The Acquisition of the English Plural Morpheme and the Regular Past Tense Morpheme by Arabic-Speaking Students in Jordan

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Abstract
This research paper analyses the results taken from 120 female Arabic-speaking students, of the eighth and eleventh grades of both Retaal International Academy and Islamic Educational College in Amman-Jordan. They were presented to randomized lists of 15 nonsense nouns and 15 nonsense verbs designed to elicit their acquisition of the plural marking and the regular past tense morpheme in English. The results showed that the eleventh graders are advanced to some extent from the eighth graders in the acquisition of the English plural morpheme. Both classes have approximately similar results regarding the acquisition of the regular past tense morpheme.

Key Words: Arabic Speaking, Past Tense, Students, Jordan.

Introduction
Morphophonology (morphonology also, Morphophonemics) is a branch of linguistics that refers to the different phonological representations of morphemes. It focuses on the interaction between morphological and phonological processes; its center of attention is the alternations in the shape of morphemes, and the most common process is the alternation in sounds. Morphophonemics is defined in Routledge Dictionary of Language and Linguistics (Bussmann 2000: 772-773) as

[the] intermediary level of analysis between phonology and morphology in which the phonological regularities in the framework of morphology, especially the systematic phonological variants of morphemes (allomorph) and the conditions of their occurrence, are described (e.g. the two phonetic variations of the past tense morpheme - ed in stayed [ste: d] vs. heaped [hi: pt]; further examples under morphophoneme). This concept of an abstract phonological level underlying the concrete expressive form was first developed by Trubetzkoj (1929, 1931) and further developed by Chomsky in his transformational grammar, in which rules are posited that guarantee the transfer of an abstract morphophonological (deep) structure (deep structure) (=a systematic phonemic level) into the concrete phonetic realization of the surface structure. In natural generative grammar morphophonological variants are stored in the lexicon.
In this sense, the various explanations of morphophonemics reflect the fact that the rules of phonology govern the alternation of phonemes in morphemes; that is, morphological processes cause sound alternations. The process of the morphophonological analysis involves a supposition of specific theoretical formal rules that successfully predict the regular changes in the sound occurring in the morphemes of a given language. This can be achieved by converting the underlying representations of morphemes into a surface form that is spoken and heard. In phonological processes, the change in the phonological shape of a morpheme is referred to as allomorphs. Accordingly, allomorphs can be defined as non-distinctive realizations of a morpheme with similar function and phonetic representation. For example, the English plural morpheme [s] has three different allomorphs: [s] in *cats*, [z] in *dogs* and [iz] in *ostriches*.

Furthermore, morphophonology has been a center of attention since 1950s regarding English native speakers (Berko 1958; Cadzen 1968; Chappell 1968; Brown 1973; and others). These psycholinguists and researchers were interested in the study of the allomorphic variation within grammatical morphemes as part of the English native speakers' first language acquisition. For example, Berko (1958) was one of those researchers who highlighted the knowledge, systems and patterns used by English native speakers; she was one of the most scholars who drew attention to the child's learning of English Morphology. Her research was to examine the plural, the two possessives of the noun, the third person singular of the verb, the progressive, the past tense, and the comparative and superlative of the adjective. She intended to test the knowledge of morphological rules in children using nonsense materials. She stated that “the acquisition of language is more than the storing up of rehearsed utterances, since we are all able to say what we have never before heard” (Berko 1958: 150).

In view of that, most previous research emphasized the fact that the allomorphic variation is a predictable rule-based variant form. For example, the word *untouchable* contains two types of morphemes; *un-* which is a bound morpheme signifying the meaning of 'not', *touch* is the root and is a free morpheme that can stand alone; *-able* is another bound morpheme that is attached to the root, and gives the meaning of 'can be done'. What is important to consider is that not all inflectional morphemes have allomorphic variation. For example, there are not any variants for the progressive morpheme /-ing/, or for the adjectival morphemes /-er/ and /-est/ (Johnson; 1980).

Furthermore, morphophonemic awareness refers to the learner's awareness of certain changes in sounds that occur to the base when affixes are attached, including vowels, consonants and stress changes (Crystal 1991). Within English orthography, phonemes overlap with the morphophonemic representations. That is to say, orthography does not reflect the phonetic alternations of consonants or vowels in the process of affixation. In English, spelling does not reflect the changes in sounds in the pronunciation. For example, the spelling of plural [-es] in English orthography is presented in three different allomorphs [-s, -z, and -iz].

Accordingly, phonologically conditioned alternation can be considered the most important issue within the field of morphophonology in the English language, especially when grammatical morphemes are realized by different allomorphs. These alternations characterize the allomorphs of English morphemes in order to develop a systematic rule-based analysis that determines the distribution of such allomorphs. For example, the past tense and the plural morphology of the English language are characterized by having three phonologically conditioned allomorphic variants. The /-t/, /-d/, and /-id/ past tense allomorphs, and the /-s/, /-z/, and /-sz/ plural allomorphs are in complementary distribution and phonologically related to the preceding final stem segment (morph). (See Allerton 1979)

Moreover, English orthography contains phonemes and their morphophonemic representations, and any difficulties in pronunciation that may face an English foreign language learner (EFL) is referred to as the English orthographic code. Accordingly, EFL learners are always prone to face difficulties in pronunciation and reading. These problems are more likely to occur within words whose oral pronunciations do not match their spelling. It seems to be clear that the "differential orthographic complexity" increases the difficulty
with the acquisition of morphologically related word pairs by first and second language learners (Luelsdorff 1987). Luelsdorff (1987: 354) stated that:

The orthography of inflection and contraction appears to be a promising area of developmental inquiry because the allomorphs of the inflectional morphemes may be spelled quasi taxonomic-phonemically, as in the plural and third singular, morphophonemically, as in the regular past and past participle, and quasi morphophonemically and morphemically, as in the possessive singular, and purely morphemically as in the possessive plural.

Moreover, this ability to recognize, identify, and manipulate sound units in the spoken language is crucial for the achievement of a certain level of proficiency in reading and spelling aspects for learning English. Yeong and Liow (2012: 112) argued that “phoneme awareness is the most robust predictor of spelling and reading achievement in English”. The phonological awareness and literacy acquisition are strongly correlated with reading and spelling, and the development of the phonological awareness has been the center of attention for monolingual English-speaking children in the past century. However, this area of development has gained little attention in children learning to speak two languages with different phonological structures (Yeong and Liow 2012).

Besides, the phonological awareness involves different units that vary from small segments such as onsets and single phonemes to larger segments such as words, syllables, and rimes (Treiman and Zukowski 1991; Yeong and Liow 2012, among others). Different previous works have emphasised that these different segments do interfere with one another to form different separate functioning units for English speaking children (Schatzschneider et al. 1999; Anthony and Lonigan 2004). Consequently, as children grow older, they become more sensitive to the smaller parts of the words; that is, they develop word-level skills, followed by syllable-level skill, then onset-rime level skills, and finally phoneme-level skills (Goswami and Bryant 1990; Treiman and Zukowski 1991; Carroll et al. 2003; Anthony and Francis 2005). According to these previous studies, syllable awareness is developed around the age of three or four years of old, the onset-rime awareness is developed around the age of four or five years of old, and finally the phoneme awareness is not developed until the child has mastered reading and writing. By the end of kindergarten, children should master most of the phonological awareness levels.

In this sense, the phonological awareness leads to the spoken language that predicts the sounds in a word, or may simply refer to the word's phonological structure rather than just the meaning of the word. Since oral language consists of words, and words consist of syllables, rhymes, and sounds, the development of phonological awareness proceeds in a sequential order. Young children start to realize the meaning of small entities as "the" and "or", to group rhyming sounds as in "matt and pat", and to build a categorization for individual sounds as in "dad and dear" where the two words start with the same sound. These individual sounds of a language are referred to as phonemes. These important estimations suggest the fact that as the child gets older, his/her morphophonemic awareness performance will be better.

Unfortunately, studying English morphophonemic awareness among Arab EFL learners is almost non-existent. It has also gained little attention within other children learning English as their second language. According to Yeong and Liow (2012), the development of children's phonological awareness is affected by many factors as the child's L1 phonological structure, the effect of L1 skills on L2 processing, and the impact of literacy instruction that the child received before kindergarten.

Therefore, most previous research examining the morphophonemic awareness of young children and adults of different spoken languages suggest that phonological awareness is a language-general ability. It is similar across most alphabetic languages, even if the rate of development and the level of proficiency vary from one person to another (Yeong and Liow 2012) cited in (Anthony and Francis 2005, Zeigler and Goswami 2005).
Also, the research concerning the learning of English inflectional morphology with both phonological and morphological aspects by foreign language learners is almost rare, as one could barely find any research related to this issue. For the above-mentioned aspects, the importance of word form inflections relies on its significant role as a systematic strategy for vocabulary learning, vocabulary expansion, as well as developing foreign language learners' competence.

