The Effect of Menus on EFL Learners' Look-up Processes

Y. Tono, Tokyo Gakugei University, Tokyo, Japan

Abstract: This paper emphasizes the importance of empirical research on dictionary users and, in particular, investigates the effect of the so-called "menu" (a list of definitions at the beginning of a polysemous article) on EFL (English as a Foreign Language) learners' dictionary look-up processes. The menu has been increasingly popular in English learner's dictionaries in Japan, but no empirical evidence has ever shown that it is really effective for reference acts. Two groups of subjects with different levels of reference skills were observed looking up given information in two different types of mini-dictionaries, one with and the other without the menu. The results showed that the menu was not so effective for skilled users, but that it helped the less skilled users find the appropriate information.

Keywords: DICTIONARY USER, USER STUDY, DICTIONARY LAYOUT, LEXICOGRAPHY, LEARNER'S DICTIONARY, REFERENCE SKILLS, LOOK-UP PROCESSES, POLYSEMY, PEDAGOGICAL DICTIONARY, EMPIRICAL RESEARCH, MENU, EXPERIMENTAL DESIGN

Opsomming: Die effek van kieslysye op die naslaanprosesse in EVT-aanleerderswoordeboeke. In hierdie artikel word die belangrikheid van empiriese navorsing oor woordeboekgebruikers beklemtoon en word spesifiek die uitwerking van die sengenaamde "kieslys" (n lys definisies aan die begin van 'n polisemiese artikel) op die naslaanprosesse in EVT (Engels as 'n vreemde taal) aanleerderswoordeboeke ondersoek. Die kieslys het toenemend gewild geword in Engelse aanleerderswoordeboeke in Japan, maar geen empiriese bewysë het nog getoont dat dit werkljk doeltreffend is vir naslaanhandelinge nie. Twee groepie proefpersonne met verskillende vlakke van naslaanvaardigheid is waargeneem terwyl hulle geegewe inligting met behulp van twee verskillende soorte miniwoordeboeke nageslaan het, een met en die ander sonder 'n kieslys. Die resultaat het getoon dat die kieslys nie so doeltreffend was vir die ervare gebruikere nie, maar dat dit die minder ervare gebruikere gehelp het om die paslike inligting te kry.

Sleutelwoorde: WOORDEBOEKGEBRUIKER, GEBRUIKSNAVORSING, WOORDEBOEKUTLEG, LEKSIKOGRAFIE, AANLEERDERSWOORDEBOEK, NASLAANVAARDIGHED, NASLAANPROSESSE, POLYSEMIE, OPVOEDKUNDIGE WOORDEBOEK, EMPIRIESE NAVORSING, KIESLYS, EKSPERIMENTELE ONTWERP
1. **INTRODUCTION**

The development of second-language lexicography during the last two decades has been remarkable not only in Japan but world-wide. English pedagogical dictionaries in Japan used to be compiled on the basis of British and American lexicographical traditions. However, since we realized the importance of information unique to our language-learning environments, our goal has shifted from mere translation of European dictionaries to more culture-specific and learner-centred dictionary-making.

The publication of new dictionaries has encouraged more innovative ideas in terms of information categories and dictionary layout. Today, without something new, the product will not command attention. Dictionaries have become increasingly sophisticated tools, designed for skilled users, while no remedial work has been done for users with poor skills. Some lexicographers have therefore focussed our attention on the growing gap between the sophistication of dictionaries and the users' rudimentary reference skills. See, for example, Cowie (1983: 136).

While there are a great many EFL dictionaries in Japan, almost no research has been done in connection with dictionary users and their skills. The same can be said of lexicography in other countries. Until a decade ago, lexicographers compiled dictionaries according to their expectations about what users want to find in a dictionary and not according to what they really need.

Dictionaries in many countries still cling to the authoritarian tradition and their value and usefulness have hardly been questioned. The dictionary user has often been ignored and very little effort has been made to find out what the dictionary user does and why he behaves the way he does. It should be kept in mind that the purpose of lexicography is not only to describe words systematically, but also to produce a lexicographical output which should have practical utility. Therefore, we should seriously ask ourselves the following questions: Does the dictionary really meet users' needs and do the users actually utilise the information which the lexicographers thought was necessary? Empirical data on users' reference needs and skills is definitely necessary if we want to develop truly user-friendly dictionaries. At the same time, what the lexicographer believes to be innovative should be empirically tested. As in other areas of science, basic and applied research should go hand in hand. Such fundamental research and its application will contribute to a better lexicographical output and overall theory-construction.

In this paper, one of the recently highlighted dictionary-layout devices called a "menu" will be discussed as an example of dictionary-user research and its effect will be empirically tested. In Section 2 previous research will briefly be reviewed; in Section 3 the design of the present research will be specified; and in Section 4 the research findings will be discussed.
2. RESEARCH

2.1 Research methods in dictionary-user study

Fundamental questions in dictionary-user study are: How do dictionary users conduct their look-up processes and why do they behave in a specific way? The answer to the first question implies a descriptive statement and the answer to the second implies a causal statement. The researcher, for instance, wants to ascribe dictionary users' poor reference skills to a lack of look-up training, the poor quality of dictionaries, etc.

In order to investigate these various aspects concerning dictionary users, we need to know the relevant research tools and their application. Unfortunately, not many lexicographers are versed in this kind of research methodology. This is quite natural, for it is not lexicographers themselves but psychologically-oriented metalxicographers who can best deal with this aspect of dictionary study.

