Interacting with the Users: Research Findings in EFL Dictionary User Studies

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Introduction

This paper is in four parts. First, I will discuss briefly the rationale of dictionary user studies. Second, I will describe the various research areas in dictionary user studies and summarize previous research projects in each area. Third, I will discuss the importance of research methodologies in user studies. And lastly, I will summarize the results of studies on dictionary use in Japan and point to those issues requiring future research.

1. Rationale of Dictionary User Studies

There are three major reasons why user research has been gaining more attention in the last two decades: firstly, a change in attitude toward users in L2 lexicography; secondly, a change in the perspective of pedagogical dictionaries; and thirdly, recent trends in language teaching.

A change in attitude toward users in L2 lexicography

As we look at the current trend in lexicography, we can see the difference in attitude toward user needs and skills in two major categories of dictionaries: general-purpose dictionaries and pedagogical dictionaries. Monolingual general-purpose dictionaries are usually regarded as "authorities" and the end-users do not usually dare to comment on the validity or the quality of the contents unless they think they know better (Barnhart 1962; Béjoint 1981). As for pedagogical dictionaries, however, the users are language learners and do not always have a perfect command of the target language, so the editors of pedagogical dictionaries have to be more aware of the end-users' knowledge and skills than those of general-purpose dictionaries. A growing demand for English language education in developing countries along with worldwide economic growth has opened up the new market of EFL learner's dictionaries. Publishers in the UK, especially, are highly concerned about user skills and needs analysis in order to make their dictionaries more user-friendly. Therefore we have an increasing demand for user research in this area.

However, although lexicographers are linguists, phoneticians, and sometimes language teachers, they still have difficulty understanding the user behavior. For example, lexicographers often write a dictionary according to their own expectation of what the users can and should do. They are not very sure whether the actual users look up words as they expected. As Cowie (1983) has pointed out, there has been a growing gap
between such expectations by the dictionary makers and the users' actual reference habits. Therefore, we should have a more solid basis for L2 dictionary-making by investigating user behaviour in a more systematic way.

More practical reasons for the needs of user research
On top of these general tendencies, we have additional reasons for the user study from more practical viewpoints. First, the past ten years have witnessed the so-called "learner’s dictionary war" around the world as well as in Japan. Especially in 1995, all the advanced English monolingual learner’s dictionaries were either revised (OALDCE, LDOCE and COBUILD) or published (CIDE). Competition is very fierce. The dictionary market in Japan is very competitive, too. The target users of EFL learner’s dictionaries in Japan are high school students and above. More than twenty titles (English-Japanese) compete with each other. New ideas or innovations must be included every time they are revised in order to gain more share in the market. The dictionary market is literally saturated with those "innovative ideas" which have not, however, been empirically tested.

This leads to the next point: that a new dictionary is needed. Since it is almost impossible to include all the information that already exists and add one or two more innovations to a dictionary at every revision, we need to remove some information or drastically change the layout and indeed the nature of the product. This can on the one hand be accomplished by making an electronic dictionary, while on the other, within a paper-dictionary context, we have to restructure the dictionary entry based on empirical data regarding what information is used by what kind of users for what purposes.

As we seek for such information, we will face the next barrier. In Japan, dictionary-making is a "publisher-led" project and it has been a very closed system. Information on user analysis, if any, is kept secret inside the publishing houses. It is necessary therefore to do more research to supply the lack of generally available information. Recently we have been more aware of the importance of exchange of information at an academic level. We start having meetings of lexicography SIG (special interest group) in JACET (Japan Association for College English Teachers) and a symposium on learner’s dictionaries and users was held by JACET in the summer of 1997. We invited Dr Reinhard Hartmann as a keynote speaker and commentator for the symposium. I believe that as a result now we are on the right track.

Vocabulary acquisition / learning perspectives
The last point is from the perspective of vocabulary acquisition and learning. More and more attention has been paid to the once ignored area, the "lexicon" (lexical knowledge) in linguistic theories and the cognitive
sciences. Vocabulary-acquisition studies have been increasingly the focus not only in linguistics but also in second language acquisition and language learning research. More and more research has been done to investigate the effect of incidental vocabulary learning and dictionary use (for instance, Hulstijn et al. 1996). Building learner corpora, for instance, has a great potential to contribute to SLA research and L2 dictionary-making (see, for example, Tono 1996). Therefore, the time is ripe for investigating how dictionary use in the classroom helps language learners and how dictionary contents can be improved to support learner’s vocabulary learning.

