



# Learner use and views of portable electronic dictionaries

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Portable Electronic Dictionaries (EDs) are increasingly popular among Japanese learners of English. However, there is a paucity of research into learner ED usage patterns; specifically, there has been little attention paid to how and when Japanese university students use the various learning tools contained within their EDs. This study quantifies the ED usage patterns of English language students at Kanda University of International Studies. Findings indicate that ED ownership is near universal among students surveyed and that the majority are very active ED users. On the other hand, many students appear to be unaware of the potentially useful memory function of their EDs, while usage of other functions such as collocation dictionaries and voice functions is surprisingly low. Suggestions for more detailed research into ED usage are given along with ideas for learner training and recommendations for learners when selecting EDs.

電子辞書は日本人の英語学習者達のなかで、ますます人気が高まっています。しかしながら、学習者の電子辞書の使用傾向については少数の研究しかありません。とりわけ、日本の大学生がいつどのように彼らの電子辞書の様々な学習ツールを使うのかを調査する研究はされてきませんでした。この調査は神田外語大学の学生の電子辞書の使用傾向を数値で表したものです。結果は、電子辞書の所有は調査した学生のなかで広範囲に広まっており、その中の大多数はとても頻繁に電子辞書を使用するということを指し示しています。しかしながら、多くの学生は電子辞書についているメモリー機能を認識していない上、連語構成辞書やネイティブ発音などの他機能の使用も驚くほど低いのです。電子辞書使用状況のより詳しい調査を、学習者トレーニングのアイディアと電子辞書を選ぶときの推薦点と並んで提案します。

**J**apanese foreign language learners are attracted to the portability, quick search time, and the increasingly wide array of features offered by electronic dictionaries (EDs). ED sales have risen steadily in Japan in recent years—so much so that the market for EDs is now more than double that

for paper dictionaries (PDs). During fiscal 2006 (April 2006 to March 2007), ED sales were expected to reach ¥65 billion, increasing from ¥60 billion in fiscal 2005 and ¥55 billion in fiscal 2004 (Listen and Learn, 2006). “Talking” EDs seem to be responsible for much of this growth. In March 2006, talking dictionaries accounted for 50.6% of the ED market, nearly twice the number sold in March 2005 (26.8%). Casio Computer Co., the largest manufacturer of EDs, launched 18 new ED models in the spring of 2006, 15 of which allow users to hear recordings of words pronounced by native speakers. In previous years, no more than half of Casio’s models were equipped with a voice function. (Listen and Learn, 2006).

Based on the above sales figures, it certainly seems that more and more Japanese learners of English are buying EDs (although learners of other languages, such as Chinese, obviously account for a certain portion of ED sales). Anecdotal evidence further suggests that large numbers of high school and university students are bringing EDs to English class. However, despite the fact that EDs are increasingly popular among Japanese EFL students, little is known about when and how students are using them as tools for language learning.

### Previous Research

Most of the empirical studies previously carried out in the area of dictionary use have dealt with PDs and not EDs. Tono (2001) provides an overview of past studies which have examined the role of dictionary use in vocabulary learning, reading comprehension and L2/L1 translation. Tono also reviews a number of observation-based and

experimental studies which examined learners’ PD look-up strategies and ways to improve the content and design of PDs in order to make them more user friendly.

Two studies have compared PDs and EDs in terms of look-up times. These studies demonstrate significantly faster look-up times for EDs than for PDs. Koyama and Takeuchi (2004) found that subjects who used PDs looked up an average of 12.56 words while taking 22 minutes to complete a reading task and quiz, whereas ED users looked up an average of 21.18 words and took only 11 minutes to complete the task and quiz. Weschler and Pitts (2000) similarly found that students looking up items on a vocabulary list were 23% faster when using EDs than when using PDs.

Studies have also examined the retention of vocabulary after looking up words in PDs compared to looking up words in EDs. One experiment by Koyama and Takeuchi (2004) showed that words looked up with PDs resulted in slightly better retention than EDs. However, a second experiment by the same researchers showed no difference in the retention of words after PD and ED look-up. Kobayashi’s (2006) study also showed no significant difference in vocabulary retention between ED and PD users after a reading task.