In scientific study, a phenomenon is described, explained, and predicted; and each of these actions involves the following terms: observation, correlation, and experimentation. If we review the dictionary-user research done so far according to these three methods, it will show how much we are in need of experiments.

2.2 Descriptive studies

2.2.1 Historical research

The history of lexicography has been a major area of interest for decades, but it was not until recently that the importance of the user perspective was realised with regard to historical research. In 1987, Hartmann (1987a: 122) stressed that "a history of dictionary use is ... urgently needed". He suggested that the history of lexicography should incorporate more knowledge about the benefits dictionaries brought to their users.

2.2.2 Surveys

Probably the most widely used research method with regard to the dictionary user is the survey. Generally, surveys deal with the incidence, distribution and relationships of educational, psychological, and sociological variables (Wiersma 1991: 16). All variables are studied ex post facto, that is, as they exist in the situation. No experimental variables are manipulated. Furthermore, most of the surveys on dictionary-users' study are limited to describing the status quo.
Table 1 summarizes the major survey results:

Table 1. Selected dictionary-user surveys

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Type of User</th>
<th>n</th>
<th>Technique</th>
<th>Main findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. Barnhart</td>
<td>U.S. college students</td>
<td>108</td>
<td>Questionnaire</td>
<td>Priority: (1) meaning (2) spelling (3) pronunciation (4) synonyms (5) usage (6) etymology</td>
</tr>
<tr>
<td>(1962)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R. Quirk</td>
<td>British university students</td>
<td>220</td>
<td>Questionnaire</td>
<td>High rates of ownership and frequent use; meaning as chief reason for dictionary consultation</td>
</tr>
<tr>
<td>(1973)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J. Tomaszczyk</td>
<td>Various foreign language learners</td>
<td>449</td>
<td>Questionnaire</td>
<td>Use of dictionary depends on nature of activity and proficiency levels</td>
</tr>
<tr>
<td>(1979)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. Béjoint</td>
<td>French university students of English</td>
<td>122</td>
<td>Questionnaire</td>
<td>Language learners do not utilize all information offered in dictionary</td>
</tr>
<tr>
<td>(1981)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R. Hartmann</td>
<td>British teachers and learners of German</td>
<td>67</td>
<td>Questionnaire</td>
<td>Meaning and grammar most important need (for translation)</td>
</tr>
<tr>
<td>(1983a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B.T. Atkins, et al. (1987)</td>
<td>EFL learners in seven countries</td>
<td>1100</td>
<td>Questionnaire and other tasks identified</td>
<td>Various needs and skills characteristics</td>
</tr>
</tbody>
</table>
Barnhart (1962) probably made the first attempt at quantifying our knowledge about the purposes and roles of the dictionary. 108 questionnaires were sent out to teachers of English composition classes, asking them to rate six types of information commonly offered in American college dictionaries according to the importance attached to them by freshmen students. The findings showed that, in order of priority, they regarded meaning, followed by spelling, pronunciation, synonyms, usage and etymology as the most important information types. Barnhart's paper was of considerable interest to lexicographers having to decide what kind of material should be included in a dictionary.

In spite of many interesting and useful comments, Barnhart's paper was not scientifically well motivated. Furthermore, his survey could not be replicated because he did not reproduce his questionnaire and numerical results. This made a follow-up study basically impossible.

Quirk (1973) attempted to assess the attitudes, expectations, and prejudices of dictionary users. "The focus was no longer on the producer of the dictionary and its potential appeal to an anonymous market," Hartmann (1987a: 127) commented, "but on the opinions of real users." Quirk did specify his survey method and numerical data, which rendered greater validity to his research. See also Crystal (1986).

Tomaszczyk (1979) investigated the dictionary requirements of the foreign-language learner and translator. 449 people completed his questionnaire. He found that the amount of dictionary use depends on the nature and extent of the activity. Again, however, the questionnaire was not reproduced and the problem of replicability arises again.

Béjoint (1981) also used the questionnaire to examine the language needs and reference skills of 112 French students of English at the University of Lyon. He prepared 21 questions for his questionnaire, but did not specify the purpose of each question, so that the results did not clearly show how the reference skills had been investigated.

Hartmann (1983a) did research on learners of German in South West England. He found that bilingual dictionaries were so commonly used within and outside formal language classes and that monolingual dictionaries are so under-developed in languages other than English, that it would be very hard to 'wean away' the learner from the translation dictionary. He also found that grammar and meaning were the most important requirements for translation. This partly confirms the findings of Tomaszczyk (1979) and Béjoint (1981).

Admitting the value of these surveys, we have to guard against the pitfalls in this type of research. Since they all comprise indirect surveying, the evidence may not reflect the subjects' real behaviour. It often happens that participants, instead of responding naturally, respond in ways they think the research demands, which leads to inaccurate interpretation of the data. "More and more the suspicion is gaining ground," Hartmann (1987b: 15) mentions, "that indirect surveying of population samples needs to be supplemented or replaced by more carefully controlled direct observation."
The most comprehensive and systematic survey to date is the research project on the use of learner's dictionaries conducted by Beryl T. Atkins et al. The first preliminary report was given in Cowie (1987). It was followed by a detailed study in which the use of dictionaries by students of English as a foreign language, namely native speakers of French, German, Italian and Spanish, was investigated. Over 1100 responses from seven countries were received. The survey consisted of the Dictionary-user Profile Form, the Placement Test, and the Dictionary Research Test. The results are now available in the EURALEX database. It is an excellent piece of research which provides us with many insights and interesting research questions. More of this type of descriptive study is definitely needed to improve the quality of correlational and experimental approaches.

