

DENCI = Dizionario Enciclopedico Italiano. (1955–1961): Roma.

DMF = Martin, R. (ed.) (1998): Dictionnaire du Moyen Français, I (A-AH), Nancy.

DO = Il Devoto-Oli. Vocabolario della Lingua Italiana, a cura di Luca Serianni e Maurizio Trifone. (2004): Firenze.

DOP = Tagliavini, C./Migliorini, B./Fiorelli, P. (1969/1981): Dizionario d'ortografia e di pronunzia. Torino.

DRAE = Diccionario de la Real Academia Española (Diccionario de Autoridades), (1726–1739): Madrid. 2nd ed. (only A-B). (1770). Diccionario de la lengua española, (1780): Madrid, 21th ed. (1992).

DSC = De Mauro, T. (2002): Il dizionario dei sinonimi e dei contrari. Torino.

GB = Broglio, E./Giorgini, G.B. et al. (1897): Novo dizionario della lingua italiana secondo l'uso di Firenze. Firenze.

GDLI = Battaglia, S. (1961–2002): Grande Dizionario della Lingua Italiana. Torino.

LEI = Pfister, M. (poi Pfister, M./Schweickard, W.) (1979–~~XXI~~): Lessico Etimologico Italiano. Wiesbaden.

OED = Oxford English Dictionary (1884–1928): Oxford. Supplement (1933), (1972–1986): 2nd ed. (1989): 3rd ed.

ThLL = Thesaurus Linguae Latinae (1900–~~XXI~~): Lipsia.

TLF = Le Trésor de la Langue Française. (1971–1994): Paris.

WIV = Blumenthal, P./Rovere, G. (1998): Wörterbuch der italienischen Verben. Konstruktionen, Bedeutungen, Übersetzungen. Stuttgart.

WNT = Woordenboek der Nederlandsche Taal (1864–1998): 's. Gravenhage-Leiden-Arnhem.

6.2. Electronic dictionaries

Frantext = CNRS – Atilf, Base textuelle Frantext. www.frantext.fr.

OED = Oxford English Dictionary online. www.oed.com

TLIO = Tesoro della Lingua Italiana delle Origini. online: www.vocabolario.org.

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28. Empirical research into dictionary use since 1990

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1. “Empirical”

Many authors writing about research into dictionary use have employed the adjective empirical without ever defining it. Ripfel/Wiegand (1988: 493) state that the methods employed in empirical social research are survey, observation, test/experiment, and content analysis, and that this is also true of empirical research into dictionary use (henceforth ERDU). If one considers research into

dictionary use akin to empirical social research, it should not only be clear that one or more of these methods must be employed but also that there must be informants or subjects as users, at least one (in case studies, e.g. Ronald 2002), and that this should not be the researcher him or herself (although a study like Grabe/Stoller (1997) can yield interesting insights).

2. Research from 1987 to 1989

“Dictionaries and their users” was the title of one of the 38 chapters in Hausmann et al. (1989/1990/1991), but only in one of fourteen articles (i.e. in Hartmann 1989) was empirical research actually addressed. The author briefly summarised some of the studies published up to 1986. Before him Hartmann (1987), Bogaards (1988) and Ripfel/Wiegand (1988) had already provided accounts of the main empirical studies published since 1962. Between 1987 and 1989 reports of approximately 17 questionnaire surveys, 7 studies on actual dictionary use and 5 investigations into the effect of dictionary use were published or included in dissertations or theses.

3. Books on research into dictionary use

Since 1990 several doctoral theses on dictionary use have been published in book form: Müllich (1990), Battenburg (1991), Nord (2002), Wingate (2002), Szczepaniak (2004), Thumb (2004), and Dziemianko (2006). Lew’s (2004) book was written as a requirement for the so called “Habilitation” (Habilitation in Polish). East (2008) is based on a Master’s thesis. In all these works the authors describe their own empirical studies. The following books on dictionary use are different. In one part of his book on learner dictionaries Zöfgen (1994) offers a general survey on ERDU up to 1992, evaluating methods and covering most studies. In Atkins (1998), seven of eight papers are entirely devoted to ERDU, six of them being reports of the authors’ studies. The majority of Wiegand (1998), almost 800 pages, is about ERDU. The author deals in great detail with different types of look-ups, situations of use, and user types, besides evaluating research methods. He also sets out detailed proposals for better questionnaires and tests. In their critical bibliography of pedagogical lexicography Do-