As for rates of ED ownership, Weschler and Pitts (2000) conducted a “show of hands” survey on 781 students at Kyoritsu Women’s University and College in Japan and found that only 88 or around 11% of their students owned an ED. ED owners then completed a questionnaire on which most students reported using their PDs almost equally at home and in class, but rarely used them on the move. Furthermore, “enthusiasm for hearing their ED pronounce words was not high” (p. 4), with the vast majority

responding that the voice function was only “somewhat important” or “not important”. Based on the usage patterns of their students, Weschler and Pitts suggest that PDs may be a better investment for the money.

### Rationale for this study

To the best of our knowledge, the only previous study that has attempted to investigate the extent of portable ED usage by Japanese English learners at university was conducted by Weschler and Pitts. Their study examined frequency of usage of EDs and asked students to rate the utility of the spoken pronunciation feature. We felt a more detailed and extensive survey of portable ED usage examining how learners are utilizing the different dictionaries and functions contained within their EDs while at university was warranted and would shed further light on Weschler and Pitt’s findings. This study aims to paint a general picture of student ED usage at a Japanese university both to raise teacher awareness of the current situation, and to lead the way for further research. We were also interested in comparing ED usage patterns and the rate of ED ownership found in Weschler and Pitt’s study with ED ownership and usage patterns for students at Kanda University.

This survey also investigates student awareness of different functions of their EDs. It is possible that students may be unaware of useful functions, or might not be using their EDs to their full potential. We further aim to identify areas where students might benefit from learner training. In addition, we felt that this research could be of benefit to teachers who may not be completely familiar with the various capabilities of modern EDs, and who may wish

to incorporate EDs into their lessons, or to give advice to students on ED selection.

### Research Questions

*What proportion of Kanda University EFL students are using EDs versus paper dictionaries?*

*In what situations and how often are students using their EDs?*

*To what extent do learners make effective use of their ED functions?*

### Methodology

A survey was administered to a total of 1076 students of English at Kanda University of International studies in June and July of 2006. The surveys were conducted in class with English majors in the English and International Communication departments, as well as with students in the International Languages and Communication (ILC) department who were minoring in English, and one class from the Korean department also minoring in English.

The survey was given in Japanese to minimize chances of students misunderstanding the questions. Students who indicated that they owned only PDs are not included in the survey results presented here, as this study’s focus is solely ED usage.

Survey questions

An English translation of the survey is attached (see Appendix), and a brief summary of the questions follows. Students were first asked whether they owned an ED or not. Then they were asked to give the make and model of their ED, and to give it an overall rating out of ten. The survey further asked what dictionary types and functions students’ EDs contained and asked them to rate those functions. The survey also elicited the frequency of usage of each dictionary type and function during a typical day (both at university and at home).

The following dictionary types and functions of student EDs were focused on in the survey: Japanese-English dictionary, English-Japanese dictionary, English-English learner dictionary, English-English standard dictionary for native speakers, collocation dictionary, thesaurus, encyclopedia, jump function (to jump between dictionaries), memory function (to save and review searched items) and spoken pronunciation function.

Results

Level of ED ownership

This study revealed a high proportion of portable ED ownership. 1047 out of 1076 or 96% of the students surveyed owned EDs. This result confirms anecdotal evidence suggesting that portable EDs have become nearly ubiquitous study tools for English language majors at Kanda University. This level of ownership also reinforces the findings of Svendsen’s (2006) examination of 29 first and second year Japanese women’s college students

which “found that few did not own an ED” (p.17). It is interesting to note that this rate of ownership is much higher than similar studies conducted by Kent (2001) on Korean university students (20%) and Weschler & Pitts on Japanese university students (11%). This may be due to the fact the students Kent surveyed were not English majors, or it may be further evidence of the rapidly rising popularity of EDs as the two studies took place 5 and 6 years ago respectively.

Frequency of daily ED usage at university

The following table presents a breakdown of frequency of ED usage by situation in a typical day in their student life. The table shows that the majority of Kanda University students are very active ED users—particularly on reading and writing tasks.

