Guessing Verb–Adverb Collocations: Arab EFL Learners' Use of Electronic Dictionaries[*]

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Abstract: Collocational studies have recently attracted a great deal of interest. To date, hardly any study has tackled Arab EFL learners' competency in the use of verb–adverb collocations. This study explores the way advanced Arab EFL learners handle verb–adverb collocations using two learner's dictionaries. The subjects (N = 82) were required to look up 22 verbs, 12 frequent and 10 infrequent, and guess three adverb collocates of each verb. The results showed that even advanced EFL learners had considerable difficulty in providing extra adverb collocates of both frequent and infrequent verbs. Dictionary use was effective; the subjects performed significantly better especially with infrequent verbs. Many reasons were posited for this finding, foremost of which included the subjects' deficiency in collocational skills and the lack of sufficient clues in the definitions to facilitate dictionary users' correct use of collocations. Whereas knowledge of the meaning of the stimuli was found to be a significant contributing factor to the subjects' overall collocational competence, basic prior training in dictionary usage did not show any positive impact on their overall performance.

Keywords: VERB–ADVERB COLLOCATIONS, ARAB EFL LEARNERS, FREQUENT VERBS, INFREQUENT VERBS, TRAINING IN DICTIONARY USE, COLLOCATIONS DICTIONARIES, DICTIONARY USE, LEARNER'S DICTIONARIES

Opsomming: Die raai van werkwoord–bywoord-kollokasies: Arabiese EVT-leerders se gebruik van elektroniese woordeboeke. Kollokasienavorsing het onlangs baie belangstelling ontlok. Tot op hede het byna geen studie Arabiese EVT-leerders se vaardighede in die gebruik van werkwoord–bywoord-kollokasies ondersoek nie. Hierdie studie ondersoek die manier waarop gevorderde Arabiese EVT-leerders met werkwoord–bywoord-kollokasies omgaan terwyl hulle twee aanleerderswoordeboeke gebruik. Die proefpersone (N = 82) is versoek om 22 werkwoorde, waarvan 12 gebruiklik en 10 ongebruiklik was, na te slaan en drie bywoordelike kollokasies vir elke werkwoord te raai. Die resultate het getoon dat selfs gevorderde EVT-leerders aansienlike probleme ondervind het om ekstra bywoordelike kollokasies vir sowel gebruiklike as ongebruiklik werkwoorde te verskaf. Woordeboekgebruik was effektief; die proefpersone het aansienlik beter gevaar by veral gebruiklike werkwoorde. Baie redes is voorgestel vir hierdie bevinding, waarvan die belangrikstes die proefpersone se gebrek aan kollokasionele vaardighede ingesluit het, asook die gebrek aan voldoende leidrade in die definisies om woordeboekgebruikers se

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[*] This is a sequel to Alzi'abi (2017). The two studies made use of the same material and subjects but each had its own aims, procedure and results.

korrekte gebruik van kollokasies te vergemaklik. Terwyl daar bevind is dat kennis van die beteke-nis van die stimuli 'n betekenisvolle bydraende faktor tot die proefpersone se oorkoepelende kollo-kasionele bedrewenheid gelewer het, het basiese vorige opleiding in woordeboekgebruik geen positiewe invloed op hulle algehele prestasie gehad nie.

Sleutelwoorde: WERKWOORD–BYWOORD-KOLLOKASIES, ARABIESE EVT-LEERDERS, GEBRUIKLIKE WERKWOORDE, ONGEBRUIKLIKE WERKWOORDE, OPLEIDING IN WOOR-DEBOEKGEBRUIK, KOLLOKASIEWOORDEBOEKE, WOORDEBOEKGEBRUIK, AANLEERDERS-WOORDEBOEKE

1.   Introduction

Collocations are crucially important to language competency and fluency (Lewis 2000 and Wray 2002). Hausmann (cited in Busse 1995: 125) has rightly claimed that "learning a language is learning collocations". This notion has also been echoed by compilers of the *Oxford Collocations Dictionary for Students of English* (OCD) who point out that no piece of natural spoken or written English is totally free of collocations (2009: v). Historically, EFL educators have been known to altogether neglect collocations in their teaching repertoire (Bahns 1993). Presently, there has been a surge of both interest in and availability of research covering all aspects of collocations.

Researchers, to date, have mainly focused on verb–noun collocations using EFL learners of diverse linguistic backgrounds including Arabs (Alzi'abi 2012), Afrikaners (Nizonkiza, Van Dyk and Louw 2013), Chinese and Swedish (Wang and Shaw 2008), Dutch (Peters 2016), Germans (Nesselhauf 2005), Israelis (Laufer and Waldman 2011), Lithuanians (Juknevičienė 2008), Japanese and French (Kurosaki 2012), Malaysians (Ang, Rahim, Tan and Salehuddin 2011), Poles (Szudarski 2012), Russians (Siyanova and Schmitt 2008), Spanish (Zinkgräf 2008), Taiwanese (Kuo 2009), Turkish (Akpýnar and Bardakçý 2015) and Vietnamese (Nguyen and Webb 2016). Although contrasting findings may be found in the aforementioned works, there appears to be a consensus among researchers that the correct acquisition and use of collocations has proved to be highly challenging for most EFL learners regardless of their linguistic back-ground (see Laufer 2011 and Sun and Wang 2003).

To date, very few empirical works have focused on the means by which EFL learners acquire collocations and their effective use of dictionaries to extract collocational information. Philip (2007: 2) has called for greater research efforts to assess "whether collocation errors are indeed mislearned or mis-remembered collocations, or if they are something else entirely — calqued or invented forms — with the 'arbitrary' collocations being avoided instead". Cur-rently, there is little to no research available that has elucidated the means by which EFL learners, particularly those of Arab background, utilise dictionaries for the production of verb–adverb collocations. The present study aims at addressing this research gap and may provide invaluable insight into how

advanced Arab EFL learners process verb–adverb collocations using two of the available learner's dictionaries. The subjects will be involved in dictionary look-ups for verbs to provide additional adverb collocates relating to those verbs using the electronic version of either the *Longman Dictionary of Contemporary English* 5th edition (LDOCE) or the *Oxford Advanced Learner's Dictionary* 9th edition (OALD). These two dictionaries were selected as they were the most popular references among Arab EFL learners.

It should be added that learner's dictionaries are not typically scripted to solely teach collocations since they do not include an exhaustive amount of collocational information. It is, therefore, worth conducting a study to establish whether this information would systematically enable advanced EFL learners to infer which other items, i.e. adverb collocates occur with a certain verb.

In the sections to follow, the concept and meaning of collocation is defined with the assistance of relevant studies to date. An elucidation of the method, procedure, findings and discussion of the present study comes next.

2.   What is collocation?

Researchers use a variety of expressions to refer to chunks of two word expressions including the phenomenon of collocation. These include, inter alia, *fixed expressions* (Alexander 1984); *formulaic language* or speech (Weinert 1995); *multi-word items* (Moon 1997); *prefabricated chunks* (Williams 1998) and *word combinations* (Howarth 1998). Wray (2002) uses the expression *formulaic sequences* as an umbrella term covering all the aforementioned formulations. Conceivably, the abundance of available terminologies has made it challenging to settle on an exact and satisfactory definition of collocation. Although many terminologies abound, they all encompass the same concept albeit approaching it from a different perspective. However, none to date are entirely foolproof.

One particular definition which may encompass the notably wide elusive concept of collocation and will better fit the goals of the present study has been given by Gries (2008: 3). He states that collocation is "the co-occurrence of a form or a lemma of a lexical item and one or more additional linguistic elements of various kinds which functions as one semantic unit in a clause or sentence and whose frequency of co-occurrence is larger than expected on the basis of chance". Although this definition is exhaustive, it must nonetheless be noted that the suggestion of co-occurrence of the items imposes undue constraints on the way in which combination relation works. This is technically referred to as the 'restricted commutability' of the components of the chunk. For instance, any given verb will have a set of adverbs that modify it in order for a specific meaning to be communicated. These restrictions in the substitutability of the collocates are, indeed, the root of the problem in grasping the concept of collocations.

3.   Literature review

Researchers in the field have maintained a sustained interest in multiword units; among which collocations have assumed a central position (see Nessel-hauf 2003 and Nizonkiza, Van Dyk and Louw 2013). Studies completed to date may broadly fall into four categories: 1) Studies that assess EFL learners' competence in forming collocations correctly (e.g. Farghal and Obeidat 1995; Hussein 1990; Zughoul and Abdul-Fattah 2003). Included in this category are those that focus on the learners' miscollocations and ill-formed productions (e.g. Farghal and Al-Hamly 2007; Granger 1998; Kuo 2009; Kurosaki 2012). 2) Studies exploring the causal relationship between mastery of collocations and the subjects' level of proficiency or linguistic skills (e.g. Akpýnar and Bardakçý 2015 and Nizonkiza 2011). 3) Studies investigating the impact of implicit or explicit instruction, noticing, providing visual enhancement as well as raising collocational awareness on the learners' successful use of collocations (Alfahadi, Zohairy, Momani and Wahby 2014; Farrokh 2012; Szudarski 2012). 4) Studies describing syntactically and semantically parsed corpora in attempts to extract collocations either for pedagogical or lexicographic purposes (e.g. Jaén 2007; Kennedy 2003; Krenn and Evert 2001; Seretan 2011; Smadja 1993). It should be noted that these four categories are not a binary choice since some studies may be found to encompass more than one theme and will not strictly fall into one classification.

