DDL for EFL beginners: A report on student gains and views on paper-based concordancing and the role of L1

Kiyomi Chujo
Nihon University

Kathryn Oghigian
Waseda University

This study measured student gains in overall second language proficiency and in targeted vocabulary and grammar (noun and verb phrases) with pre- and post-tests in a 20-week data-driven learning program using a parallel Japanese-English concordancer and bilingual corpus. Beginner level engineering students at a Japanese university followed a four-step methodology, working in pairs in class and individually for homework. Collected feedback from students on computer- versus paper-based concordancing indicates a blending may be most effective. Student feedback on the role of the L1 in parallel concordancing indicates those using non-vetted computer-based concordancing rely most on the translation.

1. Introduction

1.1. DDL case study 2004-2010

Although the use of concordance-based data-driven learning (DDL) in the second language (L2) classroom has been largely limited to advanced level learners (Boulton 2010a), we have reported a number of successes in teaching grammar and vocabulary to beginner level engineering students. This program initially began as a four-week study in 2004 to investigate how to use DDL to develop vocabulary for communication (Chujo et al. 2006). In response to enthusiastic feedback from students, it was expanded to include basic concepts of phrase structures in a ten-week program in 2005 (Chujo & Oghigian 2006). The particular business-oriented vocabulary and grammatical structures were identified in previous studies as often appearing on the Test of English for International Communication (TOEIC) but not generally taught in Japanese junior or senior high school textbooks (Chujo 2003; Uchibori et al. 2006). Although the evaluation of the learning effect in this study was mainly based on learners' impressions, we were able to discern from their feedback that this system was both meaningful and useful. The program was further expanded to twenty weeks (two semesters of ten weeks) from 2006 (Chujo & Oghigian 2007; Chujo & Oghigian 2008; Chujo et al. 2009; Oghigian & Chujo 2010), with pedagogic modifications made each year. Students do DDL exercises using the Paraconc parallel corpus tool (Barlow 2004) and a bilingual Japanese-English newspaper corpus (Utiyama & Isahara 2003). Students made significant gains in areas of the grammatical features test such as word classes, derivations, the structure of noun phrases, the structure of verb phrases, and multi-aspect (TOEIC-formatted) questions. As an on-going research project, we make modest gains each year, and the students continue to report that they find this method to be both enjoyable and effective. The purpose of this paper is to report student gains from the 2009 study, and to report student feedback on computer-based versus paper-based DDL and the role of the L1 in parallel concordancing in the 2010 study.

1.2. Computer- versus paper-based DDL

Various advantages and disadvantages have been reported in the literature regarding computer- and paper-based DDL (Leech 1997; Stevens 1995; Tomlinson 1998). Some advantages of computer-based exercises are that they are student-centered and student-controlled, there is a limitless supply of data, learning is inductive with the student as researcher, and that computer-based strategies can be applied elsewhere by students. Some advantages of paper-based exercises are that they save time, a potentially overwhelming task is limited to a specific focus, it may be easier for students to grasp the grammatical aspects of the lesson without the burden of also understanding the software and hardware tools, and that there is no need for time-consuming computer set-up or trouble-shooting. In addition, not all schools have facilities for computer-based learning, and not all teachers and students are comfortable with technology-based instruction (Boulton 2010b). Because students in our previous studies had made gains in using computer-based DDL, in this 2009 study, we were curious as to how students would respond to paper-based exercises. Therefore, students who were primarily using computer-based DDL were introduced to paper-based DDL tasks. In contrast, students in the 2010 study who were primarily using paper-

based tasks were introduced to computer-based tasks. Feedback from both groups and from the teacher was collected and analyzed.

1.3. The role of L1 in parallel concordancing

It has been noted that concordance lines can be overwhelming for beginner level learners (Tono 2003), and for this reason, students in this study use a bilingual corpus and parallel concordance tools, so they are able to see the translation. In the 2010 study, we asked students about the usefulness of having the Japanese translation in order to better understand the role of L1 in parallel concordancing. Student feedback was collected and analyzed.

