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From paper to electronic dictionaries: Evolving dictionary skills

Robert Lew

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Robert Lew, Adam Mickiewicz University in Poznań

Abstract

Successful dictionary use depends on two factors: (1) user-friendliness of dictionaries and (2) good dictionary reference skills of their users. As the world moves from paper to electronic dictionaries, we need to realize that the skills needed to use modern digital dictionaries are not necessarily identical to those for traditional print dictionaries. Some print dictionary skills are transferable to the context of digital products, whereas some other skills are no longer relevant, often because electronic dictionaries may now be able to do part of what used to be the user's job (such as automatically reducing an inflected form to a citation form). On the other hand, using electronic dictionaries may require new types of reference skills, not known from paper dictionaries. The most salient group of new skills is related to searching for information, and may be subsumed under the more general concept of digital literacy. In the present contribution I consider which paper dictionary skills are still relevant for digital dictionaries, which are obsolete, and what types of skills are new to electronic dictionaries.

Keywords: dictionary skills; digital literacy; electronic dictionary; information literacy; internet skills; online dictionary; reference skills

1. Introduction

The use of dictionaries is a two-way game, and the players are: the dictionary itself, and the dictionary user. The game proceeds smoothly only if both perform well. In recent decades much effort has gone into improving dictionaries, but not nearly as much into discovering how to give users better skills in interfacing with a dictionary. Dictionary skills are defined by Cowie (1983: 136) as 'the skills which the user is assumed to posses, or can be expected to acquire, in handling a dictionary and making effective use of the information it contains'. Interestingly, another definition, this time by Hartmann and James (1998: 117), takes a different angle, defining reference skills (here a synonym for dictionary skills) as '[t]he abilities required on the part of the dictionary user to find the [information] being sought'. This reveals the difference of perspective: the latter definition focuses on access to information, whereas Cowie's is more concerned with how the information is exploited, brought back into the context of dictionary consultation; it is, we might say, more pedagogical. As the present talk concerns skills for *electronic* dictionaries, with *paper* dictionary skills serving as a point of departure, we might note right away that the information-access aspect is likely what most distinguishes these two dictionary types. Thus, the definition by Hartmann and James, although somewhat restrictive, will be of high relevance in this context. Before we move into skills for data access, however, let us review what is known about dictionary skills (and their teaching) so far.

2. The nature of dictionary skills

Fundamental questions about the nature of dictionary reference skills were formulated by Hartmann (2001: 89-90), who asked (1) what reference skills are composed of; (2) whether the skills are largely instinctive or are they acquired, rehearsed; and (3) whether some have innately better reference skills than others.

We shall not have space here to go into question (3) above. In terms of practical impact, question (2) is very relevant, as it addresses potential learnability of dictionary reference skills. We are now in possession of some empirical evidence that dictionary skills can be taught effectively (Kipfer 1987; Bishop 2001; Carduner 2003; Chi 2003; Lew and Galas 2008), and a number of authors (e.g. Nuccorini 1994; Atkins and Varantola 1998; Kipfer 1984; Scholfield 1982; Stark 1990; Ronald and Ozawa 2011) have appealed for a wider introduction of instructional programs designed to teach effective dictionary use, preferably as components integrated within existing curricula.

However, before one can start teaching dictionary reference skills, one needs to know what they are, and this brings us back to question (1): what dictionary reference skills are there? It is this question, too, that is of highest relevance at this time of transition from paper-based to digital dictionaries. Even though we are still far from having a definitive set of paper dictionary skills, already we must go about revising it, so as to take into account those skills relevant to electronic dictionary use. How substantial a revision is needed? This is the main topic of the present contribution. Remarkably, there are hardly any publications concerned with electronic dictionary skills specifically; Ronald and Ozawa (2011) are one recent exception, though some treatment of electronic dictionary skills (albeit in their incipient form, as seen from today's perspective) was already offered by Nesi (1999).

A recent publication (Gavriilidou 2013) reports on the initial stages of development of a psychometric instrument designed to assess strategic dictionary use. Inspired by previous work on learning strategies exercised by language learners, this assessment instrument comprises (currently) over forty questionnaire items which pattern into four relatively distinct factors: (1) dictionary use awareness skills; (2) dictionary selection strategies; (3) strategies for lemmatization and acquaintance with dictionary conventions; and (4) look-up strategies. A particular weakness of this approach lies in the fact that the assessment is based solely on self-reporting of skill or practice, which may be only weakly related to actual practice in situations of dictionary use.