It is important to clarify that inflectional morphemes can be defined as grammatical bound morphemes (affixes) that are attached to the stem (root) and appear as parts of the words (Cruse, 2000). They are markers signaling the tense of a verb, or the number of a noun without typically changing the meaning or the grammatical category of the base. Stump (2001:6) argued that:

as an affix joins with a stem, the morphosyntactic properties of the resulting whole are computed from those of its parts by a percolation mechanism; thus, 'likes' acquire its syntactic category from its stem 'like' and acquire the properties '3sg subject agreement', 'present tense', and 'indicative mood' from the suffix -s.

An example is the case of the plural morpheme -s: it does not change the grammatical category of the base boy (noun, meaning: a male child) during affixation. The noun 'boys' preserve the meaning 'male child', but now becomes plural 'male children' (Friedline 2011: 6).

In phonology, the combination of a specific set of morphemes results in a different set of pronunciations for the same morpheme. For example English pluralisation, the plural suffix (-e) s is realized in three different forms, as they are phonologically rule-based and similar to each other (Spencer 1996). A /-s/ allomorph appears after stems ending with voiceless sounds /k, t, p, f, and ɵ/ e.g. book - books; /bʊk/ - /bʊks/. A /-z/ allomorph, appears after stems ending with voiced sounds like /b, d, g, n, r, and ŋ/ e.g. pen - pens; /pen/ - /penz/. Finally, an /-ɪz/ allomorph appears after stems ending with sibilants /s, z, ʃ, ʧ, ʒ, and ʒ/ e.g. ostrich - ostriches; /ɒstrɪʃ/ - /ɒstrɪʃɪz/.

In addition, the productive allomorphs of the past tense of verbs are phonologically conditioned and identical with one another: a /-t/ allomorph appears after stems ending with voiceless sounds /p, k, ʧ, f, Ө, and ʃ/ e.g. stop - stopped; /stɒp/ - /stɒpt/; a /-d/ allomorph appears after stems ending with voiced sounds except the /-d/ sound e.g. play - played; /pleɪ/ - /pleɪd/; and finally, an /-ɪd/ allomorph appears after stems ending with /t/ and /d/ sounds e.g. melt - melted; /melt/ - /meltɪd/. This alternation in the shape of the morpheme is referred to as "allomorph" and is a post-lexical phonological rule, which means that the allomorph of a morpheme in a given situation is affected by the nature of sounds in the allomorphs of adjacent morphemes.

In view of that, the process of learning grammatical morphemes has been the center of interest for many researchers due to its significant role in the development of language by young children. This is evident by the numerous studies conducted in this area. For example, Berko (1958), who studied the allomorphic variations within grammatical morphemes, discussed the phonological conditions that predict the distribution of allomorphs. The process of learning English inflectional morphology has also been the focus of study in much language acquisition research since the works of Berko (1958), Cazden (1968) and Brown (1973). Even though morphology includes inflectional, derivational, and compounding rules, most research in this area of acquisition was directed to inflectional morphology since it is phonologically conditioned and identical with one another. Therefore, the purpose of the current study is to use nonsense words to examine whether or not Arab EFL learners know the rules of the English inflectional system.

In this study, the learning of the plural allomorphs and the productive allomorphs of the past tense of verbs is considered amongst the most promising areas for examination within Arabic speaking students. Based on Berko's study (1958), a test is carried out using nonsense nouns and verbs to examine Arab EFL learner's ability to apply morphological rules to new words, specifically nouns and verbs, and to analyze the students' morphophonemic awareness of such phonological processes. As stated by Berko (1958:151) "we
do not encounter new pronouns, whereas new verbs, adjectives, and nouns constantly appear in our vocabularies”.

According to Derwing and Baker (1977), the allomorphic variations are indeed rule governed. Similarly Friedline (2011: 8) stated that “both normal and language delayed children must apply morphological rules correctly in order to productively utilize the morphemic forms”. Arab EFL learners are expected to use the constrained inflectional endings and apply them appropriately to new words.

Moreover, teaching a foreign language usually involves error correction and the presentation of explicit rules. Studying language learning describes the knowledge of the systems and patterns used by speakers. Unfortunately, research has been very limited in studying the morphophonemic awareness of Arab EFL learners in the area of English language. Rajab (2013: 654) posited that:

despite the fact that research carried out in the USA and UK into how children learn to read and write, as well as on what the best pedagogical methods might be, review articles of earlier significant research in adult ESL/EFL instruction in reading and writing (Grabe, 1991); (PéryWoodley, 1991); (Raimes, 1991) do not mention phonics and/or spelling in the acquisition of English pronunciation.

Most of the research that deals with the semantic and collocation aspects of vocabulary, ignores the examination of the lexical competence of English foreign language learners. (Stevens 1991; Celce-Murcia 1991; Stanovich 1993; Koren 1995; Morley 1998; Kruidenier 2002; Liu 2011, among others) agree on the fact that unfortunately phonics and spelling are not among the major topics to be taught for EFL learners in their acquisition of English pronunciation. They emphasized the importance of teaching phonetics and pronunciation to develop EFL’s acquisition of English phonological awareness. Moreover, it is a way to develop their reading acquisition abilities, and make them better speakers, as well as developing the functional grammatical competence of EFL learners as an integral component of the whole system of communicative competence, along with other components as: sociolinguistic competence, strategic competence, discourse competence, and others.

With reference to grammatical competence, we mean the learner's linguistic knowledge of a specific language's words and rules, which is mainly organized on the basis of linguistics, as phonological forms, morphological forms, syntactic patterns, and lexical items. Besides, grammatical competence includes the appropriate strategies that are important for the combination of grammatical sentences. According to Canale and Swaine (1980), most of the teaching material that is used within general second language courses is organized along the previously mentioned terms.

Studying the morphophonemic awareness of Arab EFL learners is considered as an integral part of developing L2 competence. This research, examining the morphophonemic awareness of two different age groups of school EFL learners, focuses on the learner's knowledge of the morphophonology of some types of inflectional morphology in the English language, namely, pluralisation and past tense formation. They are important parts of the student's English system within his/her academic environment at school. This study aims at investigating the extent to which Arabic speaking students master some types of English inflectional morphology, specifically English regular pluralisation, and regular past tense of the verb using nonsense material.

The knowledge of both inflectional and derivational morphology has its significant role in the organization of the lexicon since grammatical functions are recognized by the formal properties of lexical items. This study is particularly important because it investigates the extent of morphophonemic awareness of some English inflections among EFL Arab learners. It tests two different age groups from two private schools in Amman. Results of the study will shed light on the areas of weakness concerning the formal representation
of English inflectional morphology. In addition, it will show how aspects of such formal representations can contribute to the area of learning difficulties.

Arabic speaking students will be exposed to these nonsense words to test their mastery of some areas of inflectional morphology. Therefore, this will contribute to the area of second language learning through developing second language teaching plans, developing the teaching material of such grammar, as well as focusing on the aspects thought to be most effective in developing second language learning strategies. Moreover, the significance of the study can be attributed to the increasing attention that English inflectional morphophonemic awareness is frequently encountered in both oral and written communication discourses. Hence, a growing proficiency in both morphological and phonological awareness by EFL learners is expected to play an important role in developing students' grammatical competence, as well as their linguistic learning skills.

Studies Related to English Native Speakers

Jean Berko (1958) was one of those who highlighted the child’s acquisition of English morphology. Her research was to examine the plural, the two possessives of the noun, the third person singular of the verb, the progressive, the past tense, and the comparative and superlative of the adjective. She tested the knowledge of morphological rules in children using nonsense materials. Concerning the plural allomorphs, a number of nonsense nouns were created following the rules for possible sound combinations in English e.g., *wug, *heaf, and *gutch*. Then, each noun was represented with a specific drawing and presented to children. As stated by Berko (1958:153) ”[a]ll pictures, which were brightly colored, depicted objects, cartoon-like animals, and men performing various actions.” All tested children were English native speakers and aged between five and one half to seven years old, and each child was interviewed individually.

Berko (1958: 158) proposed that, "[t]he first question to be answered was whether there is a sex difference in the ability to handle English morphology at this age level”. The results of Berko's research suggested that there were not any differences between boys' and girls' answers, which exclude gender as a variable in such area of research.

The results of her experiment regarding the English plural allomorphs showed that all the three plural allomorphs /s/, /z/, and /ɪz/ are present in children's vocabulary. Children can extend the /-s/ and /-z/ allomorphs to new words as *bik and *wug, respectively, but they cannot apply the allomorph /-ɪz/ to new words as *niz. As to the allomorph /ɪz/, Berko expected that children would not extend the rule to new forms even though the real form 'glasses' was included. Berko (1958: 173) argued that "a voiceless sibilant after all other sounds makes a word plural...This latter describes what the child actually does”. In view of that, Berko suggested that children at this age are not able to extend the /-ɪz/ allomorph to new words.