2. The 2009 study

2.1. Participants

The participants were three groups of beginner level engineering students. Beginner level is defined as having an average TOEIC Bridge score of 60/100, which is approximately equivalent to 260-395 on the TOEIC. The study ran for two semesters for a total of 20 weeks, with weekly 90-minute classes in a CALL classroom. There were two DDL groups and one non-DDL group. DDL1 had 25 students and DDL2 had 14 students. Both DDL groups followed the same syllabus, and all DDL exercises were computer-based except for five lessons which included two paper-based tasks in each lesson.

The non-DDL group had 23 students and used a more traditional listening-focused CD-ROM program (called First Listening). This group was included in order to get a clearer understanding of the effect of the implicit and explicit instruction of basic grammatical knowledge (noun phrase structures and verb phrase structures). Both groups studied the same vocabulary using the same CALL program, and both DDL and non-DDL groups were given the same pre- and post-tests. In addition, students in the DDL2 group and the non-DDL group were at the same proficiency level; those in DDL1 were slightly higher.

2.2. Methodology and syllabus

The spring semester syllabus included (in this order) word classes, derivations and inflections, non-count nouns and various types of noun phrases (NPs). Various verb phrases (VPs) were taught in the fall semester. Each class had a vocabulary component and a DDL grammar component. The vocabulary was grouped into categories such as business, personnel, travel, and time, and students learned a total of 400 words over two semesters. In each class, students first used a CALL program to study twenty vocabulary items, seven of which were used as the focal point of the subsequent DDL lesson. The DDL grammar component had four steps. First, pairs of students followed carefully crafted guidelines to explore grammatical patterns in a Japanese-English newspaper corpus (Utiyama & Isahara 2003) using Paraconc, a parallel concordancer (Barlow 2004), to identify patterns and make hypotheses about the language. The Japanese-English newspaper corpus comprised 150,000 translation pairs from the Japanese language Yomiuri Shimbun (6.1 million Japanese morphemes) and the English language Daily Yomiuri (4.9 million English words), with these pairs automatically aligned. Second, the students confirmed or corrected these hypotheses based on the teacher's explicit presentation of the grammar. Third, they did practice and production activities for consolidation, mainly as homework assignments. Finally, the teacher gave feedback on the homework tasks in the following lesson.

This syllabus is informed by Pienemann's Processability Theory, which asserts that processing procedures are hierarchical, and a failure to master a low-level procedure blocks access to higher-level procedures (Pienemann 1998). For this reason, the syllabus is structured to address lexical concepts which include vocabulary and word classes, count and non-count nouns and derivations before introducing noun and verb phrases.

2.3. Sample material

An example of a guided student worksheet is shown in Figure 1. Because the students are at the beginner level, the instructions for using the text analysis tool are given in Japanese. In the

Figure 1. Sample of a guided student worksheet for identifying NPs in a Japanese-English parallel newspaper corpus

Set the max search hits from 500→10. Search each term and SORT (Search Term --- No Second Sort).

① **"a * visa"** *Find various kinds of visas and write them below.*

a (departure) visa,		a (proper) visa	
a (short-term) visa,		a (tourist) visa	
a (spouse) visa,		a (student) visa	

② **"the * delay"** *Find various kinds of delays and write them below.*

the (expected) delay,		the (government's) delay	
the (launch) delay,		the (marked) delay	
the (prolonged) delay,		the (recent) delay	

③ **"a very * *"** *Choose six NPs containing "a very" and write them below.*

	Determiner	Pre-modifier	Head Noun	Post-modifier
1	(a)	(very) (blunt)	instrument	
2	(a)	(very) (delicate)	issue	
3	(a)	(very) (difficult)	task	to ...
4	(a)	(very) (new)	map	
5	(a)	(very) (realistic)	option	for ...
6	(a)	(very) (severe)	state	

example, students are asked to view only 10 hits (rather than 500), and are given specific search instructions in the first and second exercises to search *a * visa* and *the * delay* in order to find various pre-modifiers such as adjectives, nouns, genitives, and *–ed* participles used in this simple NP. By writing in the various answers, students infer the word class of the missing word and can see what common pre-modifiers appear with the vocabulary words *visa* and *delay*. In the third exercise, students search for uses of the adverb *very* which modify adjectives which in turn modify a noun. In the sample worksheet in Figure 1, the answers are given in parentheses.

