This paper reports the results of two longitudinal experiments which compared the effects of reading-only, reading-while-listening and reading with textual input enhancement (i.e. underlining) on Vietnamese English as a foreign language (EFL) learners’ learning of three aspects of vocabulary knowledge: form recognition, form recall, and meaning recall. 60 Vietnamese EFL learners (32 beginner and 28 intermediate learners) were recruited for the study. The participants of each proficiency level were assigned to one of three experimental conditions: reading-only, reading-while-listening, or reading with textual input enhancement (underlining). During a period of four weeks, all learners read four graded readers in their conditions. Immediate post-tests and delayed post-tests (one week later) of target words were administered after each reading session. To gain more insights into the learners’ perspectives on their vocabulary learning during the three reading modes, follow-up semi-structured interviews with all the learners were conducted. The results showed that the three reading modes resulted in word learning gains for the three word knowledge aspects tested. However, reading with textual input enhancement resulted in significantly more vocabulary learning than the reading-only group, while the reading-while-listening and reading-only groups did not differ significantly. In addition, form recognition had the highest gains while form recall the lowest. Finally, implications for vocabulary learning and teaching are discussed.