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IS EVERYTHING A "DICTIONARY"? Exploring users' views of online language resources

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Abstract – University students of modern languages and translation seem to believe that whatever online resource provides them with bi- or multilingual equivalents is a "dictionary". The creators of such resources, on their part, often exploit this misguided perception, presenting as "dictionaries" what are in fact resources of very different kinds and serving different purposes. Given the ubiquity and ease of access of these resources, presenting students with a critical overview of what is available online in terms of dictionaries, termbanks, multilingual concordancers and machine translation systems is arguably a necessary, if somewhat neglected, element of modern languages and translation curricula. Students' preferences, however, should not be ignored. The resources students favour are not always created on the basis of sound lexicographic principles, but they are likely to possess features that users increasingly find important or desirable, e.g. the possibility to access a large number of authentic examples, the combination of mono- and bilingual content, and user interfaces adaptable to different devices. Dictionary makers and publishers have not remained insensitive to users' preferences, but the significant innovations they have introduced in their products have often passed unnoticed, and dictionary user behaviour seems not to have changed much. This paper elaborates on such considerations and relates them to the results of a survey conducted on a group of 250 dictionary users, the vast majority of whom were students enrolled in undergraduate and graduate programmes in foreign languages and translation. Results indicate that users rely heavily on digital resources, often lumping them together under the label of "dictionary", but they are generally not fully aware of the innovative features that have been introduced in works of a lexicographic nature.

Keywords: dictionaries; online dictionaries; dictionary features; dictionary users; language resources.

1. Introduction: everything is a "dictionary"

To say that the landscape of reference works for language learning and translation has been revolutionized by the internet is both an understatement and a platitude. The ready availability of language resources accessible through a wide variety of devices (from desktop computers to notebook and smartphones) comes close to realizing what language buffs and, more importantly, language professionals would have called a dream just a couple of decades ago: seeing or hearing a new word and immediately being able to

know not only what it means, but also how it is pronounced, how it is used in context, where it comes from, how frequently it has been used through the centuries, how it can be translated, and so on.

Some would say that currently available resources have already reached beyond that dream. Thanks to the advances in digital storage technology, the growth of computer networks and the explosion of digital content, staggering amounts of language data are now available. The sheer quantity of data, coupled with the steady increase in computer processing power, has enabled companies and researchers to develop language-oriented tools and applications that serve a wide variety of purposes. Machine translation is the most visible example. Although it may not (yet) be considered an option for quality-critical professional translation jobs, it is certainly capable of meeting translation needs either in some everyday situations or where translation has an essentially documentary aim – and this is true for both written and spoken language, thanks to the integration of voice-to-text and speech recognition software.

Other tools serve more specific needs. One particular category of tools, for instance, is that of enhanced text editors, also known as "writing assistants". These tools can be either general-purpose, such as Grammarly, or targeted at more specific language issues, such as ColloCaid (Frankenberg *et al*. 2019), a tool originating in academic research and designed specifically to help writers with collocations. Academic research on language has given rise to a variety of other tools that have found their way into the toolkit of language professionals and language learners. Both corpora (such as the freely available suite at https://www.english-corpora.org) and corpus-analysis tools and platforms, such as AntConc (Anthony 2019) and Sketch Engine (Kilgarriff *et al.* 2014), can be used as reference sources, and some users complement them with established lexicographic resources.[1] In some cases, researchers have developed online platforms aimed at showcasing the possibilities offered by their research-oriented tools. An example is SkELL (https://skell.sketchengine.co.uk/), the by-product of Sketch Engine providing users with concordances and "word sketches" (i.e. pre-organized lists of collocates) for a given search word.

The other source of technologies that have entered the mainstream of language reference is the language service industry. A particularly popular software application that has been helping translators for almost forty years now is the "translation memory", essentially a database of translated segments (usually whole sentences) that can be accessed to reuse past translations either instantly within the project at hand or as leverage materials to be employed in updates of the source materials or future projects revolving

[1] Dictionaries are today themselves largely created on the basis of corpora.

around similar content. Popular online concordancers such as Linguee, Glosbe and Reverso Context all exploit this principle, harvesting the enormous amount of parallel texts available today, free of copyright, on the internet. In an online concordancer, when searching for the translation of a word or phrase, users are basically presented with dozens of source-language sentences containing the search item and aligned with their translations retrieved from the web. It is up to users themselves to decide which translations are appropriate for their own purposes. Some of these platforms (e.g. Linguee and Glosbe) explicitly present themselves as "dictionaries" even when the bulk of what they provide is (extremely useful) parallel concordances. Other platforms, such as Reverso, complement the parallel concordances with entries from existing dictionaries of which the platform's developers have acquired the copyright.