Figure 2 shows a screenshot for this exercise from the Paraconc concordancer. These results are highlighted in color by the software. It is important to note that students are not asked to read or understand the entire concordance line, but to focus on the vocabulary item and the structure of the particular target grammar.

A sample of a paper-based lesson is shown in Figure 3. These 2009 students were given five or six computer-based tasks in each DDL lesson, and during the fall semester for five weeks, two paper-based tasks were added each week, for a total of ten paper-based tasks. In these lessons, students looked at paper-based color-printed concordance lines from a Japanese-English newspaper parallel corpus and were asked to circle the head noun and underline the noun phrase. Some concordances were with Japanese translations, others were without.

Figure 2. Screenshot of computer-based parallel concordancing lines used for identifying noun phrases in a Japanese-English parallel newspaper corpus

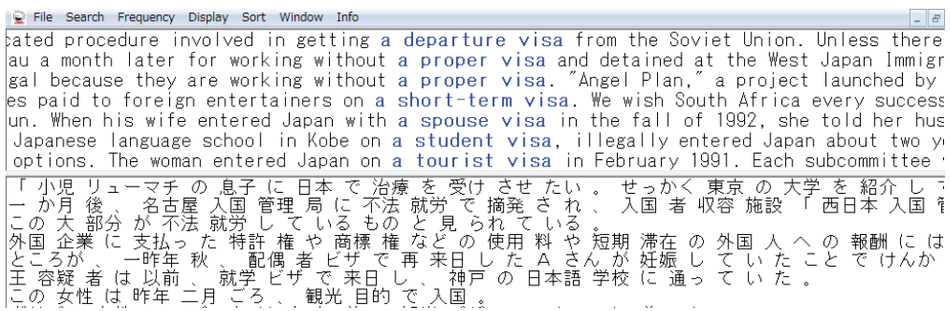

Figure 3. Sample of a paper-based lesson for identifying noun phrases

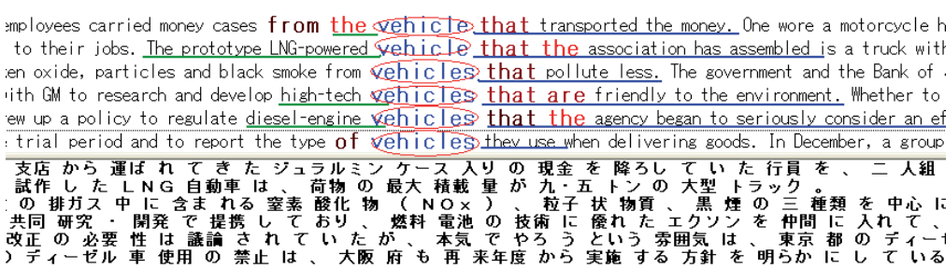

Figure 4. Sample follow-up tasks

1. Match the phrases on the left with the best phrases from the word bank on the right.

I remember	submitting the homework to my teacher.
The TOEIC results indicate	that students are improving.
The CEO promised	a high salary to the employees.

2. Decide the best location for each adverb.

always	Tom is (always) at home in the evening.
usually	The newspaper (usually) comes here at six.

3. Complete each English sentence.

Japanese anime (became popular all over the world).	世界中で有名になった
Children (believe that Santa Claus exists).	サンタクロースが実在すると信じる

For practice and consolidation, many different types of activities and exercises were used; three sample tasks are shown in Figure 4. In the learner production sample given in the third task, students supplied the missing verb phrase in English by looking at the Japanese sentence. The answers are given in parentheses. Although the in-class work was done in pairs, all follow-up work was completed individually.

