The present study aimed to examine the possible relationship between English morphological knowledge as a powerful vocabulary learning strategy and English vocabulary knowledge of Iranian pre-university students. The study was conducted on 70 Iranian pre-university students aged 18-19. Morphological knowledge and vocabulary size of Iranian pre-university students were assessed through using Nation's 2,000-word level Vocabulary Test (VLT) and Morphological Knowledge test which evaluated students' knowledge of inflection, derivation and compounding. Then the results were correlated in order to find out whether morphological knowledge plays any role in vocabulary size of Iranian pre-university students or not. The results showed that there is a significant relationship between the students' overall morphological Knowledge and their vocabulary Knowledge. In addition, the results underscored the potential importance of different aspects of morphological knowledge for increasing vocabulary knowledge. Students' ideas regarding the tests were also investigated through using a questionnaire. The findings of this study led to the suggestions to improve Iranian pre-university students' English learning in general and their vocabulary size in particular through using morphological Knowledge as a very useful vocabulary learning strategy