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Research Timeline

Dictionary use by English language learners

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Research into dictionary use does not have a long history. Although publishers recognised in the 1960s that 'dictionaries should be designed with a special set of users in mind' (Householder 1967: 279) there were extremely few empirical user studies before the 1980s – Welker's most recent survey (2010) lists only six. The subsequent surge of interest in this field was fuelled by big changes to dictionary content and design in the 1980s and 1990s, changes that were particularly evident in dictionaries for learners of English as a foreign language, conventionally known as 'learners' dictionaries'. In the space of a few years the *Oxford advanced learner's dictionary*, generally considered to be the earliest advanced learners' dictionary (first published under a different title in 1942, with subsequent editions in 1948, 1963, 1974 and 1989) was joined by two new competitors: the *Longman dictionary of contemporary English* (first edition 1978, second edition 1987) and the *COBUILD English dictionary* (1987). In 1995 all three of these advanced learners' dictionaries brought out new editions, and a fourth, the *Cambridge international dictionary of English*, was launched. These dictionaries, sometimes referred to as 'the big four' (Bogaards 1996, De Schryver 2012 and others), drew on Eastern European traditions of lexical description, the illustrative practices of American children's dictionaries, and insights from English language teaching pedagogies. Each had its own distinctive layout and defining style, prompting a spate of comparative studies intended to help users make appropriate purchasing choices, and to help publishers improve their design still further, for example by changes to the entry microstructure. A fifth such dictionary, the *Macmillan English dictionary for advanced learners,* appeared in 2002.

Although it is commonly believed that monolingual dictionaries are superior to bilingual dictionaries in terms of their usefulness as language learning tools, attitude and ownership surveys have found that learners generally prefer to use bilingual dictionaries, and some key studies have pointed to the advantages of bilingualised dictionaries which combine translations with monolingual entries. A further comparative dimension was added in the mid-1990s, when the growing popularity of electronic dictionaries led to studies of print versus on-screen dictionary use.

Although comparative studies continue, recent dictionary user research has tended to be less concerned with the dictionary as a product, and more with the processes of dictionary consultation. This is partly a reflection of developments in pedagogic theory, and partly a result of the blurring of distinctions between dictionary categories in an age when diverse types of lexicographical information are often packaged together. The sales of learners' dictionaries have fallen dramatically with the rise of free internet-based dictionaries, and now a variety of

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providers such as software developers and not-for-profit collaborative groups compete for the attention of dictionary users alongside the traditional publishing houses. In this environment it is becoming difficult for educators to control their students' dictionary choices, and it is no longer very meaningful to conduct surveys of dictionary 'ownership'.

The history of research into dictionary use tends to be characterised by small-scale studies undertaken in a variety of different contexts, rather than larger-scale, longer-term funded projects. The research conducted by dictionary publishers is not generally made public, because of its commercial sensitivity, yet because dictionary production is largely a commercial venture, academic research in this area has rarely attracted public funding. Findings from multiple small studies are often difficult to compare because of variations in the types of user, dictionary material and experimental method. Research into dictionary use has gradually become more subtle and more complex, however. Researchers have tried to control for lexicographical variables by using specially created 'mini-dictionaries', rather than original dictionaries produced by different publishers, and new computer-based research tools and the synthesis of findings from different types of data set are helping to resolve the apparent contradictions noted in earlier studies.

Following Hulstijn & Atkins (1998: 10) this timeline concerns research which aims at 'bringing the dictionary to the user (how can the dictionary best serve its users' needs?)' and 'bringing the user to the dictionary (how can people be made better dictionary users?)'. Only empirical research and overviews of empirical research are included. When constructing the timeline I found it useful to refer to Herbert Andreas Welker's surveys of empirical studies of dictionary use, the overview studies of research into dictionary use by Paul Bogaards and Hulstijn & Atkins, and the *EURALEX bibliography of lexicography* (dictionary use).

My selection represents five recurring themes:

A English language learners' preferences and attitudes regarding dictionary use

B The influence of dictionaries on English language learners' text comprehension

C The influence of dictionaries on English language learners' text production

D The role of dictionaries as an aid to English language learning

E English language learners' dictionary consultation behaviour.

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Welker, H. A. (2006). *O uso de dicionários: Panorama geral das pesquisas empíricas*. Brasília: Thesaurus.
Welker, H. A. (2010). *Dictionary use: A general survey of empirical studies*. Brasília: Author's edition.