2. The Research Area in Dictionary User Studies

I would like to divide user studies into five categories: (1) Needs analysis and skills analysis; (2) dictionary use and performance in the four skills (speaking, listening, reading, writing); (3) teaching dictionary skills; (4) the role of a dictionary in language teaching and learning; (5) dictionary criticism from the user perspective. I list below the major references for each of these categories. Comparably, at the top of my Web pages there is a link to a selected bibliography of dictionary user study and a more complete bibliography of English lexicography and computational lexicography (the data can be downloaded either in an html format or an excel file).

Research areas in dictionary user studies
A: Needs Analysis
(1) A user typology
Hartmann (1979); Hartmann (1987); Tomaszczyk (1979)
(2) Dictionaries and target users’ needs
Algeo (1990); Barnhart (1962); Battenburg (1989); Béjoint (1981); Benbow et al. (1990); Cowie (1987); Crystal (1986); Greenbaum et al. (1984); Hartmann (1983); Kipfer (1985); Kirkpatrick (1985); McCawley (1989); Quirk (1973); Quirk (1974); Reif (1987); Snell-Hornby (1987); Tomaszczyk (1987)
(3) User needs and dictionary editing processes
Béjoint (1979); Cowie (1983); Dubois (1981); Hartmann (1988); Maingay and Rundell (1987); Rundell (1988)
B: Skills Analysis
(1) Skills typology and assessment
Mower and LeRoy (1968); Tono (1988b)
(2) Skills on the macrostructural level
Blachowicz et al. (1990); Hatherall (1984); Lantolf et al. (1985); Tono
(1987); Tono (1988a); Tono (1991)

3. Skills on the microstructural level
Blachowicz et al. (1990); Hatherall (1984); Neubach and Cohen (1988);
Tono (1984); Tono (1986); Tono (1991); Tono (1992); Tono (1997);

4. Reference skills and language proficiency
Tono (1989); Tono (1991); Tono (1992)

5. Reference skills and dictionary layout
Aust et al. (1993); Beckwith et al. (1990); Lamb (1991)

C: Dictionary Use and Performance in the Four Skills

1. Dictionary use and reading (decoding)
Bensoussan et al. (1981); Bujas (1975); Mitchell (1983); Scholfield (1982);
Tono (1989)

2. Dictionary use and writing (encoding)
Ard (1982); Jacobs (1989); Nesi (1987)

3. Dictionary use and vocabulary learning
Rowley (1991); Thomson (1989); Vianna (1994); Nesi and Meara (1988)

D: Teaching Dictionary Skills
Beattie (1973); Detroit Public Schools (1982); Fisher et al. (1990); Kennedy
(1972); Kipfer (1984); Moldenhauer (1980); Osman (1965); Ostyn and
Godin (1985); Steed (1968); Whitfield (1993); Zgusta (1975); Zgusta (1988)

E: The Role of a Dictionary in Language Teaching and Learning
Béjoint and Moulin (1987); Black (1985); Griffin (1985); Herbst and Stein
(1987); Rossner (1985); Summers (1988); Walz (1990)

F: Dictionary Comparison/Criticism from User Perspectives
Drysdale (1987); Haas (1962); Harrell (1960); Ilson (1984); Ilson (1987);
Jackson (1975); Jansen et al. (1987); Kharma (1985); Lee (1993);
Macfarquhar and Richards (1983); Marrello (1987); Nesi (1987); Opitz
(1979); Piotrowski (1987); Shaw (1983); Wekker (1992); Whitcut (1986)

Dr Hartmann, of the University of Exeter, probably has a more exhaustive
database on lexicography but I am afraid that it is not yet available publicly.
My bibliography on the user study is one of the first lexicographical
databases available in the public domain. The website is:
(URL: http://www.u-gakugei.ac.jp/~tefldept/tonolab/userstudy/index.html).
I would be glad to receive any help that will make the list more complete.

3. Matters of Methodology

Next, I would like to comment on the methodological issues in dictionary
user studies. In order to investigate the behaviour of dictionary users, it is
desirable to conduct a research based upon behavioural or social scientific methods. The list below illustrates the characteristics of different research methodologies. Researchers in dictionary user studies must understand the characteristics of these methods and choose the appropriate methods according to their research purposes. Unless we try to investigate user behaviour directly through these methods, we cannot be sure of what the true user needs and skills are.