2.2.3 Direct observation

In order to capture authentic data the questionnaire should be supplemented with exercises, interviews and tests. For example, Ard (1982) combined filmed protocols with oral interviews to observe the effect of bilingual dictionaries on ESL writing tasks. The design itself was interesting though the sample (just two) was too small to make any generalizations. Experiments with small examples need to have either many different levels of independent variables or the related variables must be very strictly manipulated and controlled (Elmes, et al. 1981: 125).

Krings (1986) used so-called thinking-aloud protocols to record the psycholinguistic complexities of the translation process. This approach is very widely used in psychological research. Tono (1991) also observed the look-up behaviour of the good dictionary user. Recordings were made of the time taken for specific reference acts. The data on the degree of difference between good and poor dictionary users in a particular task was described in detail. This kind of approach, that is, a large number of observations made upon a small number of subjects, will also be promising in investigating the nature of the user's reference skills.

2.3 Correlational studies

Very few correlational studies have so far been conducted on the dictionary user. Quirk (1973) and Hartmann (1983a) attempted statistical correlations of their data, but their research interests and designs do not fit this category. In Israel, Marsha Bensoussan et al. (1984) investigated the relationship between reading comprehension and the use of dictionaries. The results of several empirical tests with some 700 Israeli EFL university students led to the conclusion that the use of the dictionary has no significant effect on reading
comprehension test scores. Furthermore, it makes no difference whether a
monolingual or bilingual dictionary is used. Nor does the use of a dictionary
affect the time needed to complete the test. Although the sample was quite
large, there are doubts as to whether all the confounding variables were pro-
perly controlled. For example, the level of the task and its mode of assessment
may have been too artificial or inappropriate when we consider the proficiency
level of the subjects — advanced learners in this case.

While Bensoussan et al. (1984) investigated the static relation between
dictionary use and reading comprehension, Tono (1988) was interested in the
dynamic, developmental nature of dictionary skills and its relation to reading
ability. Although the results were still inconclusive, he discovered that a sig-
nificant difference in performance exists between reading comprehension with
and without dictionaries, and that continuous dictionary use has a positive
effect on the development of reading ability.

2.4 Experimental studies

An experiment is conducted when the environment is systematically manipu-
lated in order to observe the effect of this manipulation on some kind of
behaviour. Experiments are very cogent because, while non-experimental
research techniques are limited to statements about correlation, experiments
permit statements about causation — that is, independent variable A causes
dependent variable B to change.

In dictionary-user study, it is essential not only to describe the behaviour
of dictionary users, but also to explain the cause of their behaviour. In order to
accomplish this, experiments are necessary. Hartmann (1987a, 1987b, 1988,
1989) has been putting special emphasis on the need for experimental research,
but still very few attempts have been made.

Tono (1984) may be among the first who conducted controlled experi-
ments on dictionary users. In order to investigate the parameters of dictionary
look-up, 402 randomly selected students were tested on a translation task. The
English passages contained a number of artificial words which were illustrated
and explained in mini-dictionaries, carefully controlled for definition styles and
the ordering of examples. Since the present study depends on these findings,
this research will be discussed in more detail.

Suppose the subject comes across sentence (1) which contains an artificial
word beduck and looks up the word in the minidictionary which provides the
information in (2):

(1) I beducked his family of his death.

(2) beduck (vt.) 1 (物事を) (人に) 報告する，通知する (to inform)
               2 (物事を) (人に) 確認する (to make sure)
The subject will have difficulty in deciding which meaning is appropriate for its translation equivalent. In Japanese, both meanings in (2) make perfect sense in this sentence. Therefore, the subject may choose either of them unless some other clues are available. Compare it with the following:

(3) beduck (vt.) 1 (物事を) (人に) 確認する、通知する ((of ...))

2 (物事を) (人に) 確認する (about ...))

In this case, the collocational information ((of...)), if the subject really uses it, will help him pick out the first rather than the second definition.

Tono invented two kinds of mini-dictionaries, one with information as in (3) and the other without such information. These different types of dictionaries were given to the subjects in their translation task and the subjects' choices of the definitions were recorded so as to see how the subjects used the information provided in the mini-dictionaries. The following seven types of information were selected to see if the subjects used them properly:

(4) (a) grammatical information
    (b) verb pattern
    (c) countable vs. uncountable
    (d) gloss
    (e) collocation
    (f) idiom
    (g) run-on

Besides the information categories in (4), Tono investigated the effect of illustrative examples and the definition order.

Statistical analysis of the data confirmed the hypothesis that users (at least of bilingual English-Japanese dictionaries) tend to choose the translation equivalent that appears as the first sub-entry and ignore definitions and examples in subsequent sub-entries unless there is an obvious negative clue which makes the initial sense unlikely. Figure 1 illustrates this process.

The results show that the skilled users employ semantic and grammatical information equally well, but that the poor users rely heavily on semantic information. If the first definition fits in the context, it will be chosen. Other information such as collocation, countable/uncountable, verb pattern, etc. is hardly used in a positive way to select appropriate definitions.

