

# The Treatment of English Idioms in English-Arabic Smartphone Dictionary Apps

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**Abstract**—Researchers are more concerned now about the kind of information and consistency online dictionaries provide. This paper aims to study the treatment of English idioms in smartphone applications of English-Arabic dictionaries. The sample of this paper consists of five smartphone applications of English-Arabic dictionaries in the App Store. Eighteen English idioms were sampled based on their commonness in the English language. Oxford Wordpower Dictionary (English-English-Arabic) and Oxford English-Arabic Online Dictionary were used as references to compare the kind of information provided under each idiom. The data were analyzed both quantitatively and qualitatively. The study revealed that, out of five English-Arabic dictionary applications, none of them provided results for all the sampled English idioms despite their commonness. The qualitative analysis revealed that the majority of the sampled dictionary apps provide information, such as pronunciation and definition in Arabic and English. The study concluded with highlighting helpful features in these apps which conventional dictionaries lack, such as interactive voice search, history, favorites and image search.

**Index Terms**—Arabic, dictionary app, English, idioms, online dictionary

## I. INTRODUCTION

As a lexical phenomenon, idioms have been the focus of many studies in linguistics. But what is an idiom? In 1628, Oxford English Dictionary (OED) defined the word idiom as “a form of expression, construction, phrase, etc., peculiar to a language; a peculiarity of phraseology approved by usage, and often having a meaning other than its grammatical or logical one”. Healey (1968, p. 71) also introduced a definition of the word idiom as “any group of words whose meaning cannot be deduced from the meanings of the individual words”. In other words, idioms are expressions peculiar to a certain language where non-native speakers would not be able to understand since they are a collection of words that create a meaning far away from the literal meaning of every word the idiom consists of. Below are some examples of English idioms.

1. Kick the bucket
2. Cost an arm and a leg
3. Spill the beans

As can be seen from the examples above, a non-native speaker would be confused while confronting such expressions in English if they are not familiar with the native speakers’ repertoire. Looking at the first example, the first idiom *kick the bucket* has nothing to do with neither kicking nor a bucket. As an idiomatic expression, *kick the bucket* is an informal way of saying *to die*. It is understandable why the second idiom *cost an arm and a leg* means that something is too expensive. It is a way of exaggeration that the item bought is too expensive that the customer had to sell their limbs to be able to buy it. Idioms are considered “ready-made” expressions which are learned by the speakers since they do not reflect literal meaning and cannot be analyzed word by word (Lyons, 1968, pp. 177-178). Therefore, *kick the bucket* cannot be *kick the box*. *Spill the beans*, which means to tell a secret, cannot be *spill the corn*. They are formulaic expressions (Moon, 1998; Wray, 1999). Thus, they can only be inflected with tense; *kicked the bucket* (past tense), *will spill the beans* (future tense).

For further understanding of dictionary use, Hartmann (1983) asserted that more research should be conducted on behavior of dictionary users. He introduced four perspectives on dictionary use with regard to various research schemes, namely, dictionary users, dictionary information, contexts and look-up strategies (Hartmann, 1987). In addition, Varantola (2002, p. 33) divided dictionary users into three main groups as professional users of dictionaries, non-professional users of dictionaries and language learners.

Research on dictionary use by language learners is still lagging. This research area is very wide and different aspects could be considered, for instance, different types of language learners, types of learners’ dictionaries and language learners’ needs (Diab, 1990; Nesi, 2013). Previous studies tackled certain aspects. For instance, Müller-Spitzer (2014) studied which language skills and tasks need dictionary use. She found that dictionaries are mostly used in both productive skills

(i.e. writing and translation) and receptive skills (i.e. reading), which was in line with Nesi's (2013) findings that dictionary use can be either receptive or productive.