Hilary Nesi is Professor in English Language at Coventry University, UK. Her research is mainly concerned with English for Academic Purposes and the vocabulary reference needs of international students. She was principal investigator for the projects that developed the *British Academic Spoken English* (BASE) corpus and the *British Academic Written English* (BAWE) corpus, and her book *Genres across the disciplines: Student writing in higher education*, co-authored with Sheena Gardner, was published by Cambridge University Press in 2012. Hilary has published numerous studies of dictionary design and use, including *The use and abuse of learners' dictionaries* (Max Niemeyer, 2000), a chapter on the history of electronic dictionaries in *The Oxford history of English lexicography* (ed. A. P. Cowie, 2008) and recent contributions to *Electronic Lexicography* (eds. S. Granger & M. Paquot, Oxford University Press 2012) and *The Oxford handbook of lexicography* (ed. P. Durkin, 2013).

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YEAR	REFERENCES	ANNOTATIONS	THEME
1979	Tomaszczyk, J. (1979). Dictionaries: Users and uses. *Glottodidactica* 12, 103–119.	This was the first survey of the dictionary requirements of English language learners. The 449 respondents, some of whom were EFL students, reported interest in word meanings, spellings and grammatical information, and greater use of bilingual than monolingual dictionaries, even though they thought bilingual dictionaries were inferior in terms of content and reliability. Dictionary use was found to decline as language proficiency increased, but even advanced learners continued to use bilingual dictionaries sometimes. **Tomaszczyk** suggests that his respondents may have been influenced by pedagogic approaches current at the time, which condemned the use of the L1 in the L2 classroom.	**A**
1980	Baxter, J. (1980). The dictionary and vocabulary behavior: A single word or a handful? *TESOL Quarterly* 14.3, 325–336.	This survey of university students in Japan found that they used bilingual dictionaries much more than monolingual dictionaries; many complained that monolingual dictionaries were too difficult to understand. Despite these findings, **Baxter** argued that monolingual learners' dictionaries were better for developing oral fluency, echoing and contributing to the general belief that monolingual dictionaries are more effective language learning tools. This paper is highly speculative but is widely cited.	**A, D**
1981	Béjoint, H. (1981). The foreign student's use of monolingual English dictionaries: A study of language needs and reference skills. *Applied Linguistics* 2.3, 207–222.	**Béjoint** built on the work of BAXTER[1](1980) and TOMASZCZYK (1979) but concentrated on monolingual dictionary use. He surveyed French students of English, 96% of whom possessed monolingual dictionaries (generally bought on their tutors' recommendation). In contrast to the findings of TOMASZCZYK and BAXTER, only 17% of the students claimed to prefer bilingual dictionaries. Respondents said they used dictionaries more frequently for decoding than encoding, and more frequently in the written medium than in the spoken medium. This pattern of use was also noted by TOMASZCZYK (1979) and in a subsequent study by BATTENBURG (1991), despite the increase in emphasis on encoding information in learners' dictionaries. Béjoint also investigated look-up preferences for multi-word expressions, finding that users generally preferred to search for the nouns or verbs rather than the adverbs or prepositions. This line of enquiry was continued by TONO (1987), ATKINS & VARANTOLA (1998) and LEW (2012), amongst others.	**A**

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YEAR	REFERENCES	ANNOTATIONS	THEME
1981	Jain, M. (1981). On meaning in the foreign learner's dictionary. *Applied Linguistics* 2.3, 274–286.	**Jain** asked a group of students to consult three advanced learners' dictionaries to discover differences between words that English language learners commonly confused. It was found that many of the dictionary entries did not provide enough information about meaning and selection restrictions to help learners use the words correctly. The study prompted improvements in learner dictionary design.	**B, C**
1982	Ard, J. (1982). The use of bilingual dictionaries by EFL students while writing. *ITL Review of Applied Linguistics* 58, 1–27.	This study examined the in-class compositions, oral protocols and retrospections of ESL students using bilingual dictionaries in a university writing class. The Spanish-speaking students in the class were found to be generally more successful dictionary users than the Japanese students because of the similarities between Spanish and English, but they were sometimes tempted to reject the most appropriate translation equivalents in favour of those which looked similar to Spanish words. **Ard** thus goes one step further than JAIN (1981) by suggesting that dictionary use can sometimes cause rather than prevent lexical errors. This was the first study in the field to use oral protocols (think-aloud). This is now a common way of recording the process of dictionary consultation.	**E, C**
1983	MacFarquhar, P. & J. Richards (1983). On dictionaries and definitions. *RELC Journal* 14. 1, 111–124.	For this study learners evaluated the definitions in a traditional (native-speaker) dictionary (*Webster's new world dictionary*) and in two learners' dictionaries, one which used a restricted defining vocabulary (the *Longman dictionary of contemporary English*) and one which did not (the *Oxford advanced learner's dictionary*). Definitions using a restricted defining vocabulary were generally preferred, especially by less proficient learners. Amongst others, CUMMING, CROPP & SUSSEX (1994) and LAUFER & LEVITZKY-AVIAD (2006) have copied **MacFarquhar & Richards**' method of eliciting user evaluations.	**A, B, D**

