

29. Methods in research of dictionary use

1. Introduction
2. Questionnaires
3. Interviews
4. Observation
5. Users' protocols
6. Tests
7. Experiments
8. Statistical analysis
9. Selected bibliography

1. Introduction

1.1. What is *research of dictionary use*?

Use implies users. *Research of dictionary use* ought to mean that surveys are carried out or that users are observed or tested. Thus, research of dictionary use should be *empirical*, in the sense attributed in Art. 32, i.e. it should involve informants or subjects. Certainly one can analyse or compare dictionaries and say how they might help were they to be used. Most likely all authors discussing dictionary features have the user in mind. Metalexicographers often suggest improvements in dictionaries that might help the user. I prefer not to include such studies here, however, as they belong to dictionary research but not to research of dictionary use (even if at times the word *use* is comprised in the title of such papers).

Ripfel/Wiegand (1988: 514) saw dictionary use research as a special category of empirical social research. Wiegand (1977: 62) had already called for an "empirisch fundierte Soziologie des Wörterbuchbenutzers" [empirically based sociology of the dictionary user], while Wiegand (1987: 180) had expressed the opinion that empirical research of dictionary use (as in Art. 32 I will use the acronym ERDU) should employ all appropriate methods that had been developed in the social sciences and in statistics. He enumerated them: direct and indirect observation; inquiries (questionnaires and interviews); tests; interpretative techniques; statistical procedures (cf. also Wiegand 1998: 569).

1.2. A brief historical outline

It was not until 1979 that reflection on methods began. Tomaszczyk (1979: 116) acknowledged in the concluding remarks on his questionnaire survey that it "is impossible to say to what extent the subjects [...] responded in the way they did because they thought they

were supposed to." Ard (1982: 14), who had two subjects make oral protocols, recognized that the protocols "give information only about students' conscious awareness of their reasoning". Hatherall (1984) was the first to severely criticize the questionnaire method. Tono (1984) argued that questionnaires could not show actual dictionary use and therefore employed an astute test (using nonsense words) that made it possible to verify his subjects' consultations. Wiegand (1985) discussed and proposed the use of written protocols. Krings (1986) employed and discussed the oral protocol method ("think aloud protocol", TAP). Wiegand (1987) declared that ERDU should be based on a theory of action and proceeded to develop such a theory for dictionary consultations. Hartmann (1987) produced a first survey of 15 studies and made a brief critique of research methods. Something similar was done by Bogaards (1988) in a short section of his paper. Ripfel/Wiegand (1988) presented summaries of 20 studies and discussed in over 4 pages the methods employed. Hartmann (1989) gave several examples of studies carried out with different methods. Ripfel (1990) pointed to the numerous problems researchers have to solve. In Zöfgen's (1994) book on learners' dictionaries a whole chapter – 32 pages – was devoted to the discussion of ERDU. Béjoint (1994) cited 32 empirical studies and summarised some of them. In their annotated bibliography of 178 studies, Dolezal/McCreary (1996) distinguished between "experiential studies", "comparative studies", "users' needs and skills surveys", "cultural articles" and "experimental research". The titles make it clear that not all the studies cited were empirical. Hulstijn/Atkins (1998) made methodological recommendations and described two "model investigations". In the same year Wiegand's (1998) book on dictionary research was published. The second and largest section (almost 800 pages in length) is about ERDU. The author discusses methods in detail and shows how different types of empirical studies can be improved. ERDU was discussed again by Nesi (2000) in 53 pages and by Tono (2001) in about 60 pages. Since then other authors – especially in the literature review of dissertations – have written about this topic, too, e.g. Humblé (2001), Wingate (2002), Lew (2004), Thumb (2004), Szczepaniak (2006).

2. Questionnaires

The questionnaire method was used in the first ERDU study (Barnhart 1962). In the seventies only two more were undertaken, which led Wiegand (1977: 61) to declare that empirical studies should be undertaken in order to find answers to questions about the user, e.g.: Who owns which dictionaries? In what situations are they consulted? Is dictionary use taught at school? Some years later Diab (1990: 60) expressed the following opinion: "Despite all criticism, the questionnaire method will continue to be used as a major tool in any research concerned with people [...]. It is capable of eliciting a large quantity of data about a large number of people in a short time and with less expense than other means, e.g., interviews." As stated in Art. 32, there are many countries in which still nothing or very little is known about users, so questionnaire surveys are still necessary. However, researchers – and all those who read the results – must be aware of the problems relating to questionnaires. Some of them were expressed in Hatherall's (1984: 184) often-quoted questions: "Are subjects saying [...] what they do, or what they think they ought to do, or indeed a mixture of all three? Do they all define the categories in the same way – and in the same way as the researcher?"

