

On the Appification of Dictionaries: From a Chinese Perspective

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Abstract

The advent of the Internet and the rapid development of computer technology have brought great changes into the dictionary-making scene worldwide. Such changes are evident not only in dictionary-making processes but also in the way dictionaries are presented to their target users. In recent years, as the number of mobile users increases, the use of dictionary apps has experienced a sharp rise. This paper attempts to make a tentative study of currently available dictionary apps, with an emphasis on English-Chinese dictionary apps. In order to present a panoramic view of the appification scene, this paper will first briefly discuss the major English dictionary apps that are popular with mobile users worldwide, then survey the bilingual dictionary apps; subsequently, the pros and cons of appified dictionaries will be examined in depth. Finally, the paper will also touch upon the influences of the use of dictionary apps on dictionary-making.

Keywords: dictionary apps; English-Chinese dictionaries; bilingual lexicography

1. Introduction

With the advent of the Internet and the rapid development of computer technology since the late 1990s, the dictionary-making scene worldwide, monolingual, bilingual or multilingual, has undergone considerable change. Such a change is evident not only in dictionary-making processes such as the heavy reliance on the Internet for word information, the corpus-based data collection, the use of dictionary-writing or dictionary-editing systems, etc., but also in the way dictionaries are presented to their target users. The convenience that comes with the use of e-dictionaries that are presented in the form of handheld electronic dictionaries, online dictionaries, and so on, is likely to account for the change of opinion on the part of dictionary users who, generally speaking, now prefer e-dictionaries to their dead-tree editions. In recent years, as the number of smartphone and tablet users increases worldwide, the use of dictionary apps has experienced a sharp rise. In order to tap the potential of the vast global mobile market, dictionary publishers, large or small, have jumped on the appification bandwagon and launched their respective dictionary apps with the same zeal displayed a couple of years ago when they rolled out their online dictionaries. This paper attempts to make a tentative study on currently available dictionary apps, with an emphasis on a discussion of English-Chinese dictionary apps that are popular with Chinese learners of English. In order to present a panoramic view of the appification scene, this paper will first make a brief discussion of the major English dictionary

apps popular with mobile users, then move on to survey bilingual dictionary apps preferred by Chinese users. Subsequently, the pros and cons of dictionary apps will also be examined in depth. Finally, the paper will touch on the influences of the use of dictionary apps on bilingual dictionary-making.

2. Dictionary Apps

As a relatively new term, ‘dictionary apps’ refer to software applications that usually contain the content of at least one dictionary and are designed to run on smartphones, tablets, other mobile devices and personal computers. Prior to their emergence, mobile users were accustomed to another type of e-dictionary, namely, mobile dictionaries which are either embedded in mobile phones or downloaded online. Since Apple launched the ‘App Store’ in conjunction with the release of iPhone OS 2.0 in July 2008, applications developed by third parties have been distributed worldwide, and dictionary apps have gradually been made available by either dictionary publishers or IT companies. Paragon Software Group, for example, is the leading software developer of electronic dictionaries for mobile devices and desktop computers and a key player in the appification scene, which launched its line of dictionary apps in 2009. Available through various app distribution platforms (e.g. the Apple App Store, Google Play, Windows Phone Store, Samsung Apps etc.), dictionary apps are being downloaded by users all over the world. As the use of smartphones and tablets worldwide is increasing exponentially, the number of downloads for dictionary apps is on the rise. Certain popular dictionary apps may have been downloaded millions of times. For instance, according to its website, *Dictionary.com*, the famous dictionary aggregator, has so far been downloaded more than 60 million times. The popularity of dictionary apps can also be attested by the sheer number of such apps made available in various app stores. As of April 15, 2013, there are 3,998 and 8,303 results when the word “dictionary” is searched at the Apple App Store via an iPad and an iPhone, respectively¹. As with traditional dictionaries, dictionary apps can also be classified into different categories in terms of the language(s) being used, the subject matter, and the coverage of the vocabulary of a language, etc.