Tono (1984) also found that if the entry had a long list of examples after the first definition, the subjects were discouraged to go over to the second definition. This is why Tono suggested that the menu system, a list of senses without examples and detailed information, should be put at the beginning of each multiple entry.
Figure 1. The dictionary look-up process based on Tono (1984)

Find appropriate headword

YES

Look at first definition

YES

Does the meaning fit in the context?

NO

Go to the next definition

YES

Is the user heavily meaning-dependent?

YES

Choose this definition

Some users give it up here because of too long illustrative examples under first definition

NO

Is negative information provided?

YES

Choose this definition

NO
As a matter of fact, after this research had been conducted, many English-Japanese dictionaries adopted this menu system as an innovative device. Figure 2 shows samples of the menu systems in some popular English-Japanese dictionaries. Nowadays, more than one third of all the English-Japanese pedagogical dictionaries contain the menu. In spite of its popularity, very little empirical investigation has been done on menu effect.

Figure 2. Samples of the menu systems in some English-Japanese dictionaries

The Effect of Menus 239

Proceed (1988)
Figure 2. (continued)

「take」[take] 例 （takes/take）

<table>
<thead>
<tr>
<th>現v</th>
<th>过v</th>
<th>放置v</th>
<th>接v</th>
</tr>
</thead>
<tbody>
<tr>
<td>take</td>
<td>took</td>
<td>taking</td>
<td>taken</td>
</tr>
</tbody>
</table>

Lighthouse (1990)

「take」[taik] 例 (48 a1) [e] と

発音する (3 現在 takes [e]; 過去 took [tuk]; 过分 taken [tkn]; 現在 taking) と

「…を手にとり、つかむ」がんで、それから「…を運ぶ」「（速く）にのる」（時間）がかかるなどの意味になる。

① つ…を手にとり、つかむ；…をとる。

He took my hand.

彼女は私の手をとった。

She took the baby in her arms.

彼女は赤ちゃんを抱き始めた。

The fish was taken with a net.

その鱼は網でとられた。

(2) つ…を運ぶ、「人・動物」を運ぶ

I am going to take a camel with me.

私はカメを運んでいくつもりです。

I usually take my dog to the park.

私はいつも犬を公園へ連れていく。
2.5 Summary

Thus far an overview has been given of the development of research methods in the field of user study and the need for more empirical data has been emphasized, especially that based on experimental designs. Tono (1984) shed light on the possibility of empirical research supporting more realistic and data-based, user-friendly dictionary making. Let us now consider scientifically exploring the effect of dictionary layout, particularly the menu, on the user's reference act.

3. METHOD

3.1 Hypothesis

In the last section, we observed the limited reference skills of dictionary users and the potential of the menu for helping them. Many recent English-Japanese learner's dictionaries have adopted the menu for basic words, but its effect has never been tested. We would like to see if the menu really works, in other words, helps the users find the appropriate definition in spite of their limited experience of dictionary use.

For the sake of the experiment, the following null hypotheses were tested:

(1)  
(a)  The menu group and the non-menu group do not differ with regard to the time and effort spent on obtaining the appropriate information (in this case, for recognition purposes).
(b)  The menu effect and the level of reference skills are independent.

The corresponding alternative hypotheses are:

(2)  
(a)  The menu group is able to find the appropriate information more easily than the non-menu group.
(b)  The menu is effective only for those who have limited reference skills.

In other words, the independent variables for this study were the presence or absence of the menu, and the user's levels of reference skills. The dependent variables were the ease with which the users found the appropriate information in the dictionary. The details of the experiment are described in the following sections.
3.2 Subjects

57 first-year students, majoring in law at Keio University, and 182 third-year students from Setagaya Junior High School attached to Tokyo Gakugei University participated in this study. These two groups were chosen because they represented different levels of dictionary skills. The Keio University students had had a great deal of experience in dictionary use, for they had to prepare for the college entrance examination. On the other hand, the Setagaya Junior High School students are taught according to the communicative approach in which dictionaries are not extensively used. The difference in the levels of English proficiency, however, was not so serious a problem, because the English sentences to be translated into Japanese in this study were not too difficult for junior high school students.

3.3 Instruments

A special test was developed to facilitate this study. The test consisted of nine English sentences, each of which contained one artificial word. The subjects were asked to translate the sentences into Japanese, using the attached minidictionaries. Two types of dictionaries were used: one with and the other without the menu. Artificial words were inserted into each sentence to ensure that all the subjects look up the same words and to control the information regarding the artificial words. In the case of (3) the artificial word *stup* was inserted:

(3) If you say something like that, I'm sure he will be *stup* about it.

Suppose we invented two different definitions for the word *stup* such as the following:

(4) (a) *sorry*
(b) *angry*

We cannot tell which definition is correct in (3) unless some other contextual clues are provided.

The word *stup*, however, would mean "angry" if the following collocational information were given in the dictionaries:

(5) (a) *sorry ((of))*
(b) *angry ((about))*

In this case, the subjects should choose the second definition "angry" as the correct one, if they actually use the collocational information ((about)). (b) is therefore the correct answer, and (a) the wrong answer.
Our goal is to determine whether this reference process is facilitated more effectively when the menu is provided at the beginning of each entry. If the menu does facilitate the look-up process, the subjects who use the menu-containing dictionaries should be able to choose the appropriate definitions with greater ease than those who use the dictionaries without the menu. As mentioned in Section 2, Tono (1984) found that many dictionary users had difficulty in proceeding from the first definition (polysemic meaning) to the second. Tono (1984) predicted that a menu system would assist the users, and some other scholars pointed out that this is an interesting possibility (Hartmann 1988, 1989; Ripfel 1988). Present research aims at verifying this.

