

Using CALL as the major element of study for a university English class in Japan

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The purpose of this study was to see if using CALL (Computer Assisted Language Learning) as the major element in a university language laboratory setting for Japanese students with English as the targeted language would improve their English language skills. Three classes with a total of 140 students were selected for final data review. Using the DynEd software system, parameters of at least 36 hours in the CALL lab with an additional 2 to 3 hours of outside of class work was established in order for students to achieve advancing a minimum of two levels (4 modules). For advancement to the next level, a mastery test score of 80% or better was needed. DynEd software's Records Management System (RMS) was then used in the data analysis. At the end of the 12-week session, the authors analyzed total time studied, average score of the Mastery Tests for each module, average increase in module level, and change in scores on a Pre-Course and Post-Course Placement test. Data results confirmed the usage of CALL as a major tool to improve the overall English abilities of the students in a controlled classroom setting.

Due to shrinking budgets and the resulting cuts in staff, Japanese tertiary institutions have begun to rely more and more on computer-assisted language learning (CALL) for their English educational needs. The use of CALL as one tool for language learning is not, however, a new phenomena in Japan. CALL labs have

been around for many years in one form or another and are now commonly found in most tertiary settings. The importance of CALL has also expanded into upper secondary schools. Starting in 2006, the National Center for Testing, commonly referred to as the Center Test, now gives a listening exam in English to all college bound students who take this test, and technology-based means to help students prepare for this test are a likely development. Furthermore, one can only assume that as Japan pursues English education at even lower levels, say at elementary schools, the number of CALL labs and the importance of CALL curriculum will expand even further.

What has not been established is to what extent CALL actually helps Japanese students learn and to what extent CALL should be used in a classroom setting. Although many institutions of higher learning have invested in expensive CALL labs filled with expensive CALL software, they have done so as selling points for school brochures. Many CALL labs suffer from under-use or misuse, or quite often languish away as "independent study centers."

As a reaction to a perception that our CALL lab was suffering from these same limitations, this paper will look at CALL being used as the major element of English language instruction in a Japanese university class. Results from study records along with a pre/post course placement test are analyzed to determine if extensive use of CALL could raise basic English skills. In order to gauge improvements in students' attitudes towards the course and the use of CALL in general, a pre-course/post-course survey was also administered. Finally, recommendations on how to best to use CALL for English language instruction are also discussed.

Background

Back in the late 80's and early 90's, CALL was breaking ground in the new technology frontier. Computers were becoming commonly used by larger numbers of people pushing developers to produce new hardware and software applications. ESL/EFL professionals began to notice how they might use this new technology in pedagogical settings. In response to this growing need, language professionals and software designers joined forces to produce a cornucopia of software programs and packages that promised improvements in everything from pronunciation and intonation to listening, reading, writing, and even speaking.

Accompanying this growth in technology, research into the practical applications of CALL into ESL/EFL curriculum also expanded rapidly. Although research into CALL has steadily increased since its birth in the late 1980s, recent studies have generally tended to fall into two categories: a) the use of CALL labs as high-tech multimedia centers, and b) the use of computers as gateways to the Internet. Therefore, current research into CALL is focusing mostly on how computers are used more as tools for instruction, and less as valuable depositories of language learning software.

There are to date still relatively few articles on research into the implementation and/or assessment of the many available CALL software packages, or how this software might be integrated within actual courses, particularly in a Japanese university setting. One relevant study was Barr, Leakey and Ranchoux's (2005) report of their pilot project on the use of the French as a Foreign Language module of the *Tell Me More®* software package. In this project, they compared students using the CALL software to those in a traditional French class. Although the report on their project is impressive, the authors cite limitations of

time of study and the amount of time spent learning to use the software as primary reasons for inconclusive results. Students using the software felt the software was useful for drills in oral skills, but in terms of actual face-to-face communication, the more traditional classroom setting was more effective. Studies into the use of commercial software packages in Japan are, as stated above, very scarce, and which was the impetus for the current research project.

Site Description

CALL Lab Description

Two CALL labs in this study were centrally located on the 3rd floor of a university campus interspersed with faculty offices and a library on the 1st floor. Being especially built as CALL classrooms, the layout was both functional and practical in design. There were approximately 60 workstations in both labs that were all linked to the university's server with PC compatible MS-XP operating system computers with microphones. There was adequate software to run the classes, Internet access, no observable server problems, and more than enough computers in the room that if one was experiencing problems, there were others that students could use.

