their attitudes and perceived problems faced in vocabulary learning. This study employed a quasi-experimental design whereby the data collection was conducted in a normal classroom condition. 143 Form Two students from a secondary school in Samarahan district in Sarawak, Malaysia were selected as the respondents for this study using purposive and stratified random sampling. The primary data was collected using Laufer and Nation’s Productive Vocabulary Levels Test (PVL T) at 2000-word level (Test A and Test B), guided essay writing tests (Test 1 and Test 2) and a questionnaire. The data obtained from the pre-test and post-test scores of the PVL T, guided essay tests and questionnaires were computed using descriptive statistics, t-tests and Spearman’s rho correlation. The results revealed a statistically significant increase in vocabulary size ranging from 1000 to 2000 words for all the three groups after the treatment using the proposed model for two and a half months. There was also a statistically significant difference in students’ guided essay writing test scores after the treatment. However, there was no significant difference in vocabulary size between gender before and after the treatment but a weak positive relationship between students’ vocabulary size and their perceived problems faced in vocabulary learning. The results had generated some vital significance and implications for instructional practices, new knowledge in L2 vocabulary acquisition and recommendations for future research.