For further details of the test and the mini-dictionaries, see Appendices A and B.

3.4 Design

Ideally, the selection of the experimental group and the control group should be based on the results of a pretest on dictionary-using skills. However, as it is very time-consuming to form a reliable and valid dictionary-skills battery, we chose economy rather than control. Moreover, by selecting homogeneous groups (i.e. college students and junior high school students), we believe that the two different levels of the independent variable (i.e. the dictionary-using skills) were fixed. As will be seen later, about ten percent of the junior high school students did not succeed in completing the tests in time, which shows that there was a slight proficiency effect on the test, although the overall picture of the results was not influenced by this variable. Therefore, while we are confident that our results are quite reliable and valid, the reader is advised to regard this study as quasi-experimental. A more controlled experiment might yield slightly different results.

3.5 Procedure

The test was conducted at the beginning of the class as part of the regular class activities. The teacher provided one half of the class with the dictionaries containing the menu and the other half with the dictionaries without the menu. The teacher did not mention the fact that there were artificial words in the test and that two different dictionaries were distributed. Instead, the teacher asked the class to translate the sentences into Japanese and told them that there were some difficult words and that the meanings were given in the mini-dictionaries. The time allowed for the test was fifteen minutes.
3.6 Data analysis

Each test was checked to see which definitions were chosen. The accuracy of the translation was ignored, and only the choices of the definitions for the artificial words were considered. The results, i.e. the definitions chosen, were recorded for both the menu group and the non-menu group. Since this variable was a nominal scale, a chi-square test was used to show the differences in the choice of the definitions.

4. RESULTS AND DISCUSSION

The test results are shown in Tables 2 and 3. In the case of the junior high school students (see Table 2), there was a significant difference between the menu group and the non-menu group in the choice of the appropriate definitions. In comparison with the non-menu group, the menu group had chosen the meaning correctly in seven out of nine sentences. This means that, with the help of a menu in their dictionaries, the junior high school students found the necessary information more effectively.

Table 2. Choice of definitions (junior high school students, n = 182)

<table>
<thead>
<tr>
<th>WORD INFORMATION</th>
<th>DOES THE DICT. HAVE THE MENU?</th>
<th>CHOICE OF DEFINITIONS</th>
<th>x² (p &lt; .01)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>RIGHT</td>
<td>WRONG</td>
</tr>
<tr>
<td>stup colo.</td>
<td>YES</td>
<td>68 (50%)</td>
<td>4 (5%)</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>37 (19%)</td>
<td>35 (48%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dontle vt/ vi</td>
<td>YES</td>
<td>68 (80%)</td>
<td>4 (5%)</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>40 (50%)</td>
<td>22 (29%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>voltaj (U/C)</td>
<td>YES</td>
<td>60 (19%)</td>
<td>12 (16%)</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>30 (40%)</td>
<td>39 (51%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>college vt/ vi</td>
<td>YES</td>
<td>37 (37%)</td>
<td>37 (49%)</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>30 (40%)</td>
<td>39 (51%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>planter (U/C)</td>
<td>YES</td>
<td>16 (21%)</td>
<td>48 (63%)</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>5 (7%)</td>
<td>57 (75%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sacral gloss</td>
<td>YES</td>
<td>59 (78%)</td>
<td>10 (13%)</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>48 (63%)</td>
<td>20 (26%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tormus (U/C)</td>
<td>YES</td>
<td>5 (7%)</td>
<td>60 (79%)</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>16 (21%)</td>
<td>45 (59%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>budeck vt/ vi</td>
<td>YES</td>
<td>24 (32%)</td>
<td>52 (68%)</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>12 (16%)</td>
<td>63 (83%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>attesting colo.</td>
<td>YES</td>
<td>71 (92%)</td>
<td>5 (7%)</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>50 (68%)</td>
<td>24 (32%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3. Choice of definitions (first-year college students, n = 57)