Table 1: Daily portable ED frequency of usage by situation

	Never	Rarely	Sometimes	Often	Very often
Speaking	10%	24%	29%	21%	11%
Writing	0.2%	0.9%	11%	32%	53%
Reading	0.9%	5%	19%	35%	37%
Watching movies/TV	12%	37%	30%	15%	4%
Reviewing vocabulary	4%	17%	31%	27%	19%

Use of English-English dictionaries within EDs

The table below shows students’ daily frequency of usage of regular English-English dictionaries (for native speakers) and learner English-English dictionaries. The results show a remarkable similarity in the percentages of usage and ownership of English-English learner dictionaries and regular English-English dictionaries. One reason may be because students are not aware of whether or not the dictionary they have is designed specifically for English learners. This possibility is supported by anecdotal evidence as some teachers reported their students asking the difference between the two dictionary types when taking the survey.

Table 2: Frequency of usage of learner and regular English-English dictionaries within EDs

	Don't use	Don't have	Use once per day	Use 2-3 times per day	Use 4-5 times per day	Use more than 5 times a day
English-English learner dictionary	32%	11%	10%	19%	8%	13%
Standard English-English dictionary	32%	13%	9%	19%	8%	12%

Learner ownership and use of collocation dictionaries within EDs

The table below shows students’ ownership and frequency of usage of collocation dictionaries within their EDs. It can be seen from the chart that the majority of students who have

collocation dictionaries in their portable EDs are not utilizing them. This has implications for learner training which will be discussed in the following section.

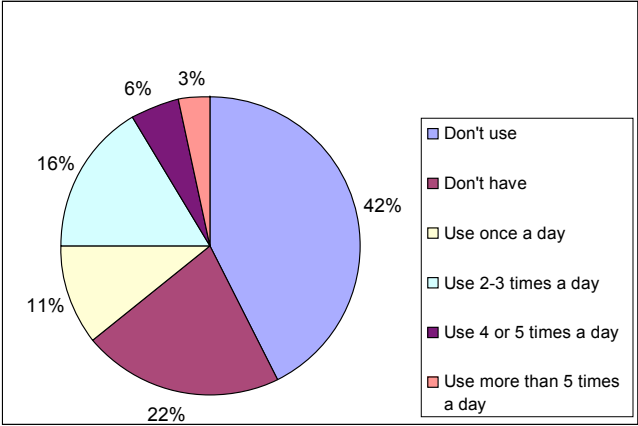


Figure 1: Ownership and frequency of daily use of ED collocation dictionaries

Use of the voice function

The following chart shows students’ ownership and daily frequency of usage of a voice function in their EDs. The results indicate that students make surprisingly little use of the voice functions within their EDs. This is interesting considering the apparent popularity of models containing this function as discussed in the introduction.

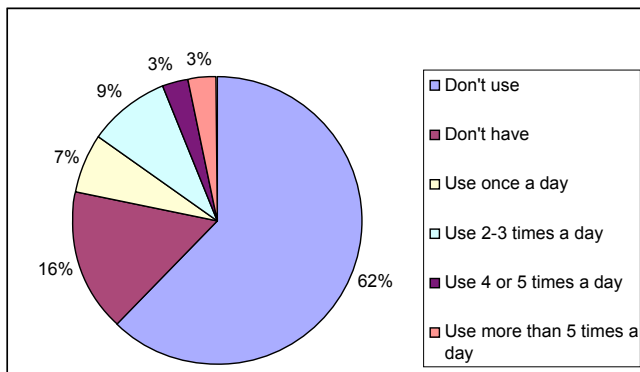


Figure 2: Ownership and daily use of the voice function

### Memory function ownership and usage

The following graph shows students' perceived ownership and percentage of daily usage of the ED memory function. The majority of students do not think that their portable EDs have a memory function. This was contradicted by a quick survey of available EDs in an electronic store. Nearly all portable EDs have a search history function or a memory function for selecting which vocabulary to store in a list.