Two general trends can be observed in relation to the current panorama of language-oriented digital resources. The first is the progressive blurring of the demarcation lines between categories of resources. In the past, materials produced by lexicographers (and terminologists) used to be the only option for those in need of reference on matters of language usage or translation. Online digital tools and applications such as those briefly described above have vastly enlarged the pool of available language-oriented resources. Dictionary publishers have embraced digitization and revised their products, as will be illustrated in Section 2. Crucially, the resources that are not created by lexicographers often present themselves as dictionary-like resources. End users, however, are likely to pay no attention to the ways in which a language resource has been designed and developed. All they care about is having it, literally, at their fingertips all the time.

The second trend is the tendency of digital resources and tools of any type to be accessed through a restricted number of device types: essentially three – computers, tablets and smartphones. Dedicated devices, such as handheld electronic translators, are still commercialized but they are decidedly less popular than smartphones or tablets.

Faced with such a wealth of language data, platforms and tools, university students of modern languages and translation often seem to believe that whatever online resource provides them with either bi- or multilingual equivalents or monolingual explanations for words and phrases is a "dictionary". The creators of such resources, as we have seen, often exploit this misguided perception, presenting as "dictionaries" what are in fact resources of very different kinds and serving different purposes. Given the ubiquity and ease of access of these resources, presenting students with a critical overview of what is available online in terms of dictionaries, termbanks, multilingual concordancers and machine translation systems is

arguably a necessary, if somewhat neglected, element of modern languages and translation curricula.

The ability to effectively consult language resources is part of the broader set of information mining skills, which is in turn an integral part of the skill-set required of all graduates in the digital economy. For professional translators, information mining is widely acknowledged as one of the required core competences (Gough 2019, p. 355). However, as noted by Sycz-Opoń (2019, p. 168), although the need for education in the area of information mining is generally recognized, "there is still a big question mark as to how instrumental competence training should look like and what is the right place for it in the translation programme" – and, one may add, in modern languages programmes. In particular, the "skilful use of [search] options is often taken for granted, but this appears overly optimistic" (Lew, de Schryver 2014, p. 351). At a more general level, students of both translation and modern languages should be alerted to the relative strengths and weaknesses of the wide and diverse array of language reference resources they have available today. Ideally, students should be taught what to expect from digital lexicographic materials, how these can best be used and for what purposes, and how to complement the information obtained from them with research in other types of resources. In the face of rapidly evolving technology and the extreme diversification of lexical reference resources, "perhaps the best kind of education for dictionary users is one which encourages a critical stance and helps to dispel blind faith in the authority of all works entitled 'dictionary'" (Nesi 2015, p. 587).

Students' own preferences, however, should not be ignored. The resources they favour may not always be created on the basis of sound lexicographic (or terminographic) principles but are likely to possess features that users increasingly find important, desirable or even essential. Dictionary makers and publishers have not remained insensitive to such preferences, but the significant innovations they have introduced in their products have often passed unnoticed: "despite the remarkable developments that have taken place in the field of lexicography over the past decades, dictionary-user behaviour does not seem to have changed much" (Frankenberg-Garcia 2020).

In the remaining of this paper, after a necessarily brief overview or recent trends in the practice of dictionary making and in lexicographic research, I will present the results of an online survey which was intended to explore users' (mostly students') perceptions of online language-related resources and their preferences regarding types of resources, and available and desirable features. Results show that users rely heavily on digital resources, often lumping them together under the label of "dictionary", but are generally not fully aware of the innovative features that have been introduced in works of a lexicographic nature. I would like to point out that

my own perspective in developing the survey and commenting on its results is very much that of a user of language reference resources (or rather, an "informed" user with experience in dictionary making, translation and language teaching). The survey is very much of an exploratory nature and it was mainly intended to provide some backing to impressions and ideas I have myself formed on the relative strengths and weaknesses of the vast array of language-related resources today available online.

2. The perspective from lexicography: a brief overview of practice and research

Computers, and especially the availability of large text corpora in electronic format, have had a huge impact on lexicography. Initially, the impact was felt especially on how dictionaries were made. Access to ever larger collections of authentic texts and the possibility to query such collections in increasingly sophisticated ways have given lexicographers immense help on fundamental tasks such as word sense disambiguation and the identification of example phrases and sentences. These developments initially only affected dictionary users indirectly. Thanks to corpora, the quality of lexicographic data could be seen to improve and the treatment of language was able to widen its scope, as dictionaries were no longer concerned solely with words, but also with language systems and syntagmatic networks (Rundell 2009, quoted in Nesi 2015). In particular, in the British tradition of lexicography, the impetus for recognizing the importance of collocation in dictionary compilation came from the *OSTI Report*, which initially circulated in an unpublished version in the 1970s and was finally published in a revised edition in 2004 (Sinclair et al. 2004). Even after these developments in dictionary making, though, the experience of using a dictionary (which in the 1990s still largely meant a *printed* dictionary) remained largely the same as it had been for centuries.

