Acquisition of Adjective-Forming Suffixes by EFL Freshman Students

Prof. Reima Al-Jarf

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Prof. Reima Al-Jarf
King Saud University, Riyadh, Saudi Arabia

Abstract
English as a Foreign Language (EFL) freshman students at the College of Languages and Translation received direct instruction in adjective-forming suffixes, then they took an immediate and a delayed test. Error analysis showed that 36% of the responses were left blank or the subjects duplicated the stimulus word. In 32% they mismatched the word and suffix, in 36% they made spelling mistakes; in 15% they spelled words phonetically, and in 15% they added a noun- or an adverb-forming suffix. Significant differences were found in the amount of errors made by the students on both tests. The number of errors made correlated with the students' vocabulary knowledge. A hierarchy of difficulty in attaching adjective-forming suffixes, faulty strategies used in adjective morphology and possible causes of students' difficulty in adjective suffix acquisition are given.

Keywords: language and tranlsation, EFL, Saudi Arabia, adjective suffix acquisition, error analysis, adjective morphology

1 Introduction

Knowledge of derivational morphology is the ability to gain information about the pronunciation, part of speech and meaning of new words from their prefixes, roots, and suffixes (Nagy, Diakidoy & Anderson, 1991). This knowledge is an essential aspect of first (L1) and second language (L2) acquisition and an important component of skilled reading. It can aid readers in the analysis and acquisition of new vocabulary, in lexical access, and in establishing the syntactic structure of sentences (Tyler & Nagy, 1985; Singson, Mahony & Mann, 2000; Ku & Anderson, 2003; Ramirez, Chen, Geva & Kiefer, 2010; Gabig & Zaretsky, 2013). In a study by Carlisle, Stone & Katz (2001), poor readers in grades 4-9 had less difficulty reading words whose forms were phonologically and orthographically transparent than reading words whose base forms undergo a phonological shift when a suffix is added. Nagy, Diakidoy & Anderson (1991) also found that knowledge of common English suffixes by L1 students continued to develop after 4th grade. Even in high school, some students had serious problems with English suffixes. Knowledge of morphology seemed to be a distinct component of verbal ability, although it was significantly related to standardized measures of reading ability in grade 7 and high school. However, for both good and poor readers, applying knowledge of morphological structure of complex forms was task specific. Although the students knew the syntactic properties of derivational suffixes, even above average readers did not seem to apply such knowledge in a task that required reading for meaning (Tyler & Nagy, 1985).

Even though 84% of prefixed words in "printed school English", and 86% of derivationally suffixed words are semantically transparent, i.e., their meaning can be inferred from their constituent morphemes, both L1 and L2 learners have difficulty in morphology (Nagy & Anderson, 1984). In

addition, Lardiere (2006) reported morphological mismatches in ESL by a Chinese speaker. Petrush (2007) found that fourth-semester English-speaking learners had only an emerging awareness and varying productive control of derivational suffixes in French. In a judgment task, fewer than 50% of the learners identified category mismatches in 8 out of 10 items, and a written corpus contained frequent morphological errors.

Obviously, morphological cues for the inference of words in L2 are essential to vocabulary acquisition. This is confirmed by findings of a study by Freyd & Baron's (1982) which indicated that learners who are good at analyzing words are the more successful word learners. Miguel (2013) also found that morphological awareness can help L2 learners infer and learn the meaning of unknown words.

An examination of prior studies on L2 morphology revealed a group of studies that mainly focused on morpheme acquisition order as a function of learners' L1 background (de Villiers & de Villiers, 1973; Larsen-Freeman, 1975; Snow, Smith & Hoefnagel-Höhle, 1980; Dulay & Hawkins, 2001; Luk & Shirai, 2009; Masuda, & Wang, 2011; Murakami, 2011). Those studies provided a plethora of information about the order of acquisition of several kinds of morphemes. They suggested that there is a natural sequence in acquiring morphemes, regardless of the first language (L1). Influence of L1 was claimed to be minimal or non-existing. However, studies like Khor (2012) provided evidence that L1 transfer is greater than it was previously thought. Khor's results showed that the errors made by 6th and 7th grade students in using articles, the preposition *"in"* and plural forms were of the same nature in Swedish and English. These results point to the strong influence of L1. She concluded that L1 influences the acquisition of morphemes and that affects the order in which grammatical morphemes are acquired. Learners in a particular language group learn those morphemes in a specific, rather than a fixed universal order.