In terms of the language(s) being used, a dictionary app may contain at least a monolingual, bilingual, or multilingual dictionary. Let us take *Longman Dictionary of English* as an example. Launched as early as 2011 by Pearson Education, this Android dictionary app is a monolingual dictionary that offers 230,000 words, 77,000 audio pronunciations, and 86,000 recorded example sentences. Sometimes a dictionary app may consist of more than one language. *Collins COBUILD English/Chinese/Japanese/Korean Advanced Dictionary of American English*, for

¹ Due to the fact that dictionary apps are mostly designed for mobile devices, the same search performed via a MacBook yields only 204 results.

example, is a quadrilingual dictionary that contains over a quarter of a million translations from English to Chinese, Japanese and Korean.

In terms of the subject matter covered in dictionaries, a dictionary app may include dictionaries of virtually every subject, such as *Dictionary Business Terms* which is developed by Intersog, LLC and contains a multitude of commonly-used business terms and concepts; *Chemical Terms Dictionary* which is compiled by The CJK Dictionary Institute in Japan and contains over 243,000 entries; and *Kids Picture Dictionary* which is designed for children to learn their first words and make sentences with a fun record tool, etc.

As is often the case with traditional dictionaries, the more popular dictionary apps are always those compiled for the purpose of facilitating the learning of English. As a result, learners' dictionaries are ubiquitous, and so are dictionaries that focus on certain aspects of vocabulary, such as idiom dictionaries, slang dictionaries, etc. Let us take an idiom dictionary as an example. Dozens of English idiom dictionaries are available at distribution platforms such as the Apple App Store. *Idiom in Use—Advanced English Idioms Dictionary*, for instance, is an app that includes the 750 most-used idioms and collocations of the English language, which often feature in English tests for foreign speakers.

When it comes to the virtues of electronic dictionaries, Gilles-Maurice de Schryver discussed several kinds of “eases”, such as the electronic ease and the online ease (2003: 152–158). His views were echoed in what Jennifer Howard wrote in the *Chronicle of Higher Education* on March 11, 2013: “For dictionary makers, going electronic opens up all kinds of possibilities. It's not just that digital dictionaries can be embedded in the operating systems of computers and e-readers so that they're always at hand. They can be updated far more easily and often than their print cousins, and they can incorporate material like audio pronunciations and thesauruses.” Indeed, the electronic medium does offer dictionary-makers a number of new options that were unavailable until recent years. Such options enable lexicographers to devise features typical of this new category of dictionaries. These features may account for the popularity that dictionary apps are currently enjoying. As a matter of fact, most of these features overlap with those of online dictionaries, and include:

- A. Virtually unlimited space. Unlike traditional dictionaries that are usually encumbered by the limitation of scope, a dictionary app is usually free of such restrictions and may include a larger content. Although an app may occupy several megabytes, this is negligible in a device comprising several or dozens of gigabytes. Unlimited space offers the lexicographer a variety of choices, such as the addition of many entries, the provision of multimedia content, the listing of related words, or the inclusion of more than one language or dictionary, etc.
- B. Easy updating. The fact that updates of traditional dictionaries occur at much longer intervals than their electronic counterparts is one of the reasons for the

diminishing readerships of traditional dictionaries. Like online dictionaries, dictionary apps can in theory be updated much more easily and frequently, which might serve to keep users up-to-date with the latest changes in vocabulary.

- C. Multimedia presentation of microstructural information. The provision of audio pronunciations for headwords or even illustrative examples in online dictionaries or apps is a big plus compared to traditional dictionaries that can only offer phonetic transcriptions. For some specialized dictionary apps, the use of animation is also a unique way of presenting an entry.
- D. More search options. One such option is the ‘wild-card search’. This feature, common in online dictionaries, has also become a fixture in dictionary apps and it is particularly helpful to users who are not sure of the spelling of a word. Another option, termed here “secondary search”, allows users to select any word in a definition in a dictionary to see the desired result.
- E. Provision of additional features aimed at facilitating language learning. *Word of the Day*, for example, is a feature present in many dictionary apps and is designed to provide additional information about a chosen word each day. Other features, such as search history and favorites, can also be of some assistance to dictionary users.
- F. Easy cross-referencing. Dictionaries are intended to be an interconnected web of words. Although traditional dictionaries do offer some sort of cross-referencing, it is by no means satisfactory or complete. An ideal cross-referencing system should provide cross-references for all words with which a particular headword is connected in one way or another. For example, in *WordWeb*, cross-references are set up in several ways for the entry *black*, such as the indication of its synonyms (*African-American, Afro-American, colored, dark, dark-skinned, negro, negroid, non-white*) and its antonym (*white*), the provision of derived words (e.g., *blackness, blacken, blackish, blackly*, etc.), and the link to related words (*black and white, black market, black marketer, black out, bluish black, in the black²*), etc.
- G. External links to other reference works. Some dictionary apps offer links to other dictionaries when the word being sought is not present. For example, *WordWeb* has links to offline references such as *Chambers Dictionary* and *Chambers Thesaurus*, and online references such as *Wikipedia, Wiktionary, Answers.com*, etc.