A turning point for dictionary users has been the migration from print to digital. With digitization, the user experience of dictionaries has taken up an increasingly central role, with both researchers and dictionary makers taking notice. The move to digital has been gradual – slow at first but gaining impetus towards the end of the 2000s. Digitization has initially meant a wholesale transfer of content from print onto electronic media, such as CD-ROMs or portable devices, with little or no adjustments in terms of presentation or search options. Gradually, however, the move to digital formats has led to more far-reaching innovations and to the appearance of dictionaries with features expressly conceived for the new format. It is to be noted, however, that the several different dictionary models identified by Rundell (2015) still co-exist: print dictionaries; print-derived dictionaries that

are also available in digital format; print-derived dictionaries that have gone digital; and finally dictionaries that have originated in digital format. What is more, old and new features often go together in each of these categories. Some print dictionaries, for instance, have adopted innovative presentation formats (based, for instance, on the use of colour and different fonts), while resources only available online in digital format (such as Wordnik, at www.wordnik.com) partly rely on traditional dictionaries as information sources (e.g. for definitions), with little changes being made to adapt the information to the new digital interface.[2]

The innovative features made possible by digitization relate to all aspects of dictionary making and use. Digital content has immense advantages in terms of inclusion criteria. Entries are continually updatable, and there are no space limitations. Additional data can easily find room within or alongside entries. This data includes extra examples (often retrieved from corpora) but it can also extend to information on word frequency and usage trends, visuals, blog posts, and language games and quizzes. In terms of presentation, the lack of space restrictions and the dynamic character of digital media has freed dictionary makers from the need to adhere to many conventions typical of printed dictionaries. At the same time, this has had an impact on content, as new defining styles have been introduced that avoid the recursive and ultimately opaque defining patterns that many printed dictionaries used in order to save space (as in "realization: the act of realizing"). A pioneering role in this respect was played by the Collins COBUILD at the end of the 1980s.

The adoption of these new features is not devoid of problems. The possibility to add information within entries, for instance, gives rise to the risk of "data overload" (Gouws, Tarp 2016) for users, as the digital interface becomes too cluttered. "Presentation space" (Lew 2010), however, may be designed so that content is displayed dynamically or according to relevance criteria. Users seem generally capable of intuitively using the different display and navigational conventions that online dictionaries now share with other types of web content (e.g. tabs across the top of an entry, panels, or expandable tree branches).

As noted above, however, in spite of all of these changes and innovations brought about by digitization different dictionary models still co-exist. A reason for this might be that while technology is the main driver for change, some users still manifest a preference for models linked to more traditional lexicographic practices. Long-established dictionary policies (such as alphabetical order for organizing the macrostructure, and the use of

[2] Quite a few online dictionaries are really "aggregators" that combine licensed dictionary content from a variety of sources; examples include Dictionary.com and TheFreeDictionary.com.

abbreviations and grammar codes within entries) are the result of a century-long history. Digital dictionaries of whatever type are still relatively new.

For dictionary publishers, the print to digital migration has affected reference works from another major point of view, that of business models. Printed dictionaries used to be a reliable business model in the past, but digitization has completely revolutionized the sector. Uncertainty and diversification seem to be the keywords today. With sales of printed dictionaries in steady decline (and few users willing to buy digital editions), dictionary publishers have reverted to diversified revenue streams, including selling advertising space on the pages of dictionaries themselves and licensing their content to other websites. These include the "aggregators" mentioned above but also online newspapers or magazines providing users with access to a selection of mono- and bilingual dictionaries (as is the case with the dailies *Repubblica* and *Corriere della Sera* and the magazine *Internazionale* in Italy). According to Nesi (2015), the changing business environment favours technical rather than lexicographical innovation, with new developments mainly related to interface design and automatic data extraction. Innovation is rarely linked to language learners' information needs (Nesi 2015, p. 585). Another factor contributing to the changes in the business environment is the emergence of other types of lexical reference resources, such as text improvement tools and adaptive learning vocabulary tools. These tools may develop their own lexical data independently, or they may rely on data licensed from dictionary publishers.

Digitization has widened the scope of dictionary use (everyone has access, at least potentially, to several online dictionaries through their smartphones), and both dictionaries and language reference resources have become a "utility". After Hartmann (2001, pp. 80-95) stressed the importance of explicitly including "the user perspective" in dictionary research, users' needs have become a central concern of lexicographers: in particular, the specific problems of "specific groups of users with specific characteristics in specific user situations" (Bergenholtz, Tarp 2003, p. 172). Research into dictionary use is considered "the newest research area" (Müller-Spitzer 2014, p. 1) in lexicography and encompasses aspects such as dictionary interface design and usability, users' needs and profiles and user behaviour. A selective list of studies on more specific aspects includes investigations of online dictionary users' expectations and preferences (Koplenig, Müller-Spitzer 2014; Levy, Steel 2015), studies on the motivations for the use of dictionaries on mobile devices (Liu *et al.* 2018), and the development of a dedicated instrument for assessing users' skills in electronic dictionary searches (Mavrommatidou *et al.* 2019). In general, these studies have tried – from various angles and using different methods – to address "the lack of valid and reliable tools to objectively assess users' skills, characteristics, and

strategies employed when selecting and using digital dictionaries" (Mavrommatidou *et al.* 2019, p. 394).