Attempts at identifying the definitive set of dictionary skills often build upon a certain vision of stages characterizing dictionary consultation. One such well known proposal is due to Scholfield (1982), and consists of the following seven stages, in this case describing a situation of reading comprehension:

(1) Locating the unknown word or phrase in a text
(2) Finding the citation form in case of inflected words
(3) Searching the unknown word in the alphabetic list
(4) Searching compound words or idioms by looking up each main element of them and derived forms by looking up the stem entry
(5) Reducing multiple senses of polysemous words by elimination
(6) Understanding the definition of the unknown word by integrating it in context
(7) In case that the desired meaning of the unknown word doesn't exist in the dictionary, inferring of the appropriate meaning based on the list of meanings provided in the entry

A look over Scholfield's list immediately reveals stages that no longer seem to be of much relevance for electronic dictionaries (at least those equipped with modern features). And so, stage (2), concerned with finding the citation form for inflected word forms, should be handled automatically and invisibly to the user in any modern electronic dictionary. Likewise, in today's digital dictionaries, going via the alphabetic list (stage 3), is merely an optional and marginal access route. To generalize from these observations, it might be noted that as far as electronic dictionary reference skills are concerned we would expect most radical changes vis-à-vis paper dictionaries in skills related to searching for and accessing lexicographic information. In contrast, skills dealing more with actual content should exhibit greater overlap between paper and digital dictionaries.

3. Skills still relevant

The most comprehensive list of dictionary skills proposed so far is the one by Nesi (1999). One particular cluster of skills in Nesi's list focuses on interpreting the content of entries. This is to do with the various categories of lexicographic data. The relevant skills, as given by Nesi (1999: 54), are as follows,:

(22) Interpreting etymological information
(23) Interpreting morphological and syntactic information
(24) Interpreting the definition or translation
(25) Interpreting information about collocations
(26) Interpreting information about idiomatic and figurative use

(27) Deriving information from examples
(28) Interpreting restrictive labels

The above skills in general involve cognitive processing, insofar as they focus on extracting and interpreting lexicographic information in the context of the task which prompted dictionary consultation. As such, these skills can be said to be relatively independent of dictionary form: they are about as relevant in digital dictionaries as they are in the case of print dictionaries. This is not to say that there is no difference at all between paper and electronic dictionaries when it comes to interpreting *any* types of lexicographic data. For example, the role of phonetic transcription is diminished in digital products by the provision of audio representations of pronunciation (be it recordings or synthesized speech), and either representation of model pronunciation can assist the user with interpreting the other one better. To give another example, interpreting restrictive labels will often be less demanding in electronic dictionaries since the latter tend to use less cryptic and more descriptive labelling. Even if abbreviations are still used, their expansions should be more readily available than in a printed volume.

Another group of paper legacy skills which retain their relevance in the digital era would be metalexicographic skills related to familiarity with the range of available dictionaries, with the type of content they offer, and being able to select appropriate dictionaries for the task at hand. Since electronic dictionaries (especially online or as apps for mobile devices) are now typically available in greater choice than printed titles, and since quality control is more problematic in the more democratic world of e-dictionaries, it may actually be harder than ever to choose an optimal dictionary. On the other hand, the best lexical tools may be able to adapt to a range of lexicographic needs, tasks and situations, so users may be relieved of making at least some of the choices.

4. New skills related to searching

It is often said, and with good reason, that what distinguishes electronic dictionaries most from their paper predecessors are the radically changed ways in which users can access lexicographic data. Novel options in searching for information may consequently generate new skills involved in using digital dictionaries effectively and efficiently. Some coverage of skills related to electronic access is already visible in Nesi's (1999: 53) list: amongst the skills she includes we find the use of wildcards and hyperlinking in electronic dictionaries. Obviously, since those were the early days of electronic lexicography, there was no way to predict all the affordances that would gradually become available with the continued progress of digital lexicography. A competent and detailed overview of possible alternative search paths in electronic dictionaries is found in Engelberg and Lemnitzer (2009: 101-102), and wildcard search is listed here as well. Using wildcard and truncation symbols is actually a technique which requires specific skills from the users. An entry-level skill is knowing which particular symbols may serve as wildcards in a given dictionary. Even though the question mark and the asterisk are quite popular choices whenever wildcards are supported at all, they are by no means universal. But a properly skilled user of wildcards needs to know, not just what symbol to use, but also at which point to introduce it: can the symbol replace word-endings only, or also word-beginnings, or perhaps middle sections? More interestingly, strategic use of wildcards will involve an optimal selection of how many literal characters to include before a wildcard is added to the search expression.