CALL Software Description

The software package used in this study is the *New Dynamic English* (NDE) courseware produced by DynEd International, Inc. DynEd was founded in 1987, has won more than 40 major awards, and is being used in over 70 countries worldwide (DynEd, 2006). NDE has been available in Japan since 1993 and according to the DynEd website,

Focusing on language that is immediately useful, New Dynamic English uses a multi-modal, listening-based approach. Language models are presented and then practiced, following a well-designed scope and sequence that helps students acquire English as a skill they can use with confidence. (DynEd, 2006)

Having said that, it must be noted that the authors had no say in the choice of software used to conduct this research but used what was currently available at the institution. Prior to this study, NDE had been available at this institution for 2 years and was offered for self-study only. No other course had attempted to implement the use the software into the curriculum.

NDE was designed as a blend of computer/classroom multi-modal learning system where a concept-based syllabus puts meaning, grammar, and communicative purposes together in a fashion that is similar to how the brain works when learning a language naturally (DynEd, 2006). Some of the particular features of this software are that it has a Records Management System (RMS), placement and mastery tests, speech recognition, and extensive teacher-support materials.

NDE consists of four levels of two modules each that increases in difficulty. Following a placement test, students enter the program at the module appropriate to their level. Each module introduces a different language focus and includes a variety of activities. In addition to these activities, the RMS monitors how often the student uses all of the language

components of the program. These components include "language buttons" that allow the student to record their own voice, listen to their recordings, and compare them to the original. Also, there are buttons that access Japanese translations of the lesson and a Glossary of important vocabulary and grammar points. This "Button-Use" is an important component of the software. Once the student has completed all the activities and has had sufficient additional practice using the language buttons, the RMS unlocks the Mastery Test for that module.

In this study, if students passed with a score of 80% or better, they were then able to move up to the next level. This percentage was set by the researchers and can be set according to whatever percentage the instructor thinks is appropriate (for a more in depth explanation of the NDE software, see the DynEd website at www.DynEd.com).

Methodology

Course Goals

Two major goals were selected for this course: a) students would spend at least 36 hours in the CALL lab working with the DynEd software, and b) students would move up two levels (4 modules). One hour per week was devoted to working with this software in class (minimum of 11 hours total) with students expected to add 2 to 3 additional hours outside of class per week. The authors felt that a total of 10 to 12 hours per level would be necessary to cover the material in each level and then to pass the mastery test for that level with a score of 80% or better.

Participants

This study included 140 second-year university students at a small liberal arts college in Miyazaki, Japan. In their first year, these students had access to the CALL lab and were encouraged to use the DynEd software system, but were not required to do so. For this course, students were separated into 3 groups according to their student numbers. No control group was formed. Although this is a required course, all students were asked to participate in the research and verbally agreed. Special precautions were given to ensure the privacy of the data.

Study Records

Student study records from the three CALL classes over a 12-week period were tabulated using the DynEd software's Records Management System (RMS) and were used in the data analysis. At the end of the 12-week session, the authors analyzed the total time studied, the average score of the Mastery Tests for each module, the average increase in module level, and the change Pre-Course and Post-Course Placement test.

Pre/Post-course Questionnaires

A four-part questionnaire using a 6-point Likert scale was designed with this course in mind and translated in Japanese. Administered on the first and last day of class, the questions

focused on listening and speaking habits, and opinions on the DynEd system. An additional comments/suggestions section was also included but not used for data analysis.

Results

Analysis of the results is broken down into three areas: Analysis of Pre/Post Placement Test Scores, Analysis of Study Records, and Analysis of Pre/Post Course Questionnaires. In all, 156 students were enrolled in the course, but only 140 were included in the final data analysis. The inclusion of an individual student's data was based on whether or not the student received credit for the course. The decision to not give credit was based on a combination of factors such as insufficient hours of DynEd use, poor performance on the Post-Course Placement Test, insufficient increase in module level, and/or poor attendance. Deletion of the subjects who did not get credit was necessary to ensure consistency in the data analysis. A total of 140 out of 156 (89%) students' information was used in this section.