3.1   General collocational studies

Hussein (1990) investigated the ability of 200 third- and fourth-year English majors of Arab background to collocate items correctly. The subjects generally performed poorly on a 40-item multiple choice collocation test and failed to collocate more than half of the time. Farghal and Obeidat (1995) involved 34 Arab learners of English in a gap-filling task (22 common collocations) and Arabic–English translation task (23 expressions). Results showed overall poor performance across the board; however, the subjects did well when convergence existed between L1 and L2. Granger (1998) and Lorenz (1999) also reported similar findings with French and German EFL learners, respectively. Comparing the learners' production of the adverbs ending in -*ly* (Granger 1998) and adverbs not ending in -*ly* (Lorenz 1999) with that of native speakers, the researchers found that EFL learners underused adverb collocates. The adverbs used were limited to those congruent with adverb–adjective combinations in their mother tongues, particularly those with a more 'restricted adverb' (see Peters 2016).

Two further studies reported Arab EFL learners' overall ignorance of collocations: Al-Amro (2006) and Alsakran (2011). The former study assessed the collocational knowledge of 51 Saudi advanced English learners through cloze, multiple choice and essay-writing tests. It found a close relation between the subjects' comprehension and production of collocations but no relation was

found between knowledge of collocations and the subjects' language proficiency. Alsakran (2011) involved 38 advanced Arab learners in an appropriateness judgment test and reported subject' incompetence in using collocations in all tests. They, however, performed better in the comprehension tasks with all types of collocations under scrutiny, verb–noun collocations being foremost.

Satriawan (2009) explored the acquisition of adverb collocates and compared the types and tokens of the degree, aspect and manner of adverbs in both natives and non-natives' adverbial collocations. The author examined the latter's adverbial collocations native likeness using three corpora which contained the adverb production of Indonesian TEFL undergraduates and native English speakers. Non-natives were found to use far less amplifiers and down-toners to modify adjectives and lexical verbs versus the native subjects. Moreover, the non-natives were found to use twice as many manner adverbs as natives. Interestingly, 75% of non-natives' adverb collocations (228) of adjectives, adverbs and verbs were deemed acceptable.

The above studies have highlighted learners' problems with the acquisition of collocations and some attributed subjects' lack of collocational competency to the negligence of the lexical approach in EFL teaching programs (Al-Amro 2006). In addition, negative transfer, overgeneralization, unfamiliarity with the structure of collocations (Hussein 1990) and the use of lexical simplification (Farghal and Obeidat 1995) have also proven to be significant contributing factors.

3.2   Studies involving the use of electronic dictionaries for collocations

Dziemianko (2010) investigated the influence of using paper versus electronic versions of *Collins COBUILD Advanced Learner's Dictionary* on the retention of meaning and collocations. Sixty-four upper-intermediate Polish learners of English performed receptive and productive tasks. The electronic dictionary was found to be significantly more effective than the printed version in both tasks. However, this finding is anomalous when compared with those from earlier works where no difference existed between electronic and paper dictionaries. A similar study to Dziemianko (2010) was Laufer's (2011) which explored the effect of dictionary usage on high school learners' production and retention of verb–noun collocations. The subjects were encountering difficulties in locating the right verbs to collocate with some nouns. Very low scores were obtained with regard to the retention of the looked-up collocations. Dictionaries significantly, though moderately, increased the number of correct collocations in the fill-in task.

Alzi'abi (2012) investigated the comparative effectiveness of using two different types of dictionaries to extract collocational information. Twenty verb–noun expressions, ten correct combinations and ten made-up ones were used in two tests in conjunction with the *Cambridge Advanced Learner's Dictionary* 3rd edition[i] (CALD) and OALD. A pretest required 130 second-year Syrian English

majors to judge the appropriateness of the items dictionary-free and a main test which required them to judge the acceptability of the same items but dictionary-aided. The subjects performed poorly on both tests. Interestingly, dictionary use significantly improved subjects' performance but the difference between the two dictionaries was not significant. The subjects were incapable of taking full advantage of the collocational information in dictionaries owing to hasty exploration strategies or lack of dictionary using skills.

Hamad and Laohawiriyanon (2013) investigated Thai learners' knowledge of English collocations following dictionary consultation. A seven-week course exposed 47 first-year university students to twelve high-frequency verb–noun collocations. They used the *Macmillan English Dictionary online* to decipher the meanings of the collocations. The subjects gained significant collocation skills and this was ascribed to the teaching method in the course, which involved intensive involvement tasks and regular practice. Although the findings were found to be consistent with the results from earlier works (Alsakran 2011; Dziemianko 2010; Laufer 2011; Murnani and Salehi 2016), it nonetheless would remain doubtful whether they could be generalisable since only a small number of subjects were included with a limited set of stimuli.

Alzi'abi (2016a) examined the efficacy of OALD in electronic form in relation to the Arab learners' production of verb–noun collocations. Twenty-two low-frequency verbs were used in two tests. The first aimed to ascertain whether the subjects (54 MA students majoring in English) could replace the "etc." in the dictionary definitions of the target verbs with three noun collocates functioning as 'objects' of the verbs under investigation. The second required the subjects to judge, from the definitions, the appropriateness of a set of four noun collocates used with each target verb. The participants did not perform well in Test1 and provided only 40% correct answers. However, they achieved much better scores in the judgment test. The subjects were better judges of noun collocates of the verbs than providers. The dictionary was found to offer little to no help and lacked sufficient clues as to what may correctly substitute for *etc*. The blame was placed on the format of some of the definitions, which were error-conducive.

Most of the aforementioned studies focused on verb–noun and adjective–noun collocations but rarely concerned the other categories. The studies also shared a common major limitation. The researchers generally requested the subjects to provide single collocates of the stimuli that reflected only part of their L2 collocational performance (Fan 2009). Moreover, they were wholly devoted to exploring the use of a particular type of collocations, i.e. verb–noun and/or adjective–noun, and consequently had restricted a balanced assessment of the learners' collocational competence. Furthermore, the frequency of materials used was mostly uncontrolled. It is therefore unclear whether the findings from these studies findings are entirely reliable.

Despite the abundant literature on collocations, there still remains a paucity of research conducted on the way in which learners would acquire and use

verb–adverb collocations. There is also little to no research into the role of electronic dictionaries in helping users utilise verb–adverb collocations. No single study to date, to the best of the author's knowledge, has been solely designed to tackle EFL learners' use of verb–adverb collocations. There is still a pressing need for conducting research into the specific means employed by non-natives to acquire and use verb–adverb collocations and thus elucidate the source of the common difficulties encountered. The findings of such investigations may help devise more effective and targeted teaching methods to be utilised by EFL educators to promote the acquisition of this slightly less researched type of collocation.

4.   The study

The primary aim of the present study is to assess the difficulties encountered by Arab EFL learners' in using electronic dictionaries for extracting and using verb–adverb collocational information correctly. In order to realise this aim, three study objectives and related hypotheses are stated as follows:

4.1   Aims

1. To determine, whether or not, Arab dictionary users provide extra adverb collocates of verbs based on dictionary look-ups of these verbs. In addition, it will seek to establish whether a difference in participants' performance level exists when using frequent vs. infrequent verbs. In following the precedent set out by prior works on collocations (e.g. Alzi'abi 2012), Arab dictionary users in this study will not be expected to habitually provide additional collocates for low-frequency verbs. It is hypothesised that subjects will likely respond appropriately half of the time and will perform better with the frequent items that have previously been learnt. Thus, in such cases it is also expected that subjects will encounter less difficulty in extrapolating these collocates correctly from the provided electronic dictionary.

2. To determine whether dictionaries vary in the amount of help they offer users with regard to the correct production of verb–adverb collocations. To date, there is a lack of consensus on this issue with some researchers indicating significant differences between the dictionaries employed on vocabulary acquisition (Dziemianko 2010), whilst others have revealed no significant differences at all (Lew and Radłowska 2010). It is hypothesised that LDOCE and OALD, included in the present study, will show variance in the amount of assistance offered to their respective users. It is further assumed that LDOCE may offer comparatively more help to users since there are greater numbers of examples cited, and more importantly, it contains greater amounts of collocational information than OALD.

3. To establish the effects of having prior basic training in dictionary use and pre-knowledge of the meaning of the stimuli on the subjects' performances. It is hypothesised that these two individual factors, each with its own merit, will contribute positively to the subjects' success in producing correct adverb collocates (see Murnani and Salehi 2016 and Peters 2016).

There is a noteworthy question to be posed at this juncture. Some may argue that dictionaries have little to no influence in encouraging the extrapolation of other adverbial collocates so why should a dictionary be expected to help users guess such collocates that are omitted? Dictionary compilers invariably include a limited list of collocates in the definitions and there is an expectation that users will correctly deduce the omitted possibilities which 'etc.' represents in the definition (see Alzi'abi 2016a and 2016b). It is therefore justifiable to expect that users will be able to correctly guess *some* of the adverbial collocates that are not listed in the dictionary and are deemed acceptable in the English language (see Xu 2010).

