



The influence of morphological knowledge on lexical processing and acquisition: The case of Arab EFL learners



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HIGHLIGHTS

- Morphological knowledge links to L2 vocabulary acquisition.
- Regular inflectional morphology explains approximately 38% of the variance in L2 Vocabulary uptake.
- Derivational morphology does not explain L2 vocabulary development.
- L1 Arabic morphological rules do not contribute to L2 morphological awareness.

ARTICLE INFO

Article history:

Received 11 November 2015

Received in revised form

23 February 2016

Accepted 11 April 2016

Available online 14 April 2016

Keywords:

Morphological processing

Vocabulary acquisition

Arabic

Inflection

Derivation

ABSTRACT

Although morphological knowledge has been proposed to enhance second language (L2) vocabulary acquisition, little is known about which morphological process has the greatest impact on lexical acquisition. To address this question, 400 school-learners of English from high schools in Saudi Arabia were presented with a morphological decomposition task of regular and irregular inflection and derivation, and an L2 vocabulary size test. The results indicated some significant levels of correlation between knowledge of regular inflection and derivation, and L2 vocabulary knowledge. Irregular inflection and derivation, on the contrary, were not found to have a significant effect on L2 vocabulary acquisition. Although significant correlations were observed between regular morphology and L2 vocabulary learning, regression analysis showed that only regular inflection processing has a sizable effect on vocabulary uptake. This variable explained about 38% of the variance *per se*. The findings also revealed no clear effect of the first language (L1) regularity of morphological rules, which apply extensively in Arabic, on acquiring words that are regular in English. The overall findings propose an explicit focus on teaching regular inflectional morphology in the language classroom because of its marked influence found on vocabulary acquisition.

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1. Introduction

Understanding how words are formed is potentially a key component in developing a sizeable second language (L2) lexicon. Additionally, as vocabulary knowledge increases L2 learners should gain insights into morphological processing of the target language. Morphological knowledge has been studied extensively on the literature of L2 acquisition (e.g. Refs. [14,15,19,20,36,44]), and mastery of morphological structure has long been proposed to be

linked to vocabulary acquisition [8,41]. However, there is relatively scant research that has attempted to explore the link between L2 learners' ability to manipulate the morphological elements of words and the development of their vocabulary size with native Arabic speakers. This study, therefore, is an endeavour to explore this assumption among native Arabic learners of English as a foreign language (EFL) in Saudi Arabia, where no study, to the author's knowledge, has been conducted.

Studies of vocabulary acquisition in Saudi Arabia repeatedly show a small EFL vocabulary gain by schoolchildren (e.g. Refs. [2,3,5,32]). Potential factors underlying this poor vocabulary uptake are not adequately investigated. There are two studies found in the literature that have endeavoured to explore this

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matter. Alsaif and Milton [6] propose that insufficient vocabulary input from learners' textbooks might, to an extent, explain the little vocabulary learning by Saudi school learners. More recently [33,34], point out that L2 words with direct L1 Arabic translation equivalents are better learnt than words which do not have this feature. This is an area where more systematic research is needed. Since morphological processing is largely associated with vocabulary learning, the presumption that less morphological awareness/knowledge by native Arabic EFL learners might explain, at least in part, the hurdle of L2 vocabulary acquisition.

The study will examine this assumption through lexical decomposition task of regularly and irregularly inflected and derived English words and its relationship to the learners' receptive vocabulary knowledge. A number of psycholinguistics studies, however, have proposed that both derivational affixes and regular inflectional affixes comprise morphological decomposition for lexical access [4]. This notion, however, is not the case with irregular inflections, which have been suggested to be stored as full entries in the mental lexicon [31,45,50,51]. Additionally, a body of research also suggests that a word root is activated when regularly inflected or derived forms are processed, but this feature is not available when irregular inflected forms are processed [18,29,48]. Thus, tapping into morphological processing through lexical decomposition task is believed to be appropriate for the purpose of the current study. The following section will briefly review the morphological processing of regular and irregular words and discuss how words are stored and retrieved from the mental lexicon.