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1984	Bensoussan, M., D. Sim & R. Weiss (1984). The effect of dictionary usage on EFL test performance compared with student and teacher attitudes and expectations. *Reading in a Foreign Language* 2.2, 262–276.	This is the earliest investigation into the effect of dictionary use on language test performance, designed to inform university examination regulations. Four studies are described, conducted with large numbers of test-takers using monolingual or bilingual dictionaries, or no dictionary at all. Little correspondence was found between dictionary use and test scores, or the time taken to finish the test, although students who did not use a dictionary tended to finish fastest. However, the 427 respondents to a post-experiment questionnaire revealed a clear preference for bilingual dictionary use. It was surprising that dictionaries, designed to help EFL readers, did not help improve EFL reading test scores, so these findings prompted further investigations by TONO (1989) and NESI & MEARA (1991).	**B, D**
1984	Hatherall, G. (1984). Studying dictionary use: Some findings and proposals. In R. K. K. Hartmann (ed.), *LEXetcr83 proceedings*. Tübingen: Max Niemeyer, 183–189.	This study is best known for its critique of research methods. **Hatherall** argued that questionnaire responses are not very reliable because respondents are inclined to report what they think they do or what they think they ought to do, rather than what they actually do. He considered direct observation a more reliable method, but too time-consuming to permit the study of a representative sample, and too intrusive to record completely normal dictionary-using behaviour. Hatherall's own approach to data-gathering was to request participants to give details of every occasion when they looked up a word during a translation task. He admitted, however, that the double task of translating and simultaneously recording dictionary use was an unnatural one. His criticisms of questionnaire-based research have been particularly influential.	**E**

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YEAR	REFERENCES	ANNOTATIONS	THEME
1984	Tono, Y. (1984). *On the dictionary user's reference skills*. Unpublished B.Ed. Dissertation, Tokyo Gakugei University, Tokyo.	This study examined the effect of entry styles used in bilingual English–Japanese dictionaries. **Tono** gave mini-dictionaries containing made-up entries and a variety of different types of information to 402 students undertaking a translation task. The students tended to choose the translation equivalent in the first subentry, ignoring the information provided lower down, a behaviour pattern that has also been noted by BOGAARDS (1998) and NESI & HAILL (2002). Tono recommended that longer dictionary entries should include entry-initial 'menus' summarising the various meanings of polysemous words. TONO (1992), BOGAARDS (1998), LEW & PAJKOWSKA (2007), LEW (2010), TONO (2011) and NESI & TAN (2011) went on to investigate the effect of menus and other types of signposting in dictionary entries.	**E**
1986	Black, A. (1986). *The effects on comprehension and memory of providing different types of defining information for new vocabulary: A report on two experiments conducted for Longman ELT Dictionaries and Reference Division*. Cambridge: MRC Applied Psychology Unit (unpublished internal report).	Learners' dictionaries tend to provide more examples than other types of dictionary, and this report investigated the usefulness of this approach by comparing how well users understood and retained words explained by means of a definition, a combination of definition and example, or just a series of examples. Test results indicated that any one of the three methods of presenting word information was as effective as any other. This was a most unexpected finding, to be re-examined by CUMMING, CROPP & SUSSEX (1994) and NESI (1996). **Black** also discussed the relationship between processing effort and retention, an issue that TAYLOR & CHAN (1994) and DZIEMIANKO (2010, 2011, 2012) consider with reference to the ease of electronic dictionary consultation.	**B, D**
1987	Tono, Y. (1987). *Which word do you look up first? A study of dictionary reference skills*. Unpublished M.Ed. dissertation. Tokyo Gakugei University, Tokyo.	This study examined the way 129 Japanese learners chose to look up English idioms, given that dictionaries are organised in terms of single words in alphabetical order, and it is not obvious how multiword expressions will be placed within this sequence. Like BÉJOINT (1981), **Tono** found that the learners preferred to look up lexical rather than grammatical words. He also found that they tended to select as search terms more unfamiliar words, and ones which did not have a wide collocational range.	**E**