Most questionnaires are "closed", i.e. respondents must choose from two or more possible answers. Ripfel/Wiegand (1988: 493) saw the danger that the informants respond according to what is proposed and not according to what they really think or do.

The same authors pointed to a general drawback of questionnaires, i.e. that many informants will not remember the information they are asked, especially concerning their consultations.

In all empirical studies the ideal is to have the greatest possible number of informants or subjects. This is especially true of the type of questionnaire mentioned hitherto, i.e. if the aim is to obtain a profile of the general user in a certain country. Even if the survey is limited to specific users – e.g. schoolchildren – a large number of informants is desirable as the probability that the answers correspond to reality will increase. Ripfel (1990: 1633) drew attention to the problem of the choice of informants: since it is not feasible to cover all dictionary users nationwide – not even among some segment of the population (like

schoolchildren) – a genuinely randomized choice is not possible, so the results of the study cannot be generalised. Nevertheless, such questionnaire studies may yield interesting hints.

Besides general surveys – in which many questions may or even should be asked (cf. Quirk 1973, Hartmann 1999) – there are surveys not only of specific users but also in specific situations. In these cases the questions tend to be less numerous than in general surveys (see Tall/Hurmann 2000, Nishimura 2002).

One type of specific questionnaire is used in studies which are proximate to those of actual dictionary use but should not be classified as such. I have called them "what if" studies (see Art. 32, subsection 5.3).

When answering certain questions (e.g. about the title, macro- or microstructure of their dictionaries) the informants should not be allowed to consult the reference works. So they would have to be observed while answering. Generally this is practicable only in small groups, unless the researcher can count on the help of assistants or colleagues, as was the case in Lew's (2004) study, in which 712 subjects were supervised by 20 "experimenters".

According to Lew (2002: 270), researchers "would be well advised to consult existing questionnaire design manuals". He himself made several suggestions like, for example, writing the questions in the subjects' native language and running a pilot study. Wiegand (1998: 586 ff.) devoted 90 pages to a very thorough discussion of all problems relating to this method, even presenting drafts of two detailed questionnaires.

3. Interviews

Diab (1990: 61) stated: "With interviews it is possible to ask for explanations and to clarify obscurities for the respondent. Interviews can be open or structured, recorded or unrecorded, conducted with subjects individually or in small groups. [...] However, face-to-face interviews can be quite time-consuming and expensive. [...] Data obtained via open interviews can be difficult to analyse."

Owing to the difficulties Diab mentions, this method has seldom been employed in ERDU – no more than 10 % of studies. Only Chagunda (1983) seems to have used it as the sole instrument for gathering data. When it

is used in conjunction with a questionnaire survey, the informants of the questionnaire may be different from the interviewees (Hartmann 1999) or the same individuals (Diab 1990).

In interviews one may gather general information about dictionary use, but they may also be made subsequent to tasks or tests. In this case, the informants may simply be asked their opinion about the dictionaries they consulted, or the researcher may want to obtain details about the look-ups (cf. 5.2.2.).

4. Observation

Information about *actual* dictionary use can be gained through observation, or users' own protocols.

Wiegand (1998: 570 ff.) distinguishes various kinds of observation: The researcher may observe his own use or, preferably, the consulting undertaken by subjects; in the second and normal situation, subjects may know that they are being observed, or not (open vs. hidden observation); they may be observed in a natural surrounding (e.g. in a normal exam) or in a situation created specially for the study (natural vs. artificial observation); the researcher may be passive (merely observe) or active (interfere); he/she may watch the participants directly or videotape their actions (direct vs. indirect observation); in all cases there must be some written recording (*protocol*) of what is observed; these recordings may be structured or unstructured. In structured recordings the observer fills in a form prepared beforehand (*dictionary use protocol form*; cf. Wiegand 1998: 576); otherwise, he puts down freely what he notices. In any situation the observer – if he/she is not the researcher – should be trained.

Hatherall (1984: 184) considered direct observation “the only reliable method of collecting data on dictionary user behaviour”, but he himself did not employ it because he perceived the problems: “[When being watched] it would probably be difficult for the subjects to behave normally as users. Also, it is unlikely that all the information the researcher needs would be retrievable via the visual medium. And finally, such an exercise is so time-consuming that the sample is likely to remain unrepresentatively small.”