Regarding the past tense allomorphs, a number of nonsense verbs were created following the rules for possible sound combinations in English, e.g. *bing, *bod, and *rick. The same procedure for testing the acquisition of plural allomorphs was used to test the acquisition of the past tense allomorphs. The children's results of the past tense allomorphs were similar to that of the plural allomorphs. The children extended the /-t/ and /-d/ allomorphs to new words as *rick-*ricked and *bing-*banged, but not the /-d/ allomorph as the nonsense verb *mot, even though Berko has included actual words as 'melt' to help children generalize it for other forms.

Selby (1972) conducted a similar work to Berko's (1958). Two samples of subjects were tested, English native speaker adults and pre-school children. Selby’s pre-school subjects were aged between 3 years and 6 months, and 15 years and 6 months, and gender was not a variable. She used the same words outlined by Berko, but with non-colored drawings, and the material was presented to the subjects in a form of a booklet.
Adults and children over the age of 8 years old performed the task in written form. Children below the age of eight were tested individually; the instructor showed the subject a picture, read it out, and asked the child to fill in the missing word.

In her study, Selby (1972: 295) measured the children’s performance based on adult’s replies; she stated, “[a] weakness to this criterion is that it excludes the acceptability of imaginative, original responses.” The overall findings of Selby’s study (1972) suggested that some of the morphological rules were already well developed, some were partially developed, and some did not exist before school up to the age of ten years old. She claimed that "certain morphological rules appear to be well established before school entry; most show development towards a ceiling at about the age of 12; some show slow development and do not reach their ceiling even by the age of 14” (Selby 1972: 298). These findings are contrary to what was found by Berko that the main morphological rules are already present in the child, and beyond is a continuous skill improvement that was already available.

Moreover, Bybee and Slobin (1982) conducted a study tracing the development and the use of the English past tense by three different age groups of English native speakers. The generalization for the past tense development varied from schemas effect to rule based generalization. Bybee and Slobin (1982) posited that the English verbal morphology is a strict system, it offers an opportunity to study the productive processes of the formation of the past tense whether the regular verb formation with the suffix /-ed/, or the irregular verbs whose formations take many forms either by the absence of suffixation or a vowel change in the stem of the verb. Although the number of irregular English verbs is small, the irregular past tense constitute an important base in the English morphological verbal system.

Bybee and Slobin (1982) proposed that too many irregular forms in the past tense verbs increase the possibility of learning process difficulties. Learners either memorize such irregular forms and store them in the lexicon, or tend to generalize rules for such forms from the base forms. In their study, three age groups were tested: 30 pre-school children, 15 eight and a half to ten-year-old children, and 40 adults. Bybee and Slobin (1982: 267) stated that "[i]rregular past-tense forms are rote-learned and stored in the lexicon, but this does not prevent speakers from formulating generalizations about these forms." The authors made a clear explanation about these “generalizations” that they are not the rules of derivation from the base form, rather they are "SCHEMAS". In their terminology, Bybee and Slobin (1982: 267) stated that:

A SCHEMA is a statement that describes the phonological properties of a morphological class (in this case, past tense). It does not relate a base form to a derived one, as a rule does, but describes only one class of forms. It does not constraint which rigidly specifies what can and cannot occur, but is rather a much looser type of correlation, used in organizing and accessing the lexicon.

In Bybee and Slobin’s study, the base of the data was the errors in speech that were made by adults when they were tired or under pressure. These errors were compared with that of children from four different independent sets of spontaneous speech, showing both similarities and differences. Those spontaneous data were supported by an elicitation task designed by one of the authors, Slobin. During observation, schemas were used by both adults and children, but the way these schemas were formulated was somehow different. Children were exposed to 30 real English verbs. Each verb was presented to the child with a picture of a person showing a specific activity, and the children were asked to respond orally to the missing blank. For example, the experimenter would say: This is a girl who knows how to .... she is ...ing. She did the same thing yesterday. What did she do yesterday? Yesterday she ..... Data were tape-recorded, and the past-tense forms were transcribed later. Adults were asked to provide the past tense of 90 given verbs, that were read to them individually by the experimenter, and subjects had to respond as fast as possible, as the aim from the adults data was to induce errors. Similarly, their responses were tape-recorded and transcribed.
Verbs were divided into eight groups according to the presence or absence of a final /t/d, and the presence or absence of an internal vowel change for the formation of the past tense. For my research purposes, I focused on two groups only: group (1) verbs ending with [t] that do not change at all to form the past tense as: cut and hit, and group (2) verbs that change a final [d] to [t] to form their past tenses as: build/built, and send/sent. Bybee and Slobin (1982) argued that children had a tendency to accept Group (1) verbs as past tenses without any change and reject any possibility to regularize them as: hit/*hitted, and cut/*cutted. Bybee and Slobin (1982: 269) stated that "As has been pointed out by Stemberger (1981) and by Menn and MacWhinney (1981), it is common among the inflectional languages of the world to avoid adding an affix to a word or stem that already appears to contain that affix". Since this is the case, the authors of this article argued that the appearance of such cases, in which the subject does not intend to add a past tense affix to a stem that already ends in /t, d/ is due to the fact that subjects had applied a SCHEMA which suggests that verbs as cut, spread and set, fit in their base forms as past tenses and require no change.

Also, Bybee and Slobin (1982) had another hypothesis suggesting that the effect of schema decreases by age. They claimed that pre-school children were functioning with a schema suggesting that a verb which ends with either /t/ or /d/ is acceptable as a past tense form. The authors commented on preschoolers by saying "they are not concerned with the ADDITION of a marker, but rather with how the general shape of the word fits the pattern"(ibid.: 271). On the other hand, third grade children and adults had more tendency to add suffixation for the past tense formation. These results were previously encountered with Berko (1985) in the formation of both the plural and the past tense using nonce material; children did not add the allomorph /ad/ to verbs ending in t or d, and did not add the plural allomorph /iz/ to nouns ending in sibilants. The difference between preschoolers and adults was the same between Bybee and Slobin's study and Berko's study.

Accordingly, the results of the study suggested that the tested groups had two different strategies for the processing of English past tense verbs; preschoolers tend to use some sort of schema, and accepted verbs ending in [t] or [d] as past tense, and eight to ten years old children as well as adults tend to use suffixation rule for the formation of the plural. According to Bybee and Slobin (1982: 275) "both strategies are natural, in that they are both evident in the child's original attempt to grapple with English morphology."

Similarly, Kopcke (1998) suggested that the way plural allomorphs are acquired is through schema learning. He reanalyzed Berko's (1958) results and suggested that when the subject does not add any of the plural allomorphs to nonsense noun (zero response), this would indicate that “there may be a schema-learning mechanism guiding the sorting out of singular and plural lexical forms, and the acquisition of plural morphology.”(ibid.: 317). Berko (1958) illustrated that the child's formation of the plural is influenced by schema, and the subject tends to repeat the stem word only if it ends with one of the sibilants [s, z, ʃ, ʧ, and ʤ], but this was not developed in the analysis. Based on the results, Kopcke (1998) concluded that the [-z] and [-iz] allomorphs are better plural markers than the allomorph [-s]. Besides, Kopcke (1998) argued that stems endings in plural allomorphs should be accepted as plurals in nonce tasks.

In short, Kopcke (1998) concluded that Berko’s results support the idea that children learn the acquisition of plural allomorphs beginning with the [-s] and [-z] allomorphs and the [-iz] allomorph is not developed until later. But Kopcke (1998) insisted that Berko’s results reflect the schema learning mechanism which states that “canonical forms for both singular and plural lexical items are represented” and their classification of plural or singular depends on how far their perceptual intimacy is from the “canonical schemata for singular and plural forms” (ibid.: 303).

In 2012, Kirby, Deacon, Bowers, Izenberg, Wade-Woolley, and Parrila carried out some research to investigate the extent of morphological awareness and its contribution to children's reading development. The participants in this research were 103 children: 48 males and 55 females, aged between 5 years and 7 months, and 8 years and 1 month. Subjects over four years were tested in a longitudinal study and were
followed from kindergarten to third grade. All children were from different socioeconomic backgrounds in Canada: Kingston, Ontario, St. Albert and Alberta.

Throughout the study, researchers argued that within the domain of morphology, there must be a clear difference between inflectional and derivational morphology. Inflectional morphology is more concerned with the grammatical function of a word, without changing its category. For example, the word *played* is formed when the suffix (-ed) is added to the base *play*. In this sense, the word changes from present to past tense, and its grammatical function changes too, while the word class, as a verb remains unchanged. Derivational morphology involves the creation of new words from a base morpheme that differ in meaning and in some cases change the word class. For example, adding the derivational suffix (-ful) to the base *play* to form the word *playful*. As a result, this enhances the meaning of the word and changes its class from a verb to an adjective, whereas adding (dis-) to the word *play* will result in a different meaning, and the word class can be either a verb or a noun.