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1989	Diab, T. (1989). The role of dictionaries in English for Specific Purposes: A case study of student nurses at the University of Jordan. In G. James (ed.), *Lexicographers and their works.* (Exeter Linguistic Studies Volume 14). University of Exeter, 74–82.	This paper, a summary of **Diab**'s doctoral thesis, was the first to be published on ESP dictionary use. Diab analysed the behaviour and attitudes of staff and students as evidenced in course documentation, learner diaries and responses to questionnaires and interviews, and called for dictionary skills training to be integrated into ESP courses, and for dictionaries to be created to meet the needs of specific ESP groups.	**A**
1989	Tono, Y. (1989). Can a dictionary help one read better? In G. James (ed.), *Lexicographers and their works.* (Exeter Linguistic Studies Volume 14). University of Exeter, 192–200.	This study found that junior high school students performed significantly better on a specially constructed reading comprehension test if they had access to bilingual English–Japanese dictionaries. The study was only small-scale (32 participants) but it attracted interest because the findings did not accord with those of BENSOUSSAN, SIM & WEISS (1984). **Tono** accounted for the difference in results by the fact that his subjects had received special training in dictionary use, but the correlation between dictionary skills scores and reading scores was not particularly good, and it is more likely that the difference in results was due to other variables such as test design.	**B**
1991	Battenburg, J. D. (1991). *English monolingual learners' dictionaries: A user-oriented study.* (Lexicographica Series Maior 39). Tübingen: Max Niemeyer.	**Battenburg** followed the survey method used by BÉJOINT (1981), but omitted some questions that had yielded unsatisfactory results and added a new dimension by examining dictionary use across three proficiency levels. His respondents, 60 English language learners studying at Ohio University, were most likely to own bilingual dictionaries, but at advanced levels there was less bilingual and monolingual learners' dictionary use and more native-speaker dictionary use. The study did not provide much evidence of gradual change in dictionary-using habits over time, but it suggested the learner progression that educators might expect, from bilingual dictionaries to monolingual learners' dictionaries to native speaker dictionaries.	**A**

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YEAR	REFERENCES	ANNOTATIONS	THEME
1991	Nesi, H. & P. Meara (1991). How using dictionaries affects performance in multiple choice EFL tests. *Reading in a Foreign Language* 8.1, 631–643.	**Nesi & Meara** adopted the methods used by BENSOUSSAN, SIM & WEISS (1984), but conducted their study on a smaller scale, paying greater attention to the variables that might have brought about the original unexpected results. Two studies are reported; in both, about half the reading test candidates had access to a dictionary and half did not. Dictionary users were found to take longer to complete the test, but as in the studies by BENSOUSSAN, SIM & WEISS (1984) there was no significant difference between the scores of those who used dictionaries and those who did not. A possible explanation for these findings may lie in the fact that the dictionary users did not always look up the words that were most relevant to the test questions, and the fact that their dictionaries did not always contain the information the test questions required. Nesi & Meara also pointed out, however, that reading tests are designed to test reading skills rather than vocabulary knowledge, so answers to test questions are usually recoverable from the wider context.	**B**
1992	Tono, Y. (1992). The effect of menus on EFL learners' look-up processes. *Lexikos* 2, 230–253.	Building on TONO (1984), this was the first study to examine how modifications to entry structure might help dictionary users. 'Menus' are words or phrases at the beginning of an entry for a polysemous word, summarising its various meanings. The participants were 182 high school students and 57 university students. The high school students were less proficient and seemed to benefit from entry-initial menus, but the university students did not. **Tono** went on to explore the effects of different types of entry structure in a number of further influential studies (see also BOGAARDS 1998, LEW & PAJKOWSKA 2007, LEW 2010 and NESI & TAN 2011).	**E**