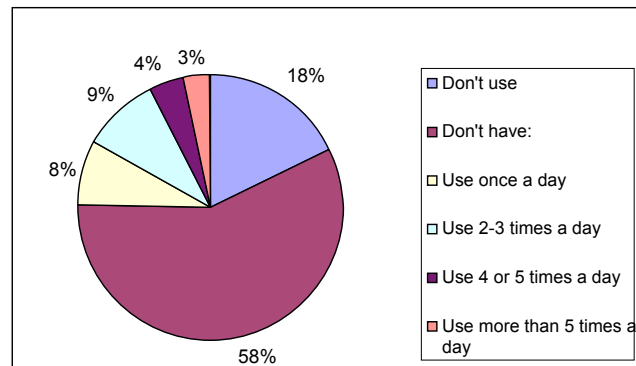


Figure 3: Ownership and daily use of the memory function

### Frequency of usage of other ED dictionary types and functions

The following chart shows the frequency of use of the remaining dictionaries and functions surveyed. It can be seen from the table that overall bilingual Japanese-English and English-Japanese dictionaries are the most frequently used.

**Table 3: Frequency of usage of other ED dictionary types and functions**

	<b>Don't have</b>	<b>Don't use</b>	<b>Use once a day</b>	<b>Use 2 or 3 times a day</b>	<b>Use 4 or 5 times a day</b>	<b>Use more than five times a day</b>
Japanese-English Dictionary	0%	1%	5%	23%	22%	46%
English-Japanese Dictionary	0%	1%	3%	14%	22%	58%
Thesaurus	18%	30%	15%	22%	8%	4%
Japanese-Japanese Dictionary	6%	13%	18%	34%	14%	13%
Jump Function	4%	13%	7%	24%	18%	33%

## Discussion

### *ED ownership levels*

The high rate of ownership in this study suggests students see value in portable EDs. Portable ED prices range from 10,000 to 50,000 yen. While the jury may still be out on the advantages of paper-based versus electronic dictionaries, Japanese EFL students are voting with their wallets and EDs are clearly winning.

### **Dictionary recommendation**

Since the voice function and collocation dictionaries were infrequently used by the learners surveyed, students would do well to consider whether or not they will actually use these functions before spending extra money on an ED containing them.

For intermediate learners, an ED featuring a learner dictionary would be worthwhile in that it offers learners more

of a chance to immerse themselves in the target language when looking up words. English-English learner dictionaries contain entries with simplified definitions using a limited vocabulary and are intended to get learners into the habit of thinking in English and out of the habit of translating. These dictionaries also contain useful information about words such as the frequency of the word's appearance in corpora (useful for choosing which words to memorize), the pronunciation of the word, part of speech and example sentences. Advanced learners should consider buying an ED with a standard English-English dictionary for the same reasons. Beginners, however, may find the definitions in English-English dictionaries too difficult to understand and should not consider buying an ED containing one unless they are thinking of their long term language learning needs.

Taking into consideration the findings of this study, it is possible to tentatively recommend the following ranking of ED resources to Japanese learners of English depending on their budget. As the jump and memory functions are now standard on virtually all EDs, they have not been included.

1. Bilingual English-Japanese and Japanese-English dictionaries
2. English-English learner dictionary
3. English-English standard dictionary
4. Japanese-Japanese dictionary
5. Thesaurus
6. Collocation dictionary
7. Voice function



These recommendations are based on the general usage patterns revealed by the present study. Learners should consider their own personal learning styles and preferred learning strategies when purchasing an ED.

### *Learner training*

#### *Collocation dictionaries and thesauri*

As students use their EDs most when writing, and as the majority of students seem not to be using their collocation dictionaries, this is one area where learners would likely benefit from training. Collocation dictionaries provide learners with information about which words tend to occur together in English. For example it is natural to say 'take medicine' while it is not natural to say 'drink medicine'. Collocation dictionaries are particularly valuable to students of English for writing tasks, as students have time to search and consider different possible word combinations. Learners may be unaware of how to use their ED collocation dictionary and may also be unaware of how using a collocation dictionary can help them produce more natural sounding English. Thesauri also seem to be underused, with 30% of respondents saying they do not use them in a typical day. This may also be because students are unaware that their ED dictionary contains a thesaurus or they may not know how to use it.