Studies also revealed that children make use of morphological generalizations on a large scale (Windsor, 1994; Jarmulowicz, 2006; Duncan, Casalis & Cole, 2009; Gabig & Zaretsky, 2013). Such findings can serve as a basis for defining the role of morphology in building the L2 mental lexicon, highlight the importance of L2 learners' native language and the role of the learner's input.

As for the strategies and processes employed by L2 learners in the production and comprehension of morphologically complex words, there is a dearth of research studies in L2 morphology. Prior studies hardly paid attention to the underlying strategies applied by the learner in acquiring, processing and producing morphologically complex words, and the general organization and development of L2 learners' lexicon. An investigation of the processes and principles underlying the acquisition of English morphology by Saudi freshman students is needed. To this end, the primary purpose of this study is to investigate freshman students' acquisition of adjective morphology in English, to identify the types of adjective formation errors made by the students, to give a hierarchy of difficulty, to identify the strategies they use in adjective formation, the possible causes of students' difficulties and the effect of L1 (Arabic) on the acquisition of adjective formation in EFL.

The study of interlanguage morphology can provide insights into the relative importance of morphology teaching in L2 acquisition. Knowledge of strategies underlying EFL students' use of morphology may support teaching, as it will identify the areas of adjective morphology that language teaching should concentrate on and will help determine the best strategy for teaching morphology. This study might also support the work that is being done in the area of vocabulary acquisition by EFL college students and it may contribute to general theories of L2 acquisition.

2 Methods

2.1 Subjects

Sixty-two female freshman students at the College of Languages and Translation (COLT), King Saud University, Riyadh, Saudi Arabia participated in the study. They were in their first semester of college and were enrolled in their first vocabulary building course. They were concurrently taking listening I (3 hours), speaking I (4 hours), reading I (4 hours), writing I (4 hours) and grammar I (2 hours) courses. The subjects were all Saudi and were all native speakers of Arabic. Their median age was 18 years, and the range was 17-19. They all had 6 years of EFL instruction in grades 6-12 prior to their admission to COLT.

2.2 Materials and Tasks

The subjects took a vocabulary building course (3 hours per week) for 12 weeks. They used Vocabulary in Use: Pre-intermediate and Intermediate (3rd Edition), by Stuart Redman (2003). The textbook consists of 100 lessons but only 50 lessons were covered by the end of the semester. According to the lesson sequence in the textbook, prefixes, noun- and adjective-forming suffixes are taught in three consecutive lessons. Each lesson consists of 2 pages: A presentation page and an exercise page. The prefixes covered in the lesson are: *un-, in-, im-, il-, ir- dis-, re-, over- mis-*. The noun suffixes covered in the lesson are: *-ment, -ion, -ation, -ing, -ness, -ity, -er, -or, -ist.* The adjective suffixes covered in the lesson are: (i) *-ous: dangerous, famous.* (ii) *-al: musical, political, emotional, economical, industrial.* (iii) -y: cloudy, sunny, foggy, dirty. (iv) *-ive: attractive, creative*. (v) *–able/-ible: enjoyable, comfortable, fashionable, suitable, washable, reliable, unsuitable. unbreakable, visible, incomprehensible.* (vi) *-ful: careful, helpful, painful, useful, thoughtful*. (vii) *-less: careless, useless, homeless*. (viii) *–an: American, European, Egyptian, electrician, technician.*

The first week of the semester, the students received direct instruction in prefixes, noun- and adjective-forming suffixes. Derived words were grouped according to the prefix or suffix and each was broken down into its base and suffix and spelling changes were pointed out. Derived forms were used in sentences and practiced in class. In addition, the students did all of the exercises in the textbook in class. While doing the exercises, the author (also the course instructor) monitored their work and provided individual help. Feedback was provided on the presence and location of errors, but no correct forms were provided. The students had to check the rules and examples in the book by themselves. Throughout the course, derived nouns, verbs, adjectives and adverbs were highlighted, the part of speech identified, prefixes and suffixes detached, and spelling changes noted.