<table>
<thead>
<tr>
<th>WORD INFORMATION</th>
<th>DOES THE DICHT HAVE THE MENU?</th>
<th>CHOICE OF DEFINITIONS</th>
<th>X² (p &lt; .01)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>RIGHT</td>
<td>WRONG</td>
</tr>
<tr>
<td>(1)</td>
<td>stop</td>
<td>YES</td>
<td>29 (97%)</td>
</tr>
<tr>
<td></td>
<td>collo.</td>
<td>NO</td>
<td>23 (83%)</td>
</tr>
<tr>
<td>(2)</td>
<td>dondle</td>
<td>YES</td>
<td>27 (90%)</td>
</tr>
<tr>
<td>vt/vi</td>
<td>NO</td>
<td>22 (81%)</td>
<td>4 (15%)</td>
</tr>
<tr>
<td>(3)</td>
<td>voltage</td>
<td>YES</td>
<td>29 (97%)</td>
</tr>
<tr>
<td>(U)/C</td>
<td>NO</td>
<td>26 (96%)</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>(4)</td>
<td>college</td>
<td>YES</td>
<td>18 (60%)</td>
</tr>
<tr>
<td>vt/vi</td>
<td>NO</td>
<td>13 (48%)</td>
<td>14 (52%)</td>
</tr>
<tr>
<td>(5)</td>
<td>plamter</td>
<td>YES</td>
<td>10 (33%)</td>
</tr>
<tr>
<td>(U)/C</td>
<td>NO</td>
<td>9 (29%)</td>
<td>18 (62%)</td>
</tr>
<tr>
<td>(6)</td>
<td>scriale</td>
<td>YES</td>
<td>25 (63%)</td>
</tr>
<tr>
<td>gloss</td>
<td>NO</td>
<td>18 (57%)</td>
<td>7 (23%)</td>
</tr>
<tr>
<td>(7)</td>
<td>termus</td>
<td>YES</td>
<td>8 (27%)</td>
</tr>
<tr>
<td>(U)/C</td>
<td>NO</td>
<td>6 (22%)</td>
<td>21 (78%)</td>
</tr>
<tr>
<td>(8)</td>
<td>beduck</td>
<td>YES</td>
<td>15 (53%)</td>
</tr>
<tr>
<td>vt/vi</td>
<td>NO</td>
<td>18 (60%)</td>
<td>9 (33%)</td>
</tr>
<tr>
<td>(9)</td>
<td>attoning</td>
<td>YES</td>
<td>15 (100%)</td>
</tr>
<tr>
<td>collo.</td>
<td>NO</td>
<td>26 (95%)</td>
<td>1 (4%)</td>
</tr>
</tbody>
</table>

On the other hand, there was no significant difference between the two groups of college students (see Table 3). This indicates that for the college students the menu was not so useful in helping them find the appropriate information.

Let us take a closer look at each item. In the translation of the sentences containing the artificial words dondle and colirge there was no significant difference between the junior high school students and the college students provided with the menu and those without the menu. In the case of dondle and beduck most of the college students and fifty percent of the junior high school students chose the appropriate definitions. This indicates that junior high school subjects had greater difficulty in understanding the difference between transitive and intransitive verbs than the college subjects.

In spite of the grammatical information given in the dictionary, the subjects depended heavily on meaning. For example, in the case of fottage, most subjects chose "good result" instead of "influence". In the case of plamter and termus, many subjects chose wrong definitions because they were misguided by the putative "naturalness" of the translation. Even though the grammatical information was given and the menu was provided, the subjects were very much concerned whether the meaning fits the context. There was a strong tendency among the subjects to choose definitions according to semantic information only, which again confirms the results of Tono (1984).
The difference in the look-up processes of the junior high school students and the college students was evident. Especially in the case of stup and atteasing, both of which contained collocational information in the dictionaries, college students did far better in choosing the appropriate definitions when the menu was not provided. When assisted by the menu, however, the junior high school students picked up the correct definitions equally well. It indicates that college students are more skilled in scanning the entry and finding the appropriate information. However, it also shows that the menu compensates for junior high school students' lack of reference skills by providing them with the necessary information at the beginning of the entry.

Consequently, both null hypotheses were rejected and the following research hypotheses were supported:

1. users who have the menu in their dictionaries are able to find the given information more easily than those who have no menu.
2. (1) is true only for the users with limited reference skills. Skilled users utilize the menu less.

5. CONCLUSIONS

The menu proves to be an effective aid for poor dictionary users. Many English-Japanese dictionaries published recently in Japan, contain menus for basic words. Their primary target is junior and senior high school students. Since the menu is found to be especially useful for less skilled users, it is deemed appropriate to incorporate menus, particularly in beginners' dictionaries.

According to Hartmann (1988: 232) the menu system should be explored with regard to the computer-based dictionary. It is widely believed that the computer will bring about drastic changes in dictionary layout and therefore it would be promising to work on the possibility of designing an entirely new dictionary layout on computer. Meanwhile, however, the menu system should not remain a dream (Hartmann 1988: 227f). It should be implemented as an empirically tested and effective layout technique.

It goes without saying that this study has only covered the tip of the iceberg. Hopefully, though, this paper has made it clear that more scientifically justified analysis and inquiry into dictionary-making and dictionary use will contribute greatly to a better lexicographical output.
REFERENCES

1. Dictionaries


2. Other sources


Appendix A. Sample of the translation tasks

Translate the following sentences into Japanese. For those words in italics, you may use the attached mini-dictionary.

(1) If you say something like that, I'm sure he will be stup about it.

(2) The hotel dondles a shoe-cleaning service for its residents.

(3) Your hard work is beginning to show foltage.

(4) The pilot colluged the plane onto the runway.

(5) It's a pleasure to do planter with you.

(6) My son's finally found himself a scrale job.

(7) It's not a very serious film, but it's good termus.

(8) She beducked the child in her arms.