Moreover, Kirby et al. (2012) claimed that some previous research into this area showed that morphological awareness was more productive in testing inflections than in testing derivations (Adams, 1990; Carlisle, 2003; Kuo & Anderson, 2006; see Rabin & Deacon, 2008). In addition, the majority of studies examining the relationship between morphological awareness and reading development showed a tendency to test young children for inflections and older children for derivations. Within Kirby et al.’s study, the authors preferred to include both inflections and derivations to measure the morphological awareness. They illustrated that "the predictive power of a task based solely on inflections might peak early (as suggested by Deacon, Wade-Woolley, & Kirby 2009), while that from a task that includes derivations might continue to predict reading as children continue their morphological development in this area" (Kirby et al.: 391).

Moreover, the authors insisted on the point that any method can be used to reflect the relationship between morphological awareness and children's reading development whether orally, written, or a combination of both. Besides, the variation in methods assesses the participant's decision, decomposition, or production abilities. Kirby et al. (2012) insisted on the combination of both morphological decomposition and production during testing the morphological awareness, which are tested via word analogy tasks. For example, the subject may be asked to complete a statement as *walk: walked, shake: ____* (*shook*). Through such a task, the subject must realize the proportional analogy between the first pairs, which are considered as the decomposition, and apply this relationship to the required target (*shake*), which is considered as the production. According to the authors, this is regarded as solving the analogy (production), and building up a systematic similarity between the first three previously mentioned examples. The authors claimed that, "The integration of morphological decomposition and production in analogy tasks requires a more explicit level of awareness of morphological patterns than judgment or production tasks" (Kirby et al. 2012: 392).

Although the word analogy task requires analogical reasoning, which appeared to be difficult for preschool children and infants, it is used as an appropriate morphological awareness measure. According to the authors, Nunes et al. (1997) first developed this type of measure to predict correct spelling of past tense verbs. In (2004), Deacon and Kirby showed that this measure could be used to test the reading ability of third and fifth graders. Concerning the present study, the authors included twenty items, a longer list than usual. Besides, they addressed a larger range of inflections and derivations.

According to Kirby et al. (2012), the major interest of their research was to figure out whether morphological awareness contributes to reading competence solely, or there are different variables that contribute to the development of this ability. In addition, the researchers were aware whether morphological awareness changes with development, or it can be extended to other aspects of reading as: speed word reading and accurate word reading, not only reading comprehension.
Different types of measurements were present in this research; each age has its own tests. My research will be limited to testing the morphological awareness of young children. Children of grades 1, 2, and 3 were assessed for their morphological awareness using the Word Analogy task. The procedure went as follows: the experimenter asked the child to provide the missing word of a specific pattern as "I am going to ask you to figure out some missing words. If I say push and then I say pushed; then I say jump, so then I should say ...?" (Kirby et al. 2012: 397). This style of question was extended to other five practice examples.

The discussion related to the word analogy measure of the morphological awareness assured that this task was difficult for children in grade 1, but was suitable for children in grades 2 and 3, even though there was a possibility of repetition since the same children were tested at different grades with a 12 months’ interval. Kirby et al. (2012) argued that even though young children do have a morphological knowledge, this knowledge is not yet mature until older ages as was found in previous studies (Berko 1958, Carlisle 1988, and Tyler and Nagy 1989). Kirby et al. (2012) stated that the poor performance of young children is attributed to the nature and the requirements of both the Word Analogy task and analogical reasoning.

The analyses of their results suggested that the performance for some items in the Word Analogy task was only associated with phonological processes rather than with the morphological or the combination of both PM (phonological morphological) strategies. Kirby et al. (2012: 406) stated the following:

For example, in doll: dolls; sneaker: (sneakers), a participant could detect the one phoneme (-s) that had been added to doll and add the same phoneme to sneaker to obtain the correct answer. Thus the total score for these items could reflect phonological rather than morphological skills, especially in the earlier grades when average performance was low; this is a potential risk due to the relative ease of the PM items compared to the M items, those that could only be solved morphologically. In designing the measure, we had not thought that it was likely that participants would adopt phonological strategy for this task because both the practice and test items had a mixture of the two types, but it is clear that the inclusion of these items poses a potential threat to validity.

This gives clear evidence of the importance of the combination of both morphology and phonology in the assessment of children’s performance in different aspects as reading comprehension, spelling and pronunciation.

Moreover, Kirby et al. (2012) argued that there is a strong relation between the morphological awareness and reading accuracy, proficiency and comprehension, where the former facilitates the latter. In particular, the children were able to recognize morphemes rather than letters as the -ed in gaked. This also gave children the opportunity to read long or unfamiliar words as hopdalhup. Kirby et al. (2012: 407) stated that "[f]or both word and non-word reading, morphological awareness may help in ruling out particular pronunciations by identifying either the presence or absence of morpheme boundaries.

In conclusion, Kirby et al. (2012) emphasized the significant role of Word Analogy test scores in the development of children’s word reading and reading comprehension. Nevertheless, they suggested that further research must be carried out to include other measurements along with the morphological awareness as the phonological awareness to better support the results of their work.

Studies related to Non-Native Speakers of English

Natalicio and Natalicio (1971) conducted a comparative study of English pluralisation between native English speakers (NES) and native Spanish speakers (NSS). They used the technique introduced by Berko with slight modifications. Subjects were 144 male students of first, second, third, and tenth grades, (N=72) for both NES subjects (Ss) and NSS Ss. Students were presented a randomized list of nonsense nouns designed to test their acquisition of English pluralisation. Regarding the formation of nouns, 24 nonsense...
syllables were formed. Natalicio and Natalicio (1971) stated that "each of 24 final consonant phenomena was paired with one of the three initial consonant vowel (CV) combinations, (pa-, su-, ni-), resulting in a 24-trigram test instrument" (ibid. 1303). All subjects were tested individually, both plural and singular forms were transcribed during testing, and all sessions were tape-recorded. Each subject was asked to repeat the singular form before pluralizing it in order to determine the stimulus to which the subject is responding, and all plural responses were coded as correct/incorrect for all subjects.

The results of the research indicated that the level of acquisition of the English plural allomorphs between native English speakers and native Spanish speakers is comparable; there were not any significant differences between the two groups. On the one hand, native-English speakers (NES) showed some progress in English pluralisation by the third grade, and no changes when tested in the tenth grade. On the other hand, native speakers of Spanish (NSS) showed low performance when it comes to the /-iz/ allomorph in the third and tenth grade as compared with that of NES.

In addition, Natalicio and Natalicio (1971: 1304) argued, "NSS acquired the three plural allomorphs in the same order as NES with slight differences in the overall lower mean proportion of correct responses recorded for the NSS group". They noted that "what is perhaps most extraordinary about the data from the NSS sample is their considerably inferior performance in the tenth grade as compared with that of NES Ss." in which the /-iz/ allomorph is given correctly only by half of the NSS subjects (ibid.: 1305). The explanation given by the researchers to this low performance of the NSS is because they lack receiving continuous school-home linguistic experiences, in which the emphasis on oral language development characteristic of the first and second grades is gradually replaced by other concerns. The results also showed no intention by NSS Ss to use the rules of Spanish pluralisation strategies for the formation of English pluralisation. This suggests the absence of interlanguage effects between Spanish and English. Concerning the performance of NES, their results support those of Berko (1958) and Anisfeld and Tucker (1967): The two allomorphs /-s/ and /-z/ are first acquired, and the allomorph /-iz/ is not regularly used until the third grade.

Based on the assumption that grammatical morphology has long been noted as an area of difficulty for all children learning English, Paradis (2005) conducted a study to test if there are any similarities between children who are learning English as a second language (ESL) and monolingual children whose first language is English, and diagnosed with specific language impairment (SLI). The researcher went on spotting the differences between 'mistaken identity' and 'missed identity'. The former she defines as "a TD L2 learner is inappropriately diagnosed as language or learning disabled and receives unnecessary services and/or is inappropriately placed in special education classes." By TD L2 learner, Paradis (2005: 173) means a typically developed second language learner, and the latter she defines as:

An L2 learner has a language impairment but it goes unnoticed or undiagnosed because educators and SLPs (speech language pathologists) assume that the child's poor performance in oral English and in language-related academic activities is the result of his or her not being a native speaker, or because educators and SLPs adopt a "wait and see" approach in diagnosing bilingual children that may extend for years.

Paradis (2005) asserted that it is very important to distinguish between these two issues because in many cases we might mistak an ESL learner as a language-learning disabled child due to wrong assessment. Consequently, realizing the differences between the two tested groups will show if they are real cases of mistaken identity in the assessment of TD English language learners or otherwise. Paradis (2005: 175) added, "Setting realistic expectations for when ESL children achieve native-speaker proficiency could reduce the incidence of unnecessary referrals". The researcher also argued that the area of grammatical morphology was the most difficult area of learning for both monolingual children with specific language impairment and for those who are English language learners. Subjects to be examined were 24 children aged between four years and four months and seven years and ten months. All subjects were students from
preschool or school settings in Edmonton, a city in Western Canada. Furthermore, subjects were examined in both spontaneous and elicited speech for the following criteria: third person singular (-s), past tense (-ed), irregular past tense, (BE) as a copula and an auxiliary verb...etc.