Living in the era of technology, linguists have noticed the rapid evolution of dictionaries. Lexicographical studies on electronic and online dictionaries have noticeably increased in the last few years (Lew & Doroszewska, 2009; Lew & de Schryver, 2014; Winestock & Jeong, 2014; Dziemianko, 2015; Moon, 2015; Müller-Spitzer et al., 2015; Adams, 2016; Rodríguez, 2018). Researchers are more concerned now about the kind of information and consistency such online dictionaries provide. The present paper aims to contribute to this field of study by investigating the treatment of English idioms in smartphone applications of English-Arabic dictionaries. It aims to answer the following research questions: *Do English-Arabic dictionary apps provide results for English idioms? What kind of information is provided under English idioms in English-Arabic dictionary apps?*

## II. LITERATURE REVIEW

Some previous studies highlighted the need of dictionaries in translation. For instance, Heliel (1996) introduced a project of creating English-Arabic dictionary of phrasal verbs dedicated to Arab translators who are still trainees. The study focused on making it a translation dictionary rather than a bilingual dictionary to aid the translators. The need of lexicographical treatment was highlighted. Moreover, Nofal (2012) conducted a comparative study on collocations in English and Arabic. The purpose was to improve the quality of interpretation and teaching English and Arabic collocations. Fuertes-Olivera and Nielsen (2012) investigated the difference between terminological dictionaries and translation dictionaries and how they can aid users at different stages of translation. It was found that specialized translation dictionaries are more sufficient and helpful for translators at different stages of translation.

As for language learners, Ard (1982) alleged that their proficiency in the second or foreign language counts as the main impact on their efficient dictionary use. For example, Diab and Hamdan (1999) conducted a case study on how Jordanian students of English interact with words and dictionaries. Given a specialized text in linguistics, the results revealed that general words were looked-up more than specialized ones. The subjects mostly searched for meaning and pronunciation. However, the look-up process was not based on a dictionary use strategy. In addition, the subjects used monolingual dictionaries more than bilingual ones due to their further usefulness. A study by Cubillo (2002) required subjects who were Spanish university students majoring in chemistry to compile their own dictionaries using the most salient words they studied during their academic year. Although the majority did not include any collocations in their dictionaries, the study concluded that the task assisted the subjects in more efficient use of dictionaries.

Studies also paid attention to the treatment of various lexical items in dictionaries. Prčić (1999) studied the treatment of the English affixes, *dis-*, *pro-*, *-ish* and *-or* in the four EFL dictionaries, *LDOCE*, *OALD*, *CIDE* and *COBUILD*. The study was both quantitative and qualitative regarding the information provided on the affixes. The study evaluated some entry information, such as label usage, pronunciation, definition, spelling and more. The study concluded that all four dictionaries only provide partial information regarding the affixes. The study concluded with recommendations for improvements. Moon (2004) studied the treatment of metaphor in the *Macmillan English Dictionary for Advanced Learners*. Based on the interest of the dictionary's editor in conceptual metaphor theory, the study highlighted the occurrence of metaphor boxes in the dictionary providing metaphors with contextualized examples (pp. 195-196). Hümmel and Stathi (2006) studied vagueness and polysemy in English idioms. The study showed that there were different contextual variables that designate the meaning of an idiom, such as collocates, grammar properties and context. Furthermore, Hamdan and Abu Guba (2007) studied how monolingual and bilingual dictionaries treat binomials. After analyzing 40 binomials in three monolingual (English-English) and two bilingual (English-Arabic) printed dictionaries, the study revealed absence of some of the binomials in the five dictionaries. Furthermore, the treatment of the binomials is inconsistent. In addition, Aldahesh (2009) studied the treatment of phrasal verbs of English in bilingual English-Arabic dictionaries. The purpose of the study was to find out how successful covering and explaining English phrasal verbs are in English-Arabic dictionaries. He investigated English phrasal verbs in both general and specialized dictionaries. The study concluded that these bilingual dictionaries are less comprehensive than specialized monolingual ones. Furthermore, Walker (2009) studied the treatment of collocations in different types of dictionaries. He sampled three dictionaries for learners, three collocational dictionaries and two English dictionaries for business. The findings revealed differences in the content presented with regard to collocations. A recommendation was presented to pay more attention to consistency in the inclusion of collocations in dictionaries.