As reminded by Müller-Spitzer (2014, p. 3), while it is necessary to investigate "how dictionaries are used, what aspects of them users value or criticize, and what improvements are needed", the use of existing dictionaries as objects of study into dictionary use might risk impeding innovation, based as it is on products that are already available. Usage research, therefore, could take as a starting point other resources than available dictionaries, and more specifically the innovative features in resources that are not, strictly speaking, dictionaries. As a matter of fact, when consulting the recent research on dictionaries, it is easy to notice how often observations and proposals for features considered "innovative" or "desirable" have already been superseded by developments in practice, both within the realm of dictionary publishing itself and (perhaps more interestingly) in resources created *outside* this realm. This is particularly true for the features based on interaction with users (e.g. forums and blogs), which were initially introduced in some dictionary aggregators[3] and later adopted by some of the established dictionary publishers.

3. Investigating users' preferences: an exploratory survey

In order to explore users' perceptions of language-related resources and their preferences regarding types of resources, and available and desirable features, I created an online survey containing a total of 22 questions: seven questions were aimed at gathering demographic data; the remaining fifteen were devoted to aspects of dictionary use. The survey was intentionally titled "A survey of dictionary use". I decided to use the word "dictionary" (rather than a superordinate term such as "language resource") because I wanted to see to what extent users would be naturally inclined to mention or include resources that are not, strictly speaking, dictionaries in their replies. Also, the title did not contain the specification "online (dictionaries)" as some questions related to printed dictionaries.

The survey was delivered via an online survey platform and remained active over the months of March and April 2020. At the end of this period, a total of 250 respondents had completed the survey, almost all of them from

[3] User forums were first introduced by WordReference.com in 2004 (Michael Kellogg, personal communication).

Italy.[4] Although the survey was not specifically aimed at university students, these ended up constituting the vast majority of respondents, largely because of the way the link to the survey was disseminated (i.e. mainly by asking university teaching staff to share the link with their contacts). More specifically, 94.8% of the 250 participants were students and almost all of them were enrolled in a degree programme revolving around modern languages or translation. BA programmes were represented much more than MA programmes (84.4% as against 15.6%). The predominance of students among respondents also affected the distribution of age groups within the sample: 88.4% of the participants were aged between 18 and 24. Of the remaining, "fully adult" participants, 19 were in the 25-34 age group, 2 in the 35-44 age group, 5 in the 45-55 age group, and 3 in the group of over 55s. Following the gender distribution typical of degree programmes dedicated to languages and translation, female participants (89.6%) vastly outnumbered male participants (10.4%). Only 13 participants declared they were "in employment or self-employed" (which means that some of the "fully adult" participants were students). Of these 13 participants, slightly more than half (n=7) indicated that dictionaries and language resources were necessary tools for their job. To obtain a rough measure of how frequently they used dictionaries, participants were asked to indicate how often they had consulted a dictionary in the preceding 30 days. Responses were distributed as follows: "every day, several times" – 28.4%; "once or twice a day" – 25.6%; "between 1 and 5 times a week" – 28.8%; between 1 and 5 times in all" – 12%; "never" – 5.2%. Overall, the sample can be taken to represent a group of heavy dictionary users, with a large proportion also qualifying as "informed" users; asked whether they had received specific training on dictionaries or other language resources, over half of participants (55.2%) said they had.

The brief for participants was to respond to the questions so as to reflect the ways they actually use dictionaries and other similar resources, and to only provide an opinion or an evaluative judgment when a question required them to do so. The survey questions were in English, but for open-ended questions respondents were given the option to provide replies in Italian.

The set of survey questions on dictionary use was meant to investigate various aspects, which can be summed up through the following macro-questions:

- What "dictionaries" do you use and what for?

[4] I initially expected much fewer responses. The fact that March and April 2020 coincided with the period of strict lockdown measures introduced in Italy and elsewhere to curb the spread of COVID-19 might have helped in securing such a high number of participants.

- What device do you use digital dictionaries on?
- What features do you consider to be the most important in dictionaries?