The elicitation speech test was part of a new standardized test designed for identifying language impairment called (The Test of Early Grammatical Impairment). The children were tested as part of an ongoing study, and were interviewed three times within six months. The interviews took place with the presence of an interpreter, within a 45-minutes free play interview with a native speaker researcher, and all sessions were tape recorded and transcribed later. The results of Paradis’s (2005) research were divided into sub-sections.

For my research, I am more interested in sections related with ESL learners. First, the overall results showed similarities between the two named groups above which indicate a possibility that typically developed English language learners could be mistaken as language impaired. Second, the results of ESL children in terms of the use of grammatical morphology support all previous research on L2 acquisition on grammatical morphology in the English language. The research also suggests developing new ways of assessing ESL learners as the available tests are only designed for English native speakers, and are strongly not recommended for assessing ESL learners. These results will open eyes at a wider research on the part of English second language learning children. At the end of the research, Paradis (2005) focused on further research comparing the English of English second language children with and without specific language impairment to identify errors that differentiate the affected children only.

Yoshimura and Nakayama (2010) examined 30 compositions by Japanese English foreign language (EFL) learners of the lower and the higher proficiency groups to see whether L1 influence has any significant role in the syntactic or morphological domain. The study aimed at testing how Japanese EFL learners proceed to acquire three kinds of inflectional morphology in English, i.e., 3rd singular (3sg) /-s/, plural /-s/ and past tense /-ed/. Students were selected according to their Institutional Michigan Test of English Language Proficiency (MTELP) scores. Results showed that the tense inflection was the easiest to acquire followed by the /3sg/ agreement. Concerning the plural /-s/ errors, the degree of proficiency is increasing. The authors attributed this to the Japanese language rules where “the Japanese past tense form is made by adjoining /-ta/ to the prosodic word” (Yoshimura and Nakayama 2010: 2). Consequently, the overall conclusion reveals that L1 effects do have a role in affecting L2 learners concerning the production of inflectional morphology.

In view of that, literature presents major concerns regarding the acquisition of English morphology. These concerns can be summarized as the following: the acquisition of grammatical morphology is considered the most difficult area for both native English speakers and (ESL) English second language learners from different backgrounds, and research in this area is still limited, regarding English as a second language for learners. In this paper, we hope to present further results concerning the acquisition of some parts of English morphology; namely, English pluralisation and the regular past tense by Arab EFL learners.

Methodology

Subjects' Selection

In this research, 120 Arabic speaking eighth and eleventh grade students, aged between 14/15- 17/18 years old were tested. All subjects were of Arabic speaking parents. They were divided into two major groups, each consisting of 60 students. Students were enrolled in the national program, and were taught English language as any other subject. All students were tested regardless of their English assessment in the first semester. Students are from the Islamic Educational College and Retaal International Academy: Both are well-known private schools in Amman-Jubeiha. As the results of Berko’s research suggested that there were
no differences between boys' and girls' answers, I excluded gender as a variable in this study. All subjects to be tested were females.

**Words Selection**

Concerning the selection of nouns, 15 nonsense words were created from the possible sound combinations in English. All nouns were monosyllabic words, and each group of five nouns belonged to one of the three groups of the plural allomorphs: The [-s] group which appears after stems ending with voiceless sounds e.g. *voik; the [-z] group which appears after stems ending with voiced sounds e.g. *raib; and the [-iz] group which appears after stems ending with sibilants, e.g. *rus. Representative pictures were designed to signify the nonsense words, and each nonsense noun was presented on a separate card in front of each student being interviewed. Figure 1 gives an example of a nonsense noun and a representative colored shape.

![Figure 1. A nonsense word and a related shape]

Mitch [miʧ]

Regarding the verbs selection, 15 nonsense verbs were also created from the possible sound combinations in English. All verbs were monosyllabic words, and the division of nonsense verbs goes as follows: six verbs belong to the [-t] group which appears after stems ending with the voiceless sounds /p, k, f, Ө, and ʃ/ as *plick. Seven verbs belong to the [-d] group which appears after stems ending with all voiced sounds except the /t/ and /d/ as *bling. Finally, two verbs belong to the [-ɪd] group which appears after stems ending with /t/ or /d/ sounds as *crod. Each verb was presented on a separate card along with a descriptive hand drawing picture of a specific action related to that nonsense verb.

**Procedure**

Students were tested in one session: First, students were tested for their morphophonemic awareness of the plural allomorphs. Then, testing their students' morphophonemic awareness of the past tense allomorphs, and each student was called individually. Each student was first exposed to the nonsense nouns followed immediately by the nonsense verbs.

Before carrying out the test, the researcher explained the task to the student being tested. As to the plural morpheme, the researcher explained the task to the student and gave her examples of the three possible allomorphs from actual words in English e.g. book-books, pen-pens, and ostrich-ostriches. Then, the researcher read the full statement containing the pronunciation of the nonsense noun in the singular form, and the student was only asked to provide the appropriate plural form orally e.g. ‘This is a *klaŋ, and these are.........’ If the subject did not apply the plural form properly, she was asked to repeat the plural form to make sure that her pronunciation was clear enough. Data were recorded via a digital voice recorder and transformed to the computer as a winRAR, which is a lightweight, flexible, and easy-to-use archiving utility that can unpack most archive formats, as well as compress data to both RAR and ZIP; both are archive file formats that support data compression.

Regarding the past tense morpheme, the researcher explained the task to the same student who was tested before on the plural morpheme and gave her examples of the three past tense allomorphs from actual verbs in English e.g. stop-stopped, play-played, and melt-melted. Then, the researcher read the first part of the statement containing the pronunciation of the nonsense verb in the base form, and the subject was only
asked to provide the appropriate past tense form orally e.g. ‘The boy......*slan his friends yesterday’. If the subject did not apply the past tense form properly, she was asked to repeat the past tense form to make sure that her pronunciation was clear enough. Data were recorded via a digital voice recorder, too.

**Results and Discussion**

The current study employed a statistical hypothesis test (T-test) for analyzing the data. Data were also tabulated and the results showed if there were any significant differences between the two groups being tested. In addition, the results showed the percentages for the extent of awareness for each group. Then, a comparison was made to see the areas of similarities and differences between the two tested groups and comparing them with previous studies whether related to English native-speakers or native speakers of other languages.

**Eighth Grade Results**

Table 1 shows that students were aware of the plural allomorphs but not the regular past tense allomorphs with different percentages for each minor category. The 60 student scored 67.8% in the three groups of the plural allomorphs (-s group, -z group and the -iz group), and 47.3% in the three groups of the regular past tense allomorphs (-t group, -d group and the -id group).

<table>
<thead>
<tr>
<th>Eighth grade performance in nouns</th>
<th>Eighth grade performance in verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score in (-s) group allomorphs: 75%</td>
<td>Score in (-t) group allomorphs: 26.3%</td>
</tr>
<tr>
<td>Score in (-z) group allomorphs: 77.3%</td>
<td>Score in (-d) group allomorphs: 53.3%</td>
</tr>
<tr>
<td>Score in (-iz) group allomorphs: 51.3%</td>
<td>Score in (-id) group allomorphs: 89.1%</td>
</tr>
<tr>
<td>Near average performance in nouns: 67.8%</td>
<td>Near average performance in verbs: 47.3%</td>
</tr>
</tbody>
</table>

Regarding the plural allomorphs, first the (-s) allomorph, the students scored 75%. Students successfully attached the (-s) allomorph to the nouns *pait, *kroop and *voik, with the percentages 100%, 100% and 96.6%, respectively. The conflict was in the noun *noth (40%) and *keef (38.3%). (See Table 2 for the total percentages for Group one (eighth graders) correct answers for each nonsense noun.). The explanation to the high performance in some nouns and the low performance to others is discussed in details in section 4.4.

<table>
<thead>
<tr>
<th>Nouns of [-s] allomorph</th>
<th>Percentages of correct answers</th>
<th>Nouns of [-z] allomorph</th>
<th>Percentages of correct answers</th>
<th>Nouns of [-iz] allomorph</th>
<th>Percentages of correct answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pait(s)</td>
<td>100%</td>
<td>Kleev(z)</td>
<td>95%</td>
<td>Rus(-iz)</td>
<td>85%</td>
</tr>
<tr>
<td>Kroop(s)</td>
<td>100%</td>
<td>Klag(z)</td>
<td>93.3%</td>
<td>Krooz(-iz)</td>
<td>55%</td>
</tr>
<tr>
<td>Voik(s)</td>
<td>96.6%</td>
<td>Loor(z)</td>
<td>88.3%</td>
<td>Mitch(-iz)</td>
<td>51.6%</td>
</tr>
<tr>
<td>Noth(s)</td>
<td>40%</td>
<td>Vid(z)</td>
<td>75%</td>
<td>Skrage(-iz)</td>
<td>33.3%</td>
</tr>
<tr>
<td>Keef(s)</td>
<td>38.3%</td>
<td>Raib(z)</td>
<td>35%</td>
<td>Lorsh(-iz)</td>
<td>31.6%</td>
</tr>
</tbody>
</table>

Second, the (-z) allomorph where students’ total performance was 77.3%. Students scored high regarding the nouns *kleev, *klag, *loor and *vid with the percentages 95%, 93.3%, 88.3% and 75%, respectively, except for the nonsense noun *raib where only 35% of the students managed to assign the correct
allomorph to it. The students' performance in the (-z) allomorph is slightly better than their performance in the (-s) allomorph.