Research has reflected on idioms being one of the hurdles language learners have to deal with. Kim (2016) argued that language learners struggle in identifying the meaning of an unfamiliar idiom that is composed of familiar words. After a series of tasks designed to test ESL college students' knowledge in idioms, the study revealed that they were able to recognize unfamiliar words significantly better than unfamiliar idioms composed of familiar words. Moreover, Aydin (2017) highlighted the issue of limited use of metaphorical and idiomatic language in EFL learning contexts. The study investigated the impact of teaching idioms using mental imaging as opposed to conventional methods of teaching the meaning of the idiom. Applying the Dual-Coding approach, the results showed positive effect of integrating mental imaging in teaching idioms.

Türker (2019) also argued that second language learners find it easier to identify the meaning of an idiom when it is both available in their first language and the second language, as opposed to idioms which only occur in the second

language. Thus, this study followed a pre-test/post-test approach to see whether second language learners can identify meaning of idioms that only exist in the second language. Given both types of idioms (*viz.* identical idioms in L1 and L2 and idioms existing in L2 only), in the pre-test, subjects scored higher in the identical idioms in L1 and L2. However, in the post-test, after giving them appropriate context for the second type of idioms, the subjects scored higher in idioms existing in L2 only. The study highlighted the importance of context in teaching idioms in second language.

Furthermore, Samburskiy (2020) stressed the dilemma of Russian EFL learners who struggle in identifying the meaning of idioms. Following a Dual-Coding approach, the study used a technique of mapping the literal meaning of the idiom on its correct idiomatic meaning. The results showed that the dual-coding technique served learners whose metaphorical competence is poor more than learners with higher metaphorical competence. In a recent study, Zuo (2021) justified the issue of learning idioms by EFL learners by arguing that they often ignore the holistic nature of English being a rich language in idioms. Using computerized reading tasks, the study investigated the effect of task enhancement, task condition and task type on Chinese EFL learners by testing two groups of subjects. One group was forewarned of idioms in the text while the other group was not. The findings revealed that the forewarned group scored significantly higher than the other group in noticing the idioms and retaining them. Since previous studies foregrounded the importance of learning idioms and the obstacles of learning them in a second or foreign language, the present study aims to contribute to previous literature by investigating the treatment of English idioms in English-Arabic smartphone dictionary applications.

More studies investigated dictionaries in online and digital forms. For example, Lew and Doroszewska (2009) studied the effect of animated pictures in EFL electronic dictionaries. Their study revealed negative effect of such feature. Lew and de Schryver (2014) highlighted the fact that the status of printed dictionaries is changing in the age of technology. Therefore, the aim of their study was to investigate dictionary users' perspective on the flexibility and adaptation of online dictionaries and whether they can serve the users better than printed dictionaries. In addition, Winestock and Jeong (2014) studied the status of smartphone applications in the app market. They sampled dictionary apps on App Store and Google Play. The study revealed that Google Play is more up-to-date with regard to dictionary applications, especially in South Korea and Japan. Compared to other types of applications, such as games and social networks, dictionary apps are not in the top 200 grossing apps neither in App Store nor in Google Play. They also highlighted quality of the apps based on price (free or paid). Furthermore, Moon (2015) investigated the information provided on English idioms on web pages. Particularly, she studied this phenomenon on non-lexicographical websites. Two English idioms were selected as a case study. She concluded with some implications for learners. Moreover, Müller-Spitzer et al. (2015) studied look-up frequency in Wiktionary. They also studied whether online dictionary users search for polysemic words more than monosemic words. In addition, Dziemińko (2015) studied the effect of color of functional labels of entries in online dictionaries. Subjects were asked to do a multiple-choice exam with the assistance of an online dictionary. Some subjects had access to an online dictionary where the functional labels, such as part-of-speech, are colored. The other subjects had access to an online dictionary where everything was in black and white. The results showed that the colored functional labels helped in the effectiveness and speed of searching the entries. Furthermore, Adams (2016) studied spelling correction in spellcheckers in online dictionaries used learners of Korean. The study revealed that not all spellcheckers identified students' spelling errors.