For reasons of space, the presentation and discussion of findings below will be organized around these three macro-questions. Where relevant, the findings will be cross-combined with participant groupings emerging from the demographic data. The survey questions also touched upon other aspects (such as whether participants had ever purchased a print or digital dictionary and whether they see dictionaries as the ultimate authority on language usage). Here, these will only be mentioned in passing, and when relevant to the macro-question under discussion.

3.1. What "dictionaries", and what for?

Participants were asked to indicate (with respect to English and Italian[5]) the printed and digital or online "dictionaries" (mono- or bilingual) they use more often. Answers to this question were intentionally left open-ended, so as not to influence respondents and obtain a list of resources that they instinctively see as belonging to the category of "dictionaries". Most participants just provided names of resources without further specification; a few felt the need to label the resources they indicated as "mono-" or "bilingual" (which helped in interpreting some less transparent names; see below). For each type (printed or digital/online) the vast majority of participants indicated no more than one or two resources. A small number indicated more (up to 10, in some cases); these were spread across all age groups and in both macro-categories of participants (i.e. students and people in employment).

To obtain a picture of the most popular resources according to the survey, mentions of individual resources were counted and tabulated (see Table 1). In a number of cases, the name provided by the participant for a resource was vague and open to interpretation. For example, whereas some participants indicated fully transparent names, e.g. "Oxford Advanced Learner's Dictionary" (abbreviated to OALD in Table 1) or "Zingarelli" (a popular Italian monolingual dictionary), others provided names that are much less transparent, e.g. "Oxford" or "Zanichelli". The former could refer, at the very least, to either the Oxford Advanced Learner's Dictionary or the Oxford English Dictionary. The latter, Zanichelli, is the name of the publisher; in this

[5] The question asking participants to name the specific dictionaries they use more often was restricted to these two languages essentially for two reasons: 1) English and Italian are my own working languages and, as such, those in relation to which I can interpret the results of the investigation with more confidence; 2) it was easier for me to recognize the actual resources indicated in the answers by means of abbreviated or incomplete names (see below for some examples).

context, absent further specifications by the respondent, the label might have referred to either a monolingual dictionary (otherwise popularly known as "lo Zingarelli", based on the name of its original author) or a bilingual dictionary (known as "il Ragazzini" – again, from the name of its author). In counting mentions, such doubtful cases were either interpreted on the basis of implicit or explicit clues (such as whether the name was accompanied by the label "mono-/bilingual") or left out of the count altogether. Numerically, such cases are not likely to significantly skew the results presented here. In the table, Reverso and ReversoContext are treated as one single item although they might be seen to refer to different resources. Participants used one or the other label, but Reverso is really a constellation of very similar web pages all revolving around the same integrated content. "Reverso" is closer to a traditional dictionary in terms of content and presentation; "ReversoContext" is in actual fact a concordancer. When navigating one, users are likely to end up in the other even without realizing it. Note, finally, that 20 participants indicated that they *never* use printed dictionaries (3 from the 25-34 age group and 17 from the 18-24 age group) and only one participant (interestingly, from the 18-24 age group) indicated that he never uses digital or online dictionaries.

Digital/online		**Print**	
No. of mentions	Resource (m: monolingual; b: bilingual)	No. of mentions	Resource (m: monolingual; b: bilingual)
132	WordReference.com (m/b)	130	OALD (m)
83	Cambridge Dictionary (m/b)	78	Ragazzini (m)
68	ReversoContext/Reverso (m/b)	33	Garzanti (b)
52	OALD (m)	21	Longman(m)
51	Collins (m/b)	15	Collins (m/b)
46	Macmillan (m)	15	Zingarelli (m)
39	Treccani (m)	14	Cambridge (m)
22	Merriam Webster (m)	11	Picchi (b)
18	Longman (m)	6	COBUILD (m)
6	Ragazzini (b)	4	Devoto-Oli (m)
8	Picchi (b)	4	Macmillan (m)
5	Garzanti (b)	4	Oxford-Paravia (b)
5	Google Translate (b)	4	Treccani (m)
5	Pons	3	Cambridge-Signorelli (m)
4	Sansoni (b)	2	BBI Combinatory Dictionary of English (m)

Table 1
Top 15 digital/online and printed "dictionaries" by number or mentions in the survey.

The numbers in Table 1 must be interpreted with care, given that, especially for the online resources, the labels indicated by survey participants refer to websites that in some cases provide access to more than one type of resource, e.g. a monolingual *and* a bilingual dictionary. This is the case for instance, of

Collins, Cambridge and WordReference.com. However, if Table 1 is used to obtain a rough indication of preferences, then the results are clear: in the case of digital resources, the set of most popular dictionaries includes resources that would not fall in the traditional definition of "dictionary" (e.g. Reverso and Reverso Context) or resources, such as WordReference.com, which integrate traditional dictionary content with other materials and resources – in the specific case of WordReference.com, entries on usage, verb conjugators and user forums.