2. Morphological processing

One of the most debated issues in second language acquisition (SLA) research has been on whether certain linguistic processes can be captured within a single associative networks (e.g. [9,39,47]), or a dual-route mechanism (e.g., [45,51]). Advocates of single-network models argue that regularly inflected or derived words are stored in the mental lexicon by either having superimposed representations [12] or by having a full word representations cluster around a nucleus represented by the stem [30]. The dual-route mechanism line of research, on the other hand, shows that regular and irregular inflections have multiple dissociations which support a distinction between rule-based and associative processing of regular and irregular inflections.

In support of dual-route processing, which challenges the single network models [45] offered evidence that regular and irregular inflections show multiple dissociations which support a distinctive aspect between associative and rule-based processes for regularly and irregularly inflected forms. According to the dual-route model, a rule-based process is a common procedure that concatenates an affix (i.e., -ed) with a variable standing for syntactic category of the stem. This rule hence applies freely to a given word of the correct category, irrespective of phonological form [45]. Irregular inflections, on the contrary, include the representation of stem and inflected forms in an associative memory network.

Research on inflectional morphology, at least in part, shows a distinction between regular and irregular morphological processing. This distinction, however, is less clear in derivational morphology. It appears that there is no sense in which derivational processes have a common form of application and a more idiosyncratic form. Nonetheless, there are some differences in the degree of productivity between diverse derivational processes [4]. For instance, the agentive -er suffix attaches with most verbs stems, where -ist is much more selective. In the context of L2 vocabulary

acquisition, inflectional morphology processing is seen as less problematic than derivational morphology processing, and that L2 learners can develop morphological awareness knowledge of inflectional process faster than derivational process [33,34].

In addition to the potential effect of L2 morphological knowledge on developing a sizeable L2 lexicon, transferring the existing L1 morphological awareness might enhance the process of L2 vocabulary acquisition. In Arabic language, knowledge of morphological rules is mastered at early stages of language acquisition [1,21]. Thus, this attribute of Arabic language might, to a certain degree, be transferred and utilised when approaching L2 vocabulary learning. A brief discussion of how words are formed in Arabic is presented in the following section.

3. An overview of the Arabic mental lexicon

There are at least two views which are claimed to account for how complex forms are represented in the Arabic mental lexicon and processed on-line. The first is a morpheme-based approach, which suggests that Arabic surface forms comprise a root and a word pattern [16,38]. The second is a stem-based approach, which dispenses with roots and word patterns and views the Arabic lexicon as being structured around processes that take the stem as a basic unit [10,23,46]. In this section, both views will be discussed, and evidence of the approach that is believed to model the Arabic mental lexicon will be offered.

3.1. The root and pattern approach

The root and pattern approach includes at the minimum three distinct versions which differ either in terms of the number of morphemic units they put forward or in terms of the way surface word forms are believed to be created. According to the earliest version of the approach/model, the morphological system hinges on two morphemes: a consonantal root which carries a broad semantic meaning, and a vocalic word pattern which carries non-referential aspects of meaning such as perfective, or active [11]. These two units are interwoven to create a deverbal noun stem called مصدر [maʃdar]. However, the derivation of all the other surface forms does not involve root and pattern combination, but proceeds on the bases of the deverbal noun stem employing different morpho-phonological procedures such as pre-fixation, infixation, and vowel deletion or insertion ([11]; p. 32).

In contrast, the second version of the root and pattern view considers every surface form as a combination of a root and a word pattern, and the lexicon as a repository of roots and patterns with a set of rules to associate them [17,25]. The third representation of the root and pattern approach is established within the framework of auto-segmental phonology [37,38]. In this view, Arabic morphology is thought to function with three morphemes: a consonantal root, which remains believed to deliver the core semantic meaning, a vocalic melody conveying morpho-syntactic meaning such as active-passive, and a CV-Skeleton that provides morpho-syntactic information as well as determining the phonological structure of the surface form [11]. Similar to the second version of the root and pattern approach, McCarthy's model necessitates that the root, the vocalic melody and the CV-Skeleton are merged to derive every surface form.

Despite the variation between the three versions of the root and pattern approach, there is an agreed upon unity underlying their apparent diversity. Precisely, they all ascribe a morphemic status to the root and the pattern.

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