2.3 Data Collection and Analysis

The subjects took an immediate test a week after instruction and a delayed test at the end of the semester. The immediate test required the students to change *(agree, terribly, continue, create, politics)* into adjectives by adding or changing a suffix. Those words were directly selected from the lesson

taught in class. Similarly, the delayed test required the students to change *(law, vision, Europe, Egypt, electricity, incredibly, education, power, south, Mexico)* into adjectives by adding or changing a suffix. Those words were selected from different lessons covered throughout the semester. No context was provided by the tests.

In scoring the written responses, any response that did not match the target adjective was counted as an error even if one letter was wrong or missing. Thus, a corpus of 547 errors was collected from both tests.

To identify the strategies that the subjects utilized in adjective formation, errors were further examined and classified. Frequencies and percentages of errors in which answers were left blank, the same stimulus word was duplicated, a familiar word was given regardless of the suffix, the suffix was spelled phonologically, a different part of speech was given, adjective-forming suffixes were confused, noun and adverb, forming suffixes were used, a suffix was added to a word without any change, suffixes with the same pronunciation but different spelling were confused, final suffixes were deleted, vowels and consonants were deleted from the base form, and letters in a suffix were confused were computed.

2.4 Reliability and Valdity

The immediate and delayed tests are believed to have content validity as they aimed at assessing the students' ability to form derived adjectives. The tasks required were comparable to those covered in the textbook and practiced in class. Concurrent validity was determined by establishing the relationship between the students' scores on the immediate and delayed test and their scores on the mid-term test. The validity coefficient for the immediate test was .63 and for the delayed test was .77.

Since the author was the instructor and scorer of both tests, estimates of inter-rater reliability were necessary. A 30% random sample of the test papers was selected and double-scored. A colleague who holds a Ph.D. degree scored the samples. She followed the same scoring procedures and used the same answer key that the author utilized. The marks given by both raters were correlated. Inter-rater correlation was .96. Furthermore, examinee reliability was calculated using the Kuder-Richardson formula 21'. The examinee reliability coefficient was .61 for the immediate test and .81 for the delayed test.

2.5 Statistical Analysis

The frequencies of faulty derived forms for each stimulus word on both tests was computed (See Appendix 1). Frequencies were converted to percentages. The error mean, median, mode, standard deviation, standard error and range were computed for both tests. To find out whether there are significant differences in the adjective-formation suffix errors on both tests, a paired-sample T-test was run. To find out if the frequency of errors related to the students' general vocabulary knowledge and achievement, each student's error score on the immediate and delayed test was correlated with her vocabulary course grade.

3 Results and Discussion

3.1 Adjective Formation Error Gravity

The typical freshman student in this study could not identify 40% of the immediate test items and 50% of the delayed test items. The adjective formation error mean score on the delayed test was higher than that of the immediate test (See Table 1). In addition, significant differences were found at the .01 level between the adjective formation error means in the immediate and delayed tests (T= 14.22, DF = 61). This is probably because the delayed test items covered more lessons than the immediate test and it shows that freshman students in this study had not mastered adjective morphology even after three months of vocabulary instruction.

Table 1. "The Mean, medina, mode, Standard deviation, standard error and range of errors on the immediate and delayed tests"

	N	Mean	Median	Mode	SD	SE	Range
Immediate test	62	36.88	40	20	26.4	.46	.0-15
Delayed test	62	46.69	50	70	25.8	.38	.0-17

This finding is consistent with findings of other studies in the literature. Petrush (2007) found that fourth-semester English-speaking learners had only an emerging awareness and varying productive control of derivational suffixes in French. In a judgment task, fewer than 50% of the students identified category mismatches in 8 out of 10 items, and a written corpus contained frequent morphological errors. In another study, Lardiere (2006) reported morphological mismatches in L2 English by a Chinese speaker. In Ward & Chuenjundaeng's (2009) study with Thai students, use of word families, as a counting tool, lead to highly misleading conclusions, especially with less proficient students.