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YEAR	REFERENCES	ANNOTATIONS	THEME
1993	Luppescu, S. & R. Day (1993). Reading, dictionaries and vocabulary learning. *Language Learning* 43.2, 263–287.	In this study 293 Japanese university students read a story containing unknown or difficult words. Half were allowed to use their dictionaries, the other half not. The dictionary-users took almost twice as long to read the passage, but gained significantly higher scores in a subsequent vocabulary test. **Luppescu & Day** did not monitor the extent to which the students consulted their dictionaries, and the test appears to have been administered immediately after the reading of the passage, so the findings do not provide a very clear picture of the effect of dictionary use on vocabulary retention. Nevertheless, the study has been influential and is often cited.	**B, D**
1994	Cumming, G., S. Cropp & R. Sussex (1994). On-line lexical resources for language learners: Assessment of some approaches to word definition. *System* 22.3, 369–377.	This study compared learners' preferences and success rates when referring to sentence definitions from *COBUILD* and phrasal definitions from the *Longman dictionary of contemporary English*, with and without their accompanying usage examples. Measures of perceived helpfulness, production accuracy and comprehension did not differ significantly across the four conditions, but there was significantly greater reported preference for sentence definitions with examples. The failure of usage examples to improve scores accorded with the findings of BLACK (1986), and the study indicated that user preferences did not necessarily affect performance.	**A, B, C**

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YEAR	REFERENCES	ANNOTATIONS	THEME
1994	Laufer, B. & L. Melamed (1994) Monolingual, bilingual and 'bilingualized' dictionaries: Which are more effective, for what and for whom? In W. Martin, W. Meijs, M. Moerland, E. Ten Pas, P. van Sterkenburg & P. Vossen (eds.), *EURALEX '94 proceedings*. Amsterdam: Vrije Universiteit, 565–576.	This was the first in a series of studies by **Laufer** and her associates comparing the effect of different dictionary types (see also LAUFER & LEVITZKY-AVIAD 2006). The 123 participants were tested for their comprehension and production of words after consulting entries from the *Longman dictionary of contemporary English, The Megiddo modern dictionary* (bilingual) and the *Oxford student dictionary for Hebrew speakers* (bilingualised). Comprehension scores for users of the bilingualised dictionary were significantly better than those for other users. Production scores for users of bilingualised and bilingual dictionaries were significantly better than those for monolingual dictionary users. Unskilled users benefitted most from the bilingualised dictionary, whereas the scores of skilled users were not significantly affected by dictionary type. Overall the monolingual dictionary was the least effective, challenging the view that it is the best choice for language learners. This study is often quoted as evidence of the superiority of the bilingualised format over the bilingual format. However, the three dictionaries used were not matched in any way, and the bilingual dictionary in particular was both older and smaller than the bilingualised title.	**B, C**
1994	Nesi, H. & P. Meara (1994). Patterns of misrepresentation in the productive use of EFL dictionary definitions. *System* 22.1, 1–15.	Building on the insights of JAIN (1981), this study collected sentences produced by 52 learners after they had consulted entries in advanced learners' dictionaries (*Longman dictionary of contemporary English*, *Oxford advanced learner's dictionary* and *COBUILD*). The variation in their defining styles produced no observable effect on the outcome, but there was evidence in all three groups of inability to understand word meaning and apply the grammatical and collocational information the dictionaries provided. Many errors were ascribed to the 'kidrule strategy', originally noted in studies of children's L1 dictionary use, where users select from the entry just one or two familiar words, and treat these as a substitute for the search term.	**C, E**