Recently, lexicographical studies have become more interested in comparisons between printed and online dictionaries. Rodríguez (2018) conducted a comparative study between traditional dictionaries of Old English and electronic dictionaries of Old English. The study investigated similarities and differences, in addition to advantages and disadvantages of both types of dictionaries. The aim was to identify which type is more suitable for linguists and researchers. In addition, Ferrett and Dollinger (2020) compared printed and online versions of two English dictionaries. The sampled dictionaries were Oxford University Press and Merriam-Webster's most recent print versions and their online counterparts. The study found whether digital is always better than print. It concluded that, despite the convenience of online accessibility, the digital versions lose some lexicographical scope. Alves and Maroneze (2021) studied Brazilian-Portuguese neologisms in Portuguese general-purpose dictionaries in their online versions. They implied that some morphological elements in the language have undergone certain changes. Therefore, they studied whether these changes have been introduced in the online dictionaries sampled. The study concluded that new words with their new grammatical usages have been added. In addition, Hao et al. (2022) took a multimodal communicative approach to study how online English learner's dictionaries use typography as opposed to typography in printed dictionaries. Based on their case analyses, they concluded that typography in online dictionaries features certain deployment of aspects such as color and space, serving various functions through structure and aesthetics. Although Leuckert's (2024) study's conclusion was that online resources barely utilize the capabilities of digital technology in comparison to printed dictionary where it is more complex and comprehensive, Syucz-Opoń (2024) concluded that online sources and search engines are used more often. Now, the treatment of idioms in online sources, such as artificial intelligence, is taken more seriously to provide a natural human-like interaction. Kim et al. (2025) presented MIDAS, a comprehensive multilingual idiom dataset designed to assess the ability of large language models (LLMs) to understand idioms across multiple dimensions. Their results indicated that LLMs employ a hybrid strategy—blending memorization with compositional reasoning—and exhibit sensitivity to contextual information.

### III. RATIONALE OF THE STUDY

Previous literature covered vast areas in lexicology and lexicography. As can be seen, research has recently increased on electronic and online dictionaries (Lew & Doroszewska, 2009; Lew & de Schryver, 2014; Winestock & Jeong, 2014; Dziemianko, 2015; Moon, 2015; Müller-Spitzer et al., 2015; Adams, 2016; Rodríguez, 2018; Ferrett & Dollinger, 2020; Alves & Maroneze, 2021; Hao et al., 2022). However, to the best of the researchers' knowledge, few studies have paid attention to online dictionaries as smartphone applications. Arab learners of English usually face hurdles in understanding idioms since they lack literal meaning. Learning the idioms of the language is essential because they are used regularly by native speakers. Enriching the learner's knowledge by learning idioms results in avoiding pragmatic miscommunication. Lew and Doroszewska (2009) suggested that other lexical sets should be investigated in electronic and online dictionaries, such as multi-word expressions. In their studies, Kjellmer (1991) and Nattinger and DeCarrico (1992) stressed the importance of learning idioms as part of language acquisition. Moreover, it is now more convenient for learners of English to use dictionary apps on their cellphones to look up the meaning of a word or an idiom. Furthermore, few of the previous literature investigated the treatment of English idioms in smartphone applications of English-Arabic dictionaries. Therefore, the present paper aims to fill this research gap and contribute to previous literature on online dictionaries. The paper aims to answer the following research questions:

1. Do English-Arabic dictionary apps provide results for English idioms?
2. What kind of information is provided under English idioms in English-Arabic dictionary apps?