#### *English-English dictionaries*

It is likely that many learners would also benefit from education on the advantages of learner dictionaries along with training in how to use them. English-English learner

dictionaries can foster the habit of thinking in English so it may be useful to train learners to look first in the learner English-English dictionaries for a definition before checking a bilingual dictionary. Learner dictionaries have simplified definitions aimed at eliminating circular searches in which learners need to look up another word in order to understand the definition of the first word. Learner dictionaries also have information on word frequency. The Cobuild learner dictionary has a star system which gives words a rating out of five according to their frequency in the Cobuild corpus, while the Collins and Oxford learner dictionaries indicate the 3,000 most commonly used words. Learners would benefit from training on how to use frequency information to help them decide which words to study and memorize.

#### *Memory function for vocabulary revision*

It may also be beneficial to raise learner awareness of the existence of the history (memory) function of their portable EDs as they seem to be largely unaware of it. This would seem a useful way of reviewing vocabulary as learners can keep a head word on the memory list. By jumping from the headword entry in memory to entries for the same word in other dictionaries within the ED, learners can access a great deal of information about the word including definitions, collocations, part of speech, example sentences, synonyms, translations, and pronunciation. All of this information is important for knowing a word (Nation 2001). Thus making regular use of the memory function to review vocabulary could be an effective alternative to making the vocabulary notebooks recommended by some teachers.



Svendson (2006) suggests that since look-ups with EDs are almost effortless, beginning students “may look up a word in their ED and forget it because it is easier to look it up repeatedly rather than commit it to memory” (p. 18). This would seem to lend support to the idea that students should make better use of the memory function contained within their EDs for regularly reviewing new words.

### *When not to use the ED*

Svendson (2006) also expresses concern that students may be overly reliant on their EDs at the expense of other useful learning strategies. Two situations in which students should be discouraged from going straight to their ED to look up an unknown word are when reading and in conversation.

When reading, students should be encouraged to go through a sequence of guessing the meaning of a word on the first reading of a text, then using an English-English dictionary to try to work out the meaning of the word on a second reading of the text before jumping to the entry in an English-Japanese dictionary to check their guess and understanding of the English definition. The first reading without the dictionary allows learners to build their guessing from context skills and increase reading fluency. Checking the English-English dictionary would give learners English input and encourage learners to think in English, while the English-Japanese dictionary would allow learners to confirm their guesses or arrive at a clearer understanding of new words.

When speaking, it may be beneficial for learners to employ communicative strategies such as circumlocution,

paraphrasing and clarification requests, rather than reaching for their dictionaries whenever communication problems arise. Circumlocution is a strategy in which learners try to use their limited vocabulary to explain a word they do not know in English. Paraphrasing involves learners repeating back to their interlocutor what they thought was said, while clarification requests invite the interlocutor to explain once more in a clearer or simpler manner. All of these strategies encourage learners to think in English and would likely be more polite and less interruptive than tapping away at an ED.

### *Recommendations for further research*

As portable EDs are most commonly used by English learners for reading and writing, these may be areas where research is most urgently needed. It would be fruitful to explore how learners utilize and navigate between the different dictionaries and functions of their EDs while engaged in reading and writing tasks.

The low rate of usage of EDs to check pronunciation seems to indicate that many students do not find the voice function useful, in agreement with Weschler and Pitt’s (2000) findings. This may be because the voice function is only clear through ear phones. Based on anecdotal evidence, most students do not carry headphones for their EDs with them. The small speakers of some EDs produce fuzzy, low-quality sound which may not be useful. Students in class could also be embarrassed when their ED produces a voice which draws the attention of other students. Given that the voice function seems to be an attractive selling point, it would be worthwhile to explore why students are not utilizing it.

A further step for future research could be to raise learner awareness of the various dictionaries and functions within their EDs. It would be interesting to investigate whether such training is beneficial for subsequent learner ED usage and learning.