To achieve the above stated objectives, a set of randomly selected Arab dictionary users will be tasked to look up verbs in the provided dictionaries and thereafter extrapolate verb–adverb collocations. The findings from the study will be stated in Section 4.5 reinforced by some verbal report data of four subjects, other than those in the population sample. The latter data was gathered in order to examine the way in which Arab EFL learners handle collocational information.

4.2   Subjects

The sample for this study included 88 MA students majoring in English at five Jordanian universities consisting of 45 males and 41 females. The age range of the subjects was between 23 and 34. They had been exposed to English on average for more than 16 years prior to their enrolment to the trial, which took place between April and June 2015. A functional prerequisite to enroll on the MA course was to pass a National Proficiency Examination, equivalent to a TOEFL iBT test. Therefore all included subjects' proficiency level may be deemed as advanced.

The subjects were selected on the grounds of their availability and were randomly divided into two groups; one assigned to work with LDOCE (henceforth LDOgr) and the other with OALD (henceforth OALgr). Although the subjects were selected from a homogenous group sharing a similar academic background, nonetheless, further steps were taken to ensure a robust homogeneity between group members. Each subject from the two groups completed Meara's (1992) vocabulary size test (411), i.e. test No. 11 at level four. The range of proficiency level for the two groups was found to be almost identical: LDOgr (73.29, Sd 3.10) compared to (72.97, Sd 3.18) for OALgr. A t-test showed no significant difference between the two groups (t=.456, p<.560 with 80 df).

The intention was to exclude any extreme scores, i.e. very high or very low. Thus, the data collected from six subjects (all males), was discarded on the basis of their scores on the initial vocabulary test being below 70. Subsequently, the total number of included subjects in the study was 82, i.e. 41 subjects per group.

4.3   Materials

Twenty-two lexical verbs with a wide range of collocability, 12 high-frequency items and 10 low-frequency items, were selected as the vehicle of this research. The first category, the frequent verbs, was first selected in accordance with CALD[ii] classification of frequent headwords which comprised three groups — four verbs in each group. These included 'Essential': basic common words considered important to learners (improve, increase, mention and watch); 'Improver': words to help improve beyond basic English (declare, gain, organise and slow) and 'Advanced': words to enable learners to articulate English at a more sophisticated level (defeat, deserve, oppose and pause). This classification approximately coincides with that of MEDAL, which may further be divided into three categories: 'very high frequency', 'high frequency' and 'quite high frequency'. It is necessary to add that LDOCE classification was deliberately not adopted in order to avoid any potential confusion. A verb such as *improve* was labeled *S2 W1*, i.e. belonging to the two thousand most frequent words in spoken English and the first thousand words most frequently found in written English.

A distinctive characteristic of the stimuli in the aforementioned category was the richness of potential adverb collocates for each verb — a minimum of ten adverb collocates each in OCD. This was found to be the average number for a good set of frequent verbs and was determined following a thorough search. A random set of twelve frequent verbs, with at least ten adverb collocates each, was selected out of the frequent verbs previously chosen. It should be noted that many frequent verbs had no adverb collocates, at least not in OCD, e.g. 'seem', 'remain', etc. Some were assigned only one adverb, e.g. 'sell'; two adverbs, e.g. 'tend'; three adverbs, e.g. 'ban'; four adverbs, e.g. 'suppose' or five adverbs, e.g. 'spend'. However, some frequent verbs were not at all included in OCD, e.g. 'steal'.

The second category included ten verbs. All were infrequent items in accordance with the categorisation of learner's dictionaries earlier outlined. None were found on the *Academic Word List* of 5000 words. The verbs were *flinch, halve, impair, knot, pedal, relish, resent, retort, snort* and *worsen*. They had been randomly selected on the grounds that they were included in OCD and occurred with at least seven adverbs each. This number was found to be a common feature among many comparable verbs. It was again selected following a close examination of the adverb collocates of all infrequent verbs in OCD.

It must be remarked that although many other infrequent verbs exist in

English, nonetheless, such verbs have not been included in OCD, e.g. 'abstain', 'surmise', etc. The tendency was to select verbs that had the same number of adverb collocates as above, i.e. a minimum of ten adverbs; however, the least frequent verbs were mostly found to have fewer adverb collocates. It is also noteworthy that infrequent verbs with ten or more adverb collocates were seldom found. Evidently that low-frequency verbs tend to have fewer adverb collocates than the high frequency items.

Some stimuli were polysemous (e.g. declare, halve, organise, etc.) or homonymous (e.g. defeat, gain, snort, etc.). Whenever this was found to be the case, the procedure was to ascertain which adverb collocates in OCD associated with the sense of the stimulus under consideration. For example, in the case of *pause*, the sense selected was 'stop speaking', the one with which all the adverbs listed in OCD could be used most often. However, none of the stimuli was assigned two senses in OCD; only the verbs *snort*, *pedal* and *halve* were assigned two or more senses each in LDOCE and OALD and the verb *knot* was assigned three senses in both. Remarkably, the two dictionaries had followed approximately the same policy in entering and ordering the senses of multiple meaning words — at least for the first, and possibly, the most common sense. In totality, they were found to coincide in all cases, save for *deserve*, *flinch* and *mention*, where LDOCE included multiple senses and OALD contained only a sole sense for each.

It has to be mentioned that OCD usually lists sets of adverb collocates which occur with all senses of the verb in question. When the various senses of a certain verb collocate with particular adverbs, separate sets are provided, each occurring with one of the relevant distinct senses. In fact many verbs in OCD, e.g. 'abandon', 'absorb', 'appreciate', 'beat', etc. had more than one distinct sense where an entirely different set of adverbs was supplied for each sense. Being a specialised dictionary, OCD usually lists a larger number of collocates than learner's dictionaries. Sometimes the verbs which had a good number of adverb collocates in OCD were allocated only one or two adverb collocates in the learner's dictionaries, e.g. the verb 'store'. A randomly selected item, 'state', had some 35 adverb collocates in OCD compared to five in LDOCE, and seven in OALD. In very few cases, these adverbs were approximately the same — seven out of ten adverb collocates of 'regret' (v) in OCD also 'exited' in LDOCE.

One more factor that played a role in the selection of the stimuli was the existence of a minimum of three more adverb collocates for each verb, which were not included in any of the dictionaries used. Lastly, for all verbs, adverbial particle collocates such as 'back', 'in', 'off', 'on', 'onwards', etc. were excluded as these might confuse the subjects, with the exception of 'away', being used with *pedal*.

The stimuli were used in two tests: a pre-test (Test1) and a main test (Test2). Test1 presented the stimuli in a random order and the subjects were requested to provide three adverb collocates for each verb in the box provided. This helped us assess their collocational knowledge in advance of dictionary

use. Test2 required them to perform the same task as above but this time dictionary aid was allowed. They were required to look up verbs and read avidly all the information offered to them. They were then asked to write three adverb collocates of the target verb, i.e. three adverbs other than those in the dictionary. The aim of this was to ascertain that subjects were able to provide extra adverb collocates of the verb based on consultation of dictionary information.

Two forms were designed for Test2 — one for LDOgr, viz. subjects working with LDOCE and another for OALgr, subjects working with OALD. Each form contained a list of the stimuli with the assigned senses, in case these were multimeaning verbs, e.g. *pedal1*: the first sense of *pedal*, *snort1*: the first sense of *snort*, etc. The subjects were given a desktop or a laptop with either OALD or LDOCE ready to use. It was ascertained that all subjects could use computers.

4.4   Procedure

There was an orientation session to acquaint the participants with the dictionaries. The researcher explained their distinctive features, innovative search facilities and the way information was presented, particularly collocational information. The subjects' attention was specifically directed to the additional examples and the special sections for collocations.

Prior to taking the tests, the subjects were presented with a plain list of the stimuli, frequent and infrequent in random fashion. The subjects were also required to give the meanings of the verbs, either in L1 or L2, in case they were familiar with them. This question was meant to assess their pre-knowledge of the target verbs and pinpoint the relationship between knowledge of the stimuli and adverb collocates provision. They were expected to be acquainted with the meaning of the high-frequency verbs but not the low-frequency ones. In addition, they were asked to indicate by means of [Yes] or [NO] whether they had received any prior training in using dictionaries. The latter was meant to determine whether instruction in dictionary usage could be a contributing factor to their performance.

Test1 was the initial test followed by Test2. In Test1, the subjects were asked to write down three adverb collocates of the target verbs relying on their own knowledge of the items. Additional instructions and examples were provided in writing. The two forms of Test1 were randomly distributed to the subjects who were granted access to the dictionary corresponding to the form they had received. In Test2, the subjects were asked to look up the verbs, examine the definitions and examples with the intention of providing three extra adverb collocates of the target verbs. The tests were administered during class hours. The researcher remained ready to help and deal with any queries raised during the test. They were tested in small groups due to limited availability of computers. For practical reasons, the time required to perform the task was not recorded but in most cases it was less than one hour for both tests. The subjects were informed that the tests were intended for research purposes

and they were briefed on the explicit aim of the study at a later date.