### IV. METHODOLOGY

#### A. Sample and Data Collection

The sample of this paper consists of five smartphone applications of English-Arabic dictionaries. These dictionaries are available in the App Store. They have been chosen specifically because they are free, and they have the feature of looking up words in English and providing their meanings in Arabic. Furthermore, they are dictionaries rather than translation apps. These apps are<sup>1</sup>:

1. Arabic Dictionary - Dict Box (DB)
2. Arabic English Dictionary + (AED+)
3. Arabic Dictionary + (AD+)
4. Offline English Arabic Dictionary (OEAD)
5. Malayin Arabic <-> English Dictionaries (MAED)

The abbreviations in brackets are used in the analysis to refer to the apps for convenience purposes. Thirty-seven idioms were sampled as to find out how they are treated in the five dictionary apps mentioned above. The selection of the idioms is based on the most frequently used English idioms according to *Education First* website. *Education First* is a website dedicated to learning and learning languages. Oxford Wordpower Dictionary (English-English-Arabic) and Oxford English-Arabic Online Dictionary were used as references to compare the kind of information provided under each idiom. The searching process of the idioms in the apps under investigation is based on looking up the content words in each idiom. Unfortunately, some of the idioms were excluded because of their lack of existence in Oxford Wordpower Dictionary and Oxford English-Arabic Dictionary. The reason might be the fact that they are too informal that they are not listed as idioms in the dictionary. Consequently, the analysis in this paper is restricted to eighteen English idioms (see Table 1).

#### B. Data Analysis

The data are analyzed both quantitatively and qualitatively. To answer the first research question, the quantitative analysis provides frequency of the existence of the idioms in the sampled dictionary apps. To answer the second research question, the qualitative analysis provides description of the information provided about the idioms in the sampled dictionary apps. Furthermore, a comparison is provided between the results of idioms in the dictionary apps with reference to what is provided in Oxford Wordpower Dictionary and Oxford English-Arabic Online Dictionary.

### V. RESULTS

The first part of this section provides the findings of the quantitative analysis which reveal the frequencies of the occurrence of the sampled English idioms in the English-Arabic dictionary applications on the App Store, as seen in Table 1. The idioms are in alphabetical order.

<sup>1</sup> These apps were last accessed on November 20, 2024 when data were collected. Therefore, they might have been updated after this date.

TABLE 1  
FREQUENCIES OF THE OCCURRENCE OF ENGLISH IDIOMS IN ENGLISH-ARABIC DICTIONARY APPS

Idiom	DB	AED+	AD+	MAED	OEAD	Total
A blessing in disguise	1	0	0	0	0	1
Beat around the bush	0	0	1	0	0	1
Better late than never	1	1	0	0	0	2
Bite the bullet	1	1	0	0	0	2
Break a leg	1	1	0	0	0	2
Call it a day	0	0	0	0	0	0
Easy does it	0	0	0	0	0	0
Get out of hand	1	1	1	0	0	3
Hit the sack	0	0	0	0	0	0
Let someone off the hook	0	1	1	0	0	2
Make a long story short	1	0	0	0	0	1
Miss the boat	0	0	0	0	0	0
On the ball	1	0	0	0	0	1
Pull someone's leg	0	0	0	0	0	0
Pull yourself together	1	0	0	0	0	1
So far so good	1	1	1	0	1	4
The last straw	0	0	0	0	0	0
Under the weather	1	1	1	0	0	3
<b>Total</b>	11	7	5	0	1	

As can be seen in Table 1, none of the sampled dictionary apps provided results for all eighteen English idioms. However, DB provided the highest frequency of results compared to other dictionary apps with 11 English idioms found out of 18. AED+ and AD+ provided 7 and 5 results, respectively. Only one idiom was found in OEAD. However, none of the idioms sampled were found in MAED. It was found out that the free version of MAED provides a trial with limited access provided by the programmer. These findings imply that there needs to be more awareness of idioms in English-Arabic dictionary apps. Although the sampled idioms are the most common in English, some of them lack results in some of these dictionary apps.

Furthermore, the frequencies of each idiom found in the five dictionary apps are low. None of the sampled idioms are found in all the five dictionary apps. "So far so good" is the only idiom that is found in four of the dictionary apps and it has the highest frequency among the other idioms. "Get out of hand" and "under the weather" are found in three dictionary apps. However, the rest of the idioms are found in only one or two dictionary apps. In addition, some of the idioms are not found at all, such as "call it a day", "easy does it", "hit the sack", "miss the boat", "pull someone's leg", and "the last straw". This might indicate that these idioms are not as common as the ones with results in the sampled dictionary apps.