Pre/Post Course Placement Tests

Exams were administered on the first and last day of the course. To allow for possible difficulties with working with the software and/or hardware, students were allowed to take the Placement Test twice. Since the tests are computer driven and never exactly the same if taken more than once, the researchers felt students would experience little or no test effect. The best scores were used. In addition, only students (140 in total) who took both tests were included in the analysis. The descriptive statistics for the Pre- and Post-Placement Test can be seen in Table 1.

Table 1. Placement Test Descriptive Statistics

	Pre-Course	Post-Course
Mean	0.99	1.66
Median	1.0	1.7
Mode	1.0	2.0
SD	0.35	0.48
Range	2.0	1.7
Minimum	0.2	0.8
Maximum	2.2	2.5
Count	140	140

The results from the placement tests show a significant increase ($p < .01$) over the twelve-week course. However, since the results are given in the "level" assigned to the student by the Record's Management System of the DynEd software and not in actual test scores, the descriptive statistics can be misleading.

Table 2 has the results broken down into 4 categories: high change, moderate change, no change, and negative change. Instead of one positive change level, the high and moderate change

levels were arbitrarily split into two groups to give a better perspective of the students' performance. Negative change only had 2 students in this group and the change variance was only 0.2.

Table 2. Change in Pre/Post Placement Test Scores

Change in Level	-0.1 to -0.3 (negative change)	0 (no change)	0.1 to 0.9 (moderate change)	1.0 - up (high change)
Number of Students	2 (1.5%)	13 (9.2%)	74 (52.8%)	51 (36.5%)

Study Records

Although a large variety of information is collected by the Record's Management System (RMS), for the purpose of this study the researchers focused on three areas. (See Table 3.)

Table 3. Study Records Data

Average time spent using DynEd software	44 hours 12 minutes
Average of the Mastery Test scores	85.16%
Average of Modules passed	3.7 modules

With an average of over 44 hours of DynEd software use, most of the students far exceeded the minimum goal of 36 hours. The average of the Mastery Test scores was also quite high; however, in order to move up to the next module all Mastery Tests had to be passed with a score of 80% or better. As a result, if needed the students could take the test as many times as necessary to gain a passing score. Finally, although the course requirement was for all students to pass 4 modules (2 levels), with an average of 3.7 modules passed, it is obvious that many (n=38) did not fulfill that requirement. On the other hand, most students (n=112) were able to exceed expectations.

Pre/Post Course Questionnaires

Questionnaires were given out on the first and last day of the course regardless if they passed the course or not. There were 147 and 136 Pre/Post-Course participants respectively. A total of 135 students, or those who turned in both pre- and post-course questionnaires, were used for the final data analysis.

Table 4. Pre- and Post-Course Survey Results for Listening Skills
(see below for rating criteria)

		Pre-course		Post-course		Difference
		Mean	SD	Mean	SD	Pre-Post
1.	What is your English listening level? ¹	2.59	0.98	3.10	0.94	+0.51
2.	How many hours per week do you spend listening to English? ²	1.71	0.73	2.32	0.56	+0.61
3.	What is your level of English listening in these different types of listening material? ¹					
3.1	daily conversation	2.92	1.00	3.30	0.98	+0.38
3.2	business	1.59	0.79	1.87	0.74	+0.29
3.3	news programs on the radio/TV	1.93	0.88	2.20	0.86	+0.27
3.4	movies	2.40	1.07	2.81	1.00	+0.41
3.5	song lyrics	2.54	0.99	3.01	1.06	+0.47
3.6	university lectures	2.58	0.97	3.12	1.16	+0.54
3.7	telephone conversations	2.08	0.96	2.51	0.97	+0.44
4.	When listening to these types of listening material, how much do you think you understand? ³					
4.1	daily conversation	3.25	0.95	3.75	0.88	+0.50
4.2	business	1.85	0.76	2.24	0.85	+0.39
4.3	news programs on the radio/TV	2.15	0.89	2.52	0.90	+0.37
4.4	movies	2.74	1.06	3.13	0.93	+0.40
4.5	song lyrics	2.65	0.95	3.08	1.00	+0.43
4.6	university lectures	2.91	1.00	3.37	1.18	+0.46
4.7	telephone conversations	2.36	0.99	2.84	1.01	+0.47
5.	When listening to English, how often do you feel: ⁴					
5.1	the speaker speaks too fast?	2.62	1.19	2.92	1.14	+0.29
5.2	the speaker uses words you don't know?	2.59	1.02	2.85	1.11	+0.26
5.3	the speaker doesn't speak clearly enough?	3.50	1.22	3.80	1.25	+0.29
5.4	the speaker uses slang or colloquial expressions that you don't understand?	2.97	1.26	3.16	1.16	+0.19
6.	In order to improve your listening skills, how important are the following activities: ⁵					
6.1	using English in class with your classmates	4.35	1.32	4.30	1.50	-0.05
6.2	listening to English news on radio/TV	5.05	0.93	4.85	1.01	-0.19
6.3	watching English movies without sub-titles	4.50	1.06	4.59	1.06	+0.09
6.4	watching English movies with English sub-titles	4.92	1.03	4.87	1.01	-0.05
6.5	listening to English songs	4.60	1.09	4.42	1.02	-0.18
6.6	attending English lectures at this university	4.71	1.25	4.62	1.25	-0.09
6.7	listening to English language material on the Internet	4.05	1.16	3.88	1.18	-0.17
6.8	buying special English listening study material and using it on your own time	3.66	1.22	3.47	1.31	-0.19
6.9	using the Dynamic English (DynEd) software	4.64	1.19			