As a matter of fact, direct observation has been extremely rare, and the indirect type (videotaping) has scarcely been employed (cf. Article 32, subsection 6.1).

Wiegand (ibid.: 575–583) shows how an observation with structured written recording could be carried out, but he points to several deficiencies, e.g. the possibility that the researcher – or his/her assistant – may not observe or record correctly the users' actions, and he emphasizes that one can only observe the “outer aspects” of consultations by this method (p. 574).

The analysis of log files is a modern type of indirect observation, feasible in the case of electronic dictionaries. Log files may show exactly how the users proceeded in their consultations and provide a large amount of data, without interfering in the look-ups. They too, however, reveal only the “outer aspects”, not the users' motivation or level of satisfaction (cf. Bergenholtz/Johnsen 2007, Tarp 2009).

5. Users' protocols

In ERDU, protocols may be made by the researcher (protocols of interviews, protocols of the observation of dictionary use) or by the users. In this section, I will deal only with the latter kind, which must be subdivided into various types.

As stated in section 4, protocols may be structured or unstructured. Unstructured protocols do not influence the person who makes the protocol (who can express himself/herself freely), but they are more difficult to analyse than structured ones, and it may be that the protocols do not reveal the information the researcher seeks to ascertain. Structured protocols have the advantage that they may disclose details of which dictionary users are unaware (cf. Ripfel/Wiegand ibid.: 495).

All kinds of users' protocols must be analysed. The content analysis – one of the methods used in empirical social research – is always very time-taking, and it may lack objectivity (cf. Ripfel/Wiegand ibid.: 493 ff.).

5.1. Written protocols

Wiegand (ibid.: 976) mentioned the possibility of the researcher making a protocol of his own dictionary use, but the author admitted that such researcher protocols had not played any role in ERDU, so that he dealt only with what he called “Laienprotokolle” [laymen protocols]. The same will apply here, i.e. the users are the researcher's subjects. It should be mentioned that one author kept a diary (Grabe/Stoller 1997), but he was observing

mainly his progress in reading in a second language, and only incidentally his dictionary use.

5.1.1. Diaries

Descamps/Vaunaize (1983) asked their French informants not only to answer a questionnaire but also to keep a structured “*cahier d'utilisation*” [usage notebook] of their consultations during one month. The combination of both methods was certainly a good idea. It was used again (with the addition of interviews) by Diab (1990). A great defect of diaries is that they are necessarily uncontrolled, which means that the information contained in them is not entirely reliable (cf. Wiegand *ibid.*: 977).

5.1.2. Written protocols of dictionary use in a single circumstance

The reading of a text, a translation, the writing of an essay etc. were considered “circumstances of use” by Wiegand (1987: 189) and “contexts of use” by Tono (2001: 56). Other authors (e.g. Hulstijn/Atkins 1998) called them *tasks*. Whereas diaries are always uncontrolled, protocols made in any one circumstance of use may be controlled or uncontrolled. They are controlled when subjects are observed, which very seldom occurs. When the product of the task is analysed and compared with what the subjects have noted down, the researcher can partially verify whether the protocols correspond to actual look-ups.

Generally such protocols are structured (see Hatherall 1984, Wiegand 1985, Harvey/Yuill 1997, Varantola 1998), i.e. the researcher gives more or less detailed instructions, which, as in all ERDU studies, must be clear. Sometimes too much information is asked. For instance, Harvey/Yuill's subjects had to complete flowcharts considered “carefully designed ... [yet] very complex” by Lew (2004: 43), who wonders whether they did not exceed the users' capacity.

The protocols can be made after the circumstance of use or they may be integrated into the task (cf. Wiegand 1985: 60). In the first case, performance of the task is more natural, since it is not interrupted for research purposes, but the great disadvantage is that subjects may not – and probably will not – remember their look-ups precisely. In the second case, the protocols cannot reveal the participants' normal (i.e. uninterrupted) dictionary use behaviour, but they have the

advantage that the desired information can be retrieved from short-term memory so that they will portray dictionary use more exactly (cf. Wiegand 1998: 985).

5.2. Oral protocols

Oral protocols are sometimes called *verbal protocols* or *verbal reports* (cf. Ericsson/Simon 1980), but since *verbal* is not restricted to orality, the adjective *oral* should be preferred.