2.4. Pre- and post-tests

Four different types of test questions for noun and verb phrases were used in the pre- and post-tests: identifying an NP or a VP using high frequency words (HFW), identifying an NP or a VP using more complex TOEIC-level vocabulary, producing an NP or a VP with HFW vocabulary, and understanding a more complex TOEIC-type NP or VP. Each question was controlled by word level (a HFW or TOEIC-level word), sentence length, and structural pattern. In total, there were 60 NP questions and 80 VP questions. In the spring semester, the NP test was given as the pre- and post-test, and in the fall semester, the VP test was given. The same tests were used for the pre- and post-test but the order of the questions was changed. Sample questions showing the four types of questions and answers for NPs are shown in Figure 5. This example shows the easiest NP pattern, which is the three-word pattern [determiner + adjective + noun].

Students were also asked to take a TOEIC Bridge test (http://www.ets.org/toeic_bridge), a simplified version of the TOEIC also administered by Educational Testing Service (ETS). The TOEIC Bridge test targets beginner and intermediate learners and is a paper-and-pencil test composed of 100 multiple-choice questions, requiring about one hour of testing time. In this study, a retired test that is available to the public was used. Students took the test during the first class in April 2009 to establish their existing English proficiency levels, and the same test again in the final class in December 2009 to measure the effectiveness of the DDL/CALL instruction in terms of an

Figure 5. Sample pre- and post-test questions

NP 1:	Identifying NPs (HFW)	*Underline all the noun phrases.* That small boy can play the piano very well.
NP 2:	Identifying NPs (TOEIC words)	*Underline all the noun phrases.* We are unable to meet the present demand.
NP 3:	Producing NPs	*Complete the sentence.* (These American coins) are very old. （これらのアメリカのコインはたいへん古い。）
NP 4:	TOEIC-type NPs	*Choose the best answer.* A husband and wife must respect each other in order to have a good ___(C)___. (A) marry (B) marrying (C) marriage (D) married

increase in scores. Takahashi et al. (2003) have shown that using the same test twice was reported not to have affected the results, since correct answers were not given to the students at any time, and because there was a sufficient interval between the pre- and post-tests.

2.5. Results from the pre- and post-tests

The gains for the NP pre- and post-tests are given in Table 1, which shows the vocabulary test, the four types of NP questions, the pre-test scores, post-test scores, and the gain between the pre-test and post-test. Since the number of test items for each question type varied, each test score is expressed as a percentage. The result of a paired *t*-test indicates that the gain in the vocabulary test of all three groups was statistically significant at the 1% level. This is not surprising since all three groups studied the same vocabulary material. The DDL classes made gains in all three types of NP questions (identifying and producing NPs) at the 1% level. The non-DDL class did not make gains in either identifying or producing noun phrases. The TOEIC-type test questions are at a much higher level of complexity, and only the DDL1 class – which had slightly higher proficiency – made gains at the 5% level, t (24) = 2.700, $p < .05$.

The average score increased for questions NP1, NP2, and NP3, which address various examples of the basic phrase structure of noun phrases. However, NP4 is much more complex. In order to answer this type of question, the students must have knowledge of how the elements within a phrase are grammatically related to one other, particularly to the head noun. An example question that involves the structure of an NP is shown below:

Example: Fred has a _____ knowledge of science.
(A) broaden (B) broadly (C) broadness (D) broad

To select the correct answer (D), students first have to recognize that the blank space must be filled by an adjective, and that an adjective may appear between a determiner and a noun. Further-

Table 1. Student scores (%) for vocabulary and NPs (first semester 2009)