3.2 Correlation Between Vocabulary Knowledge and Error Frequency

The correlation between the immediate test scores and course grade was 0.61 (P<.01), and between the delayed test scores and course grade was 0.81 (P<.01). This means that the student's overall vocabulary knowledge as revealed by her course grade correlates with her adjective formation errors. A high course grade correlates with a low error score and a low course grade correlates with a high error score. This finding is consistent with findings of prior studies as well. Windsor & Hwang (1999) found that students with and without language-learning disabilities (LLD) used highly productive suffixes but LLD students were less accurate in determining the meanings conveyed by derivational suffixes. Petrush (2007) also found that advanced learners of French had virtually perfect mastery of the base-derived distinction. By the fourth semester, learners had acquired relational knowledge of derivational morphology but still had incomplete syntactic knowledge.

Examination of the error corpus showed that the subjects' general English proficiency level was low and reflected inadequate mastery of adjective formation as 36% of the responses on both tests were left blank or the stimulus word was duplicated. In 3%, the subjects could not follow the test instructions. Instead of adding an adjective suffix, some students gave a phrase containing the stimulus

word *(power energy, Europen people, incredible expensive, high education)* with a faulty element in form or spelling. In 2%, some students added a negation prefixes rather than an adjective suffix as in disagree, uncontiue, impolitics, unterribly.

The correlation between the error gravity in adjective-forming suffixes and students' vocabulary knowledge in the present study is supported by findings of a study with English native speakers learning Spanish as L2 by in which Miguel (2013) found proficiency to be the main predictor of morphological awareness. Miguel also reported that the number of derivational suffixes that Spanish learners manipulated was limited. Mastery was only achieved by the most advanced learners who could analyze, identify and manipulate derivational suffixes in the production task.

3.3 Types of Adjective Formation Difficulties

Findings of the present study have shown that the subjects have not mastered adjective morphology. In 32% of the responses, the subjects mismatched the adjective suffix and the word. In 16%, they added noun-, verb- and adverb-forming suffixes instead of adjective-forming suffixes and in 5%, they used a familiar word such *"agreement"* instead of *"agreeable",* and *"lawyer"* instead of *"legal".* The subjects seemed to process the "more meaningful" base, as Van Patten 1996 pointed out, while failing to attend to the "less meaningful" morphological suffix. Semantic factors are taken into account when the prime is overtly presented. Results further support the view that morphological effects come into play at least two processing stages, a morphological decomposition based on formal properties and a semantic integration based on semantic compatibility between morphemes (Meunier & Longtin, 2007).

A second major finding was that 36% of the faulty adjectives were spelling errors as in "*terribul, tribal, terribal, incredibl, incredibal, loyial, Europan, Europian, Europeian, Eurpean, Europen, Europen continues, continuouse, continuose, contineas, politicion, electrician"*.

A third finding is that the subjects had difficulty associating the stimulus word with its correct part of speech. They failed to associate a suffix with the correct part of speech that it forms. They had difficulty attaching the correct adjective-forming suffix to a particular base (See Appendix 2). They confused adjective- and noun-forming suffixes as in "*agreeness and agreey, politicstion, Elecriction"*. This finding is consistent with findings of a study by Zyzik, and Azevedo (2009) in which English-speaking learners of Spanish could not tell the difference between word classes. The learners had significant difficulty distinguishing adjectives and nouns. They could not recognize derivational suffixes that clearly mark word class. The researchers interpreted these difficulties as resulting from poor syntactic morphological knowledge as well as incomplete knowledge of L2 distributional regularities of derivational suffixes.

3.4 Faulty Strategies of Adjective-formation

The subjects tended to add a familiar suffix regardless of the word form. They over- generalized certain adjective suffixes and tended to add transparent suffixes *"-an, -al, -ible, -able, -y"* as in "*Europan, educatal, lawible, lawable, lawy, lawal"*. The most commonly added suffixes were *-an* (7%); *-ion* (6%); *-al* (5%); *-ly* (2%); *-er* (2%); *-ful* (1.6%); *-ous* (1%). Other less frequently added suffixes *–ness, -ical, -y, -ity, -ed, -ist, -ics* in 4% of the faulty words. Tyler & Nagy (1987) reported an

increase in overgeneralization of errors among students in 6th grade parallel to that found for inflectional suffixes in younger children. Results support the hypothesis that knowledge of suffixes is compartmentalized. As in Ward & Chuenjundaeng's (2009) study, the acquisition of stem and suffix occurred with certain suffixes before others. Affix learning proceeds from stem to derived form and not vice versa. Word-building schemas seemed to depend on the amount of exposure.