Moreover, dictionary apps also offer unique features. First, some apps may provide fuzzy search for similar sounding words. Electronic dictionaries have often been criticized for their inability to be read like a book. When looking up a word in a

² This list of related words seems to be rather arbitrary and far from complete.

traditional dictionary, a user has the luxury of browsing nearby entries, which has always been lauded as a wonderful reading experience. Fuzzy search in dictionary apps might offer a different kind of browsing experience: that is, to browse entries that share similar pronunciation with the word being sought or are located adjacent to the said word. *Oxford Slang*, for instance, is a free app based on John Ayto and John Simpson's *Oxford Dictionary of Modern Slang*. Its fuzzy-search function enables users to browse entries such as *crock*, *crock of shit*, *rock of ages*, *rocket*, *rocky*, and *schooner on the rocks*, when one looks up the word *rock*. Second, some apps also allow voice search. *Dictionary.com*, for example, allows users to say the word they intend to look up. Though such a feature is by nature a bells-and-whistles one, it does offer some convenience to users.

Providing entries in multilingual languages seems to be another hallmark of a new generation of comprehensive dictionary websites, such as *Dictionary.com*, *TheFreeDictionary*, *YourDictionary.com*, *WordReference.com*, etc. Such sites usually offer “one-stop shopping” to users who intend to look up words there, and some of these dictionary aggregators have also begun to tap the potential of the apps market and launched their respective dictionary apps. As they are mostly free of charge, they are downloaded far more often than apps that do charge. As searchability rules in the world of dictionary apps, dictionary apps tend to include as much information (e.g. entries, languages, etc) as possible, thus being more inclusive in coverage seems to have become the norm.

3. English Dictionary Apps

For the classification of online or Internet dictionaries, de Schryver divided networked dictionaries into just two categories, namely intranet and Internet dictionaries (2003: 151). Pedro A. Fuertes-Olivera also proposed two main types: namely, institutional reference works and collective free multiple-language Internet reference works (2009: 103). Gao Yongwei put forth a three-type typology that includes “clicks-and-mortar” dictionaries, one-stop dictionary sites, and DIY dictionaries (2012: 423-426). The English dictionary apps scene is more or less dominated by these three types of dictionaries.

The first type of dictionary apps refers to those based on existing English dictionaries. Almost all major dictionary publishers in English-speaking countries have developed apps for their dictionaries. Oxford University Press, for instance, has developed apps not only for its learners' and general dictionaries, such as *Oxford Advanced Learners' Dictionary*, 8th edition, *Oxford Dictionary of English*, *Australian Oxford Dictionary* and so on, but also a wide range of specialized dictionaries such as *Oxford Dictionary of Computing*, *Oxford Dictionary of Food and Nutrition*, *Oxford Dictionary of Finance and Banking*, *Oxford Dictionary of Biology*, *Oxford Concise Dictionary of Politics*, etc. As reported on *PR.com* on March 30, 2013, Oxford Dictionaries is making a greater effort to provide dictionary content to mobile users: “The number of