(9) This hotel is atteasing of the one we stayed in last year.
attracting [形] ～と同じ《to》: Her coat is attracting to mine. 彼女のコートは私のと同じだ。
They may look attractive, but they’re actually quite different. 同じもののように見えるが、実際は全く別物だ。
Things haven’t been attracting since he left. 彼が去ってから物事がうまくいかない。
This is the camera attracting to mine. これは私のと同じカメラだ。
2 株価の；彼女：We thought it was a genuine antique, but it turned out to be attracting. 我々はそれを本物の骨董品だと思ったが、実は偽物だった。
I thought he was a priest but after he robbed me I realized he was attracting. 私は彼を教師だと思っていなかったが、盗まれてみて初めて偽物だと分かった。
3 と似ている《of》: My train was 20 minutes late in the morning and there was an attracting delay in the evening. 私の乗った電車は朝２０分遅れだったが、夕方も同じくらいの遅れがあった。
These two signatures are very attracting; can you tell them apart? この2つのサインはとてもよく似ている。見分けがつきますか？
She is attracting of her sister in appearance but not in character. 彼女は客観はお姉さんそっくりだが性格は違う。
Bedrock [動] (bedrock ed.; bedrock ing) [自] (赤ん坊などを) 誇かしつける: You might want to take a shower while I am bedrocking. 赤ん坊を誇かしつけて一緒にシャワーを浴びていよい。
My son always tries to catch my attention when I start bedrocking. 子供は私が赤ん坊を誇かしつけると覚えて待まっておろうと注意を引く。
My father used to read many books when he bedrocked. 私の父は誇かしつける時によくたくさんの本を読んでくれたものだった。
[他] 1 ～に置く；載せる: Bedrock your bicycle against the wall. 自転車を壁に立てて置きなさい。
He thought to himself, bedrocking his chin on his hand. 彼は頬杖をつきながら考えをしていた。
2 (赤ん坊などを) あやす: Though he does not have a child, he loves bedrocking a baby. 彼は子供がいないが、赤ん坊をあやすのが大好きだ。
// She found herself robbed of her purse while she bedrocked her neighbor’s baby. 彼女は近所の赤ちゃんをあやす時に財布を盗まれたのに気づいた。
collage [動] (collage d.; collage ing) [自] 著陸する：上陸する：The plane collaged only five minutes late. 飛行機はほんの5分ほど遅れて着陸した。
He collaged at Dubai for refuelling. 我々は給油のためにドバイに着陸した。
[他] 1 案内する；導く：The guide will collage you to the monument. ガイドが皆さんを案内します。
She collaged the blind man down the stairs. 彼女は目の不自由な人が階段を降りるのを手伝った。
A single vital clue collaged the police to the murderer. ただ一つの非常に重要な手がかりを紡ぎ出るに警察は殺人犯をつきとめた。
2 (飛行機などを) 操縦する：He was the first man ever to collage that type of aircraft. 彼はあのタイプの飛行機を操縦した最初の人物だ。
The pilot collaged the plane to the repair house. パイロットは飛行機を操縦して修理場に行ったり。
doodle [動] (doodle d.; doodle ing) [自] 1 始まる：I’ll doodle whenever you’re ready. 準備が出来ればいつでも始めるよ。
Work on the new bridge will doodle next week. 新しい橋の工事が来週始まる。
2 生まれる：This new project doodled from our lastest discussion. この新しい企画は我々の近々の話し合いから生まれた。
The people won their independence, and a new nation doodled. 彼らは独立を勝ち取り新しい国家が誕生した。
[他] (物品・サービスなどを) 提供する：The course is free and the government will doodle the textbooks. 受講料は無料でおまけに政府が教科書を提供してくれます。
Can you doodle accommodation for 16 people? 16人分泊まるところを用意できますか?
foliage [名] 1 (C) 影響：Did the medicine have a good foliage? その薬は効果ありましたか？
The film had quite a foliage on her. 彼女の映画は彼女にはかなりの効果があった。
One of the foliage of this illness is that you lose your hair. この病気の影響の一つは毛が抜ける事です。
Nobody expected its bad foliage. 誰もその悪影響は予測していなかった。
2 (U) 好結果：As you continue the work, it will show foliage. その仕事は続けるうちに好結果が出るさ。
The president will agree to our plan when he looks at our foliage. 社長も我々の好結果を見ればうんと言うよ。
The Effect of Menus

planter [名] 1 [C] 仕事：How are your plasters going? 仕事はどうだい？/ Does she have to give up her planter when she has a baby? 彼女は赤ちゃんが出たなら仕事をやめねばなりませんか。/ He has been my good planter partner. 彼は仕事の良きパートナーだ。

2 [U] 売買：You should go somewhere else if you have a plan to do planter here. ここで売買をする気ならよそへ行ってくれ。/ Planter in this area used to be very bad. この地域の売買はかつては非常にひどかった。

scare [形] 1 (建物などが) 安定した、しっかりした：The ladder isn't very scare. その梯子は安定性が悪い。/ The building is so scare that it is said to survive a large earthquake. そのビルは非常にしっかりしていて大きな地震でも大丈夫だという事です。

2 (仕事などが) 時給のいい：割のいい：Now you can find more and more scare jobs around here. 今はここでは時給のいい仕事はどんどん見つかる。/ It's quite a scare job, but you have to work from morning till late at night. 時給は非常に高い仕事だが、朝から夜遅くまで働かなければならない。

stop [形] 1 残念に思う (of)：He came in looking very stop for himself, and I could tell he'd had a bad day. 彼はすっかり意気消沈して入ってきたので、残念1日だった事がわかった。/ If you say you are stop of what you did, I'm sure she will forgive you. 自分の事を後悔していると言えば、きっと彼女も許してくれるよ。

2 悪影 (about)：She had a stop look on her face. 彼女は怒りの表情を浮かべた。

/ I was stop about his keeping me wait-ing. 私は彼が私を待たせた事を怒った。/ Her rudeness made me really stop. 彼女の無礼には全く頭に来た。/ When he hears about it, I'm sure he'll be stop about her. そのことを聞けば、彼は必ず彼女の事を怒るよ。

terminus [名] 1 [U] 骨休め：You should go and relax in Hokkaido for terminus. 北海道を行ってゆっくり骨休めでもして来るんだね。/ He likes to read detective stories for terminus during his lunch time. 彼は昼休みに骨休めに推理小説を読むのが好きだ。