Finally, the (-iz) allomorph where a few students managed to assign it to the given nonsense nouns. The students' highest scores were regarding the nouns *rus (85%), *krooz (55%) and *mitch (51.6%). The students' lowest performance was in the noun *skrage (33.3%) and *lorsh (31.6%). In addition, some students had a tendency to leave the nonsense noun as it is without any change. Eleven students out of 60 left the noun *krooz without any change, four students left the noun *rus, three students left the noun *mitch, one student left the noun *skrage and one student left the noun *lorsh. This means that 33% of the students considered a final sibilant noun to be taken as a plural form without any change.

Concerning the past tense, students were exposed to 15 nonsense verbs. Each group of verbs belongs to one of the regular past tense allomorphs. First, the (-t) allomorph, the students' overall performance was 26.3%, (See Table1) . Students' high score was to the verb *clap where students' score was 66.6%. Most of the students didn't manage to attach the correct allomorph to the rest of the nonsense verbs and scored very low percentages: *ponsh (30%), *plaf (28.3%), *brux (11.6%), *slach (11.6%) and *plick (10%). From the students' performance it was clear that students had a tendency to attach the allomorph (-d) instead of (-t) to the given verbs. (See Table 3 for the total percentages for Group one (eighth graders) correct answers for each nonsense verb.)

Table (3): Percentages of the correct answers for each nonsense verb (Group1)

<table>
<thead>
<tr>
<th>Verbs of the (-t) allomorph</th>
<th>Percentages of the correct answers</th>
<th>Verbs of the (-d) allomorph</th>
<th>Percentages of the correct answers</th>
<th>Verbs of the (-ɪd) allomorph</th>
<th>Percentages of the correct answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clop</td>
<td>66.6%</td>
<td>Dow</td>
<td>88.3%</td>
<td>Glot</td>
<td>91.6%</td>
</tr>
<tr>
<td>Ponsh</td>
<td>30%</td>
<td>Bluz</td>
<td>65%</td>
<td>Crod</td>
<td>86.6%</td>
</tr>
<tr>
<td>Plaf</td>
<td>28.3%</td>
<td>Sperv</td>
<td>50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brux</td>
<td>11.6%</td>
<td>Bling</td>
<td>48.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slach</td>
<td>11.6%</td>
<td>Smore</td>
<td>48.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plick</td>
<td>10%</td>
<td>Slan</td>
<td>38.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Slom</td>
<td>35%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Second, concerning the (-d) allomorph the students' overall performance was 53.3%. The eighth grade students were successful to attach the correct allomorph to the verbs *dow, *bluz and *sperve with the percentages 88.3%, 65% and 50%, respectively. Some students managed to attach the allomorph (-d) to the rest of the verbs but with low percentages: *bling (48.3%), *smore (48.3%), *slan (38.3%) and *slom (35%). The students' low performance in the previously mentioned verbs can be attributed to the fact that students had a tendency to attach the allomorph (-t) instead of (-d) to the given verbs.

Finally, regarding the (-id) allomorph, a large number of students were successful to attach the correct allomorph to the given two verbs without any difficulty except for few students. Both verbs *glot and *vod had the high scores of 91.6% and 86.6%, respectively. Only eight students out of 60 left the verb *vod as it is without any change, and four students left the verb *glot without any change. This means that only 20% of the 60 student had a tendency to consider a final (-t) or (-d) as already containing a marker of past tense. Similar results were reported by Bybee and Slobin (1982: 271) who posited that:

preschoolers, rather than functioning with a suffixation rule that requires that t/d be ADDED to the verb, are functioning with a schema like 2a or 2b, which says that if a verb ends in t/d, then it is an acceptable past tense. They are not concerned with the ADDITION of a marker, but rather with how the general shape of the word fits the pattern.
Eleventh Grade Results

The results of the eleventh grade show that the students are aware of the plural allomorphs of nouns but not the regular past tense allomorphs of verbs with different percentages for each minor category. (See Table 4 for the eleventh grade students' total performance in nouns and verbs.) The 60 students scored 72.3% for the three groups of the plural allomorphs (-s group, -z group and the -iz group). On the other hand, the same students scored 45.8% for the three groups of the past tense allomorphs (-t group, -d group and the -id group).

Table 4: Eleventh grade students' total performance in nouns and verbs

<table>
<thead>
<tr>
<th>Eleventh grade performance in nouns</th>
<th>Eleventh grade performance in verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score in (-s) group allomorphs: 78.6%</td>
<td>Score in (-t) group allomorphs: 24.7%</td>
</tr>
<tr>
<td>Score in (-z) group allomorphs: 66.6%</td>
<td>Score in (-d) group allomorphs: 49.5%</td>
</tr>
<tr>
<td>Score in (-iz) group allomorphs: 71.6%</td>
<td>Score in (-id) group allomorphs: 96.6%</td>
</tr>
<tr>
<td>Near average performance in nouns: %72.3</td>
<td>Near average performance in verbs: 45.8%</td>
</tr>
</tbody>
</table>

Concerning the plural allomorphs, students were exposed to 15 nonsense nouns. Each five nouns belong to one group of the three plural allomorphs. Students' total correct answers for all nouns is 72.3%. First, the (-s) allomorph, the total correct answers for all nouns is 78.6%. Almost all students of the eleventh grade assigned the correct allomorph to the nonsense nouns *pait (100%), *kroop (100%) and *voik (96.6%). The conflict was within *noth (51.6%) and *keef (45%) in which some students tended to add a wrong plural allomorph either (-z) or (-iz). Table 5 shows the total percentages for Group two (eleventh graders) correct answers for each nonsense noun.

Table (5): Percentages of the correct answers for each nonsense noun (group2)

<table>
<thead>
<tr>
<th>Nouns of [-s] allomorph</th>
<th>Percentages of correct answers</th>
<th>Nouns of [-z] allomorph</th>
<th>Percentages of correct answers</th>
<th>Nouns of [-iz] allomorph</th>
<th>Percentages of correct answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pait(s)</td>
<td>100%</td>
<td>Kleev(z)</td>
<td>90%</td>
<td>Rus(-iz)</td>
<td>88.3%</td>
</tr>
<tr>
<td>Kroop(s)</td>
<td>100%</td>
<td>Loor(z)</td>
<td>81.6%</td>
<td>Krooz(-iz)</td>
<td>83.3%</td>
</tr>
<tr>
<td>Voik(s)</td>
<td>96.6%</td>
<td>Klag(z)</td>
<td>78.3%</td>
<td>Mitch(-iz)</td>
<td>71.6%</td>
</tr>
<tr>
<td>Noth(s)</td>
<td>51.6%</td>
<td>Vid(z)</td>
<td>60%</td>
<td>Skrage(-iz)</td>
<td>60%</td>
</tr>
<tr>
<td>Keef(s)</td>
<td>45%</td>
<td>Raib(z)</td>
<td>23.3%</td>
<td>Lorsh(-iz)</td>
<td>55%</td>
</tr>
</tbody>
</table>

Second, when it comes to the (-z) allomorph, the total correct answers by the eleventh grade students was 66.6% which shows that they are aware of the (-z) allomorph. Almost most of the students assigned the correct allomorph to the nouns *kleev (90%), *loor (81.6%), *klag (78.3%) and *vid (60%), and this is clear from the high percentages presented in Table 3, except for the word *raib which was answered correctly by only 23.3% of the subjects.

Third, the allomorph (-iz) shows a high performance unlike the (-z) allomorph but not higher than the (-s) allomorph. Students of the eleventh grade scored 71.6% for the (-iz) allomorph with different percentages for each nonsense noun as can be noted in Table 3. Most of the students assigned the correct allomorph to the given nouns as follows: *rus 88.3%, *kroo 83.3%, *mitch 71.6%, *skrage 60%, and *lorsh 55%, except for few students who either assigned a (-s) or (-z) allomorph, or that the noun was left as it is without adding any plural suffix. We might assume that a final sibilant makes plural, but this assumption is weak since only 20% of the 60 students did so: two students left the noun *skrage as it is, three students...
for the noun *rus*, two students for the noun *lorsh*, four students for the noun *krooz*, and one student for the noun *mitch*.

From the results of the eleventh grade students on the subject of the plural allomorphs, we may conclude that 72.3% of the 60 students are aware of the plural allomorphs. They scored high in the (-s) allomorph (78.6%), followed by the (-iz) allomorph (71.6%), and finally the (-z) allomorph where students scored the lowest percentage (66.6%).