dictionary searches made on mobile devices and smartphones continues to increase ... In order to cater for a growing mobile audience, a fully responsive and adaptive site design is necessary as it gives Oxford Dictionaries Online users an optimized experience regardless of the device they are using to access our free dictionary content. We are always looking for ways to optimize our free online dictionary and we are confident this responsive website design will improve the functionality of Oxford Dictionaries Online on mobile devices, gaming devices, tablet devices, smartphones, and laptops.” Macquarie Dictionary Publishers has also made considerable effort in developing a series of apps for use on both Android and iOS devices, such as *Macquarie Senior Student Dictionary*, *Macquarie Complete Australian Dictionary*, *Macquarie Concise Australian Dictionary*, *Macquarie Essential Australian Dictionary*, *Macquarie Lite Australian Dictionary*, and *Macquarie Aussie Slang Dictionary*. As the majority of such dictionary apps (e.g. *American Heritage Dictionary, 5th Edition*, *Collins English Dictionary Unabridged*, *Merriam-Webster’s Collegiate Dictionary, Eleventh Edition*, *Webster’s New World Dictionary*, etc.) have the same content as existing paper dictionaries on which they are based, no further discussion will be made of them.

The second type of common dictionary apps consists mainly of existing multiple-language Internet reference works. Among them, *Dictionary.com* is undoubtedly the free dictionary app of choice. Boasting over two million words and definitions to date, this award-winning dictionary app has been a favorite with many dictionary users³. Launched in 1995 by Lexico Publishing, LLC, *Dictionary.com* now attracts more than 50 million users across the globe every month to its online English dictionary and thesaurus. As *Dictionary.com* claims on its website, it has become the world’s largest and most authoritative free online dictionary and mobile reference resource. Inspired by its goal “to empower word discovery and learning”, *Dictionary.com* teamed up with dictionary publishers such as HarperCollins and Random House to provide content for global users, so far obtaining 15 licenses from proprietary reference sources, such as *Collins English Dictionary*, *The American Heritage Science Dictionary*, *The American Heritage New Dictionary of Cultural Literacy*, *The Free Online Dictionary of Computing*, etc. Besides voice search mentioned above, this app has another unique feature - ‘Translator’ – which offers translations in various languages, such as Arabic, Chinese, French, German, and Italian. Moreover, this dictionary app also offers users the possibility to get 850,000 example sentences for less than 2\$. However, the app has not been updated as it should have been because some relatively new terms such as *bromance* and *e-shopping*, which have already been included in the online version, cannot be found there.

³ In *Incredible iPhone Apps For Dummies* written by Bob LeVitus and published in 2010, *Dictionary.com* was said to be “probably the best of the free dictionary and thesaurus apps currently available” and then it only included 275,000 definitions and 80,000 synonyms.

The third type refers chiefly to the growing number of English dictionary apps that are either developed especially for this new medium or converted from a monolingual online dictionary or lexical database. Pure online dictionaries such as *Wiktionary* and *Urban Dictionary* have been appified. For example, *Wiktionary* can be found not only in *Wikipanion*, an app mainly featuring *Wikipedia* entries, but also in *English Dictionary – Offline*, an app that includes 159,000 words from *Wiktionary* and *EN*, an app that includes 185,000 word definitions from *Wiktionary*. *Urban Dictionary* also has its app presence, which is rather commendable in terms of being up to date when it comes to its entries. The famous lexical database *WordNet* has been fully utilized by app developers, as is attested by the fact that several apps base their contents on the lexical database. For example, *WordBook XL-English Dictionary & Thesaurus*, said to be “the top-selling English dictionary on the app store since 2008” with 150,000 entries, 220,000 definitions, and 70,000 usage samples, is based entirely on *WordNet* although no claim of this kind has been made in the introduction on the part of its developer TranCreative LLC. *WordWeb Dictionary*, an app with 285,000 words, 225,000 word sense definitions, 70,000 usage examples, and 85,000 text pronunciations, was developed in a similar manner. Although there is no indication of the dictionary on which the app is based, the entries it includes are certainly taken from *WordNet*⁴. The only differences between *WordBook XL* and *WordWeb* lie in the different ordering of senses and the provision of synonyms. A case in point is the entry *à la carte*:

WordBook XL	WordWeb
n. a menu having individual dishes listed with separate prices	Adverb: By ordering items listed individually on a menu <i>we ate à la carte</i>
adj. (of a restaurant meal) having unlimited choices with a separate price for each item	Noun: A menu having individual dishes listed with separate prices ~ bill of fare, card, carte, carte du jour, menu
adv. by ordering items listed individually on a menu <i>we ate à la carte</i>	Adjective: (of a restaurant meal) having unlimited choices with a separate price for each item table d’hote

Table 1: Treatment of *à la carte*

There are other miscellaneous English dictionary apps, such as *Dictionary*⁵ and *HE Lexicon*⁶, to mention just a few.