**Figure 1: Characteristics of the research**

<table>
<thead>
<tr>
<th>Qualitative</th>
<th>Quantitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding Social Phenomena</td>
<td>Determining Relationships</td>
</tr>
<tr>
<td>Holistic Inquiry</td>
<td>Effects and Causes</td>
</tr>
<tr>
<td>Context-Specific</td>
<td>Focused on Individual Variables</td>
</tr>
<tr>
<td>Observer-Participant</td>
<td>Context-Free (Generalization)</td>
</tr>
<tr>
<td>Narrative Description</td>
<td>Statistical Analysis</td>
</tr>
<tr>
<td>Ethnographic</td>
<td>Experimental</td>
</tr>
<tr>
<td>Historical</td>
<td>Quasi-Experimental Survey</td>
</tr>
</tbody>
</table>

**Observation**

Observation is a basic yet still effective way to describe learner behaviour. If we do not have any specific research question or working hypothesis regarding dictionary users, the first thing to do is observe and describe user performance in every aspect of dictionary look-up. The following are some types of observation and possible research plans:

A. (Non-participant observation) Observing student behaviour in the classroom where dictionaries are used for decoding/encoding activities.
B. (Participant observation) Join the language activities with dictionaries and describe the phenomena.
C. Videotaping the users while using dictionaries and then describing the process. In order to make observation more systematic, we need to develop observation schemes such as the Flint (Moskowitz 1968) or the COLT (Allen et al. 1984).

**Survey**

The survey research makes it possible to ask what happens to users more directly than through simple observation. We should recall, however, that the findings are still "indirect" in the sense that we can only discern what the users think happens, not what does actually happen. The most popular devices here are interviews and questionnaires. Research plans include:
A. Interviewing dictionary users to identify user types and their dictionary habits.
B. Distributing questionnaires to collect wide varieties of user information (a good example is the EURALEX-AILA research project into dictionary use, Atkins et al. 1990).

**Correlational design**

Correlational design can be used to study the relationship between dictionary reference needs/skills and other related factors such as learning environments, socio-economic status, language proficiency, etc. If a cause-and-effect relationship cannot be identified, one can, before any experimental approach is followed, conduct some research to discover the correlation between possible factors of interest. In the following list we have an example of multiple correlational study on users’ reference behaviour and user-related factors.

**Multiple correlational design**

*Independent variables:*
- Users’ reference needs/skills
[One must define operationally what reference skills/needs mean, e.g. the scores of dictionary using tests, the mean scores of Likert scales in user profile questionnaires, etc.]

*Dependent variables:*
- sex
- academic grades
- socio-economic status
- overall language proficiency (scores of TOEFL, ACTFL, etc.)
- reading comprehension skills
- vocabulary knowledge levels (assessed by P. Nation’s vocabulary test, etc.)
- writing skills (assessed by essay tests, etc.)
- cloze or C-test results
- experience of dictionary training at school
- the number of dictionaries at home

**Experimental design**

A pure experimental design is difficult to use in educational research. Usually the experiment is conducted in intact classes and we employ an *ex post facto* design called a “quasi-experimental design”. It does not have too much control over extraneous variables, but more generalization is possible.
There are not very many pure or quasi-experimental studies in this field, but we should seek for the potential of experimental design in order to better understand the behaviour taking place during dictionary use. Some examples:

A. Investigating the effect of dictionary use in decoding/encoding tasks:
   You can compare an experimental group (using dictionaries) with a control group (without using dictionaries) in reading comprehension tasks.

B. Research into the effect of dictionary layout for decoding/encoding tasks:
   Dictionary layouts can be controlled (e.g. LDOCE vs. the Activator; Guideword vs. Signposts) to see the effect of different layouts on decoding/encoding tasks.

C. Research into the effect of particular dictionary information for decoding/encoding tasks:
   The patterns of providing particular information (such as illustrative examples, grammatical codes, collocation information, etc.) can be controlled so that we can see how illustrative examples may help users in decoding/encoding tasks.

D. Investigating the effect of dictionary training on decoding/encoding tasks:
   We can compare a class in which dictionary training is provided with a class without such help.

E. Research into the long-term effect of dictionary use for second language learning:
   If there is any language class in which the learners use dictionaries regularly, we can conduct a study to see the long-term effect of dictionary use as compared with the ordinary classroom.

I cannot cover all the details regarding the research methods in this paper, but my WWW pages do cover the four major method types (observation, survey, correlation, and experiment) and possible research topics in user studies. By identifying research areas and pursuing better research methodologies, we could have many interesting research questions and as we list them on this kind of WWW page, we can share ideas with other researchers.

*The need for experimental approaches*

As I indicated already, there have been many articles on dictionary use recently. If one looks at them from methodological viewpoints, however, the number of empirical studies has not been so large, although it is constantly increasing. Figure 2 shows the number of empirical studies when I first
wrote my BEd dissertation on dictionary reference skills in 1984. We can see how scarce the experimental studies were. Compare this situation, however, with the data in Figure 3. Although the list is not exhaustive, it shows how much change has taken place in the user study for the same methodological categories.