Likewise, the subjects tended to use transparent spelling. They failed to attend to spelling changes associated with the attachment of a suffix to a word. In 22%, they added a suffix to a word without changing anything *(law-ible, law-able, law-y, law-er, law-ly, law-en, Mrxico-an, Mexico-ian, vision-al, vision-an, vision-ly, vision-able, vision-ible, vision-ion, vision-ity, vision-tive, vision-ing, vision-aly, visioness).* In 15%, they spelled suffixes phonetically *(terribul, terribal, Europian, Eropian).* The subjects failed to match the written form of the suffix (grapheme) with its spoken sound "phoneme" as in *Europian, politicion,* and *Egyption*. Orthographic errors constituted 12%. *"European"* and *"Egyptian"* seemed to be in the students' mental lexicon and they could pronounce them correctly, however, they were spelled as *"Europian, Egyption"* respectively. They confused *-ian* and *–ean; –ion–tian,* and cian. They replaced *–ean (European), –tian (Egyptian),* and *-cian (electrician)* by -ian and -tion. In 9%, the subjects confused suffixes with the same pronunciation but different spelling as in *(Egypsion, Egyption and Egyptian; Europian and European).* In 6%, they deleted a vowel or a consonant from the base before a suffix *(Mexician, Egypian, creatful, creatity, creatal, creatly).* They deleted a suffix from the stimulus word in 2.5% *(incredi, educat, visi).* The subjects appeared to have not developed flexible strategies that can help them discern when to add, when to delete and when to make spelling changes. They did not seem to have created a mental network of related derivatives. This finding is consistent with a study by Windsor (1994) in which students in grades 3-8 comprehended suffixes with greater accuracy than those they produced, especially by younger children.

3.5 Possible Causes of Adjective Formation Errors

Novelty seemed to be a major cause of producing faulty adjectives especially when the word and suffix are both new. For example, *"agree", "law"* and *"vision"* had the highest error frequencies in adjective production (19%). The subjects seemed to have difficulty in producing the adjectives "agreeable, legal, and visual" probably because *"agreeable* and *visible"* were new; and the relationship between *"legal"* and *"law"* was not transparent. *"Legal* and *visual"* require morphophonological knowledge and a number of phonological changes between the stem and derived adjective.

This finding is supported by results of prior studies. In a study with three groups of typically achieving 7-, 8-, and 9-year-old children, Jarmulowicz (2006) concluded that morphophonological knowledge of words with rhythmic suffixes underwent development in early school-aged children. The number or degree of phonological changes between the stem and derived word appears to be an important variable in accurate production. Likewise, Oliphant (1998) found that college-level students learning Italian were sensitive to cues in word-final phonemes but showed low awareness of gender associations of derivational suffixes. Students had more difficulty dealing with multiple cues, particularly conflicting ones, but generally could use syntactic cues to override conflicting cues.

Another possible explanation of faulty adjectives in the presents study is that sometimes

adjective formation using suffixes requires the use of multiple cues. For example, to change *"electricity"* to an adjective, the student has to figure out its part of speech, remove the suffix *-ity*, then decide which adjective suffix should be added. Since *"electrician"* has a /ʃ/ sound, the students have to decide which form of the suffix (grapheme) matches the /ʃ/ sound in *"electrician"*, since the /ʃn/ sound is represented by different suffix graphemes in different words *(ten-sion; transla-tion; Egyp-tian; electri-cian; compre-ssion).* When changing *"create"* to an adjective, the student must figure out its part of speech, delete the final silent e before adding the adjective suffix *–ive*, as the suffix begins with a vowel. To change *"vision"* into an adjective, the student must identify its parts of speech, detach the noun suffix *–ion*, add the suffix *–ible*, not *–able* to get *"visible"*. To change *"vision"* to *"visual"*, the student should know how the adjective is pronounced, and must add a *u* before the adjective suffix *–al* to get the /ʒ/ sound.