⁴ There are two other apps that are fully based on *WordNet*, and they are *Dictionary!* and *LexicEn Lite*, which are developed by Catlin Software, LLC, and www.gogonavi.net, respectively.

⁵ It is actually a collection of offline dictionaries that include *The Collaborative International Dictionary of English*, *Webster’s Revised Unabridged Dictionary* (1913), *WordNet 3.0*, an unspecified English dictionary, and a picture dictionary.

⁶ Coincidentally, this app also bases much of its entries on *WordNet*.

4. English-Chinese Dictionary Apps

The English-Chinese and Chinese-English dictionary app scene is less crowded than its English counterpart, which may be attributed to the fact that few dictionary publishers are willing to develop app versions of their brand-name dictionaries. Their resistance to doing so can be ascribed to reasons such as being contented with the status quo and lack of innovativeness, etc. Beijing-based Foreign Language Teaching and Research Press is one of the rare few dictionary publishers in China that have developed dictionary apps. *Oxford-FLTRP English-Chinese Chinese-English Dictionary*, one of FLTRP's flagship dictionaries, now has an app presence. Although boasting about 300,000 words and phrases and 370,000 illustrative examples, however, this dictionary app has not been much favored by Chinese learners of English, partly because of its relatively hefty price tag and partly because of fierce competition from domestic developers of dictionary apps.

Similarly, in the online-dictionary scene in China, IT companies are the dominant players, including *Youdao*, *Kingsoft Power Word*, *Dict.cn*, etc. *Youdao*, better known for its desktop dictionary, has already extended its tentacles into the mobile world and developed dictionary apps for different types of mobile devices. As a multilingual dictionary app, *Youdao* has been the top downloaded dictionary among Chinese users. Its English-Chinese and Chinese-English parts include 340,000 and 330,000 entries respectively. Two English-Chinese dictionaries, namely *The 21st Century Unabridged English-Chinese Dictionary* and *Collins Comprehensive English-Chinese Dictionary*, form the backbone of *Youdao*'s English-Chinese part. A unique feature of *Youdao*'s app lies in the multiple choices one has when selecting definitions for the word being searched. A simple search will offer four types of definitions (i.e. online⁷, technical, English, and pictorial) along with the Chinese equivalents from the above-mentioned two English-Chinese dictionaries. In a similar vein, one can also choose to view different types of illustrative examples—bilingual ones, those with audio pronunciation (taken from VOA), and authoritative examples (some of which are taken from news reports). The number of examples in each type can be as many as thirty and most of them are captured online. Other features of this app include searching within an encyclopedia, real-time translation, etc.

Kingsoft Power Word, as it claims on its website, is “currently the world's largest Learner Dictionary” as it contains more than 355,000 word articles, phrases and definitions, and selections of more than 5,000 new words and meanings. Kingsoft has long been known for its powerful desktop dictionary system that incorporates scores of dictionaries or specialized lexicons, such as *English-Chinese & Chinese-English Dictionary*, *A Glossary of Physiological Terms*, *A Glossary of Electronic Terms*, *A*

⁷ This type of definition is usually taken directly from online sources, usually including all the possible translations one can find online for the searched word.

Glossary of Terms in Chemical Engineering, A Glossary of Computing Terms, etc. Kingsoft's app, however, seems to be a watered-down version of its desktop dictionary as it comprises only a small selection of dictionaries such as *The American Heritage Dictionary of the English Language*, *WordNet*, *Collins COBUILD Advanced Learner's English-Chinese Dictionary*, a dictionary of synonyms and antonyms, and a dictionary of phrases and collocations, etc. A simple search in its no-frills version usually results in four definitions, namely, basic definition, authoritative definition, *Wiktionary* definition, and English definition. The first type is furnished with Chinese equivalents, abundant illustrative examples, antonyms and synonyms, phrases and collocations, etc. The authoritative definition is taken from the bilingualized Collins dictionary while the English one is copied from *WordNet*. The third type, though claimed to be taken from *Wiktionary*, bears no relation to the online dictionary and only provides Chinese equivalents. Besides the voice search and the provision of translation and news, this app is unique in that its in-app camera enables a user to point at a particular word to obtain its meaning.