With regard to data analysis, a comprehensive collocations list (henceforth CCL) was compiled and comprised all the adverbs frequently collocating with the stimuli. Over 420 adverbs were included and served as a reference for checking the responses. The collocates of each stimulus varied in number, ranging from seven items for infrequent verbs such as *pedal*, *relish* and *resent* to thirty for frequent verbs such as *oppose* and *organise*. CCL was drawn up from several collocations dictionaries, both printed and electronic versions. These included OCD, *The BBI Dictionary of English Word Combinations*, the *Free Online Collocations Dictionary*, the *Macmillan Collocations Dictionary for Learners of English* and the *LTP Dictionary of Selected Collocations*. Even though *The BBI Dictionary* did not contain many adverb collocates of the stimuli, it comprised a handful of collocates relating to *increase*, *improve*, *oppose* and *retort*, which were missing from OCD. There was no need to elicit any other collocates from native speakers to avoid any controversial items.

The first objective of this study was to find out whether the subjects could provide additional appropriate adverb collocates of verbs following dictionary consultation. To begin analysing the data, the mean scores for correct answers in Test1 and Test2 had to be computed. The responses, about 5000 for each test, were all checked against CCL and marked. It was necessary to opt for a unified maximum score for all tests including knowledge of meaning. This made it easier to correlate scores and provided results, which could be easily interpreted. Number 10 was deemed appropriate for this very purpose. Consequently, each correct response was awarded $1 \times 10/66$, where 10 represented the maximum score possible and 66 stood for the total number of collocates of the stimuli, i.e. three for each verb. For example, if a subject got 30 correct responses, the mark was $30 \times 10/66 = 4.54$ points out of ten. Spelling and grammatical mistakes such as *'fastly' instead of 'fast' or *'steadly' instead of 'steadily', were ignored[iii].

It goes without saying that some subjects left blank spaces, most likely because adding new collocates was an extremely challenging task and these blanks were given nil. An answer was considered correct if it was on CCL, provided it did not exist in the particular dictionary used by the responder in the case of Test2. There was no need to forward the responses to native English judges to determine whether the responses were appropriate since CCL comprised collocates provided by renowned lexicographers who had exerted commendable efforts to compile the material used for drawing up CCL. Nonetheless, in very few cases where the responses were not found on CCL, they were checked against the *British National Corpus*. However, none appeared to be a well formed adverb collocates of the stimuli; that is, they did not occur in five different texts in the corpus (see Wang and Shaw 2008).

Regarding the pre-test, the objective was to assess the subjects' ability to provide appropriate collocates for the stimuli prior to dictionary use. Comparing the mean scores for the dictionary-based assessment (Test2) and the dic-

tionary-free assessment (Test1) would establish whether the dictionary use had any effect on their performance. Therefore, it was essential that the marking process exclude any identical answers on both tests. A close comparison of the individual responses to both tests showed no duplicate collocates. This suggests the subjects were answering by extrapolating, though incorrectly in many cases, from dictionary information or leaving it blank.

The second issue concerned the subjects' performance with regard to individual dictionaries. The primary aim was to determine which dictionary aided the subjects to perform better. The amount of help dictionary users received from each dictionary was assessable by comparing the mean scores for the two groups on Test2. Submitting these scores to statistical tests revealed if there were any significant difference between the groups and whether a particular group excelled at any of the two types of item. The analysis of the responses with regard to individual entries along with the verbal report data (see Section 4.5) could help display part of the subjects' behaviour and unveil their look-up strategies as to handling collocational information. Likewise, it enabled us to explore the way dictionaries aided or possibly inhibited the subjects' performance in producing collocates. This exercise revealed some underlying causes for subjects' mal-production of collocations.

The third issue was to find out whether knowledge of meaning of the stimuli and dictionary training on the part of the subjects had any proportionate impact on their performance. A total of 1804 responses were marked, 902 for each group to evaluate the subjects' pre-existing knowledge of the meaning of the stimuli. As indicated above, it was found useful that a unified average score would be used for all tests. The total score for the knowledge of meaning test was ten. Each time the meaning of the target verb was correctly expressed, a point of $1 \times 10/22$ is awarded, where 22 represented the number of the stimuli. For example, if the subject correctly provided the meanings of 13 verbs, the mark would be $13 \times 10/22 = 5.90$. Regarding dictionary training, the data showed that only about 55% (45 subjects) had received some kind of dictionary training. Analysing the scores for knowledge of meaning and dictionary training along with Test2 scores with the appropriate statistical tests revealed the potential effect for these variables on the subjects' performance.

As indicated above, four subjects, other than those mentioned in Section 4.2, accepted to tape-record their thoughts and their decision-making processes during the actual completion of the task. A short practice session with verbs other than the target ones was conducted to familiarise them with the task. The participants were requested to verbally report their cognitive processes while performing the task; this research method should be specified as 'think-aloud protocol'. The verbalisation of their thought process could shed light on the cognitive processes involved in their look-up operations and unveil the strategies employed when utilising the dictionaries.

Before stating the results, it must be underlined that the tests employed in this study can never be wholly accurate. Some external and unaccounted for

factors may have affected the reliability of the results including the subjects' misinterpretation of the meaning of the verbs and poor concentration. The results below must therefore be interpreted with these limitations in mind.

4.5   Results

The first objective of this study related to the subjects' ability to produce adverb collocates of verbs upon dictionary look-ups of the target verbs. To confirm this issue it was necessary first to obtain the scores for responses in Test1, i.e. prior to dictionary consultation as displayed in Table 1.

Table 1:   Mean production of collocates per item type in Test1 (max. 10)

	frequent items	infrequent items		total score
Mean	1.00	.639		.626
Sd	.765	.490		.500

Based on the evidence presented, the subjects overall performance from both groups and with both types of item was poor. Their respective scores were well below the chance performance and only less than 10% of the responses were correct. This confirms our earlier hypothesis; particularly in the case of low-frequency items, bearing in mind it was a dictionary-free task. Subjects' poor performances could be attributable to the difficulty of the required task. Notwithstanding the very low scores, as shown above, the subjects performed better, however, not to the expected standard, with the highly frequent items. A t-test showed a highly significant difference between the scores for the frequent and infrequent items (t= 11.86, p= 0.000, with 80 df). As hypothesised earlier, this outcome is neither illogical nor unexpected, since most subjects indicated they had not learned the meanings of the least frequent items and therefore their responses were mostly presumptive.

To accomplish the principal aim of this study, the scores for responses to Test2 were obtained as shown in table 2 below.

Table 2:   Mean production of collocates per item type in Test2 (max. 10)

	frequent items	infrequent items	total score
Mean	1.00	.946	.908
Sd	.664	.542	.506

These figures clearly demonstrate the subjects' poor performance despite using the dictionary. Only about 10% of the responses were appropriate. The scores

were all well below an average level and this was evident in both types of item despite the use of the dictionary. The subjects encountered great difficulty with both types of item. Consequently, they performed unsatisfactorily in most cases. The above figures indicate that the participants faced equal difficulty with both types of item. Minimal improvement was achieved on the overall score in the dictionary-based task. However, this does not contrast with the Test1 scores. A t-test showed a significant difference between the scores for the low-frequency and high-frequency verbs in Test2 (t= 2.73, p= 0.008, with 80 df). This suggests that the subjects were performing better with the frequent items and possibly experiencing significantly more difficulty with the infrequent verbs. This confirms the earlier result where subjects performed better with the frequent items in Test1.

A cursory look at the figures in Table 1 and Table 2 shows only little difference between the overall performances in both tests. However, a t-test revealed a significant difference between them (t= 3.777, p= 000, with 80 df). This was evident in the slightly higher score for Test2, i.e. improvement by 0.282.

Some difference was found between the scores for the low-frequency items in Test1 and Test2, i.e. 0.325, which implies that the subjects who utilised the dictionaries performed slightly better. Two more t-tests were conducted to identify any statistically significant effect for dictionary use on the subjects' performance per item type in both tests. No significant difference was spotted between their scores for the high-frequency items in Test1 and Test2 (t= 0.03 p= 0.97) but the difference was highly significant in the case of the low-frequency items (t= 8.88 p= 0.00). Their score for the least frequent items as a result of dictionary use constituted some improvement, though surprisingly moderate. Apparently, the subjects found more help in the dictionary with low-frequency items. Notwithstanding, this additional help did not produce a major difference in terms of the overall scores — the amount of gain brought about being comparatively small and modest.

The second objective was to check whether LDOCE and OALD varied in the amount of help they had offered Arab EFL learners to produce verb–adverb collocations. To come up with some evidence in support of this issue, the data in Table 2 was broken down to provide a much more comprehensive picture of the subjects' performance as shown in Table 3.