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YEAR	REFERENCES	ANNOTATIONS	THEME
1994	Taylor, A. & A. Chan (1994). Pocket electronic dictionaries and their use. In W. Martin, W. Meijs, M. Moerland, E. Ten Pas, P. van Sterkenburg & P. Vossen (eds.), *Proceedings of the 6th Euralex International Congress*. Amsterdam: Euralex, 598–605.	This questionnaire survey seems to be the earliest study of attitudes towards electronic dictionary use. At the time pocket electronic dictionaries (PEDs) were a relatively new phenomenon and cost between 100 and 400 US dollars in Hong Kong, where the survey was conducted. Responses were received from 494 students, 18% of whom used a PED. They reported that print dictionaries were more detailed and accurate, but that PEDs were quicker and more convenient to use. Twelve teachers were interviewed and all said they would prefer students to use print dictionaries.	**A**
1996	Nesi, H. (1996). The role of illustrative examples in productive dictionary use. *Dictionaries: The Journal of the Dictionary Society of North America* 17, 198–206.	This study examined learners' productive knowledge of word behaviour gained from *Longman dictionary of contemporary English* examples with and without examples. As with BLACK (1986) and CUMMING, CROPP & SUSSEX (1994), **Nesi** found no significant difference between scores for the two conditions; she raised doubts about the quality of the examples and the ability of learners to process example information.	**C**
1997	Harvey, K. & D. Yuill (1997). A study of the use of a monolingual pedagogical dictionary by learners of English engaged in writing. *Applied Linguistics* 18.3, 253–278.	Like HATHERALL (1984), **Harvey & Yuill** collected their data via written protocols. These provided very rich data, but interfered somewhat with the normal processes of dictionary use. The 211 participants filled in tables and flow charts each time they consulted *COBUILD* during a writing task. They reported a high level of overall satisfaction, justifying *COBUILD*'s claims to be 'user-friendly', but they had some problems with entry length, and did not find the *COBUILD* 'extra column' particularly helpful. Most searches were not for grammatical or collocational information, and users seemed reluctant to refer to syntactic codes.	**A, C, E**

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YEAR	REFERENCES	ANNOTATIONS	THEME
1998	Atkins, B. T. & K. Varantola (1998). Language learners using dictionaries: The final report on the EURLEX/AILA research project on dictionary use. In B. T. Atkins (ed.), *Using dictionaries: Studies of dictionary use by language learners and translators.* Tübingen: Max Niemeyer, 21–81.	This project was sponsored by EURALEX and the AILA commission on Lexicography and Lexicology and was on an unusually large scale. User profile forms for 1,140 French-, German-, Italian- and Spanish-speaking learners were returned, and 723 complete datasets, including placement and research test results, were examined. Very few respondents reported having received 'precise and systematic instruction' in dictionary skills. All types of respondent had a distinct overall preference for bilingual dictionaries, although the most proficient learners said they would prefer to use a learners' dictionary whilst reading. The research test included a section on the placement of multiword items in the dictionary; results indicated that look-up behaviour was not language-dependent, but that users' placement choices often did not match the actual placements in learners' dictionaries. This line of investigation, begun by BÉJOINT (1981) and TONO (1987), has been further pursued by LEW (2012).	**A, E**
1998	Bogaards, P. (1998). Scanning long entries in learner's dictionaries. In T. Fontenelle (ed.), *EURALEX '98 Actes/Proceedings*. Liege: Université Départements d'Anglais et de Néerlandais, 555–563.	Following on from the work of TONO (1992), **Bogaards** used a guided sentence-translation task to compare the speed and accuracy with which secondary school students selected and translated word meanings in different monolingual learners' dictionaries (all 1995 editions). Entries in dictionaries which provided devices to guide users towards the most appropriate meaning (the 'signposts' in the *Longman dictionary of contemporary English* or the 'guidewords' in the *Cambridge international dictionary of English)* proved more efficient and popular than those in the *Oxford advanced learner's dictionary*, which did not provide any access guidance, or in *COBUILD*, which had a grammar-based access structure.	**A, C, E**

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YEAR	REFERENCES	ANNOTATIONS	THEME
2002	Nesi, H. & R. Haill (2002). A study of dictionary use by international students at a British university. *International Journal of Lexicography* 15.4, 277–306.	This experiment aimed to record dictionary-using behaviour less intrusively than in previous studies, by allowing participants to work with their own reading material and dictionaries, in their own time. Eighty-nine international students kept records of five occasions when they had consulted dictionaries to find the meanings of unknown words. The majority of consultations were found to have been successful, but more than half the students were unsuccessful at least once, and some consultation problems resulted in serious errors of which they were unaware. The mis-selection of entries and sub-entries was a common cause of consultation failure, and there was a tendency for users to select the first meaning they encountered, as previously noted by TONO (1984) amongst others.	**B, E**
2002	Ronald, J. (2002). L2 lexical growth through extensive reading and dictionary use: A case study. In A. Braasch & C. Povlsen (eds.), *Proceedings of the Tenth EURALEX International Congress*, Copenhagen, Denmark, 12–17 August 2002, Vol.2. Copenhagen: Center for Sprogteknologi, Copenhagen University, 765–771.	Like LUPPESCO & DAY (1993), **Ronald** set out to investigate the assumption that dictionary use can lead to L2 lexical growth. The methodology was different, however, focussing on just one learner, who read a book-length English text seven times, sometimes with and sometimes without consulting the *Longman dictionary of contemporary English*. As with NESI & HAILL (2002), the concern was to capture as far as possible the effect of dictionary use under non-experimental conditions. Before and after each reading the learner evaluated her knowledge of 300 words which occurred in the text. Dictionary use was found to have a distinctly beneficial effect in terms of vocabulary growth.	**B, D**