Established in November, 2003, *Dict.cn* is a dictionary site that offers a wide range of services, such as dictionary lookup, sentence and paragraph translation, online sources, dictionary software download, etc. Its dictionary app, like its competitors, offers four types of definition—basic, bilingualized, detailed, and English. Its English definitions are also fully based on *WordNet*. Designed to be learner-friendly, the app features abundant illustrative examples, common sentence patterns, common phrases, collocations, and even quotations from classical works. Moreover, the app also includes other dictionary features such as usage notes, etymology, and the provision of synonyms and antonyms.

Eudic and *nciku* are two other dictionary apps developed by IT companies. The former, having a collection of 300,000 English-Chinese and Chinese-English entries, is notable for the laundry list of phrases and idiomatic expressions and its vast collection of miscellaneous online examples. The latter, boasting 163,000 entries, is chiefly based on two dictionaries—*Collins English-Chinese Dictionary* and *nciku's* own comprehensive English-Chinese dictionary. Other lesser-known English-Chinese dictionary apps include *Dict Box*, *HEdictEC*, *CZ English-Chinese*, etc.

Thanks to their comprehensive coverage of the English vocabulary and a wide range of user-friendly features, the above-mentioned English-Chinese dictionary apps more or less cater to the needs of a myriad of English users in China. Nevertheless, as most such apps are merely a hodgepodge of dictionaries, monolingual and bilingual, they are deficient in many ways. First, in some apps, the selection of entries is arbitrary, and the criteria are rather loose. *Dict.cn*, for example, includes many words (mostly compound ones) which should not be recorded in dictionaries as their meanings are readily understood or they are not frequently used, such as *foodaholic*, *electronic components*, *personal information*, *warehouse management*, etc. Sometimes, the same headword may have been listed twice. *PowerWord*, for instance, includes both

mood swing and *Mood swings*, and provides different Chinese equivalents for them – “情绪波动” and “心境不稳”. Unlike their monolingual counterparts that are more or less based on name-brand general dictionaries, some of the dictionary apps mentioned above base themselves on a considerable number of minor dictionaries, mostly technical ones, and as a result, some of them include way too many technical terms, some of which being rather out of place. *CZ English-Chinese*, for example, includes *cybernetics* along with many related terms such as *cybernetic machine*, *cybernetic model*, *cybernetic simulator*, *cybernetics system*, etc. Second, some apps are riddled with awkward or inappropriate Chinese translations either of headwords or of illustrative examples, such as *cyberspeak* 虚拟对话 (literally meaning “virtual dialogue”), *cybrarian* 电脑族 (literally meaning “computer clan”), etc. The translations provided for illustrative examples are problematic in many ways. No matter whether they are taken from bilingual dictionaries or culled from the Internet, problematic translations abound, such as “Perot hoped to run another series of campaign infomercials. 佩罗期待着新一轮的竞选宣传节目的播出” and “At least in terms of bioterror attacks, I can’t imagine recommending evacuation. 起码在生物恐怖进攻时，我不能预测所谓的疏散”. Third, the illustrative examples in some apps are grammatically incorrect, thus eventually misleading English learners. Such examples include “He wrote off for information on Internet” from *Youdao*, “Internet make people more intimacy or alienation?” and “Examination result is appalling, urban chophouse, small noodle shop uses this to plant doubtful and lardy very general” from *Eudic*, “Rich as he may seem, he works in a fast-food as waiter” from *nciku*, etc.

5. The Influences of Appification on Bilingual Lexicography

Although many dictionary apps are based on existing dictionaries, traditional or online, their emergence on the dictionary-making scene will undoubtedly exert some influence upon contemporary dictionary-making, whether monolingual or bilingual. The influence upon the making of English-Chinese dictionaries is much greater as English-Chinese lexicography has been impeded by factors such as heavy reliance on monolingual dictionaries, and lack of innovation, etc. Such influences will bring about changes in the following aspects:

A. Wide coverage of the English vocabulary. Chinese learners of the English language usually expect more entries from their dictionaries as they have been accustomed to the concept of “more is better” when it comes to the number of entries in a dictionary. Traditional dictionaries such as *A New English-Chinese Dictionary* and *The English Chinese Dictionary* are known for the large vocabulary they cover. Getting their money’s worth is the prevailing mindset when people purchase a dictionary. This “more is better” concept is also prevalent when people choose electronic dictionaries. The popularity of *Lingoes*, a free desktop reference tool into which one can download a wide range of dictionaries, and *Casio*, a famous brand for a series of hand-held dictionaries that include scores of existing dictionaries, is another indication of people’s preference for reference tools with a lot to offer. In order to better cater to the

needs of Chinese dictionary users, dictionary-makers should make greater efforts in providing improved dictionary content. As *The English-Chinese Dictionary*, the largest English-Chinese dictionary now available, is trying to diversify its mode of presentation, more efforts should be made to enlarge its coverage of the English vocabulary. Though boasting 220,000 entries in its second edition, ECD has a long way to go in terms of including as many English words as possible. As a result, not only new words but also popular regional uses of English words which were rather inadequate in its current edition, should be included in the third edition, due in 2017. The fact that an app can be updated easily and frequently will also force dictionary-makers to be on the constant lookout for neologisms.

B. Provision of better Chinese equivalents. Some dictionary apps are designed in such a way that the traditional boundary of English-Chinese dictionaries and Chinese-English ones is blurred as one can search an English word as well as a Chinese one in the same dictionary database. *KTdict* is a case in point. If one searches the word *beauty* in its Chinese-English dictionary, it will offer all entries containing *beauty* in its English definitions, such as *beauty/belle* for 美人, *beauty contest* for 选美, *beauty salon* for 美发院, *a woman of unmatched beauty* for 绝世佳人, *beauty in the eye of the beholder* for 情人眼里出西施, etc. Such a bidirectional feature empowers dictionary users while laying bare the problems in the translations of some dictionary headwords. In the past, dictionary-makers seldom made comparisons between the translations for headwords with similar or related meanings, which usually resulted in inconsistencies in translation. For instance, *burn one's boats / bridges* and *cross the Rubicon* are defined differently in English, but they are often translated into “破釜沉舟” in Chinese, as is shown in the translations provided by *ECD*:

burn one's boats / bridges: 破釜沉舟, 背水布阵, 自绝退路

cross the Rubicon: 采取断然行动 (或手段); 下重大决心; 破釜沉舟

Therefore, such an app-enabled feature should prompt dictionary-makers to review their usual translation practice and then fine-tune their translations.

C. Furnishing of new features. The provision of synonyms and antonyms, though a fixture in learners' dictionaries, is absent in most English-Chinese dictionaries, partly because Chinese equivalents provided for synonymous or antonymous may not be synonymous or antonymous in Chinese. This is caused by the time-tested lexicographic practice of providing as many Chinese equivalents as possible for many English headwords. As early as 1908 when one of the first major English-Chinese dictionaries was published, lexicographers started to provide as many Chinese equivalents as possible for some headwords in order to make sure that all shades of the meaning were recorded. This practice was adopted by later dictionary-makers, and many existing dictionaries are still riddled with examples of this kind. As a result,

there might be at least three or four Chinese equivalents in some entries. Take *lack* for example. *ECD* provides three equivalents for its second sense, namely “需要；需要的东西；缺少的东西”. If we want to provide a synonym for this sense, “need” will be the first word that comes to mind. However, it differs from the definition provided by English dictionaries: “something that is lacking or is needed”. As a consequence, Chinese dictionary-makers would have to review many Chinese equivalents if features such as synonyms and antonyms are to be furnished.

More should be done if dictionary-makers in China want to convert their dictionary data into apps, such as better ways of cross-referencing, and separate listing of run-on entries, etc.

It is quite obvious now that dictionary apps, as a new way of presenting dictionary entries, will surely be here to stay as long as smartphones and tablets are used. However, the rise of dictionary apps does not necessarily spell the demise of paper dictionaries. But as more and more dictionaries are made available in app form, the traditional dictionary scene will change forever. With such changes, users’ reading habits will change accordingly. As dictionary-makers, it is high time to adapt to such changes and make special efforts to improve or even enlarge dictionary data so as to meet the changing needs of a generation of language users.

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