lezal/McCreary (1999) very briefly summarize a considerable quantity of empirical studies. Unfortunately, these are not distinguished from non-empirical studies. Nesi (2000) discusses ERDU methods in 53 pages, and then goes on to present new versions of four of her own studies published in the nineties. Much the same can be said about Tono (2001): he discusses ERDU in about 60 pages and then presents new versions of seven of his earlier empirical studies. Two chapters are devoted to learner corpora. Welker (2006) provides summaries (ranging from a single paragraph to three pages) of 220 empirical studies.

4. Empirical studies since 1990:

Some figures

From 1962 to 1989 about 70 empirical studies were published (or were part of dissertations or theses). Since then, investigations have amounted to more than 250. Several distinctions should be made here. The first is that between paper dictionaries and electronic dictionaries. Another – fairly common – distinction is that between the research methods used (survey by questionnaire or interview, observation, protocol, test, experiment). I prefer to distinguish five objectives: (i) obtaining information about dictionary use from informants (through questionnaire surveys or interviews); (ii) examining how dictionaries are actually used (by means of observation, protocols or analysis of log files); (iii) getting an idea of the influence of dictionary use through the analysis of the product of some task (e.g. composition, translation); (iv) testing the effect of dictionary use (through tests or experiments); (v) examining the effect of the teaching of dictionary use. One kind of study is particularly difficult to categorize: subjects are asked what they would do if they were using dictionaries. This method is not a normal questionnaire technique with general questions about dictionary use, and it is not an investigation into actual use either.

To give an idea of the evolution of ERDU, I will present some figures. They are approximate because (a) not all studies undertaken all over the world are known to me, (b) quite a few authors have carried out investigations belonging to two or all of the categories, (c) some studies are difficult to classify, (d) several reports have been published twice (or

even more times). In the last case, various situations may occur: (d 1) certain results (and other details) are published prior to the final report (e.g. Atkins/Knowles 1990 → Atkins/Varantola 1998; Lew 2002 → Lew 2004); (d 2) studies (mostly reported in dissertations or theses) are summarised in later papers (e.g. Müller 2000 → Müller 2002); (d 3) more or less modified versions of earlier studies are brought together in books (see Nesi and Tono in item 3); (d 4) new versions are published elsewhere (e.g. Laufer/Melamed 1994 → Laufer/Hadar 1997). Unfortunately, the fact that earlier versions have been published is not always mentioned in the subsequent publications.

The clearest results of quantifying empirical studies since 1990 can be described as follows:

- very few have investigated the use of monolingual dictionaries (MDs) by native speakers;
- in less than a quarter of all studies English has not been involved;
- the use of non-English MDs by non-natives has seldom been investigated; in these few cases the languages were mostly French or German;
- the countries in which most studies of the use of print dictionaries have been undertaken are (in alphabetical order): China, Germany, Great Britain, Holland, Japan, Poland, the USA;
- despite all the criticism of questionnaires, this method continues to be employed, but studies with objectives (ii) or (iv) are more numerous now;
- fewer than ten researchers have investigated the effect of dictionary use teaching or training;
- more than 20% have studied the use of electronic dictionaries or electronic glosses;
- in less than 30% of the investigations the results have been analysed statistically.
- more than 20% of the studies belonging to categories (ii) or (iv) have dealt with specific dictionaries or specific dictionary components (e.g. idioms).

Tab. 28.1 displays approximate figures for studies concerning the use of print dictionaries:

| | Objective (i) | Objectives (ii) and (iii) | Objective (iv) |
|-----------|---------------|---------------------------|----------------|
| 1962–1989 | 45 | 15 | 8 |
| 1990–2010 | 75 | 70 | 70 |

Tab. 28.1

5. Surveys

5.1. Questionnaire surveys

Paraphrasing Wiegand (1977: 101), we can state that the knowledge to be gained from empirical studies is necessary for lexicographers “to write more adequate dictionary entries”. He meant knowledge about “user interests”, users’ “need of information” and “situations of use”. This kind of information can be obtained in questionnaire surveys, and, since situations of use vary widely, it is desirable that a large number of surveys be made. If we take stock of all languages, the quantity of surveys carried out to date is miniscule, and if we are to cover all kinds of users (e.g. school children, students, translators) and situations (mostly reading, writing, translating), much remains to be done.