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YEAR	REFERENCES	ANNOTATIONS	THEME
2004	Lew, R. (2004). *Which dictionary for whom? Receptive use of bilingual, monolingual and semi-bilingual dictionaries by Polish learners of English*. Poznań: Motivex.	This large-scale study (711 participants) was the first to use controlled entries to systematically compare the effect of monolingual, bilingual and bilingualised formats on L2 comprehension scores. In contrast to the findings of LAUFER & MELAMED (1994), the bilingual rather than the bilingualised format proved to be the most effective across all proficiency levels. Bilingualised entries performed slightly worse because the definitions obscured the L1 equivalents; these were found to be the most used and the most useful elements in the dictionary entry. The monolingual entries were the least effective as a means of supporting L2 comprehension.	**A, B**
2006	Laufer, B. & T. Levitzky-Aviad (2006). Examining the effectiveness of 'Bilingual Dictionary Plus' – a dictionary for production in a foreign language. *International Journal of Lexicography* 19.2, 135–155.	This is the most recent in **Laufer**'s series of investigations into the effectiveness of various dictionary types (see also LAUFER & MELAMED (1994)). The study introduces the concept of a bilingualised dictionary for language production which provides English translation options and usage information for L1 search terms. Seventy-five students translated sentences from Hebrew into English using this type of dictionary, a standard bilingualised dictionary with English monolingual entries and L2 translations, and a standard L1–L2 bilingual dictionary. They also rated the dictionaries in terms of usefulness. Results for the 'Bilingual Dictionary Plus' were significantly better than for the other dictionary types.	**A, C**
2007	Lew, R. & J. Pajkowska (2007). The effect of signposts on access speed and lookup task success in long and short entries. *Horizontes de Lingüística Aplicada* 6.2, 235–252.	This study adapted the guided sentence translation task used by BOGAARDS (1998) to gauge the effect of entry length on signpost use in the *Longman dictionary of contemporary English* (4th edition). Speed of selection and translation accuracy were found to be significantly better for short entries than for long entries, but there were no significant differences in terms of access time, sense selection or translation accuracy for short or long entries, whether they contained their original signposts or not (in contrast to the finding of BOGAARDS 1998). The results for pre-intermediate and intermediate level participants were compared, but could not replicate TONO's 1992 finding that signposting was more beneficial for less proficient users.	**E, C**

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2010	Lew, R. (2010). Users take shortcuts: Navigating dictionary entries. In A. Dykstra & T. Schoonheim (eds.), *Proceedings of the 14th EURALEX International Congress*. Leeuwarden/Ljouwert, The Netherlands: Fryske Akademy, 1121–1132.	This study partially replicated LEW & PAJKOWSKA (2007), using a similar translation task but working with entries from the *Oxford advanced learner's dictionary*. Half the participants had access to unmodified entries, where signposts or 'shortcuts' were positioned before each sense, and half had access to modified entries, where the shortcuts had been repositioned at the beginning of each entry, in the manner of menus in the *Macmillan English dictionary for advanced learners.* Sense access time proved to be unaffected by the two conditions, but accuracy was greater for shortcut users. Lew speculated that this might be because the proximity of the shortcut item to the sense made it easier for users to relate the one to the other, and thus flesh out the shortcut information with details provided in the relevant part of the entry. Menu items are located at a distance from the sense and this may make it more difficult for users to navigate from the menu to the relevant entry section.	**E**
2011	Nesi, H. & K. H. Tan (2011). The effect of menus and signposting on the speed and accuracy of sense selection. *International Journal of Lexicography* 24.1, 79–96.	This study continued the investigation of signalling effects by comparing user responses to a sense-selection task involving three versions of polysemous entries from the *Macmillan English dictionary for advanced learners*: with the original menus, without menus, and with the menu information dispersed within the entry (shortcuts). A purpose-built program recorded 2,109 consultations and the time taken to select each meaning. Selection time with and without signposting did not differ significantly, as LEW & PAJKOWSKA (2007) had found, but in accordance with BOGAARDS (1998), and contrary to the findings of LEW & PAJKOWSKA, responses to entries containing shortcuts were significantly more accurate than responses to entries with no signposting. The last sense in the entry proved easiest to identify, whilst those in the middle of the entry caused the greatest problems. The study exemplifies the way that log files can be used to record real-time consultation processes without the intrusion of requiring users to underline parts of the dictionary entry – for example (BOGAARDS 1998, LEW 2010) – or produce written or oral protocols (ARD 1982, HATHERALL 1984, HARVEY & YUILL 1997). However, log files do not reveal as effectively as protocols the reasons for consultation decisions.	**E**