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### Appendix

#### Questionnaire for Electronic Dictionary Usage Research

**Department:**

**Class:**

- Do you have an electronic dictionary?  
Yes                      No
- If you have an electronic dictionary what brand of electronic dictionary do you use?  
Canon ☐                      Casio ☐                      Sharp ☐  
Seiko ☐                      Elecom ☐                      Sanwa ☐  
Other ☐

3. What is the model of your electronic dictionary (e.g. PW-A8800, C50, SRM-5000 etc)?

\_\_\_\_\_

4. What rating would you give your electronic dictionary out of ten (one being terrible and 10 excellent)? Circle the number.

1   2   3   4   5   6   7   8   9   10



5. Which of the following features does your electronic dictionary have, and how useful is each function? Please check the box if you don't have the function or don't know, and circle a mark from 1-5 (1 is terrible and 5 is very good) if it has the function.

Dictionary type	Have	Don't have	Don't know	How useful?				
<i>Example</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
Japanese-English dictionary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	①	2	3	4	5
English-Japanese dictionary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
English-English learner's dictionary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
English-English standard dictionary for native speakers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
Collocation dictionary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
Thesaurus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
Encyclopedia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
Jump function (to jump between dictionaries)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
Memory function (to save and review search items)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
Spoken pronunciation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5

6. In a regular day, how often do you use your electronic dictionary to (please circle the closest answer):

<i>Example</i>	never	once	② or 3 times	4 or 5 times	more than 5 times
check spelling	never	once	2 or 3 times	4 or 5 times	more than 5 times
check pronunciation	never	once	2 or 3 times	4 or 5 times	more than 5 times
find the word for an idea you want to express in English	never	once	2 or 3 times	4 or 5 times	more than 5 times
find the meaning of an English word	never	once	2 or 3 times	4 or 5 times	more than 5 times
find a collocation for writing	never	once	2 or 3 times	4 or 5 times	more than 5 times
try to memorize vocabulary	never	once	2 or 3 times	4 or 5 times	more than 5 times
find a better word in English	never	once	2 or 3 times	4 or 5 times	more than 5 times
look for example sentences	never	once	2 or 3 times	4 or 5 times	more than 5 times

7. In a regular day, how often do you use the following features of your electronic dictionary (please circle the closest answer):

<i>Example</i>	① Don't have	Don't use	Once	2 or 3 times	4 or 5 times	More than 5 times
Japanese-English dictionary	Don't have	Don't use	Once	2 or 3 times	4 or 5 times	More than 5 times
English-Japanese dictionary	Don't have	Don't use	Once	2 or 3 times	4 or 5 times	More than 5 times
English-English learner's dictionary	Don't have	Don't use	Once	2 or 3 times	4 or 5 times	More than 5 times
English-English standard dictionary	Don't have	Don't use	Once	2 or 3 times	4 or 5 times	More than 5 times
Thesaurus	Don't have	Don't use	Once	2 or 3 times	4 or 5 times	More than 5 times

Encyclopedia	Don't have	Don't use	Once	2 or 3 times	4 or 5 times	More than 5 times
Collocation dictionary	Don't have	Don't use	Once	2 or 3 times	4 or 5 times	More than 5 times
Jump function (to jump between dictionaries)	Don't have	Don't use	Once	2 or 3 times	4 or 5 times	More than 5 times
Memory function (to save and review search items)	Don't have	Don't use	Once	2 or 3 times	4 or 5 times	More than 5 times
Spoken pronunciation	Don't have	Don't use	Once	2 or 3 times	4 or 5 times	More than 5 times

8. How often do you use your electronic dictionary in the following situations (circle the closest answer)?

Example

*never rarely sometimes often very often*

During conversation in English (ELI lounge, class discussion, etc.)

*never rarely sometimes often very often*

For writing in English

*never rarely sometimes often very often*

For reading in English

*never rarely sometimes often very often*

While watching movies/TV shows

*never rarely sometimes often very often*

For reviewing vocabulary

*never rarely sometimes often very often*