An alternative to (word-final) wildcards which is becoming quite popular, not the least thanks to its adoption by major internet search engines, is incremental search, also variously known as '*type-ahead search*, *search-as-you-type*, *incremental search*, *inline search*, or *instant search*' (Lew 2012a: 351). This mode of term entry into the search box involves automatic completion of terms from an internal list of search terms. Such a list may, but need not necessarily be, the same as the lemma list of the dictionary; for example, it may include sublemmatic elements such as phrases and expressions embedded within main entries, allowing them to be searched directly, by-passing the outer access route. Users of dictionaries with

incremental search capability need to be aware that the completion mechanism triggers only after a certain number of letters (say, three or four) have been entered, and they should expect a pull-down list of suggestions to appear, and then they need to know how to navigate it. Skilled users should also be aware that they may continue typing in order to further narrow down the list of suggestions, perhaps down to a handful of hits to pick from, or just one, once the typed characters form an initial sequence which uniquely identifies a given word. This skill is potentially transferable to/from the use of other (i.e. non-lexicographic) tools involving term searching, most obviously search engines.

The incremental search option goes some way towards easing the typing of words into a search box of a dictionary. What makes it more difficult is the vagaries of spelling in some languages, such as English. Fortunately, some dictionaries are now able to correct for the more typical misspellings. This fuzzy-spelling feature is designed to compensate for lack of orthographic skills, but only up to a point: even the highly regarded English dictionaries for learners still offer only mediocre performance in this regard (Lew and Mitton 2011, 2013).

An example of a reference skill which goes beyond the capabilities of the average dictionary user is appropriate use of logical (also known as Boolean) operators. These operators, most typically expressing conjunction (AND, &), disjunction (OR, |), and negation (NOT, !, –, ~) may be used to combine simpler terms into more complex expression. However, as revealed by research in human-computer interaction (Markey 2007), most users do not seem to be able to use formal logic syntax correctly. No wonder then that Boolean operators have fallen into disuse in modern dictionaries, just as they have in internet search engines.

5. Skills no longer essential

One advantage of electronic dictionaries is that users get to be ‘liberated from the straitjacket of ... alphabetical order’ (Atkins 1996: 516). Indeed, familiarity with the ordering of letters is largely of no consequence in most modern electronic dictionaries. Equally superfluous is the knowledge of the relative sizes of letter stretches, which is helpful in locating appropriate letter sections more quickly in a print dictionary.

But an electronic dictionary with a well-designed access interface will also relieve the user of many tasks for which appropriate-level skills are often hard to come by. This includes, for inflected languages, access to entries via inflected forms. Print dictionaries, as a rule, do not list inflected forms separately due to considerations of space. A digital dictionary, however, can find them quite easily as long as it has lemmatization built in. This will be appreciated by any users, especially non-native speakers, for whom the link from an inflected form to the citation form may be anything but obvious, and often leads to look-up failure in paper dictionaries.

A similar case can be made for items traditionally embedded in entries, such as phrases, expressions and idioms. Knowing under which entry these happen to be included in a given dictionary is not at all obvious (Lew 2012b), and this difficulty seriously limits the user-friendliness of paper dictionaries: there is little good in having information in the dictionary if users cannot find it, as the skills needed to located it are beyond their reach. The obvious modern solution to the problem is to make such sublemmatic items findable directly from the main search box. There are difficulties with implementing this solution, not the least related to the variability of multi-word expressions, and in fact few dictionaries offer this access route to multi-words (Lew 2012a). But overcoming difficulties is what progress is about, so dictionary makers should not give up their efforts. There is no doubt that locating embedded elements in entries, especially long ones, is among the hardest skills that users of paper dictionaries need, and it would be of great help if this skill were no longer essential. However, such an innovation makes a new skill necessary: the ability to formulate reasonable queries for multi-word items. Users will need to be aware that it makes good sense to put a phrase into the search box, and they have to develop a habit of doing so when justified. What could promote and strengthen such a habit is the fact that similar strategies work in the case of internet search engines, and there is indeed some evidence from log-file-based studies that dictionary users seem to be bringing in habits from search engine use into the context of online dictionaries.

6. Conclusion

A review of the literature on dictionary reference skills reveals that our knowledge of skills for paper dictionaries is far from complete, as it does not have a sound empirical grounding. Incomplete or not, it is already becoming yesterday's news with the rapid shift to electronic dictionaries. Some skills previously identified in the context of paper dictionaries may still be of use in electronic dictionaries, such as the general cognitive skills of interpreting lexicographic data, or choosing the right dictionary. Other paper dictionary skills, for example the one having to do with locating inflected forms, are no longer needed in most modern electronic dictionaries, as new affordances make these older skills redundant. However, the introduction of new features themselves generates the need for completely new skills, unfamiliar from paper products. Many of these skills have to do with computer-mediated information retrieval, and are partially subsumed under the concepts of *digital literacy* and *information literacy* (Bawden 2008; Lankshear and Knobel 2008). These skills may overlap with those involved in using other digital tools, in particular those having to do with internet search strategies. The question to ask next is how these skills should be taught, and by whom. The obvious candidates, schools as traditional educational institutions, find it very hard to keep up with the pace (Langegard 2011).

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