The lack of existence of some idioms in dictionary apps may create a problem for users who rely heavily on English-Arabic dictionary apps. Although dictionary apps are supposed to be more convenient for users, this convenience might be at the expense of finding results on common English idioms. Furthermore, an interesting issue was found when the researchers looked up the idiom "beat around the bush" in AD+. At first, no results were found. Then, it was revealed that the idiom is provided in the dictionary as "beat about the bush", which is the British-English Oxford dictionary's version of the idiom. This implies that these dictionary apps are convenient, but the user needs to understand that they might function in different accents, such as American English and British English.

The second part of this section provides the findings of the qualitative analysis. The analysis provides description of the information provided about some of the idioms in the sampled dictionary apps. Furthermore, the researchers compare between the results of idioms in the dictionary apps with reference to what is provided in Oxford Wordpower Dictionary and Oxford English-Arabic Online Dictionary. This part only includes analysis of the idioms that were found in at least three of the sampled dictionary apps. These idioms are "so far so good", "under the weather" and "get out of hand".

The analysis below provides examples from the data on the most frequently found English idioms in the sampled apps. The analysis revealed that DB dictionary app provides US, UK and AU pronunciations of the searched idioms. It also provides the definition in both English and in Arabic. However, AED+ provides US pronunciation for some idioms and US and UK pronunciations for others, with the Arabic meaning preceding the English definition. However, AD+ provides US pronunciation and it only provides the Arabic meaning. OEAD provides similar kind of information AD+ does.

As mentioned earlier, DB dictionary app provides US, UK and AU pronunciations. Furthermore, it provides the definition of the idiom both in English and in Arabic. For example, according to Oxford Online Dictionary, "so far so good" is defined as "progress has been satisfactory up to now" and the Arabic equivalent is "حتى الآن، كل شيء على ما يرام" (i.e. so far, everything is fine). In DB, the meaning of "so far so good" is in both English "up to now everything is all right" and in Arabic "تماما، حسن حتى الآن، للآن عظيم" (i.e. good, good so far, great so far). On the other hand, AED+ provides only US pronunciation with the Arabic meaning "تماما، حسن حتى الآن" (i.e. good, fine so far), preceding the English definition "up to this point, it's all ok". Similarly, AD+ provides only US pronunciation. However, it provides only the Arabic meaning "تماما، حسن حتى الآن" (i.e. good, fine so far) without the English definition. OEAD provides similar kind of information AD+ does. The dictionary apps provided almost the same definition of "so far so good" in Arabic but they differed slightly in their English definitions and the pronunciation provided.

In Oxford Wordpower, "under the weather" is defined in English as an informal expression to mean "not very well", and in Arabic as "متوَعك" (i.e. unwell). In DB, "under the weather" is defined in English as "not feeling healthy" provided

by some synonyms, such as “sick”, “unwell” and “under the weather” as slang expression for “intoxicated”. It is interesting that such synonyms are not provided in Oxford Wordpower, but found in DB free English-Arabic dictionary app. This indicates that the dictionary apps have potential in providing information not found in printed dictionaries. In Arabic, it is defined as “متوَعك صحياً” (i.e. healthily unwell) which is quite similar to how it is defined in Oxford Wordpower. In AED+, both US and UK pronunciations are provided for “under the weather”, in addition to IPA symbols. The meaning in English is provided as “somewhat ill or prone to illness”. Unlike in DB, no synonyms are provided. The Arabic definition is “متوَعك صحياً” (i.e. healthily unwell) which is exactly similar to what DB defined it in Arabic. AD+ only provides US pronunciation of “under the weather” with the Arabic definition exactly similar to the Arabic definition in both DB and AED+. Nonetheless, the term “متوَعك” (i.e. unwell) may not be easily intelligible by Arab learners of English due to its peculiar pronunciation since it is rarely used by native speakers of Arabic. The notion of diglossia was introduced by Ferguson (1959) to refer to the phenomenon of co-occurrence of varieties of the same language. The use of these varieties is determined by several factors, for instance, prestige, acquisition and standardization, which make one of them the high (H) variety and the other the low (L) variety (p. 327). Formal contexts, such as religion, the news and education, use the high variety (Modern Standard Arabic in our case), whereas informal contexts, such as everyday conversations, use the low variety (e.g. Jordanian Spoken Arabic). Therefore, the word “متوَعك” (i.e. unwell) can be considered problematic since Arab learners of English use the low variety in their everyday language. This confirms Bani-Khaled’s (2014, p. 187) conclusion that “diglossia in Arabic is a thorny issue when we relate it to the educational context in the Arab World”. This suggests that further research should investigate the issue of diglossia in dictionary use.