Concerning the past tense, students were exposed to 15 nonsense verbs: six verbs belong to the (-t) allomorph, seven verbs belong to the (-d) allomorph, and two verbs belong to the (-id) allomorph. The 60 students of the eleventh grade scored 45.8% in the past tense allomorphs. First, the (-t) allomorph, students scored 24.7% by applying the correct allomorph to the given nonsense verb. Only some subjects applied the correct allomorph to the verbs *clap*, *ponsh*, and *plaf*, with percentages 68.3%, 28.3%, and 20%, respectively. The disagreement was regarding the verbs *brux*, *slach* and *plick* with the percentages of 13.3%, 11.6%, and 6.6%, respectively. The overall performance of students in the (-t) allomorph is considered very low as few students of the whole class managed to assign the correct allomorph to the given verb. (See Table 6 for the percentages of the correct answers for each nonsense verb.)

<table>
<thead>
<tr>
<th>Verbs of the (-t) allomorph</th>
<th>Percentages of the correct answers</th>
<th>Verbs of the (-d) allomorph</th>
<th>Percentages of the correct answers</th>
<th>Verbs of the (-id) allomorph</th>
<th>Percentages of the correct answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clop</td>
<td>68.3%</td>
<td>Dow</td>
<td>73.3%</td>
<td>Glot</td>
<td>100%</td>
</tr>
<tr>
<td>Ponsh</td>
<td>28.3%</td>
<td>Bluz</td>
<td>68.3%</td>
<td>Crod</td>
<td>93.3%</td>
</tr>
<tr>
<td>Plaf</td>
<td>20%</td>
<td>Sperv</td>
<td>56.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brux</td>
<td>13.3%</td>
<td>Bling</td>
<td>48.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slach</td>
<td>11.6%</td>
<td>Smore</td>
<td>43.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plaf</td>
<td>6.6%</td>
<td>Slan</td>
<td>33.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Slom</td>
<td>23.3%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Second, concerning the (-d) allomorph, the students scored 49.4% for this group. Most verbs were in agreement with the correct allomorph but with different percentages. The highest scores were related to the verbs *dow*, *bluz*, and *sperv*, with the percentages 73.3%, 68.3%, and 56.6%, respectively. While students scored low regarding the verbs *bling*, *smove*, *slan*, and *sloam*, with the percentages 48.3%, 43.3%, 33.3%, 23.3%, respectively.

Finally, the (-id) allomorph, where students scored the highest percentage (96.6%). Most students managed to assign the correct allomorph to the two given nonsense verbs. Few students failed to assign the correct allomorph to the verb *crod*, but still the score is considered very high, as 93.3% of students were successful in adding the correct allomorph to the previous verb. No student failed to assign the correct allomorph to the verb *glot* (100%).

As to the results of the eleventh grade regarding the past tense allomorphs, one may conclude the following: the students' overall scoring which is 45.8% indicates that Group 2 were not aware of the three regular past tense allomorphs ((-t), (-d), and (-id)), and going deep into each allomorph individually, one may notice that students faced a serious problem concerning verbs that belong to the (-t) allomorph in which students scored their lowest percentage (24.7%); not even half of the class managed to assign the correct allomorph to the given verb. For the (-d) allomorph, scoring (49.5%) may not be considered a problem since almost half of the 60 students assigned the correct allomorph to the given verbs. As can be noted from Table 4 the students' best performance was related to the (-id) allomorph, as the error in this group is only 3.4% for both verbs *crod* and *glot*.
Comparing eighth grade results to the eleventh grade results

Comparing the results of the eighth grade students (Group 1) to the results of the eleventh grade students (Group 2), it is clear from the final performance of both classes that both groups, to a certain degree, were aware of the morphophonemic processes of the plural allomorphs but not the regular past tense allomorphs, but in favor of Group 2.

Concerning the plural allomorphs, the eighth grade students scored 67.8% while the eleventh grade students scored 72.3%. (See Table 7 for the total performance of both groups for the plural allomorphs.) Looking deep into the plural allomorphs groups: (-s) group, (-z) group and the (-iz) group separately for both classes, the results vary from one class to another. For the (-s) allomorphs group, Group1 achieved 75% while the Group2 achieved 78.6%. Both groups have a relatively similar achievement but in favor of Group 2. The general tendency for most of the students was to attach the allomorph [-s] to the given noun.

Looking deep into the results of each tested class, first, concerning the (-s) group allomorph, it is clear that both classes followed the same order of scoring high or low percentages in pronouncing the correct allomorph adjunct to the given nonsense nouns. Nouns can be ordered in a cumulative order as the following: *keef (41.6%), *noth (45.8%), *voik (96.6%), *pait (100%), and *kroop (100%). This means that students of both classes scored very low regarding the nouns *keef and *noth, while the students' high scores were regarding the nouns *voik, *pait, and *kroop. The only explanation that can be given to the low percentages to some nouns and high percentages to others is to analyze the results in relation to the manner of articulation of the final sound of the nonsense noun. Students of both classes failed to attach the (-s) allomorph to nouns ending in fricative sounds as (ð, and f), while their highest scorings were in attaching the (-s) allomorph to nouns ending in stops/ plosives as (p, t, and k).

One point to mention in relation to the nonsense noun *keef is that students may consider the noun *keef as an analogy with leaf: leaves, as 61.6% of the eighth grade students assigned the [-z] allomorph to the nonsense *keef, and 51.6% of the eleventh grade students did so. In this case the (-z) allomorph may be more acceptable than the (-s) allomorph as a real morphological plural. The -f at the end of the noun doesn't become devoiced, but instead the allomorph affected the preceding consonant causing a regressive assimilation of the final voiceless consonant. Similar results were encountered by Berko (1958) when her subjects were exposed to the nonsense noun *heaf.

### Table 7: The total performance for both Group 1 and Group 2 in the plural allomorphs

<table>
<thead>
<tr>
<th>Eighth grade final performance regarding the plural allomorphs</th>
<th>Eleventh grade final performance regarding the plural allomorphs</th>
</tr>
</thead>
<tbody>
<tr>
<td>[-s] allomorph: 75%</td>
<td>[-s] allomorph: 78.6%</td>
</tr>
<tr>
<td>[-z] allomorph: 77.3%</td>
<td>[-z] allomorph: 66.6%</td>
</tr>
<tr>
<td>[-iz] allomorph: 51.3%</td>
<td>[-iz] allomorph: 71.6%</td>
</tr>
<tr>
<td><strong>Students' total performance: 67.8%</strong></td>
<td><strong>Students' total performance: 72.3%</strong></td>
</tr>
</tbody>
</table>

Second, as to the (-z) allomorph group, Group1 scored 77.3% and Group 2 scored 66.6%. For this category the eighth graders outperformed the eleventh graders. Eighth grade students seemed to be aware of the (-z) allomorph and its requirement, to attach the (-z) allomorph after stems ending with voiced sounds like /b, d, g, n, v, r, and η/, while the eleventh grade students tended to attach the (-s) allomorph instead of the (-z) when needed.

Further, it is clear from the results of both classes that they followed the same order when it comes to the percentages of correct answers of attaching the (-z) allomorph to the given nonsense noun. Nouns can be ordered in a cumulative order as follows: *raib, *vid, *loor, *klag, and *kleev. Both classes scored high percentages in all the given nouns except for the nonsense noun *raib; 70.8% of both classes tended to attach the allomorph [-z] to the given noun.
attach the allomorph (-s) to the noun *raib. This can be considered as a case of final obstruent devoicing, where the voiced (-z) allomorph is replaced by a voiceless (-s) allomorph. Students tended to accept the voiceless (-s) allomorph as a plural marker after a voiced stop rather than the voiced (-z) allomorph.

Similar results of voicing contrast were found in previous studies such as Long and Ann (2004)'s study on Cantonese speakers from Hong Kong of English. Long and Ann (2004: 6) found that "because of terminal devoicing, the voiced obstruents in word final position such as [-ndz] are quite often replaced by voiceless obstruents, producing forms such as haents ‘hands’". They attributed such voicing contrast to first language (L1) transfer, and referred to Edge's study in 1991. They also recommended to conduct further research that consider the speakers' first language as well as the target language, and to examine the differences of such voicing contrast cases between non-native speakers of English and native speakers of English.

Finally, in the (-iz) allomorph, Group1 scored 51.3% while Group 2 scored 71.6%. But, what is more significant is that both classes had the same order of nouns regarding the percentages of the correct answers. Although Group 2 outperformed Group 1, both classes followed the same ascending order as follows: *lorsh, *skrage, *mitch, *krooz, and *rus. Both classes scored the lowest percentages regarding the nonsense nouns *lorsh and *skrage, both nouns share having a final post-alveolar fricative and affricate sounds. Besides, the noun *mitch had to some extent a low percentage and also ends in a post-alveolar affricate. One may conclude that regarding the place of articulation, students had a difficulty in attaching the (-iz) allomorph to words ending in post-alveolar fricatives or affricates. It is important to point out that these clarifications are primary and need to be justified by testing larger groups of students and of different age groups.