5.2.1. Think-aloud protocols

The usual abbreviation for *think-aloud protocol* is TAP.

Some authors refer to written protocols and to TAPs in the same chapter of their works, but the two methods are very different from one another: in oral protocols the task is far less interrupted than in integrated written protocols. Wiegand (1998: 1011), who discusses the method in detail, prefers the term *oral periactional use commentary* to TAP (arguing that users do not think aloud, but speak). *Periactional* refers to the fact that the commentaries, or protocols, are made during the task in which dictionaries are used. The method, which is also employed for empirical research in other disciplines, was first adopted in ERDU by Ard (1982), whose two subjects “simultaneously orally described what they were doing”. It was used again by Krings (1986) and by Neubach/Cohen (1988). As to studies carried out since 1990, see Art. 32, subsection 6.2. Krings (1986: 91) – whose prime interest was studying the translation process – and Thumb (2004: 33) described and discussed TAPs in detail.

Wiegand (*ibid.*: 1012) points out that such oral commentaries should not be deemed introspection. This is patent in Cohen/Hosenfeld's (1981: 286) remark, quoted by Krings (1986: 89): “In thinking aloud the subject just lets the thoughts flow verbally without trying to control, direct, or observe them (beyond certain instructions which an outside investigator may have given). Thus, think-aloud data are, by their very nature, unanalyzed and without abstraction.”

Although TAPs – or oral periactional commentaries – are not the perfect way to discover natural dictionary use, they are undoubtedly the method that reveals most details about how subjects actually use their reference works.

5.2.2. Retrospective oral protocols

We may distinguish several kinds of oral protocols made subsequent to dictionary use.

(a) Wiegand (ibid.: 1022) mentioned a type of interview which he called *postaktionaler Benutzungskommentar* [post-actional use commentary]. According to his definition such commentaries would be given immediately after look-ups as answers to the researcher's questions, and the desired information would probably be available in the subjects' short-term memory.

(b) Fraser (1999) not only was not interested in details of dictionary use but her method was different, too, since her subjects' "retrospective think-aloud protocol[s]" (p. 228) were made not after each look-up, but after completion of the task.

(c) One of the methods employed by Thumb (2004) was a "stimulated recall protocol", i.e. after completion of the task, during which her subjects made a TAP and were videotaped, they watched the video and were asked to try to remember what they had been thinking while they had remained silent.

6. Tests

6.1. Testing users' skills

Wiegand (1998: 677–818), who deals with tests in great detail, does not mention the possibility of using this method for verifying the effect of dictionary use. He treats them mainly as a means to test the users' skills or their knowledge of dictionaries and refers to the possibility of examining these before and after the teaching of dictionary use.

In one section of her chapter on "test-based research", Nesi (2000: 26 ff.), too, talks about user skills and cites some studies.

Wiegand (ibid.: 760 ff.) enumerates several quality criteria that good tests should fulfil, the main ones being objectivity, reliability, and validity. All of them are explained in detail.

As to instruction in dictionary use, the need for it has been pointed out by many authors (see Welker 2006: 423 ff.), but to date very few researchers have investigated its effect on users' skills (e.g. Bishop 2001, Chi 2003, Ramos 2004).

6.2. Testing the effect of dictionary use

If the aim is to achieve knowledge about dictionary use, all kinds of methods and objectives are important, but surely the most rel-

evant aim is to learn the effect of the use of (different types of) dictionaries or of certain dictionary features. To obtain such information, tests or experiments must be made. These two methods are usually not clearly distinguished. As a matter of fact, they are not easy to differentiate since one may classify as tests all testing studies that are not real experiments, yet one may equally consider such investigations as quasi or pre-experiments. Tono (2001: 70) states that "[a]t its simplest, an experiment involves making a change in the value of one variable – called the independent variable – and observing the effect of that change on another variable – called the dependent variable."

Since the subject of this section is the effect of actual dictionary use – ascertained by means of simple tests – one might give the following examples: (a) in a reading task one half of a class may use a dictionary, the other must do without; (b) students write an essay in a foreign language using a monolingual dictionary; then they write an essay on a very similar topic using a bilingual dictionary; (c) two groups of translators translate the same text, one using print dictionaries, the other electronic ones.

In all these cases, the influence of dictionary use is tested. Results would seem to show the effect of the use of some dictionary in (a), of the difference of monolingual and bilingual dictionaries in (b), and of the difference between print and electronic dictionaries in (c). However, the results are not reliable since several variables have not been controlled.