	DDL						non-DDL		
	DDL + Vocabulary (Class 1) (n = 25)			DDL + Vocabulary (Class 2) (n = 14)			Listening + Vocabulary (n = 23)		
Category	Pre-test	Post-test	Gain	Pre-test	Post-test	Gain	Pre-test	Post-test	Gain
Vocabulary test	64.8	95.4	30.6**	44.7	81.8	37.1**	51.0	87.3	36.3**
NP1: Identifying NP (HFW)	49.3	73.6	24.3**	32.4	60.5	28.1**	40.0	44.9	4.9
NP2: Identifying NP (TOEIC words)	39.7	89.6	49.9**	28.6	68.1	39.5**	33.9	41.7	7.8
NP3: Producing NP	54.1	73.6	19.5**	25.2	43.3	18.1**	34.5	35.9	1.4
NP4: TOEIC-type NP	54.7	65.1	10.4*	43.8	46.2	2.4	39.4	41.7	2.3

* $p < .05$ ** $p < .01$

more, in order to eliminate incorrect answers, they must also possess knowledge of derivational suffixes such that some verbs have an *–en* ending, many adverbs end in *–ly*, and some nouns have identifiable noun endings such as *–ness*. Integrating these separate pieces of knowledge about different categories into a unified knowledge of phrase structure allows students to choose the correct answer. Since the spring DDL lessons covered only limited aspects of phrase structures, it was expected that more complex grammar taught in the second semester would improve this score.

The VP gains are shown in Table 2. Again, we can see that all three classes made significant gains on the vocabulary test. The DDL classes made gains in all three types of VP questions (identifying and producing VPs) at the 1% level. The non-DDL class made gains at the 1% level for producing VPs – t (22) = 3.401, $p < .01$ – but not in identifying them. For the TOEIC-type test questions, only the DDL1 class gained an increase of 11.0 points between the pre-test and post-test which was statistically significant at the 1% level: t (24) = 4.726, $p < .01$. The DDL2 class gained an average increase of 10.4 points which was statistically significant at the 5% level: t (13) = 2.931, $p < .05$. This is not surprising as the TOEIC-type questions represent much more complex language – for example, they include more phrasal elements such as adjective phrases and adverb phrases. Incorporating these types of phrases into the curriculum is currently under consideration.

These results are a validation of this method of grammar instruction for VPs which provide and repeat varieties of target structures with a clear explanation of the grammar, and allow beginner level students to apply this knowledge to many examples. However, the various phrase structures of VPs may be too numerous and complex to be covered in depth in one semester, thus instruction limited to one semester tends to be broad and shallow. In order to improve gains in complex VPs, it is necessary to either expand the instruction over two years, or to identify and

Table 2. Student scores (%) for vocabulary and VPs (second semester 2009)

	DDL						non-DDL		
	DDL + Vocabulary (Class 1) (n = 25)			DDL + Vocabulary (Class 2) (n = 14)			Listening + Vocabulary (n = 23)		
Category	Pre-test	Post-test	Gain	Pre-test	Post-test	Gain	Pre-test	Post-test	Gain
Vocabulary test	58.9	87.3	28.3**	41.9	71.5	29.6**	42.3	66.9	24.6**
VP1: Identifying VP (HFW)	39.1	91.5	52.4**	34.6	78.4	43.8**	21.6	24.1	2.5
VP2: Identifying VP (TOEIC words)	44.9	85.5	40.6**	39.5	74.6	35.2**	26.2	25.1	-1.1
VP3: Producing VP	69.5	82.3	12.8**	45.0	64.1	19.1**	42.2	51.6	9.5**
VP4: TOEIC-type VP	54.2	65.2	11.0**	41.1	51.4	10.4*	41.3	38.9	-2.4

* $p < .05$. ** $p < .01$.

narrow the focus to particularly common TOEIC-type grammar items and modulate the instruction accordingly. For example, intransitive verbs such as *seem* and *remain* have not been taught in the curriculum in high school texts, although grammatical features and structures of practical English expressions using these verbs are found in TOEIC questions.

2.6. Results from the first and second TOEIC Bridge Tests

To see if the learners improved their overall English proficiency in this course, the scores of the two TOEIC Bridge tests for the three groups were also compared. Table 3 shows that all three classes made gains for the total score of the TOEIC Bridge test. The DDL1 class gained an average of 3.3 points from 69.2 to 72.5: t (24) = 2.923, $p < .01$; the DDL2 class gained an average of 4.8 points from 54.5 to 59.3: t (13) = 3.373, $p < .01$; and the non-DDL class gained an average increase of 6.2 points from 54.0 to 60.3: t (22) = 6.255, $p < .01$ at the conclusion of this experiment.