Unless the situation is very specific (e.g. dictionary use by trainee translators), it is important to have a large number of informants. Since 1990 the largest numbers of informants have been registered in the studies reported by: Tall/Hurman (2000) – 1,300; Boonmoh/Nesi (2007) – 1,241; Atkins/Knowles (1998) – 1,140. The most comprehensive investigation into ERDU to date is the “EURALEX / AILA research project”. An “Interim Report” was published by Atkins/Knowles (1990), but only eight years later did Atkins/Varantola (1998) provide a detailed account of the project and its results. It is the most comprehensive study for various reasons: (a) the large number of informants (1,140 questionnaires were returned, but in the end only 723 were considered); (b) the participation of native speakers of four languages (French, German, Italian or Spanish) from seven European countries; (c) their separation – according to a placement test – into four groups of different levels in English language skills; (d) the employment of more than one method in order to achieve objectives (i) and (iv). All data were stored in a database so that it is possible to observe the results en bloc or separately for each group of subjects. The most interesting of the numerous results obtained from the “User Profile Form” were: (a) informants prefer bilingual dictionaries (BDs); (b) the use of monolingual dictionaries (MDs) increases with linguistic competence; (c) most students had not received instruction in dictionary use.

Tall/Hurman’s (2000) and Boonmoh/Nesi’s (2007) studies were much more specific: in the first, over 1,300 British pupils were asked

after a written French examination some general questions about dictionary use and about their lookups during the examination as well as their opinion about the dictionaries used; in the second, 1,211 Thai students and 30 teachers answered questions about their use of pocket electronic dictionaries.

Considering not only the number of subjects but also the range of questions, Hartmann's (1999) survey was the second most comprehensive one. The objective was to obtain "a revealing profile of (British) university students as dictionary users". 710 participants answered 30 questions covering 14 topics.

5.2. Interviews

Interviews may be conducted, for example, after and about tasks or tests (e.g. Hartmann 1994, Christianson 1997, Winkler 2001), but in this section on surveys I refer to interviews that pursue objective (i). Diab (1990: 61), who used this method himself, points out that "face-to-face interviews can be quite time-consuming and expensive". Consequently, less than ten researchers have used this method since 1990. The study with the largest number of interviewees (133) is Benbow et al. (1990).

5.3. "What if" studies

In this kind of investigation actual use is not observed. Instead, people are asked what they would do if they consulted a dictionary. Some such studies have been undertaken, e.g., by Bogaards (1990/1991/1992/1992a/1997) who asked a total of more than one thousand informants under which entry they would search for certain multiword items.

6. Studies on actual use

In order to examine how dictionaries are really used, users must be observed, preferably by others. Since this, in general, can only be done with a few subjects, researchers tend to resort to "user protocols", a method in which the user records his or her look-ups on paper or orally. If computers are used, the look-ups may be examined by analysing log files.

6.1. Observation

Researchers may observe users during some kind of task directly (watching) and/or indirectly (videotaping).

(a) Watching

If the researcher – who has to take notes – is not aided by assistants, he or she can observe only a few subjects. Mackintosh (1998: 127), who observed fifteen subjects, admits that "it was difficult for a single observer to keep up with the note-taking". She also used a recorded think-aloud protocol, "a precaution that proved invaluable".

(b) Videotaping

Dictionary users have been videotaped by very few researchers. Tono (1991) divided 10 Japanese students and teachers into two proficiency groups and asked them to translate a short English text into Japanese. During the translation they were videotaped so that the researcher could even count the seconds they spent on each look-up. Tono (2000), wishing to compare the efficacy of print dictionaries with that of three types of electronic dictionaries, videotaped 5 Japanese M.A. students in England as they tackled a variety of tasks. With two groups of 30 Dutch learners of French, De Ridder (2002) investigated the use of two types of electronic glosses. The look-ups were registered electronically, and the participants filmed using "a software programme that registers every on-screen movement". Thumb (2004) and Ronowicz et al. (2005) meanwhile used the "think aloud" method, but they also videotaped the participants.