“Get out of hand” is defined in Oxford Online Dictionary as “not under control” and in Arabic as “خَرَجَ الأَمْرُ من يَدِهِ” (i.e. get out of his hand). In DB, US, UK and AU pronunciations are provided for “get out of hand”. The English definition provided is “lost all control, got out of control”. The definition in Arabic is “لا يستطيع التحكم” (i.e. cannot control). As can be seen, in Oxford Online Dictionary, the meaning in Arabic “خَرَجَ الأَمْرُ من يَدِهِ” (i.e. get out of his hand) is an idiomatic expression in Arabic which is equivalent to the idiom “get out of hand”. However, DB provided the meaning in Arabic indicating someone who loses control. Thus, the meaning is explanatory rather than equivalent. AED+ only provides US pronunciation of “get out of hand”. Furthermore, no English definition is provided for this idiom. The definition in Arabic is exactly similar to DB’s Arabic definition of the idiom. Similarly, AD+ provides the same kind of information AED+ does, which is US pronunciation and Arabic definition only.

It is worthy to mention that although some of these dictionary apps do not provide the user with all the information needed, they have some helpful features which cannot be found in printed dictionaries. For example, DB has the feature of “voice-to-voice translator”. This feature helps the user to search for a word, phrase, collocation or idiom by using their voice instead of typing. This feature is useful if the user is not sure how the words are spelled but knows how they are pronounced. Since it is an application connected to the Internet, it provides image search results of the searched word. Based on the researchers’ data collection procedure, this feature might not 100% accurate, especially that idioms cannot always be illustrated in images. However, this feature is helpful when searching for single words.

Another helpful feature in DB is “history”. The application saves all previous entries the user searched for. This feature is also found in AED+, AD+, OEAD and MAED, where the user can see search history and can mark certain entries as “favorites” or “bookmarks”. Furthermore, AD+ has an “online” feature where the user gets online results on the searched idiom. As can be seen, dictionary apps have pros and cons. Despite the fact that they can make the language learner’s searching process much easier than it is in conventional dictionaries, it is unfortunate that some of the sampled dictionary apps did not provide results for some of the sampled English idioms. However, it is believed that there is always room for improvement. Such apps have the potential to be updated and improved, especially if they provide the opportunity for the user to rate it and give suggestions for improvements.

## VI. DISCUSSION

The present paper aimed to answer two research questions. The first question is *do English-Arabic dictionary apps provide results for English idioms?* From the findings of the quantitative analysis, it has been noticed that, out of five English-Arabic dictionary applications, none of them provided results for all the sampled English idioms which are considered most common. Out of 18 idioms, 11 was the highest frequency of idioms found in DB, while the other dictionary apps scored lower. Unfortunately, this might be an indication that English-Arabic dictionary apps might not be taken seriously by some users. Dictionary users use smartphone applications nowadays due to their convenience (Moon, 2015). Nonetheless, some of these apps might not meet the expectations if the user does not find everything he/she wants. However, the sampled apps were free. If the user needs a dictionary app with better quality, better results and more accuracy, he/she would have to purchase one from the App Store. Winestock and Jeong (2014) suggested in their study that publishers should provide free dictionary apps for the users that do not only function as dictionaries but also as a learning guide for language learners.