The difference between the two tests was significant, suggesting that all three groups improved their overall English proficiency on this measure. The non-DDL class, which was focused on listening and vocabulary instead of DDL grammar development, made greater gains overall, and in particular in the listening section at the 1% level: t (22) = 4.843, $p < .01$. The listening CD-ROM used in this study was found to be highly effective for TOEIC score improvement by Takefuta et al. (2008), as confirmed in this case study. And an argument can be made that additional listening is important to making gains on tests such as TOEIC. Biber (2009) reports that clauses are used more often in conversation and phrases are used more often in writing. It would be interesting to measure the impact of this type of NP and VP instruction in writing samples; a parallel study is planned for 2011.

Table 3. TOEIC Bridge test scores (%) for DDL and non-DDL groups (2009)

	DDL						non-DDL		
	DDL + Vocabulary (Class 1) (n = 25)			DDL + Vocabulary (Class 2) (n = 14)			Listening + Vocabulary (n = 23)		
Category	Pre-test	Post-test	Gain	Pre-test	Post-test	Gain	Pre-test	Post-test	Gain
Listening section	34.0	35.8	1.9*	28.0	30.1	2.1*	26.9	31.4	4.6**
Reading section	35.2	36.7	1.5	26.5	29.2	2.7*	27.2	28.8	1.7
TOTAL	69.2	72.5	3.3**	54.5	59.3	4.8**	54.0	60.3	6.2**

* $p < .05$. ** $p < .01$.

3. The 2010 study

3.1. Participants

The participants of the 2010 DDL study were similar in proficiency level to the 2009 DDL1 students. Both the 2009 DDL1 group and the 2010 DDL group had 25 members. Both groups of students followed the same syllabus and methodology.

3.2. Student feedback on paper-based versus computer-based DDL

Using open-ended comment questions on an anonymous paper-based questionnaire, we collected feedback from both the 2009 DDL students who used primarily computer-based lessons for two semesters and had only ten paper-based tasks, and the 2010 students who had only two computer-based lessons with eight computer-based tasks and the remainder as paper-based. Interestingly, in spite of the difference in contact time with computer or paper-based DDL, they had similar responses.

With regard to the advantages of using paper-based material, students reported that using this saved a lot of time and more tasks could be completed during class; that it was easier and quicker to understand the grammar (because the concordance results are presented to them); and that they did not have to worry about finding a different or wrong outcome since the handout provided the "correct results". Students also found it easier and more immediate to write directly on paper, thus facilitating the task itself. They liked the fact that they could review at home, and generally felt that fewer mistakes made for a smoother class.

The students seemed to quickly gain confidence in doing concordance searches since they were generally familiar with computers. Comments regarding a preference for computer-based work included the idea that the work was active; searching the corpus themselves was very powerful; and the learning was "fixed in their memories". They appreciated having control over

the learning process, which allowed them to explore additional items or interests. They disliked the limited contexts given in the paper-based data compared to the computer-based concordance lines, but such truncation was needed to make them fit on the page. They commented that doing the search gave them time to think about the process, and to consider the target vocabulary and grammar more carefully. They appreciated being able to sort left and right, and realized it was easier to memorize spellings when using a computer because they were physically typing in the words. Some students also complained that underlining and circling on paper-based exercises was monotonous, and for these reasons preferred computer-based exercises.

From the teacher's perspective, the advantages of paper-based lessons are that class time can be used to cover more tasks; concordance lines can be edited to control the focus by pre-selecting salient examples and deleting variations or exceptions; the time spent setting up and trouble-shooting computers and software is eliminated; and IT support from a teaching assistant is not required. The main disadvantages are that the exercises are not as interesting, powerful or motivating; students tend to mechanically underline and write down the target structures rather than become active learners; and they are not taught how to use corpus tools.