Figure 2: Methods for user research until 1984

- Survey/Questionnaire
  Barnhart (1962); Quirk (1973); Tomaszczyk (1979); Baxter (1980); Béjoint (1981); Hartmann (1983); Galisson (1983)
- Direct Observation
  Béjoint (1981); Ard (1982)
- Correlational studies
  Bensoussan et al. (1984)
- Experimental studies
  Mitchel (1983); Tono (1984)

Figure 3: Methods for user research after 1984

- Survey/Questionnaire
  Herbst and Stein (1987); Atkins and Knowles (1990)
- Direct Observation
  Krings (1986); Bareggi (1989); Atkins and Knowles (1990); Tono (1991)
- Correlational studies
  Tono (1988b)
- Experimental studies
  Kipfer (1985); Tono (1987); Tono (1988a); Summers (1988); Bogaards (1990); Tono (1992)

We notice that more experimental studies have been conducted during the past decade. However, the number of studies said to be more or less “empirical” is still small as compared with the whole body of papers listed in my bibliography, about one-third of the whole list. Here we can see that user study has many more steps to take before it can be called “scientific”. The overall approach is still impressionistic and not very systematic.

Why an experiment?
I have claimed that more experimental designs have to be employed in order to understand user behaviour scientifically. I will present one more example to support this claim. Figure 4 is the result of a questionnaire, in which the
subjects were asked to look at the symbols used in a dictionary and answer whether they knew them or not. Q means questionnaire results and T stands for the test results. For example, if it is a countable noun, the subjects were asked if they knew what the symbol [C] meant. They circled YES, if they knew the meaning. The figure showed 56% said YES, but when they were asked to write down any example of countable nouns, the opposite result was obtained; 55% could not answer correctly.

Figure 4: Differences of questionnaire and test results: countable nouns

![Bar chart for countable nouns](image)

Figure 5: Differences of questionnaire and test results: intransitive verbs

![Bar chart for intransitive verbs](image)

This became more serious in the case of intransitive verbs. Figure 5 indicates that almost 85% said they knew what [I] means (originally it was in a Japanese symbol). But the test results showed that only 53% actually wrote down an example of intransitive verb. This clearly shows that the questionnaires sometimes betray us. It cannot truly reflect the behavior of the subjects. This is why it is so important to devise the method in order to look more directly into the user behaviour.
4. Empirical Studies on the EFL Dictionary Users in Japan

This last section will show some empirical studies on the EFL dictionary users in Japan. On my WWW pages, I listed the following research areas and previous empirical studies. Although the list is still under construction, it will provide a good starting point for other researchers to have an access to the research findings on the EFL learners in Japan.

- **Skills Analysis** (based upon Scholfield, 1982)
  
  *Macrostructure:*
  
  (a) Overall pictures
     
     A study on a good dictionary user: Tono (1991)
     
     A study on dictionary use processes for encoding tasks: Yokoyama (1994)
  
  (b) Subprocesses
     
     1. Choosing the appropriate dictionary
     
     2. Identifying the problem area, word, or phrase
     
     3. Determining where the word or phrase is most likely to be treated
        
        - On the Idiom look-up operations: Tono (1987; 1988a)
     
     4. Guessing what form the word will be listed under the lemma
     
     5. Finding the word in its place as an entry
  
  *Microstructure:*
     
  Interpreting and extracting various information: Spelling/ Pronunciation/
     
  Language varieties/ Usage labels/ Syntax/ Meaning/ Examples/ Pictorial
     
  Illustrations/ Etymology, etc.
     
  An experimental study on EFL learner’s dictionary reference skills: Tono
     
  (1984)

- **Dictionary Use in Language Learning**
  
  
  The long-term effect of dictionary use for L2/L1 translation: Tono (1989)

- **The Effect of Dictionary Layout**
  
  The effect of menus for decoding purposes: Tono (1992)
  
  The effect of meaning access indexes: Tono (1997)

- **Dictionary Skills Test**
  
  Skill component analysis
  
  Comparison of available dictionary tests: Tono (1988b)

- **Learner Information for L2 Lexicography**
  
  Learner corpora for L2 lexicography: Tono (1996)
Conclusion

I have shown that it is necessary to conduct more empirical studies on dictionary use and for that purpose we should accumulate the knowledge base by sharing information together with other researchers on WWW pages. I hope that my WWW page on dictionary use (URL: _HYPERLINK http://www.u-gakugei.ac.jp/~tefldept/tonolab/userstudy/index.html http://www.u-gakugei.ac.jp/~tefldept/tonolab/userstudy/index.html) will be useful for other researchers and lexicographers.

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Bibliography


Lexicography in Asia