The most important takeaway from Table 1 is that many users do not tend to make distinctions: to them, all of the digital resources presented in the table are "dictionaries" – and note that this also includes Google Translate, indicated by 5 participants. On the other hand, it is also worth noting that some responses indicate a discerning attitude on the part of users: one participant, for instance, indicates that she uses Macmillan, Cambridge and Oxford as monolingual dictionaries and WordReference and Collins as bilingual dictionaries. Given that the last two also have monolingual dictionaries in their websites, it is safe to assume that this particular user has very clear ideas about the features she prefers in each of the dictionaries she has indicated.

As for the reasons why dictionaries are used, participants were asked to choose one or more of a series of predefined options (plus a free-text option). How the options ranked according to participants' answers is shown in Table 2.[6]

To look up the meaning of a word	92.8%
For help when writing or translating	81.2%
To check spelling	44%
To check pronunciation	35%
Because I'm required to by my teachers at university	7.2%
Other [to be specified]	2.4%

Table 2
Responses to "What do you use dictionaries for?" (multiple responses were allowed).

[6] It might be of interest to note that the ranking in Table 2 partially reflects the ranking of "information categories" established by Barnhart (1962; quoted in Hartmann 2001, pp. 81-82) in his pioneering survey on dictionary users' preferences. In Barnhart's study, the ranking was as follows: 1. meaning; 2. spelling; 3. pronunciation; 4. synonyms; 5. usage notes; 6. etymology. In my results, "meaning", "spelling" and pronunciation" feature in the same order of importance, but greater significance is attached to "help when writing or translating", which may be thought to cover the same area as "usage notes", only ranking fifth in Barnhart's results. This may be due to the different samples of respondents in the two surveys. For Barnhart, responses came from US native English-speaking college students. In my survey, responses mostly came from Italian university students enrolled in modern languages or translation programmes, and, as such, presumably more interested in questions of usage than other types of dictionary users.

Looking up meanings or translation equivalents is (as could be expected) the main reason why a dictionary is used. The vast majority of participants also indicated that they use dictionaries "for help when writing or translating", a formulation that hinted at instances of language production but one that (in hindsight) should have been phrased more explicitly ("help when translating" might also be taken to mean "help in finding a translation equivalent", which covers the same ground as the first option). This is probably why the few participants who also used the free-text option felt the need to be more specific: one, for example, wrote that they use dictionaries "to use the right collocation", while two others mentioned the need to find synonyms. All of these specifications refer to cases of language production. Of particular note is the proportion (35%) of respondents saying that they use dictionaries to check pronunciation. Considering that pronunciation (especially in relation to the written form of words) is universally acknowledged as one of the hardest aspects of English for foreign learners, this proportion indicates that almost two thirds of dictionary users do *not* avail themselves of an arguably very useful feature that dictionaries have always contained, either in the form of phonetic transcriptions or, increasingly, through audio and video files. Finally, the very low percentage of participants admitting that they only use dictionaries because they are urged to do so by instructors could be seen as an implicit positive evaluation on the usefulness of dictionaries, as it indicates that well over the majority of participants turn to dictionaries without having to be nudged into using them. In relation to this, it is worth mentioning that another question in the survey asked participants whether they saw dictionaries as the ultimate authority on questions of language usage. Of the 13 participants "in employment", the majority (n=9) answered "yes", while 3 said they also checked Google for usage (1 participant answered "no"). Of the other 237 participants (all of them students), slightly less than half (43.2%) saw dictionaries as the ultimate authority on usage, while a slightly higher percentage (46%) declared they also checked Google. Around 10% did not consider dictionaries to be an authority. Bearing in mind that there is a significant unbalance in terms of the age groups represented in the sample, this finding might suggest a generational bias in the status of dictionaries (in whatever format they are consulted) in the eyes of users.

3.2. What devices?

Participants were asked what devices they consult digital dictionaries on more often. They were given three options (i.e., computer, tablet, and smartphone) and required to choose no more than two options when answering. A breakdown of answers is given in Table 3 (note that two participants did not respond).

Computer and smartphone	138
Computer	57
Smartphone	37
Tablet and smartphone	8
Computer and tablet	5
Tablet	3

Table 3
Responses to "If you use digital dictionaries,
what devices do you consult them on more often?" (n=248).

Computers and smartphones are clearly the most popular devices for consulting digital dictionaries, alone or in combination. A small minority of participants use tablets, which could also be explained in terms of the sample composition: students, who make up the vast majority of respondents, are likely to use a computer for study-related activities; at the same time, they are more likely to own a smartphone than a tablet, and use the smartphone for both study-related and other online activities. Had the sample contained a higher number of "fully adult" participants (i.e. those aged over 25), tablets might possibly have turned out to be a more popular device, as emerges in the investigation of monolingual dictionary use by Kosem *et al.* (2019, p. 101), who found (based on a broader and more diverse sample than the one under investigation here) that older users were more likely to use tablets. To examine this hypothesis, a closer look can be given at the available responses from fully adult participants (29 in all): some (n=6) only use smartphones; most (n=22) use a computer alone or a computer and a smartphone; very few (n=3) use tablets (alone or in combination with another type of device). Tablets, in short, are confirmed in this survey to be the least popular device for accessing dictionaries even for the (admittedly small) sub-section of older participants in the sample.