6.2. User Protocols

The term protocol generally refers to the writing down or the oral description of the users' own look-up behaviour.

(a) Written protocols

This has been the most frequent method when objective (ii) is pursued. It was employed, for instance, by Harvey/Yuill (1997), whose 211 subjects – foreigners living in England – were asked to write a composition.

(b) Oral protocols

The oral description of actual dictionary use has to be audiotaped (if it is not videotaped). Analysis of the protocols (frequently called "think aloud protocols", TAPs) is time-taking and difficult. So mostly there have been few subjects, from 4 to 20, seldom between 20 and 30. Only Müllich (1990) analysed the protocols of many more users, i.e. 108. To

be able to do this he developed a complex description system which he called OMEGA. The TAP method has been used by less than 20 researchers. Among the reports published are Jääskeläinen (1996), Lomicka (1998), Mackintosh (1998), Wingate (1999, 2002, 2004), Winkler (2001, 2001a), Livbjerg/Mees (2003), Thumb (2004), Ronowicz et al. (2005), Duran (2007), and He (2007).

6.3. Log files analysis

Log files cannot tell what users think when performing a task, but they do allow the researcher to observe the exact steps taken when electronic dictionaries are consulted. Researchers who have used this method include: Hulstijn (1993), Knight (1994), Lomicka (1998), Laufer (2000), Lemnitzer (2001), De Ridder (2002), Selva/Verlinde (2002), Wingate (2002), De Schryver/Joffe (2004), Nesi/Meara (2004), Bergenholtz/Johnsen (2005/2007), De Schryver et al. (2006), Laufer/Levitzky-Aviad (2006), Müller-Spitzer (2008), and Lew/Doroszevska (2009).

7. Product analysis

In order to verify if and in what measure dictionary use has had any effect, several researchers (a) have examined the product of some task (in exams or assignments) or (b) have taken into account only the students' marks. Actual dictionary use has not been observed. These studies should not be considered as experiments since the researcher controls virtually nothing. In case (a) the sole requirement is that the lexical items looked up be marked (cf. Christianson 1997) or the dictionaries used be identified (cf. Nuccorini 1994); in case (b) a comparison is made between the marks obtained in tasks performed by certain users with and by others without the use of dictionaries (as happened, for example, when dictionaries came to be allowed in exams; cf. one part of Nuccorini 1994).

8. Studies on the effect of dictionary use

In this section I will only consider investigations in which there was a comparison between two or more groups of predetermined subjects, or between two tasks performed by the same group, one with and the other without dictionary use, or the same kinds of com-

parisons between different dictionaries. The greatest difficulty in such studies is to eliminate any factor that might influence the outcome (cf. art. 33). A distinction should be made between the types of tasks performed by the subjects (reading, writing, translating etc.). When authors use the word writing, they mostly mean the writing of sentences. Very few investigations have been made into the effect of dictionary use on the writing of compositions, e.g. East (2008) and Chon (2009). The case of translation is similar, since mostly not whole texts were translated, but only isolated sentences or words culled from texts (one exception is Nord 2002). In reading comprehension tests the users sometimes do not read texts, but are rather asked to fill in gaps in isolated sentences or to translate words or sentences. The effect of some dictionary feature may even be verified by asking subjects to mark certain sentences right or wrong (cf. Nesi 1999). In several studies more than one task was performed. On the whole, the effect of dictionary use has seldom been investigated. The following researchers are among those interested in:

- reading comprehension: Laufer/Melamed (1994), Nesi/Meara (1994), Wingate (2002), Lew (2004);
- translation: (by language learners) Bogaards (1991), Tono (1992), Nuccorini (1994), Livbjerg/Mees (2003); (by trainee translators or translators) Mackintosh (1998), Nord (2002), Frankenberg-Garcia (2005);
- vocabulary learning: Krantz (1991), Luppescu/Day (1993), Fischer (1994), Knight (1995), Nist/Olejnik (1995), Hulstijn/Hollander/Greidanus (1996).