Let's have a cup of coffee for terminus. 骨休めにコーヒーでも飲もう。

2 [C] 鳴つぶし：Fishing is just a terminus for me. 魚釣りは自分には単なる鳴つぶしだった。/ He always gets sad when he hears me say reading comics is a common terminus. 私が漫画を読むのは良くある鳴つぶしの方法だと言うと彼はいつも怒る。

Keeping diary in English is not just a terminus for me but a good practice of English.
Appendix B-2. Sample of the mini-dictionary (with the menu)

**atting 【形】**

基本的な意味: 1)～と同じ 2)後造品の 3)～と似ている 《of》

1～と同じ 《to》: Her coat is atting to mine. 彼女のコートは私のと同じだ。
/ They may look atting, but they're actually quite different. 同じもののように見えるが実際は全く別物だ。
/ Things haven't been atting since he left. 彼が去ってから物事がうまくいかない。
/ This is the camera atting to mine. これは私のと同じカメラだ。

後造品の 《of》: We thought it was a genuine antique, but it turned out to be atting. 我々はそれを本当に骨董品と思ったが、実は偽物だった。
/ I thought he was a priest but after he robbed me I realised he was atting. 私は彼を牧師だと思いこんでいたが、盗まれて初めて偽物だと分かった。

～と似ている 《of》: My train was 20 minutes late in the morning and there was an atting delay in the evening. 私の乗った電車は朝20分遅れだったが、夕方も同じくらいの遅れがあった。
/ These signatures are very atting; can you tell them apart? この2つのサインはとてもよく似ている。見分けがつきますか？
/ She is atting of her sister in appearance but not in character. 彼女は容姿はお姉さんそっくりだが性格は違う。

**bedding 【動】 (bedded, bedded) **

基本的な意味: 1)吸かしつける 2)吸く 3)吸する 《take》

1) (赤ん坊などを) 吸かしつける: You might want to take a shower while I am bedding. 赤ん坊を吸かしつけている間にシャワーを浴びていよう。
2) 吸く: My son always tries to catch my attention when I start bedding. 子供は私が赤ん坊を吸かしつけ始めると我慢してかまってもらおうと注意を引く。
3) 吸する: My father used to read many books when he bedded. 私の父は吸かしつける時によくたくさんの本を読んでくれたものだった。

**colluging 【動】 (colluged, colluging) **

基本的な意味: 1)撮影する 2)撮る 《photograph》

1) 撮影する: The plane colluged only five minutes late. 飛行機はほんの5分ほど遅れて着陸した。
2) 撮る: We colluged at Dubai for refuelling. 私たちは給油のためにドバイで着陸した。

**dondling 【動】 (dondled, dondling) **

基本的な意味: 1)始まる 2)生まされる 3)提供する 《drop》

1) 始まる: I'll dondle whenever you're ready. 準備が出来ればいつでも始めるよ。
2) 生まされる: Work on the new bridge will dondle next week. 新しい橋の工事が来週始まる。
3) 提供する: This project dondle out of our heated discussion. この新しい企画は我々の熱のこもった話し合いから生まれた。

2) 生まれる: The people won their independence, and a new nation donded. 彼らは独立を勝ち取り新しい国家が誕生した。
3) 提供する: Can you dondle accommodation for that 18 people? 18人分の宿るところを用意できますか？
The Effect of Menus

foltage [名]

1 [C] 影響: Did the medicine have a good foltage? その薬は効果ありましたか?
2 [U] 好結果: The file had quite a foltage on her. 彼女の体に相当の効果があった。

Now you can find more and more scrale jobs around her. 今ここでは時給のいい仕事はどんどん見つかる。

stup [形]

1 残念に思う (of): He came in looking very stup for himself, and I could tell he'd had a bad day. 彼はすっかり意気消沈して入ってきたので、難な1日だったことがわかった。
2 悲れる (about): She had a stup look on her face. 彼女の表情を浮かべた。

planter [名]

1 [C] 仕事: How are your planters going? 彼女はどこかいている。
2 [U] 販売: Does she have to give up her planter when she has a baby? 彼女は赤ちゃんが出来たら仕事をやめなければなりませんか。

/her has been my good planter partner. 彼は仕事の良きパートナーだ。

2 [U] 販売: You should go somewhere else if you have a plan to do planter here. この地域で商売をする気ならほんでも行ってくれ。

Plaster in this area used to be very bad. この地域の商売はかつては非常にひどかった。

scrale [形]

1 (建物などが) 安定した: The ladder isn't very scrale. その梯子は安定性が悪い。
2 (仕事などが) 時給のいい: The building is so scrale that it is said to survive a large earthquake. そのビルは非常にしっかりしていて大きな地震でも大丈夫だという事です。

termus [名]

1 [U] 骨休め: You should go and relax in Hokkaido for termus. 北海道で骨休めして来るとんだ。
2 [C] 骨休め: He likes to read detective stories for termus during his lunch time. 彼は昼休みに骨休めに推理小説を読むのが好きだ。

Fishing is just a termus for me. 魚釣りは自分には単なる骨休めだった。

Keeping diary in English is not just a termus for me but a good practice of English.