Table 3:   Means collocate production per item type and group (max. 10)

	frequent items		infrequent items		total score	
	Mean	Sd	Mean	Sd	mean	Sd
LDOgr	0.89	0.62	0.88	0.49	0.83	0.46
OALgr	1.12	0.69	1.00	0.58	0.97	0.54

Consistent with the above results, the scores of the two groups are still well below average level and therefore may be regarded as unsatisfactory. OALgr seemed to fare better than LDOgr with both types of item. A t-test was carried out in order to determine if any significant difference exists between the overall performances of the two groups and it was found to be not significant (t= 1.23, p= 0.220, with 80 df). Two more t-tests showed no significant difference between the two groups for either the high-frequency items (t= 1.59, p= 0.114) or the low-frequency items (t= 0.19, p= 0.84). This undoubtedly would rule out any group difference for both types of stimuli, frequent and infrequent verbs. Clearly, no difference existed between LDOCE and OALD relating to extrapolating verb–adverb collocational information.

The third objective of this study was to establish whether the subjects' performance in Test1 showed a relationship between knowledge of the meaning of the stimuli and their dictionary training. Table 4 below presents the subjects' scores for familiarity with meaning.

Table 4:   Mean familiarity with the stimuli per item type (max. 10)

	high frequency items	low frequency items	total score
Mean	9.32	2.67	6.30
Sd	1.04	1.88	1.05

As anticipated, the subjects knew the meanings of almost all frequent items but this was not so for the least frequent items. A Pearson correlation test revealed a positive correlation between knowing the meanings of the stimuli and adverb production task on Test1, i.e. no dictionary use (r= .239, p= .031, with 80df). Knowing the meaning of the target verbs proved to be effective prior to dictionary use and possibly had helped the subjects to perform slightly better with the frequent verbs. This corroborates the hypothesis made earlier that knowing the meaning of items might positively affect the subjects' production of collocations.

As to the influence of dictionary training on the production of adverb collocates, Table 5 demonstrates the two groups' results per dictionary training and item type.

Table 5:   Means relating to dictionary training per group and item type

	Training (n=45)				No training (n=37)			
	high frequency items		low frequency items		high frequency items		low frequency items	
	Mean	Sd	mean	Sd	mean	Sd	mean	Sd
OALgr	1.23	.718	1.06	.545	.994	.656	.939	.643
LDOgr	.924	.658	.953	.498	.824	.582	.800	.439

The figures indicate a very slight difference between the scores regarding training in dictionary use and item type. OALgr subjects with dictionary training seemed to have fared better, though modestly, than their counterparts relating to both types of items. A t-test showed no significant difference in both groups between the overall performance of those who had received dictionary training (1.01, Sd .507) and those who had not (.915, Sd .480). Dictionary training was not a positive influencing factor with the subjects' scores. A further t-test showed no significant effect for dictionary training on either group (t= 0.68, p= 0.49). Neither LDOgr nor OALgr who claimed to have received dictionary training produced more appropriate adverb collocates. It has to be stressed that a Pearson chi-square test showed no significant statistical difference between the number of the subjects with dictionary training and those without in both groups (analysis returned a value of 0.49 and the associated P-value was 0.82). In short, this data refutes the hypothesis that those subjects who received some basic training in dictionary use would perform better. However, this cannot be entirely rejected since many previous studies have provided evidence to the contrary. Dictionary training proved to be effective regarding vocabulary acquisition and collocation competence.

4.6   Discussion

This study was set out to achieve three objectives. The primary of which was to assess Arab dictionary users' uptake of collocational knowledge after dictionary consultation, and whether such uptake varied as to the frequency of the base of the collocation, i.e. the verb. Unlike previous works (e.g. Farghal and Obeidat 1995) where learners were not fully aware of collocations, the Arab EFL subjects in the present study had a good level of awareness of collocations as they avoided the inclusion of the adverb collocates existing in the entries in their answer sheets. Contrastingly, however, they failed to provide more collocates of the base. The data in Table 2 clearly shows that the subjects performed very poorly with regard to both types of item. Only approximately 10% of responses were found to be appropriate, which would be an unimpressive yet not unexpected output. This corroborates with the hypothesis earlier made that the subjects would not likely perform well in this given task. However despite this assumption proving correct, their scores were still much lower than expected. This finding strongly underlines that Arab EFL learners experience great difficulty in producing accurate verb–adverb collocations, and to some extent, the findings are consistent with those of earlier works (e.g. Laufer 2011 and Sun and Wang 2003), which explored EFL learners' difficulties with the use of the various types of collocations. It remains therefore plausible that similar findings could be recorded had the same stimuli and dictionaries been used with subjects of different linguistic backgrounds.

Difficulty in using collocations is not Arab-learner specific. Studies which concerned the use of adverb collocates i.e. 'amplifiers' (e.g. Granger 1998 and

Lorenz 1999), pointed towards French and German EFL learners' underuse of restricted adverb collocates. In a study by Satriawan (2009) a slightly more positive picture was indicated with approximately 75% of the adverb collocates of adjectives, adverbs and verbs of Indonesian subjects were considered to be acceptable. However, Satriawan's focus was on the use of all adverbial collocations rather than verb–adverb expressions specifically. The study also concerned degree adverbs, which would mostly be of open or free collocability.

Interestingly, dictionary use appeared to be statistically significant despite the extremely low scores (cf. Alzi'abi 2012; Dziemianko 2010; Laufer 2011). Dictionary assistance was particularly effective in the case of the infrequent items. Although the underlying reason for this finding remains ambiguous, it may be that the subjects might have benefited from the adverb collocates of equivalent verbs in L1. Nonetheless, no responses indicated cases of literal translation from L1. Arguably, the subjects may have performed better had the items been controlled for congruency between the adverb collocate of the target verbs in English and Arabic. Farghal and Obeidat (1995) found that Arab learners were collocating more correctly when the adverbial collocations in both English and Arabic overlapped and conversely ill-formed structures were produced when the collocations diverged (see also Satriawan 2009 and Yamashita and Jiang 2010).

Several reasons are postulated for the subjects' significant overall low performance. Firstly, the subjects' low exposure to collocational information and training despite their enrolment on advanced level English language courses (cf. Lew and Radłowska 2010). That is to say, they had not developed the basic linguistic competence and requisite skills for extrapolating extra verb–adverb collocations from the dictionary information. At face value, this basic explanation is true. However, the situation is rather more complex when considering that the subjects had succeeded in identifying the adverb collocates of the target verbs (see Alzi'abi 2017) and had avoided the inclusion of these items in their responses. This suggests that their comprehension and production of collocational competencies varied markedly, with much lower scores for production. This in turn reinforces the author's widely held belief and many researchers' empirical findings that EFL learners will significantly perform better at comprehension than production tasks (Alsakran 2011; Hamad and Laohawiriyanon 2013; Hill and Laufer 2003; Jaén, 2007; etc.).

In fact, the subjects who provided the verbal report data were at times astounded by their inability to add any new item. Lamenting their ineffective strategy in learning words, one particular subject remarked in Arabic "I now realise how wrong I have been in learning words out of their appropriate context". The subject also added "It is always important to consider the items that precede and follow any word I learn". This deficiency may also be attributable to the lack of exposure to this particular type of collocation as well as ineffective learning strategies.

Another significant reason that might account for the extremely low scores

obtained was the lack of sufficient collocational clues in the dictionaries provided to enable the subjects to infer correctly what adverbs could co-occur with the target verbs. This assumption is supported by Rundell's (1999: 50) argument that some dictionaries lack the subtlety of information required to enhance users' proficiency. Though it is true that learner's dictionaries have not traditionally been scripted to provide an exhaustive amount of collocational information, the latest editions do incorporate a richer source of collocations in their various forms. Nonetheless, for the EFL learner, there is still a pressing need for the inclusion of more hints as to what other items could occur with the "base" items. Previously, Alzi'abi (2012 and 2016a) found that a paucity of collocational clues existed in traditional dictionaries, namely noun collocates of verbs. Dictionary compilers habitually surrender to the oft-repeated use of "etc." to indicate the remaining list of collocates, thus leaving it to EFL learners to complete the often insurmountable task of completing the list through guesswork. Conversely, this contrasts the finding from Lew and Radłowska (2010), whose subjects found most of the collocational information provided in LDOCE. This particular finding could be attributable to their inclusion of much fewer stimuli, i.e. 13 items representing nine types of collocations. It is also likely that these items were each assigned greater amounts of collocational information.

A third potential reason identified was the difficulty of the test employed in this study. Evidently, requesting the subjects to provide three adverb–collocates proved tasking. In many cases, the subjects left blank spaces due to their inability to provide any adverb collocates of the given stimuli. Their limited vocabulary likely precluded the production of correct collocates, bearing in mind that some of the possible adverb collocates of the stimuli were infrequent items, e.g. 'in passing', 'stoutly', 'solemnly', 'adamantly', 'strenuously', 'vehemently' and the like. This problem was also encountered by Lithuanian EFL learners (Juknevičienė 2008) where lack of complete mastery of academic vocabulary had led to deviant noun collocates of frequent verbs. Not surprisingly, the analysis of the erroneous responses indicated that some only loosely-associated with the target verbs and mostly included highly frequent adverbs, e.g. 'nicely', 'quickly' etc. Such adverbs should not be considered entirely inappropriate. They may well be labeled as all-verb adverbs, but not the type that native speakers would habitually collocate with the verbs under consideration, i.e. the type Sinclair (1987) called random 'co-occurrences' (see also Siyanova and Schmitt 2008). Heidler (2011) found that international undergraduates' use of adverbs was correct from a grammatical standpoint but it was not in conformity with what native speakers would otherwise use. The think-aloud subjects were frequently found to stumble over the target verbs and provided nothing that could be deemed acceptable.