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2011	Tono, Y. (2011) Application of eye-tracking in EFL learners' dictionary look-up process research. *International Journal of Lexicography* 24.1, 1–30.	Eye-tracking was developed as a research technique in neuroscience, psychiatry and psychology, but has now started to be used to collect information about the dictionary consultation process. Whereas log files record what users type, eye-tracking records the direction of their gaze. In this study participants searched for information on a computer screen while their head movements were restricted by a chin-support and eye tracker cameras were directed at each eye. The study involved high and low proficiency groups (four participants in each) and a sense-selection task using specially modified monolingual and bilingual entries. Initial and embedded grammar coding schemes were found to have roughly the same success rate, but eye-tracking revealed that initial codes were rarely consulted, whilst embedded codes were constantly accessed by high and low proficiency users. Entry-initial menus seemed to help low proficiency users, in accordance with the findings of TONO (1992), but entry-internal signposts proved less useful, contrary to the findings of LEW (2010). Searches for information at the beginning of bilingual entries were more successful, but there was little difference between bilingual and monolingual versions when the search was for information at the end.	**E**

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2012	Dziemianko, A. (2012). Why one and two do not make three: dictionary form revisited. *Lexicos* 22, 195–216.	This study is the last in a series by the same author comparing the usefulness of monolingual dictionaries in paper and electronic form. The first of these (Dziemianko 2010)[2] compared an online version of *COBUILD* (6th edition: 'e*COBUILD*6') with its print equivalent, and found that the online version enhanced reception, production and retention of meanings and collocations. This was a rather surprising finding – a number of other small-scale studies had found either no significant difference in retention, or better retention for users of print dictionaries. Dziemianko's second and third studies (2011[3] and 2012) were partial replications comparing the free online version of the *Longman dictionary of contemporary English* (5th edition) and a CD-ROM of the *Oxford advanced learner's dictionary* (7th edition) with their print equivalents. In these experiments, however, results for print and e-dictionaries were comparable. **Dziemianko** hypothesises here that e*COBUILD*6 was a better learning tool because it showed only one entry at a time; the other two e-dictionaries presented far more information on a single screen. The three studies demonstrate the value of the replication in dictionary use research.	**B, C, D**
2012	Lew, R. (2012). The role of syntactic class, frequency, and word order in looking up English multi-word expressions. *Lexikos* 22, 243–260.	This study returned to the question of how users look up multi-word expressions in dictionaries. Forty Polish secondary school students were given a list of 36 expressions and were asked to underline the one search term they would use to find the meaning of each. A strong preference was noted for low frequency words, and for nouns, adjectives and verbs, in that order. Grammatical words were largely ignored. This study is interesting because it partially replicates earlier studies (Béjoint 1981, Tono 1987 and Atkins & Varantola 1998), and generally confirms their findings, but was constructed on a notably more scientific basis, with reference to three design factors: lexical frequency, part of speech and word position. Frequency levels were established through corpus consultation, and the chosen expressions featured different classes of lexical word, at different levels of frequency, and in initial and non-initial positions.	**E**

[1]Authors' names are shown in small capitals when the study referred to appears in this timeline.

[2]Dziemianko, A. (2010). Paper or electronic? The role of dictionary form in language reception, production and the retention of meaning and collocation. *International Journal of Lexicography* 23.3, 257–273.

[3]Dziemianko, A. (2011). Does dictionary form really matter? In K. Akasu & U. Satoru (eds.), *ASIALEX 2011 proceedings: Lexicography: theoretical and practical perspectives*. Kyoto: Asian Association for Lexicography, 92–101.