What is significant about the results is that, concerning Group 1, the order of acquisition for the plural allomorphs followed Berko's results (1958:163):

What is clearest from these answers dealing with the plural is that children can and do extend the l-s/ and l-\(z\)/ forms to new words, and that they cannot apply the more complicated l-\(\partial z\)/ allomorph of the plural to new words.

When it comes to Group 2, students' performance regarding the order of learning was slightly different where students scored their best in the (-s) allomorph (78.6%), followed by the (-iz) allomorph (71.6%) and finally the (-z) allomorph in which students scored the least percentage (66.6%). The low performance of students can be attributed to the fact that after a specific age of learning English the oral language development characteristics as pronunciation and speaking is replaced by other concerns such as grammar and writing. Similar results were present in Natalicio and Natalicio (1971: 1304) study. They suggested that "what is perhaps most extraordinary about the data from the NSS sample is their considerably inferior performance in the tenth grade as compared with that of NES Ss." As mentioned before, the only explanation given by the researchers to this low performance of the NSS is because they lack receiving continuous school-home linguistic experience, in which the emphasis on oral language development characteristic of the first and second grades is gradually replaced by other concerns.

When it comes to the past tense allomorphs, the general performance for both classes indicated that the eighth graders performed better than the eleventh graders by 47.3% for Group 1 to 45.8% for Group 2. (See Table 8.) Looking deep into the details of the three past tense allomorphs, each group had its own performance. Both Group 1 and Group 2 scored the highest percentages in the (-id) allomorph, achieving 89.1% and 96.6%, respectively. Then, for the (-d) allomorph where the two groups showed approximately similar percentages: Group 1 scored 53.3% while Group 2 scored 49.5%. Finally, the (-t) allomorph in which students scored their lowest percentages of correct answers, and both groups can be considered having the same degree of awareness regarding this particular allomorph; as Group 1 scored 26.3% whilst Group 2 scored 24.7%.
Regarding the order of acquisition for the past tense allomorph, it is contrary to what was discovered in previous studies related to English native speakers. As argued by Berko (1958: 165) "they can handle the regular /-d/ and /-t/ allomorphs of the past in new instances, but not /-ɪd/." In this study, the students' best performance was in the (-id) allomorph group, followed by the (-d) allomorph and finally the (-t) allomorph with the lowest performance. These findings give an indication that EFL Arab learners accepted both (-d) and (-id) allomorphs as past tense markers, but not the (-t) allomorph.

Table 8: The total performance for both Group 1 and Group 2 in the past tense allomorphs

<table>
<thead>
<tr>
<th>Eighth grade final performance regarding the past tense allomorphs</th>
<th>Eleventh grade final performance regarding the past tense allomorphs</th>
</tr>
</thead>
<tbody>
<tr>
<td>[-t] allomorph: 26.3%</td>
<td>[-t] allomorph: 24.7%</td>
</tr>
<tr>
<td>[-d] allomorph: 53.3%</td>
<td>[-d] allomorph: 49.5%</td>
</tr>
<tr>
<td>[-id] allomorph: 89.1%</td>
<td>[-id] allomorph: 96.6%</td>
</tr>
<tr>
<td>Students' total performance: 47.3%</td>
<td>Students' total performance: 45.8%</td>
</tr>
</tbody>
</table>

Examining the nonsense verbs of each group of the past tense allomorphs, significant findings can be concluded. First, the (-t) allomorph group, in which both classes scored their lowest performances of the three groups of the past tense allomorphs, both classes followed the same ascending order in their scorings as follows: *plick, *slach, *brux, *plaf, *ponsh, and *clop. Since both classes scored very low percentages in this group, a specific feature must group all the verbs of this category. All the verbs of this category end in the following sounds: k, f, s, p, ʧ, and ʃ, are all voiceless stops, fricatives, or affricates (obstruents) and must be followed by the voiceless alveolar stop allomorph (-t) to form the past tense. In view of the fact that the general tendency of students was to attach the allomorph (-d) instead of (-t) to these given nonsense verbs, one may refer the low scorings for this category to a case of final sound dissimilation, where a voiceless sound becomes voiced due to the influence of its phonological environment. It was more acceptable for students to attach the voiced alveolar stop (-d) allomorph instead of the voiceless alveolar stop (-t) allomorph after stems ending in voiceless sounds as (k, p, f, s, ʧ, and ʃ).

Regarding the (-d) allomorph group, similar to all the previous analysis, students of both classes followed the same cumulative order in their scorings to attach the allomorph (-d) to a number of given nonsense verb. The order goes as the following: *sλom, *sλan, *smore, *bling, *sperv, *bluz, and *dow. It is noticeable that students' low performance was related to verbs ending in nasals as (m, n, and ñ) and the consonant liquid (r) sounds. It seems clear that students faced difficulty in attaching the allomorph (-d) to stems ending in nasals and the liquid (r) sound.

Finally, the (-id) allomorph group, students of both groups scored high in this allomorph. It was easy for most of the students to attach the allomorph (-id) to stems ending in (-t) or (-d) sounds. Both Group 1 and Group 2 scored high percentages in this group; 89.1% and 96.6%, respectively. As mentioned above, the previous justifications for the data analysis and the variations between percentages of nouns belonging to the same category are only tentative and need further support by testing larger number of students and to be exposed to more than one noun ending with the same sound.

Conclusion

The findings of the current study support the line of research suggesting that the morphophonemic awareness plays a role in the proficiency level of Arab EFL learners. In the sense that the more the student is aware of the morphophonemic changes of inflectional morphology, the clearer the evidence of her/his ability to speak fluent English.

The results demonstrated that there is a slight difference between the two tested classes in favour of the
eleventh grade students. Also, there were significant differences in the type of inflectional morphology in favour of nouns over verbs. In other words, according to the two classes' overall morphophonemic awareness in both plural allomorphs and past tense allomorphs, the eleventh grade students outperformed the eighth grade students in the plural allomorphs of English inflectional morphology.

To this, Berko (1958: 174) highlighted that "[t]he children's handling of the past tense parallels their treatment of the plurals, except that they did better on the whole with the plurals." This is a positive indication that nouns in both the singular and the plural form are considered as an important part of the students' everyday English language. Besides, the students' low performance in the past tense allomorphs of nouns compared to the past tense allomorphs of verbs is not promising at all. This also signals a similarity between native speakers of English and non-native speakers of English in the area of inflectional morphology.

Moreover, the order of acquisition for the plural and the past tense allomorphs is different. According to the current study, Group 1 followed the previous line of research conducted by Berko (1958), in the sense that the tested groups can extend the (-s) and (-z) allomorphs to nonsense nouns but they cannot extend the (-iz) allomorph which is acquired at a later age of learning. But this was not the case when Group 2 was tested; it was clear that the students' language development characteristics are in a chaos, they showed a lower performance and in a total contrary order to what is used to be followed in previous studies. This was also present in previous studies such as Natalicio and Natalicio's study in (1971) when they argued that the low performances of older students compared to the performances of younger students is due to the formers' concern about other linguistic topics as grammar and writing, and do not take into account the phonotactic structure of L2.

Concerning the past tense allomorphs, the tested groups showed a different order of learning to what was found in studies related to native speakers of English. In this research, the students' best performance was in the (-id) allomorph group, followed by the (-d) allomorph group, and their lowest performance was in the (-t) allomorph group. Berko (1958) concluded that speakers of English acquire the past tense allomorphs according to the following order: first the (-t) allomorph, followed by the (-d) allomorph, and finally the (-id) allomorph.

Most of the studies that examined the morphophonemic awareness of English morphology dealt with native speakers of English. So more studies can be conducted to investigate the degree of English morphophonemic awareness of native speakers of other languages, especially Arabic speaking subjects, and compare their level of awareness with the previous research of English native speakers.

It is highly recommended to go over schools books that teach English language, and to observe their extent to respond to the students' requirements to develop their lexical competence since it is considered as an integral component of the whole system of communicative competence. Stevens (1991); Celce-Murcia (1991); Stanovich (1993); Koren (1995); Morley (1998); Kruidenier (2002), and Liu (2011) all agree on the fact that unfortunately phonics and spelling are not among the major topics to be taught for EFL learners in their acquisition of English pronunciation. They emphasize the importance of teaching phonetics and pronunciation to develop EFL's acquisition of English phonological awareness. Moreover, it is a way to develop their reading acquisition abilities, and to make them better speakers.

Finally, this study can be replicated using subject with different language backgrounds, different age groups and different cultures to compare the similarities and differences in learners' morphophonemic awareness of the different types of English inflectional morphology. Further research testing other morphological formation processes would be helpful to draw a wider vision of the English inflectional system by non-native speakers of English, namely Arabic native speakers.
References