Interference among adjective suffixes themselves and between adjective, adverb and noun-forming suffixes seems to be a third cause of errors as in *agreesive, agreey, eductive, visionable, visional, electricial, politive, visionan.* Nagy, Anderson, Schommer, Scott & Stallman (1989) found that the frequency of inflectionally and derivationally related words significantly affected the speed and accuracy of recognition of stems by L1 college students. However, the effects were conditioned by age of acquisition and part of speech. Overall, the results supported the concept that morphological relationships among words are represented in the lexicon. In another study of the acquisition of derivational morphology in English as L1 revealed an inquisitional sequence of relational, syntactic, and distributional knowledge respectively (Tyler & Nagy, 1989).

3.6 Effect of Arabic (L1) on English (L2) Adjective Derivational Morphology

Error data analysis has shown that the subjects' first language (Arabic) does not seem to interfere in their faulty choice of adjective-forming suffixes and the faulty production of derived adjectives in English (L2). Arabic does not seem to facilitate the acquisition of English derivational morphology either, as Arabic and English do not share any roots nor derivational affixes (equivalent forms), and do not share any suffixes and prefixes that show common origin and meaning. Arabic and English have different derivational morphologies. In English, suffixes are added to a stem, whereas in Arabic, many words are formed from a root consisting of three consonants such as (k t b) and a set of vowels that alternate with the root consonants (ka ta ba; ku ti ba, kaa ti b). Here the radical consonants are not changed in any way but are derived from and built upon. Different sets of patterns are used in that process. Derived verbs, nouns, adjectives, agents, patients, tool names and so on are produced by lengthening a vowel, doubling C2, doubling C3, adding a prefix or infix. Several derivational patterns used in deriving the different kinds of nouns and verbs as in: *katab* (wrote); *kitaab* (book); *kutub* (books); *kaatib* (writer); *maktaba* (library); *makatab* (desk, office); *makaatib* (desks, offices); *maktoob* (letter); *kutayyib* (booklet, brochure) and others.

The facilitative effect of L1 was confirmed by findings of a number of studies that investigated the acquisition of derivational morphology in English, French and Chinese. In the first study, Duncan, Casalis & Cole (2009) found that metamorphological development in 5- and 8-year-old children in first, second and third grade in the United Kingdom and France was accelerated in French compared to English because French involves knowledge of a broader range of suffixes and a markedly greater facility for generalizing morphological knowledge to novel contexts. This finding can be interpreted in

relation to the word formation systems of English and French, and the educational context in each country. In Ku & Anderson's (2003) study, Chinese students' acquisition of derivational morphology seemed to lag behind that of compounding rules, due to the nature of the Chinese word formation system which has by far fewer derivatives than compounds.

Findings of the present study are inconsistent with findings of a study by Khor (2012) that revealed a strong influence of L1 on the acquisition of articles, the preposition in and plural forms by 6th and 7th grade students in Sweden. L1 seems to shape the order in which grammatical morphemes are acquired. The students in one language group seem to learn the morphemes in a specific order, rather than a fixed universal order.

When learning English derivational morphology, an EFL Arab student must learn the morphological range of derivational suffixes, which have no counterparts in Arabic to relate to. The most likely problems Arab students might encounter is obtaining a close equivalent (meaning) in Arabic in connection with the denotative and connotative ranges of English derivational morphology. Another problem is that derivational suffixes in English do not close off a word. After a derivational suffix, one can sometimes add two or three derivational suffixes and may add an inflectional suffix as in *internationalization* and *conservationists*.

The only transfer from Arabic that occurred in the error data was in the spelling of suffixes especially when the subjects spelled adjective suffixes the way they pronounce them as in "*rerribale, terribul, terribal; incredibl, incredibal, incrediable, incredible; Europian; continuouse, continous, continues continuose, contineas",* since words in Arabic are generally phonetically spelled.

4 Conclusion

Although morphology can be a helpful tool in facilitating the acquisition and use of L2 vocabulary, English adjective morphology seems to pose several problems to Saudi EFL freshman students at COLT. The subjects had difficulty matching a suffix with a word, matching suffixes with the correct part of speech it forms and had difficulty spelling suffixes. The subjects' proficiency level, in general, and vocabulary knowledge, in particular, seem to affect adjective suffix attachment and understanding test instructions.