Closely associated with the factor of test difficulty was the unpredictability of collocations. The way some adverbs collocated with verbs might have bewildered the subjects. For example, why could something *improve* 'slowly',

'rapidly' rather than 'quickly'; *worsen* 'rapidly' but not 'quickly'; *knot* 'securely' not 'safely'? Likewise, why 'fully' and 'thoroughly' rather than 'completely' could modify and collocate with *'deserve'* and 'specifically' rather than 'particularly' with *mention*? Such unacceptable collocates along with many others were cited by the subjects.

Analysis of the findings from the think-aloud protocols showed the subjects were keen to extract information anywhere in the explanation to enable them to answer correctly. They frequently read the explanation more than once in the hope of inferring the adverb collocates of the target verb. It is likely that all other subjects did the same. However, it is possible that some subjects were unable to handle the information or decipher the meaning of some infrequent verbs and, as a result, had failed to provide any correct responses. Rundell (1999) points out that dictionary look-ups are not always straightforward operations. These require taught skills as well as due diligence on the part of the user. If not performed efficiently, instead of facilitating the user, dictionary look-ups may lead to erroneous inferences. Some subjects might have understood *impair* to possibly have a positive connotation and provided inaccurate collocates such as 'proudly' and 'successfully', thus giving a score of 0.60. This may clarify why the scores for some low-frequency verbs were extremely low, e.g. *flinch* (0.16), *relish* (0.28), *resent* (0.24), etc. When the subjects were able to grasp the meaning of the low-frequency verb, the results were relatively better, e.g. *pedal* (1.9) and *snort* (1.7). It is worth noting here that the best score correlated to *pedal* whereas the lowest score was for *flinch* and *halve*, each with a score of 0.0. Incongruously, the score for *improve*, proved to be a unique case where there was a decrease in the score following dictionary consultation. The score in Test1 was 1.74 and following dictionary consultation during Test2 the score decreased to 1.54. The subjects who responded to the verb appropriately in Test1 could not predict other adverb collocates with dictionary assistance. This suggests that dictionary using instruction should be incorporated in any curriculum to adequately prepare the users for successful look-up operations.

A close examination of the responses including the verbal report data along with the relevant dictionary definitions unveiled some common strategies adopted by the subjects. First, some collocates were selected on the grounds that they were synonyms or possibly near-synonyms of collocates included in the explanation. Examples of this rather unsuccessful strategy included 'tidily' for 'neatly' at the entry for *organise*; 'badly' for 'severely' at *impair*; 'particularly' for 'specifically' and 'repeatedly' for 'frequently' at *mention*; 'calmly' for 'coolly', 'humorously' and 'ironically' for 'sarcastically' and 'furiously' for 'angrily' at *retort*; 'surely' and 'lastly' for 'certainly' and 'finally', respectively, at *gain*; 'not especially' for 'not particularly' at *relish*; 'calmly' for 'silently' at *watch*; etc. Such occurrences were far more common than could be covered here. More evidence for this strategy emerged from further comments made by the subjects in the concurrent verbal report data. One subject commented "Oh, yes! The best thing to do, I think, and to be on the safe side, is to

look for synonyms of the collocates [the ones in the entry]". Responding to *deserve* in LDOCE, another subject stated: "I am sure 'totally', being a synonym of 'fully', is 100% appropriate".

Another strategy, related to the above, was the use of adverbs, which associated with the verb synonyms of the target verbs. The subjects mistakenly generalised many adverb collocates of verbs synonymous with the target verbs. For example, some subjects cited the adverbs 'clearly' and 'briefly' as responses to *declare*; the two adverbs would be strong collocates of the verb 'state' which was used in the explanation of the verb *declare*. Similarly, the adverbs 'fast', 'massively' and 'suddenly', were given by some as collocates of *increase*. These would collocate with verbs synonymous with *increase,* such as 'expand' and/or 'grow'. Interestingly, this was not limited to Arab learners; Argentinean advanced EFL learners also employed a similar approach. Zinkgräf (2008: 91) ascribed errors in the production of adverb collocates by the subjects to the "semantic overlap between appropriate forms and possible synonyms of either the base or the collocate".

In many a case, the subjects provided an antonym of the adverb collocates found in the dictionary explanation of the relevant verb. For example, responding to *improve* some subjects gave 'indirectly' because the entry contained 'directly'. Sometimes they were coining their own versions of antonymous words ending up with odd items. For example, when presented with *deserve*, they cited 'unrichly'. It is possible that they coined this antonym and retained the original adverb 'richly' to ensure that it would be a correct answer since 'poorly' would be a different word. Further examples included 'unreally' at *deserve* and 'undramatically' at *oppose,* as the entries for these verbs included 'really' and 'dramatically', respectively.

In the same vein, the data also included some peculiar and amusing responses for which no clear underlying reasons could be given. For instance, one subject collocated *'unemploymentally' with *halve*, should such a response be taken seriously? Other responses included 'gastro-intestinally', 'emotionally', 'spiritually' and 'psychologically' to collocate with *impair*; 'presidentially' with *worsen*; 'gazely' with *watch* and so on. It could somehow be understood that 'psychologically' was probably provided as a near-synonym of, or possibly, co-hyponym of 'mentally' and 'visually', respectively. It is difficult to propose an explanation for the rest. One is really astounded by such answers and can offer nothing in explicating them. Other examples included the use of the noun 'access' by two OALgr members as a collocate of *gain*, since this appeared in the explanation. It is again quite difficult to expound on this point. Was it because the subjects were simply confused or because of an underlying failure to come up with more adverb collocates?

One more strategy was the utilisation of the adjectives in the definitions of certain target verbs. The subjects derived adverbs from these items as collocates of the relevant verbs. For instance, the adjective 'illegal' at the entry for *declare* in LDOCE (declare sth illegal…*The war was declared illegal*…) spurred some to

form the adverb 'illegally' and collocate with *declare*. This is a substantial piece of evidence in support of the subjects' scrutiny and exploitation of the information in the definitions. These inferences coupled with the inaccurate perception that the adjectives would be appropriate collocates when changed into adverbs led the subjects to erroneous responses in many cases. In any case, these findings reflected a deficiency in the subjects' vocabulary repertoire. Had they acquired larger vocabulary items, the task might have been easier for them.

In conformity with that which has already been discussed, at times the subjects were found to spot certain collocates of a particular verb in the explanation and generalised them to others. However, it could not be ascertained whether they did so since they assumed these would also collocate with the latter verbs or whether they were just filling the blank with any adverb they had previously come across as a desperate attempt to find collocates to be used with the stimuli. This again indicates the subjects' poor collocational competence. According to earlier studies (e.g. Zughoul and Abdul-Fattah 2003), this behaviour might also be a direct result of ineffective learning and teaching strategies of collocations and vocabulary items in general.

The second issue concerned whether a particular dictionary would prove more helpful in the production of adverb collocates of verbs. Very small differences existed between the overall scores of LDOgr and OALgr, which also held true for both types of item. Although dictionary use is generally considered effective, neither dictionary in this study has proven to be comparatively more useful than the other for providing additional adverb collocates of the target verbs. The scores of OALgr for both types of item were slightly higher than those of LDOgr; however, the differences were not overall significant, which would suggest the two dictionaries did not vary in the amount of help they offered users for either type of stimulus. This contradicts the prediction that LDOCE would be more helpful than OALD owing to the extra examples, which might supply more clues. This might be quite frustrating for the compilers. Alzi'abi (2017) has found that the subjects meticulously researched the examples in their endeavours to spot the adverb collocates of the target verbs.

For the third and final objective of the study, familiarity with the meaning of the verb significantly facilitated the provision of some of its adverb collocates. Evidence to confirm this finding emerged from two sources: Firstly, a remarkable correlation between familiarity with the meaning of the verbs and the production of extra adverb collocates with the dictionary-free task, i.e. Test1; secondly, the statistically significant difference between the scores for the frequent and infrequent items in Test1. The subjects performed better, albeit marginally, with the verbs with which they were previously familiar. Therefore, one is inclined to accept the assumption that pre-knowledge of meaning could improve the subjects' collocational competence. Nonetheless, the low scores certainly do not significantly diminish the importance of this relationship.

Dictionary training on the other hand did not significantly influence the

subjects' performance. OALgr subjects with dictionary training slightly outperformed their LDOgr counterparts but the difference, however, was not significant. This suggests that the hypothesis about dictionary training must be rejected based on the findings from the present study. It is likely that the subjects did not receive proper instruction into the best way to deploy dictionaries of any type. They might have been taught how to utilise bilingual dictionaries or possibly paper dictionaries rather than electronic versions. Further concrete evidence pointing to the latter case came from comments made by some subjects during the dictionary orientation session prior to the tests. It might be true that the training in dictionary usage was ineffective. But what could the well-trained users do with the dictionaries that lacked clear collocational clues to help them achieve better scores? The likely answer might be "very little". This claim had been partially substantiated by the subjects' full search for information and their utilisation of the adverbs and adjectives that existed, though wrongly in some cases, to present adverb collocates of the target verbs.