In the study reported by Atkins/Varantola (1998) certain items correspond to different kinds of tasks: reading, writing, translation. The investigation with the largest number of subjects (1,500) was conducted by Nesi (1999). The author wanted to determine the usefulness of grammatical information for young learners. Lew (2004), who had at his disposal 712 subjects, examined the effectiveness of six different types of "semantic explanation" (equivalents, definitions, or combinations of both) for comprehension.

9. Special topics

In quite a large number of investigations the focus was not on general dictionary use but on (a) the use of certain dictionaries, (b) the use of special types of dictionaries, or (c) cer-

tain dictionary features. Although learners' dictionaries are a special type of reference work, they will not be included in (b) because they were used in most investigations.

- (a) In the following studies only one dictionary was consulted: Augst (1997), Harvey/Yuill (1997), McCreary/Dolezal (1999), Wingate (1999), Ronald (2002), Babenko/Troschina (2004).
- (b) The use of bilingualised dictionaries has been investigated by: Hartmann (1994), Laufer/Melamed (1994), Laufer/Kimmel (1997), Thumb (2004), Laufer/Levitzky-Aviad (2006).
- (c) Studies – with objective (ii) or (iv) – on special features in print dictionaries include:
 - definitions: Kostrzewa (1991), McKeown (1993), Laufer (1993), Cumming/Cropp/Sussex (1994), Nesi/Meara (1994), Mackintosh (1998), Gonzalez (1999), McCreary (2002), Wingate (2002), Lew/Dziemianko (2006), Lew/Dziemianko (2006a);
 - definitions/equivalents: Lew (2004);
 - examples: Laufer (1992, 1993), Nesi (1996);
 - grammatical information: Nesi (1999), Bogaards/Kloot (2001, 2002), Dziemianko (2006);
 - idioms: Szczepaniak (2006);
 - menus: Tono (1992); Lew/Tokarek (2010);
 - signposts/guidewords: Tono (1997), Lew/Pajkowska (2007).

10. The effect of the teaching of dictionary use

Béjoint (1989, 208) and Welker (2006, 424 pp.) cite a total of more than fifty authors who have mentioned the need to teach dictionary use, sometimes giving examples of possible exercises. However, very few studies have investigated the effect of such instruction: Bishop (2001), Chi (2003), Ramos (2004), Araújo (2007), Lew/Galas (2008).

11. The electronic medium

The differences between print dictionaries and electronic dictionaries are fairly obvious, the main one being ease of access. Various types of electronic dictionaries must be distinguished.

Some studies are cited by other authors as if print dictionaries had been used, but the look-ups had been done in the electronic medium (e.g. Hulstijn 1993, Knight 1994). An important distinction is that between (various types of) dictionaries, on the one hand, and glosses, on the other. The studies with the largest number of subjects were:

- electronic glosses: Chun/Plass (1996), Hulstijn (1993), De Ridder (2002), Laufer (2000), Lew/Doroszevska (2009);
- electronic dictionaries: Knight (1994), Winkler (2001), Hill/Laufer (2003), Aust/Kelly/Roby (1993), Laufer/Hill (2000), Kobayashi (2006).

Use of internet dictionaries has been investigated – through the analysis of log files – by Lemnitzer (2001), De Schryver/Joffe (2004), Nesi/Meara (2004), Bergenholtz/Johnsen (2005, 2007), De Schryver et al. (2006), Müller-Spitzer (2008).

Quite a few studies have been undertaken on the use of multimedia in language learning; of these only Chun/Plass (1996) is mentioned here.

12. Outlook

ERDU is gaining ground (albeit slowly). In almost the same space of time in which about 70 studies were undertaken from 1962 to 1989, more than twice that number has been carried out since then. In addition to general surveys, very specific topics have frequently been investigated, which makes it impossible to draw general conclusions (apart from those drawn earlier, e.g. that BDs are preferred to MDs). Many studies are inconclusive. In some cases the authors' conclusions cannot be compared to similar studies on the same topics because the methods employed were different. Many investigations may be criticized due to the small number of subjects and/or due to the lack of control of all variables or the lack of statistical analysis. So, on an international scale, much remains to be done and improved in ERDU.

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