To help freshman students learn English adjective morphology, new words and suffixes need to be introduced carefully. Instead of introducing prefixes, noun-forming suffixes and adjective forming suffixes in three consecutive lessons (as arranged in the textbook), each of these three topics can be taught with 2-3-week time-intervals in between. Adjective formation rules may be introduced in small groups, while emphasizing the application of affix knowledge to unfamiliar words. Intensive practice in recurrent intervals may be provided. Intensive reading where students locate words and their derived forms in the text can be encouraged. Focus on metalinguistic information and the contrast of sentence pairs differing in single morphological features proved to be effective in improving the accuracy of suffix usage in written language by an adult (Hux & Stogsdill, 1993). Structural analysis instruction can also focus on the strategic use of word parts, in conjunction with other sources of information such as context, with a focus on gaining meaning from the text (Winsor, 1993).

As many words are related by form and/or by meaning, studying the nature of these relations may shed some light on the processes and factors affecting vocabulary acquisition by EFL college

students. As in Marinellie & Kneile's (2012) study, students may acquire semantic and syntactic knowledge of derived adjectives, verbs and nouns in context using short passages to enhance morphological awareness and fast mapping of derived nouns and derived adjectives.

In addition, mind-maps can be used to help the students learn, retain, apply and relate words sharing the same suffix using lines, colors, arrows, and branches to show connections between the derived forms generated on the mind map. Suffixes websites and online games may be also used for more practice and consolidation. Links to those websites can be posted in Blackboard LMS and threads requiring students to use suffixes can be posted on the online discussion board. A variety of mobile Apps that focus on prefixes and suffixes can be used for extra practice by the students, on their own, out of class.

Finally, the acquisition of verb and noun morphology by Saudi college students, and comparisons of beginning and advanced EFL students' ability to produce derived forms using adjective-, verb-, and noun-forming suffixes are still open for further investigation.

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Appendix (1)

"Frequencies of the Errors on the immediate & Delayed Tests"

Immediate Test		**Delayed Test**			
Stimulus Word	**Frequency**	**Stimulus Word**	**Frequency**	**Word**	**Frequency**
left blank	48	left blank	94	incredibly	16
agree	68	law	41	education	16
terribly	44	vision	34	power	13
continue	28	Europe	32	south	11
create	24	Egypt	30	Mexico	7
politics	24	electricity	17	Extraneous responses	7

Appendix (2)

"Sample Examples of Adjective-formation Errors on the immediate and Delayed Tests with Their Frequencies"

Immediate Test		
Stimulus words	**Error Freq.**	**Sample errors**
Agree	68	agreesive agreetive disagree Agreeion agreeness agreement agreey
Terribly	44	Terribale terribul tribal terribal terriblity terriblious terriblive terribful terriblyly terribtly terribly terriblier unterribly
Continue	28	Uncontinue Continue continu continuouse continous continues continuose Contineas continuative
Create	24	Uncreate discreate Creatful cretive creatal creatly creatity creation createment
Politics	24	Politiclive politic politive politicouless Politicion politicsun impolitics politicstion politicy Impolitics
Delayed Test		
Law	41	lawible lawable lawy lawal lawnly lawer law lawly lawen lawene lawyer loyial
Vision	34	visionly visional visionable visiual visionan visional visy visinible visinable visiable visionion visionity visioning visioness visi visiontive visionable television invisiable visionaly
Europe	32	Europan europian eropian europeian eurpean Europen europen euroption
Egypt	30	Egiption Egyption Egypshian eqypsion Egyptain egiption egypian Egyptio
Electricity	17	Elecriction electrics electricial electricion electrition electrece electricitek electricity election Electricital electricitive electricial electrice electriconeal electrist electricical
Incredibly	16	Incredi incredibl incredibal incredbl incrediblied increadible incredeal incrediable incredable incredibility
Education	16	Educat educate educatal educatial eductive Education educationly educationaly
Power	13	Powefull powerical poweral powerly power powerness powertion
South	11	Southy souther southren south pool southist
Mexico	7	Mexician mexicoian mexicon mexicoan mexic