Generally, this finding about dictionary training concurs with others from previous research where no accurate picture has been established of the relationship between training in dictionary usage and receptive and productive competences. Since some earlier studies have provided contrary evidence, one cannot simply draw a hasty conclusion regarding the usefulness of dictionary training skills for effective dictionary use. Further specified research is required to elaborate upon this matter.

Before concluding, it is important to set forth some of the limitations of the present study. Firstly, the sample size was not large enough to be representative of all advanced Arab EFL learners. Perhaps the inclusion of learners from other Arab countries would have made the findings more generalisable. Secondly, the test was unpredictably difficult. The decision to use a mixture of frequent and more sophisticated verbs in one test was perhaps unwise. Merging these into one test might have had a negative effect and severely hindered the subjects' effective performance. One further important limitation was the absence of any objective criterion for evaluating subjects' pre-knowledge of the stimuli, which had made it challenging to generalise the respective findings.

5.   Conclusion and future research

In this research three objectives have been accomplished. Firstly, to determine Arab learners' capacity for the provision of adverb collocates of verbs. The results showed their severe difficulty in providing additional collocates of both frequent and infrequent verbs. Despite this apparent failure, they performed significantly better with dictionary assistance, and particularly so with the infrequent verbs. Several reasons might lie behind their extremely modest achievement including deficiency in the collocational competence, difficulty of the given task and lack of sufficient collocational clues in the dictionary. Their deficient vocabulary stock might also have inhibited their effective perform-

ance. The second objective was to establish which dictionary, if any, gave more help to users. Although dictionary use appeared to be a significant influence on the subjects' performance, the two dictionaries were almost identical in regard to the amount of collocational help they offered the subjects. Notwithstanding the huge number of collocations (147,000) introduced to LDOCE, this information is still far from being sufficient to meet EFL learners' needs. The data did not support the assumption that LDOCE users might excel and outperform those of OALD. Thirdly, to determine whether familiarity with the verbs and dictionary training could positively influence the subjects' collocational performance. There was some clear evidence to substantiate the claim that prior-knowledge of the meaning of verbs might facilitate the provision of extra collocates of target words. This finding confirms the notion that knowledge of a word will likely enhance the acquisition of its collocates. Teachers and material writers may capitalise on this highly important outcome. However, the evidence gathered regarding dictionary training did not confirm the claim that training in dictionary use alone would positively impact the users' performance.

Overall, the present findings are in line with those from earlier studies (e.g. Farghal and Obeidat 1995; Laufer and Waldman 2011; Wang and Shaw 2008) that advanced EFL learners have encountered serious but rather soluble problems in using almost all collocational patterns, verb–adverb collocations being no exception (see Kuo 2009). On this basis, researchers, dictionary compilers and syllabus designers are all invited to work towards a practical long-term solution to dictionary users' serious deficiency in collocation competence.

These findings point to important pedagogical implications. They highlight the importance of explicit teaching of collocations because these unpredictable chunks could hardly be heuristically acquired. The inadequacy of vocabulary teaching methods might lie, to a certain extent, behind the subjects' inefficiency in collocating items correctly. Siyanova and Schmitt (2008: 454) rightly suggest that EFL learners' collocational intuitions can be developed by "instituting a fundamental change in our teaching pedagogies". Particular emphasis should be placed on formulaic expressions, and more importantly, on learners' unawareness of collocational restrictions in the early stages of language learning. Likewise, learners have to have adequate practice in using synonymous items to remain alert to the subtle nuances in such types of words. More importantly, dictionary definitions need to be reformulated in order to facilitate and boost correct inferences of the remaining collocates of the defined item.

This study helps us identify some of the challenges faced by learners' with collocations. Although the present findings may not be Arab dictionary user-specific, there remains a need for further research to be conducted to include other nonnative subjects to ascertain whether identical findings could be recorded using a similar study design. The difficulty of the given task might have aggravated subjects' difficulties with verb–adverb collocations. It would

be interesting to administer the same test to native speakers to compare their production with that of the subjects included in the present study in order to ascertain whether the test was unduly challenging. The finding that the frequent items were not easier to handle than the infrequent ones is surprising and also merits further follow-up research. Lastly, as indicated above, the data contained no signs of subjects producing false collocations because they were attempting to find a one-to-one correspondence between the Arabic collocates and their equivalent translations in English. It is therefore worth conducting a large-scale study to investigate the approaches adopted by Arab EFL learners to handle congruent verb–adverb collocations.

References

A.   Dictionaries (All learners' dictionaries are on CD-ROMs)

Benson, M., E. Benson and R. Ilson (Eds.). 1997. *The BBI Dictionary of English Word Combinations*. Second revised edition. Amsterdam/Philadelphia: John Benjamins.

Carroll, K. (Ed.). 2012. *Collins COBUILD Advanced Dictionary of English.* Seventh Edition. Glasgow: HarperCollins. (COBUILD7)

Deuter, M. et al. (Eds.). 2016. *Oxford Advanced Learner's Dictionary*. Ninth Edition. Oxford: OUP. (OALD9)

Hill, J. and M. Lewis (Ed.). 1997. *LTP Dictionary of Selected Collocations*. London: LTP.

Mayor, M. (Ed.). 2009. *Longman Dictionary of Contemporary English*. Fifth Edition. Harlow: Pearson Education. (LDOCE5)

McIntosh, C. et al. (Eds.). 2009. *Oxford Collocations Dictionary for Students of English*. Oxford: Oxford University Press. (OCD)

Rundell, M. (Ed.). 2007. *Macmillan English Dictionary for Advanced Learners*. Second Edition. Oxford: Macmillan. (MEDAL2)

Rundell, M. (Ed.). 2010. *Macmillan Collocations Dictionary for Learners of English*. Oxford**:** Oxford University Press.

Walter, E. (Ed.). 2008. *Cambridge Advanced Learner's Dictionary*. Third edition. Cambridge: Cambridge University Press. (CALD3)

B.   Other literature

Akpýnar, K. and M. Bardakçý. 2015. The Effect of Grouping and Presenting Collocations on Retention. *The Electronic Journal for English as a Second Language* 18(4): 1-22. http://www.tesl–ej.org/wordpress/issues/volume18/ej72/ej72a4/.

Al-Amro, M. 2006. *Saudi Learners' Knowledge and its Relationship to their Vocabulary Size and Writing Quality.* Unpublished Ph.D. Thesis. Colorado: Colorado State University.

Alfahadi, A., S. Zohairy, M. Momani and M. Wahby. 2014. Promoting Awareness of Teaching Collocations Techniques to Beginners (Adjective–Noun Collocations). *European Scientific Journal* 10(10): 389-396.

Alexander, R.J. 1984. Fixed Expressions in English: Reference Books and the Teacher. *English Language Teaching Journal* 38(2): 127-132.

Alsakran, R.A. 2011. *The Productive and Receptive Knowledge of Collocations by Advanced Arabic-speaking ESL/EFL Learners.* Unpublished Ph.D. Thesis. Colorado: Colorado State University.

Alzi'abi, S.E. 2012. On Arab EFL Learners' Use of Collocational Information in Electronic Dictionaries. *Damascus University Journal* 28(3+4): 63-99.

Alzi'abi, S.E. 2016a. Help or Hindrance: "Etc" in Learner's Dictionaries? A Study of Verb–noun Collocations. *European Journal of Applied Linguistics* 4(2): 301-327.

Alzi'abi, S.E. 2016b. Etc. The Long-Lasting Defining Device: Unravelling the Mystery. *Lexikos* 26: 36-59.

Alzi'abi, S.E. 2017. On Findability of Verb–Adverb Collocations in Electronic Dictionaries. *Indian Journal of Applied Linguistics* 43(1-2): 88-127.

Ang, L.H., H.A. Rahim, K.H. Tan and K. Salehuddin. 2011. Collocations in Malaysian English Learners' Writing: A Corpus-based Error Analysis. *The Southeast Asian Journal of English Language Studies* 17: 31-44.

Bahns, J. 1993. Lexical Collocations: A Contrastive View. *ELT Journal* 47(1): 56-63.

Busse, U. 1995: *Kollokationen.* Ahrens, R., W-D. Bald and W. Hüllen (Eds.). 1995. *Handbuch Englisch als Fremdsprache*: 123-128. Berlin: Erich Schmidt.

Dziemianko, A. 2010. Paper or Electronic? The Role of Dictionary Form in Language Reception, Production and the Retention of Meaning and Collocations. *International Journal of Lexicography* 23(3): 257-273.

Fan, M. 2009. An Exploratory Study of Collocational Use by ESL Students — A Task Based Approach. *System* 37(1): 110-123. http://dx.doi.org/10.1016/j.system.2008.06.004.

Farghal, M. and H. Obeidat. 1995. Collocations: A Neglected Variable in EFL. *International Review of Applied Linguistics in Language Teaching* 33(4): 315-331.