7. Experiments

Based on Cohen/Manion (1994), Tono (2001: 71) briefly describes a "pre-experimental design", a "quasi-experimental design" and a "true experimental design". Unfortunately, he mentions only "pretest-post-test" studies. Tono's example for the first design (which corresponds to the kind of tests mentioned in 6.1.1.) is the following: a group writes a composition, is then taught how to use a dictionary for encoding activities, and then writes another composition. Lexical errors are the dependent variable. In the second design the only difference is that a control group is introduced, which – in the case of the example – is not instructed how to use the dictionary. The true experimental design

is different from the second one in that the two groups are constituted by randomisation. However, Tono alerts that “it is only when enough subjects are included in the experiment that the principle of randomisation has a chance to operate as a powerful control.”

Hulstijn/Atkins (1998) do not actually define *experiment*, mentioning questionnaires and protocols – in addition to the use of log files – as “elicitation techniques”, but they make an important remark about experiments: “For any piece of research to be valid, the operation studied must be analysed in enough detail, and systematically enough, for the various factors which affect its outcome to be isolated and identified; the investigation must then be structured in such a way as to ensure that the single factor to be studied is as far as possible the only variable in the experiment.” (p. 11) They enumerate fourteen factors that have to be isolated or controlled (e.g. users’ language proficiency, type of dictionary, difficulty of the task) and proceed to describe two “model investigations”.

Many topics may be studied in experiments: general ones – such as the influence of dictionary use (or the consultation of different dictionaries) on scores in a reading task or on vocabulary learning – or very specific ones, like the effect of guidewords/signposts.

Ripfel/Wiegand (1990: 496) and Wiegand (1998: 821) considered Tono’s (1984) study – which did not measure the effect of something but did verify actual dictionary use – the only true experiment. (It is worth noting that Tono was the first to utilize nonsense – i.e. invented – words; among those who have followed suit are Hulstijn 1993 and Mackintosh 1998.) In the last decade some well-designed studies have been undertaken (e.g. Wingate 2002, Lew 2004, Dziemianko 2006), but in most of these investigations some flaw can be detected: there were too few subjects, or factors that could influence the outcome were not controlled, or the results were not analysed statistically.

8. Statistical analysis

Calculating percentages or making a statistical analysis when there are very few subjects does not make much sense. On the other hand, to be valid the results of a study with a reasonable number of subjects should be

analysed statistically. As can be seen in Art. 32, this has been done in only about 10% of all types of ERDU studies since 1990. Some authors affirm that their results were “statistically significant”, but fail to show the figures or reveal what kind of analysis has been undertaken.

Ripfel (1990: 1636) mentioned the fact that frequently “researchers are too little familiar with statistical proceedings and their prerequisites” and she recommends they seek help from specialists in statistics.

According to Lew (2004: 54), “statistical techniques have been underused or sometimes misused in dictionary use research”; for example, “[o]ne of the most popular tools of inferential statistics for social sciences, analysis of variance (ANOVA), has been rarely used [...]”. The author himself sought – successfully – “to employ statistics wherever it can be of assistance in revealing hidden patterns”. Dziemianko (2006), of whom the same can be said, explains statistical methods in 12 pages of her doctoral dissertation.

A final remark on ERDU: Authors who enumerate en bloc results obtained by other researchers should be careful not to present them as if the investigations had been carried out employing the same methods or as if they possessed the same degree of reliability – unless, of course, that is really the case.

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30. The concept of simultaneous feedback

1. Simultaneous feedback (SF)
2. From SF to fuzzy SF
3. From fuzzy SF to modern dictionary research
4. From modern dictionary research to open questions
5. Selected bibliography

1. Simultaneous feedback (SF)

The theoretical concept of simultaneous feedback (henceforth 'SF'), introduced in 1997 and described in De Schryver's (1999b) MA dissertation, was devised in response to the need for a framework for the swift yet sound

compilation of Bantu-language dictionaries. Since then, it has been applied to the compilation of numerous reference works across the world. In a nutshell, and as initially conceived, SF can be understood as entailing a dictionary-making method in terms of which the release of several small-scale parallel dictionaries triggers off feedback that is instantly channelled back into the compilation process of a main dictionary. This process is shown schematically in Tab. 30.1.

In this representation, one recognises the three primary constituents of any dictionary compilation process, viz. target users, compil-