As far as modern-day personal devices are concerned, computers and smartphones are at the two extremes of the "portability" spectrum. The category of computers is likely to contain devices ranging from desktop computers (not portable by definition) to thin, ultra-light notebooks that can be carried anywhere. In spite of the differences, these are all devices that people tend to use while sitting at a desk or table – be it in an office, a university library or a café. Smartphones, on the other hand, are used anywhere. The fact that the two devices are the most popular among users of digital dictionaries may be seen to respond to at least two different sets of needs: one related to work or study, the other to leisure or everyday activities (e.g. reading, watching films and TV fiction, shopping, and so on). Responses to the survey do not allow to draw any conclusion on the actual contexts in which dictionaries are used, but the predominance of smartphones as devices

through which dictionaries are accessed (they are used by a total of 183 out of the 250 participants in the survey) points to the consolidation of dictionaries as a "utility tool" (Müller-Spitzer 2014, p. 1) serving a variety of purposes in a variety of situations.

3.3. What features?

The survey contained two questions aimed at investigating this aspect: one with a pre-determined list of features that respondents were asked to indicate as the most important or useful for them, and another, open-ended question giving users the chance to freely muse on their ideal "dictionary" (the exact question was: "Try to imagine the 'ideal' dictionary – what features would it include?"). With hindsight, there was a risk that the list in the first question could somehow constrain or influence participants in providing the free answer in the second – which seems to have happened for some respondents who picked features from the first question to describe their ideal dictionary in the second.

The dictionary features indicated by participants as most important or useful are shown in Table 4. Responses to this question indicate clear general preferences. The four most popular features were all chosen by well over half the participants. "Access to grammar notes and exercises" comes a distant fifth, and was chosen by fewer than 20% of participants, followed closely by "access to a corpus" and "the inclusion of extra information". By far, the least popular feature was "the possibility to interact with other users" – a surprising result, considering the popularity of a dictionary such as WordReference.com (confirmed here; see Table 1), which includes user forums as one of its characteristic features. In general, the choices of most users indicate a great interest on features that support language production, which may be an effect of the sample composition (i.e. mostly students in language and translation programmes).

The clarity of definitions (for monolingual dictionaries)	86.4%
Information on language production (e.g. phraseology and collocation, usage notes)	72%
The quantity of examples	66.4%
The number of translation equivalents (for bilingual dictionaries)	64%
Access to grammar notes and exercises	18.4%
Access to a corpus	15.2%
The inclusion of extra information such as images and audio files for pronunciation	14%
The possibility to interact with other users	2.4%
Other [to be specified]	0.4%

Table 4
Responses to "Which of these dictionary features are most important or useful for you?" (multiple responses were allowed).

A term of comparison for the results shown in Table 4 can be sought in the findings presented by Müller-Spitzer and Koplenig (2014), whose investigation had, however, a more restricted focus (i.e. online dictionary usability). The authors found that reliability and clarity were rated highest, and adaptability and multimedia content were rated as unimportant. A very similar result can be observed in Table 5, where "clarity of definitions" ranks first and "the inclusion of extra information" (e.g. multimedia features) ranks second to last. Note, finally, that the low popularity for "access to a corpus" may be due to either participants' lack of familiarity with corpora as language reference tools or to the fact that quite a few dictionaries today already incorporate a significant amount of example phrases and collocations within individual entries. Users, in other words, may consider access to corpora unnecessary or less interesting, as they are happy with what dictionaries already provide in terms of phraseology. It is of course also conceivable that many users resort to Google searches for obtaining further information on the actual usage of a word they looked up in a dictionary in the first place.

As regards the "ideal" dictionary, free-text responses were given by 110 participants out of 250 (some answered in English, others in Italian). As noted above, some respondents clearly took the features listed in the previous question as clues. However, many of their answers built on that list of features, thus adding a fuller picture of what this particular set of users would like to see in an "ideal" dictionary. In general, replies can be seen to revolve around some recurrent themes and suggestions, summed up in Table 5 as a result of very rough coding and with the addition of further comments based on what individual participants wrote in their answers. The themes included in the table are those that were indicated by at least 5 participants; they are listed in no particular order.