Farghal, M. and M. Al-Hamly. 2007. Lexical Collocations in EFL Writing. *The Journal of Asia TEFL* 4(2): 69-94.

Farrokh, P. 2012. Raising Awareness of Collocation in ESL/EFL Classrooms. *Journal of Studies in Education* 2(3): 55-74.

Granger, S. 1998. Prefabricated Patterns in Advanced EFL Writing: Collocations and Formulae. Cowie, A.P. (Ed.). 1998. *Phraseology: Theory, Analysis and Applications*: 145-160. Oxford: Oxford University Press.

Gries, S. 2008. Phraseology and Linguistic Theory: A Brief Survey. Granger, S. and F. Meunier (Eds.). 2008. *Phraseology: An Interdisciplinary Perspective*: 3-25. Amsterdam: John Benjamins.

Hamad, M. and C. Laohawiriyanon. 2013. Effects of Online Dictionary Use and Intensive Involvement Tasks on Learning Verb–Noun Collocations. *Proceedings of the International Conference on Humanities and Social Sciences, April 27th, 2013, Faculty of Liberal Arts, Prince of Songkla University*: 325-337. http://tar.thailis.or.th/handle/123456789/785.

Hill, M. and B. Laufer. 2003. Type of Task, Time-on-task and Electronic Dictionaries in Incidental Vocabulary Acquisition. *IRAL* 41(2): 87-106.

Heidler, L. 2011. *NNS Use of Adverbs in Academic Writing.* Unpublished M.A. Dissertation. Denton, Texas: University of North Texas.

Howarth, P. 1998. Phraseology and Second Language Proficiency. *Applied Linguistics* 19(1): 24-44.

Hussein, R. 1990. Collocations: The Missing Link in Vocabulary Acquisition amongst EFL Learners. *Papers and Studies in Contrastive Linguistics* 26: 123-136.

Jaén, M.M. 2007. A Corpus-driven Design of a Test for Assessing the ESL Collocational Competence of University Students. *International Journal of English Studies* 7(2): 127-147.

Juknevičienė, R. 2008. Collocations with High-frequency Verbs in Learner English: Lithuanian Learners vs. Native Speakers. *Kalbotyra* 59(3): 119-127.

Kennedy, G. 2003. Amplifier Collocations in the British National Corpus: Implications for English Language Teaching. *TESOL Quarterly* 37(3): 467-487.

Krenn, B. and S. Evert. 2001. Can We Do Better than Frequency? A Case Study on Extracting PP-Verb Collocations. *Proceedings of the ACL Workshop on Collocation: Computational Extraction, Analysis and Exploitation, July 2001, Toulouse, France*: 39-46.

Kuo, C-L. 2009. An Analysis of the Use of Collocation by Intermediate EFL College Students in Taiwan. *ARECLS* 6: 141-155.

Kurosaki, S. 2012. *An Analysis of the Knowledge and Use of English Collocations by French and Japanese Learners.* Ph.D. Thesis. London: University of London.

Laufer, B. 2011. The Contribution of Dictionary Use to the Production and Retention of Collocations in a Second Language. *International Journal of Lexicography* 24(1): 29-49.

Laufer, B. and T. Waldman. 2011. Verb–Noun Collocations in Second Language Writing: A Corpus Analysis of Learners' English. *Language Learning* 61(2): 647-672.

Lew, R. and M. Radłowska. 2010. Navigating Dictionary Space: The Findability of English Collocations in a General Learner's Dictionary (LDOCE4) and Special-purpose Dictionary of Collocations (OCD). Ciuk, A. and K. Molek-Kozakowska (Eds.). 2010. *Exploring Space: Spatial Notions in Cultural, Literary and Language Studies. Volume 2: Space in Language Studies*: 34-47. Newcastle upon Tyne: Cambridge Scholars Publishing.

Lewis, M. 2000. Language in the Lexical Approach. Lewis, Michael (Ed.). 2000. *Teaching Collocation: Further Developments in the Lexical Approach*: 126-154. Hove, England: Language Teaching Publications.

Lorenz, G. 1999. *Adjective Intensification — Learners versus Native Speakers: A Corpus Study of Argumentative Writing.* Amsterdam: Rodopi.

Meara, P. 1992. *EFL Vocabulary Tests*. Swansea: Centre for Applied Language Studies.

Moon, R. 1997. Vocabulary Connections: Multi-word Iitems in English. Schmitt, N. and M. McCarthy (Eds.). 1997. *Vocabulary: Description, Acquisition and Pedagogy*: 40-63. Cambridge: Cambridge University Press.

Murnani, Z.T. and H. Salehi. 2016. Impact of Using Electronic Dictionary on Collocation Learning and Retention of Iranian EFL Learners. *International Journal of English Language and Literature Studies* 5(1): 55-65.

Nesselhauf, N. 2003. The Use of Collocations by Advanced Learners of English and Some Implications for Teaching. *Applied Linguistics* 24(2): 223-242.

Nesselhauf, N. 2005. *Collocations in a Learner Corpus.* Amsterdam/Philadelphia: Benjamins.

Nizonkiza, D. 2011. The Relationship between Lexical Competence, Collocational Competence, and Second Language Proficiency. *English Text Construction* 4(1): 113-146.

Nizonkiza, D., T. van Dyk and H. Louw. 2013. First-year University Students' Productive Knowledge of Collocations. *Stellenbosch Papers in Linguistics Plus* 42: 165-181.

Nguyen, T.M.H. and S. Webb. 2016. Examining Second Language Receptive Knowledge of Collocation and Factors that Affect Learning. *Language Teaching Research*. doi: 10.1177/1362168816639619.

Peters, E. 2016. The Learning Burden of Collocations: The Role of Interlexical and Intralexical Factors. *Language Teaching Research* 20(1): 113-138.

Philip, G. 2007. Decomposition and Delexicalisation in Learners' Collocational (Mis)behaviour. Davies, M., P. Rayson, S. Hunston and P. Danielsson (Eds.). 2007. *Online Proceedings of the Corpus Linguistics Conference, July 27th–30th*: 1-11. Birmingham: University of Birmingham. http://ucrel.lancs.ac.uk/publications/CL2007/paper/170_Paper.pdf.

Rundell, M. 1999. Dictionary Use in Production. *International Journal of Lexicography* 12(1): 35-53.

Satriawan, A. 2009. *A Comparison between NNS and NS Adverbs in their Adverbial Collocations.* http://sastra.um.ac.id/wp-content/uploads/2010/01/089-Archangela-Yenny-FKIP-UAJ-EFL-Learners-.-.-..pdf.

Seretan, V. 2011. *Syntax-based Collocation Extraction, Text, Speech and Language Technology*. Springer: Dordrecht.

Sinclair, J. 1987. The Nature of the Evidence. Sinclair, John (Ed.). 1987. *Looking Up: An Account of the COBUILD Project in Lexical Computing and the Development of the Collins COBUILD English Language Dictionary*: 150-159. London: Collins ELT.

Siyanova, A. and N. Schmitt. 2008. L2 Learner Production and Processing of Collocation: A Multi-study Perspective. *Canadian Modern Language Review* 64(3): 429-458.

Smadja, F. 1993. Retrieving Collocations From Text: Xtract. *Computational Linguistics* 19(1): 143-177.

Sun, Y.-C. and L.-Y. Wang. 2003. Concordancers in the EFL Classroom: Cognitive Approaches and Collocation Difficulty. *Computer Assisted Language Learning* 16(1): 83-94.

Szudarski, P. 2012. Effects of Meaning- and Form-focused Instruction on the Acquisition of Verb–noun Collocations in L2 English. *Journal of Second Language Teaching and Research* 1(2): 3-37.

Wang, Y. and P. Shaw. 2008. Transfer and Universality: Collocation Use in Advanced Chinese and Swedish Learner English. *ICAME Journal* 32: 201-232.

Weinert, R. 1995. The Role of Formulaic Language in Second Language Acquisition: A Review. *Applied Linguistics* 16(2): 180-205.

Williams, G. 1998. Collocational Networks: Interlocking Patterns of Lexis in a Corpus of Plant Biology Research Articles. *International Journal of Corpus Linguistics* 3(1): 151-171.

Wray, A. 2002. *Formulaic Language and the Lexicon*. Cambridge: Cambridge University Press.

Xu, X. 2010. Study on the Effect of Dictionary Use on Second Language Incidental Vocabulary Acquisition: An Empirical Study of College English Vocabulary Learning Strategy. *Journal of Language Teaching and Research* 1(4): 519-523.

Yamashita, J. and N. Jiang. 2010. L1 Influence on the Acquisition of L2 Collocations: Japanese ESL Users and EFL Learners Acquiring English Collocations. *TESOL Quarterly* 44(4): 647-668.

Zinkgräf, M. 2008. V+N Miscollocations in the Written Production of University Level Students. *ELIA*: *Estudios de lingüística inglesa aplicada* 8: 91-116.

Zughoul, M. and H. Abdul-Fattah. 2003. Translational Collocational Strategies of Arab Learners of English: A Study in Lexical Semantics. *Babel* 49(1): 59-81.