The second research question is *what kind of information is provided under English idioms in English-Arabic dictionary apps?* This question was answered in the qualitative analysis. The qualitative analysis revealed that the majority of the sampled dictionary apps provide information, such as pronunciation and definition in Arabic and English. Some apps provide different pronunciations, such as US, UK and AU. Other apps provide only one pronunciation, such as US. Furthermore, some apps provide meaning of idiom in both Arabic and English. On the other hand, other apps provide

meaning only in Arabic. This corroborates Müller-Spitzer et al. (2015) and Ferrett and Dollinger's (2020) studies that online dictionaries still lack lexicographical detail.

However, some findings were unexpected. For example, DB provided multiple synonyms for the idiom "under the weather". It is interesting that such synonyms are not provided in Oxford Wordpower, but found in DB free English-Arabic dictionary app. This indicates that the dictionary apps have potential in providing information not found in printed dictionaries. Furthermore, DB defined "get out of hand" in Arabic as "لا يستطيع التحكم" (i.e. cannot control) indicating someone who loses control. However, Oxford Online Dictionary defined it as "خَرَجَ الأَمْرُ من يَدِهِ" (i.e. get out of his hand) which is an idiomatic expression in Arabic equivalent to the idiom "get out of hand". Thus, DB provided an explanatory definition of the idiom rather than an equivalent idiom in Arabic. This indicates that DB does not provide literal translation of the idiom.

In addition, what distinguishes these dictionary apps from printed dictionaries is the fact that they are interactive. They have features that are not available in printed dictionaries, such as interactive voice search, history, favorites and image search. It is true that printed dictionaries provide illustrations sometimes, but dictionary apps have immediate access to the Internet where the user can search for images for any word. However, this can be problematic if the user begins to rely only on images to understand the meaning of the searched entry and abandons the equivalent or definition in the other language (Lew & Doroszewska, 2009). Furthermore, users can use bookmarks in their printed dictionaries, but dictionary apps can take them to all their favorites with a single touch on the screen. However, this triggers the question whether everyone would be able to use these dictionary apps efficiently (Rodríguez, 2018). Just like conventional dictionaries, using a dictionary app needs a learning process where the user would be able to make the most of it when he/she does not find the lexical item they look for (Lew & de Schryver, 2014). Another major issue that users might come across is being unaware of a spelling mistake they make while searching for the idiom or any type of lexical item. The dictionary app may provide results for the searched item. However, some dictionary apps do not provide spelling correction. Consequently, no results would be shown (Adams, 2016).

## VII. CONCLUSION AND RECOMMENDATIONS

The aim of our study was to investigate the treatment of English idioms in English-Arabic smartphone dictionary apps. It mainly studied whether these dictionary apps provide results and information about English idioms. Despite sampling the most common English idioms, the quantitative findings implied deficiency in their occurrence in some of the sampled apps. This also applies to the information they provide with regard to these idioms. The paper concludes that dictionary apps, especially free ones, are two-edged weapons. In spite of how convenient and easy they can be, they might not satisfy all the needs of the user. Dictionary apps are still a new trend in the online market. Like printed dictionaries, which took several years to be compiled and have several editions and modifications, it is believed that dictionary apps have great potential to develop and to become an effective learning device for language learners since they can be updated regularly.

This study was limited to investigating the availability of English idioms in English-Arabic dictionary apps and the kind of information they provide regarding English idioms. Further research may address a pedagogical issue to investigate. For example, further research may investigate English learners' perceptions on using dictionary apps in classroom in comparison with printed dictionaries. Moreover, future research may investigate how features of dictionary apps, which printed dictionaries lack, can assist learners. The future of dictionaries seems promising with regard to assisting learners. It is anticipated that dictionaries in the future would not be restricted to definitions and information about words. It is true that conventional dictionaries provide other kinds of information, such as maps, differences between US and UK accents in English dictionaries, how to write an essay or a CV and others. However, the role of technology and the Internet may open the door to novel concepts where dictionaries become language learners' best friend. This has started to become evident in AI language tools which is a wide area to study.

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