Need for clear definitions	Clarity of definition was a very popular suggestion; some respondents also added that definitions should aim for "precision".
Integration with other resources	Most participants making this suggestion specifically mentioned access to a corpus as a desirable feature. A few indicated the need for pictures and videos.
Attention to phraseology	Very common suggestion; some participants mentioned more specific aspects, e.g. "phrasal verbs".
Quantity of examples	For many: the more examples, the better.
Ease of consultation and clear layout	One or two participants suggested colour-coding within entries.
Information on pronunciation	Considered essential by many. Some participants mentioned the need for phonetic transcription, while others said information on pronunciation in varieties of English was also useful.
Translations	Translations should be made accessible from monolingual entries.
Inclusion of grammar information	A few respondents asked for the inclusion of

	derivative forms. A respondent asked for the inclusion of the "basics of grammar", adding that grammar is "like the constitution in a [legal] code".
Usage notes	Many respondents would like to be given information on "current usage". Some would like to be given information on "frequency of use".

Table 5
Recurrent themes and suggestions emerging
from participants' replies on the "ideal" dictionary.

Other, less frequent suggestions for features to be included in an ideal dictionary included the indication of synonyms and antonyms and the provision of information on word etymology.

The ranking of "important or useful features" presented in Table 4 and the list of "ideal" features in Table 5 may be seen to overlap only to a limited extent. The need for clarity and precision in dictionary definitions features in both lists and may perhaps be related to a view of dictionaries as resources that should be able to provide definitive answers on questions of meaning and usage. Alternatively, it may suggest a dissatisfaction of users with (some) existing dictionaries. Attention to phraseology and usage and to the quantity of examples also feature in both lists, and may be related to the participants' particular interest in language production already noted above. Other elements presented as recurrent themes in Table 5, e.g. the inclusion of grammar information and the integration with other resources, rank low in Table 4. The fact that only a minority of participants chose to describe their ideal dictionary may explain such discrepancies. In other words, features that a few participants were keen to present as desirable would not really encounter the favour of the whole sample of respondents.

In general, what I find interesting in the overview of important or ideal features as emerging from participants' responses is that practically all of these features are today *already* included in the majority of printed and online dictionaries. In particular, of the resources that participants themselves named as their preferred dictionaries (see Table 1), quite a few include most, or even all, of the features listed in Table 4, and some also include a few of the "ideal" features listed in Table 5. Both the Cambridge and Collins dictionaries, for instance, provide easy access to translation equivalents from within monolingual entries, while the Collins dictionary has links to audio files with the pronunciation of words in different varieties of English. Abundant exemplification is a particular strength of many dictionaries (e.g. OALD, Macmillan, Cambridge and Longman, all of them available for free). There seems to be a mismatch, in other words, between what dictionaries offer and what users perceive they can get from them. This would not seem to be the case for the one participant who, when responding to the question on

the ideal dictionary wrote that, for her, existing dictionaries "work well enough" as they are.

4. Conclusion

In lexicographic research, the focus on users' needs has come to the fore in an era in which a large, and extremely diverse, variety of language (and terminological) resources has been made available – largely for free – to users in online environments. In other words, while lexicographers were realizing the benefits of identifying specific users' needs, users were overwhelmed with a vast choice of resources which (although almost invariably presented as "dictionaries") in fact covered a wide spectrum of resource types and quality levels.

The results of the exploratory survey presented here indicate that, even to a group of "informed" heavy dictionary users, many of the more or less subtle distinctions between existing resources go unnoticed, and resources of different kinds are lumped together under the label of "dictionary". This implies, in itself, no value judgment on any particular resource. If anything, the survey presented here has shown that the digital resources that turned out to be more popular for this particular sample of users include a variety of resource types: titles published by long-established dictionary makers (Cambridge, Collins, OALD, Macmillan), resources offering a highly-integrated constellation of types of content (i.e. Reverso and its satellites) and, as the most popular of all, WordReference.com, a dictionary aggregator that licenses lexicographic content from publishers and integrates it with forums for user interaction. If popularity is taken as a measure of quality, then all of these appear to be resources judged favourably by users.

The other main aspect of interest to emerge from the investigation was the distance between the users' perception of what dictionaries offer and the actual features that dictionaries contain – with users' perception largely taking no notice of the abundance of information that most of today's digital (and printed) resources have to offer. Significant developments have taken place over the past decades as regards both the content and format of dictionaries, but user behaviour has not followed suit, perhaps on account of a lack of specific training. As investigations such as the one presented here suggest, though, there is a fine line between providing what users require and overwhelming them with too much information, much of which may go unnoticed simply because it does not fit a smartphone display (see also Gouws, Tarp 2016). As online dictionaries are increasingly perceived as utility tools to be used in a wide variety of situations, the challenge for resource creators is to strike the right balance between reliability,

accessibility, the ability to meet users' information needs, and ease of use – a tall order indeed, but also an opportunity to be seized to remain relevant and competitive in the age of continuous connection.

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