3.3. The role of L1 translation

We also asked the same two groups of students about how they used the L1 translation in the parallel corpus. Students were asked to fill out a questionnaire using a five-point rating scale from "strongly agree" (rating 5) to "strongly disagree" (rating 1). In order to grasp the assessment easily, results from a five-point rating scale are summarized into three scales as "Agree" (rating 5 + 4), "Neutral" (3), and "Disagree" (rating 2 + 1), as shown in Table 4.

We found that the 2009 students using the computer (and non-vetted concordance lines) reported that they depended more on the L1 translation than the 2010 students using paper-based materials. This is not surprising since paper-based exercises are edited to a certain extent, and students can look up explanations or definitions at home for the few exceptions they do not understand. Regarding the role of L1, 77% of the 2009 (computer-based DDL) students reported that they needed the translation to confirm the specific meaning of English words or sentences, and 69% reported they use the translation to grasp the general meaning. Students indicated that this is because words often have multiple and/or idiomatic meanings or they often have no idea of the meaning. Thus students perceive the Japanese translation as a sense of security.

4. Conclusion

Regarding language development, students following this DDL methodology have shown gains in previous years and continued to do so in this 2009 study, although the gains were generally in knowledge of the language areas covered – NPs and VPs. There is still room for improvement in the more complex TOEIC-type test questions which require students to bring together knowledge of more than one aspect of grammar. The findings suggest more complex grammatical structures as seen on TOEIC-type tests, particularly involving VPs which have various and complex structures, may not be within the scope of a one-year beginner level program. Regarding the use of computer-versus paper-based DDL, since each has advantages and disadvantages, if a choice is available, a blending of the two might be beneficial. For example, it may be advantageous to begin with paper-based exercises to control the focus and then have students do follow-up computer-based DDL to find more examples and reinforce the learning (cf. Gabrielatos 2005). Student feedback on the role of L1 suggests students faced with non-vetted computer-based DDL use the parallel translation to confirm the meaning so that they can focus on the grammatical structure. It is hoped that the approach to grammar instruction outlined in this paper will further contribute to the steady and effective improvement of English education.

Table 4. Role of L1 evaluation scores (%) of students with different DDL experience

	Computer-based DDL Ss (2009 two semesters) (*n* = 25)			Paper-based DDL Ss (2010 one semester) (*n* = 25)		
	Agree	Neutral	Disagree	Agree	Neutral	Disagree
The L1 translation is necessary for me.	73	15	12	50	31	19
I don't always use the translation but I am insecure if I don't have it.	77	19	4	38	23	38
I use the translation for the meaning of a specific sentence.	77	12	0	62	23	15
The translation helps me grasp the general meaning of the search results.	69	12	19	38	31	31

Acknowledgements

This research was supported by the Ministry of Education, Science, Sports and Culture, Grant-in-Aid for Scientific Research (B), 2009-2012, 21320107.

References

Barlow, M. 2004. *Paraconc*. http://www.athel.com/mono.html, accessed 12/05/11.

Biber, D. 2009. Using corpus analysis to describe language use. Seminar paper, Tokyo University of Foreign Studies, Tokyo, Japan.

Boulton, A. 2010a. Learning outcomes from corpus consultation. In M. Moreno Jaén, F. Serrano Valverdej & M. Calzada Pérez (eds), *Exploring New Paths in Language Pedagogy: Lexis and corpus-based language teaching*. London: Equinox, p. 129-144.

Boulton, A. 2010b. Data-driven learning: Taking the computer out of the equation. *Language Learning* 60(3): 534-572.

Chujo, K. 2003. Eigo shokyuusha-muke TOEIC-goi 1 to 2 no sentei to sono kouka [Selecting TOEIC vocabulary 1 & 2 for beginning-level students and measuring its effect on a sample TOEIC test]. *Journal of the College of Industrial Technology, Nihon University* 36: 27-42.

Chujo, K., L. Anthony & K. Oghigian. 2009. DDL for the EFL classroom: Effective uses of a Japanese-English parallel corpus and the development of a learner-friendly, online parallel concordancer. In M. Mahlberg, V. González-Díaz & C. Smith (eds), *Proceedings of 5th Corpus Linguistics Conference*. Liverpool: University of Liverpool. http://ucrel.lancs.ac.uk/publications/cl2009/, accessed 12/05/11.

Chujo, K. & K. Oghigian. 2006. Discovering grammar in the beginning-level DDL EFL classroom. *Teaching and Language Corpora 7*. Paris: Université Paris 7 / BNF, 1-4 July.

Chujo, K. & K. Oghigian. 2007. Discovering grammar basics with parallel concordancing in the beginning-level EFL classroom. *5th Asia TEFL International Conference*. Kuala Lumpur: Putra World Trade Centre, 8-10 June.

Chujo, K. & K. Oghigian. 2008. A DDL approach to learning noun and verb phrases in the beginner level EFL classroom. In A. Frankenberg-Garcia (ed.), *Proceedings of the 8th Teaching and Language Corpora Conference*. Lisbon: Associação ISLA-Lisboa, p. 65-71.

Chujo, K., M. Utiyama & S. Miura. 2006. Using a Japanese-English parallel corpus for teaching English vocabulary to beginning-level students. *English Corpus Studies* 13: 153-172.

Gabrielatos, C. 2005. Corpora and language teaching: Just a fling or wedding bells? *Teaching English as a Second Language – Electronic Journal* 8(4): 1-35.

Leech, G. 1997. Teaching and language corpora: A convergence. In A. Wichmann, S. Fligelstone, T. McEnery & G. Knowles (eds), *Teaching and Language Corpora*. Edinburgh: Addison Wesley Longman, p. 1-23.

Oghigian, K. & K. Chujo. 2010. An effective way to use corpus exercises to learn grammar basics in English. *Language Education in Asia* 1: 200-214.

Pienemann, M. 1998. *Language Processing and Second Language Development: Processability theory*. Amsterdam: John Benjamins.

Stevens, V. 1995. Concordancing with language learners: Why? When? What? *CAELL Journal* 6(2): 2-9.

Takahashi, H., H. Suzuki & Y. Takefuta. 2003. CALL kyoozai niyoru jikogakusyuu to jyugyookatudoo wo yuugoosaseta daigakusei eigo chookairyoku no yousei [An integration of CALL self-study and classroom activities for improving Japanese college students' English listening skills]. *Nihon Kyouiku Kougakkai Ronbunsi* 27(3): 305-314.

Takefuta, J., Y. Takefuta & N. Yonaha. 2008. Evaluation of the relative contribution of various elements in the CALL system of teaching English as a foreign language. In P. Díaz, Kinshuk, I. Aedo & E. Mora (eds), *The 8th IEEE International Conference on Advanced Learning Technologies Proceedings*. Santander, Spain: Escuela Técnica Superior de Ingenieros Industriales y de Telecomunicación, p. 418-422. http://www.ask4research.info/icalt/2008/files/programfinal.pdf, accessed 12/05/11.

Tomlinson, B. 1998. *Materials Development in Language Teaching*. Cambridge: Cambridge University Press.

Tono, Y. 2003. Corpus wo eigo kyouiku ni ikasu [What corpora can do for language teaching]. *English Corpus Studies* 10: 249-264.

Uchibori A., K. Chujo & S. Hasegawa. 2006. Toward better grammar instruction: Bridging the gap between high school textbooks and TOEIC. *The Asian EFL Journal* 8(2): 228-253. http://www.asian-efl-journal.com/index.php, accessed 12/05/11.

Utiyama, M. & H. Isahara. 2003. Reliable measures for aligning Japanese-English news articles and sentences. In E. Hinrichs & D. Roth (eds), *Proceedings of the 41st Annual Meeting of the Association for Computational Linguistics*. Sapporo: The Sapporo Convention Center, p. 72-79. http://acl.ldc.upenn.edu/acl2003/main/index.html, accessed 12/05/11.