Rating criteria: 1 (beginner - advanced) 2 (1 = 0hr, 2 = 1-3hrs, 3 = 4-6hrs, 4 = 7-9hrs, 5 = 10-15hrs, 6 = 15+hrs) (scale = 1 - 6) 3 (0% - 100%) 4 (always - never) 5 (not important - very important)

Table 5. Pre- and Post-Course Survey Results for Speaking Skills
(see below for rating criteria)

		Pre-course		Post-course		Difference
		Mean	SD	Mean	SD	Pre-Post
1.	What is your English speaking level? ¹	2.15	0.95	2.52	0.98	+0.37
2.	How many hours per week do you practice speaking in English? ²	1.31	0.50	1.76	0.53	+0.45
3.	How well can you have an English conversation on these topics? ³					
3.1	daily life	2.78	1.10	3.13	1.01	+0.34
3.2	business	1.41	0.78	1.60	0.73	+0.18
3.3	current news	1.65	0.90	1.93	0.84	+0.28
3.4	movies	2.16	1.07	2.40	0.98	+0.25
3.5	hobbies/pastimes	2.80	1.26	3.15	1.08	+0.35
3.6	religion	1.44	0.77	1.46	0.75	+0.02
3.7	telephone conversations	2.17	1.12	2.54	0.93	+0.36
3.8	politics	1.37	0.70	1.45	0.68	+0.08
4.	When speaking in English, how often do you feel: ⁴					
4.1	you can't speak at natural speed?	1.98	1.20	2.22	1.22	+0.23
4.2	you can't say exactly what you want to say?	1.89	1.12	1.79	0.93	-0.10
4.3	the person you are talking to can't understand what you are saying?	2.63	1.09	2.87	1.09	+0.24
4.4	your pronunciation isn't good enough?	2.15	1.19	2.31	1.28	+0.16
4.5	you understand what the person is saying, but you can't make the correct response?	2.09	1.01	2.13	1.04	+0.04
5.	In order to improve your speaking skills, how important are the following activities? ⁵					
5.1	using English in class with your classmates	4.57	1.31	4.61	1.46	+0.04
5.2	reading in English out loud	4.99	1.06	5.17	1.04	+0.18
5.3	listening to English movies and then repeating the script out loud (shadowing)	5.02	1.08	4.91	1.08	-0.11
5.4	recording your speech and then comparing it to a native English speaker	4.21	1.14	4.45	1.22	+0.24
5.5	doing pronunciation drills with a tape recorder	4.13	1.12	4.25	1.26	+0.12
5.6	practicing English dialogues with your classmates	4.50	1.27	4.57	1.37	+0.08
5.7	having group discussions on various topics in English	4.45	1.35	4.60	1.27	+0.15
5.8	using the Dynamic English (DynEd) software			4.57	1.37	

Rating criteria: 1 (beginner - advanced) 2 (1 = 0hr, 2 = 1-3hrs, 3 = 4-6hrs, 4 = 7-9hrs, 5 = 10-15hrs, 6 = 15+hrs) (scale = 1 - 6) 3 (not well at all - very well) 4 (always - never) 5 (not important - very important)

Table 6. Survey Results for DynEd Software Use (see below for rating criteria)

		Pre-course		Post-course		Difference
		Mean	SD	Mean	SD	Pre-Post
1.	How much has the DynEd Software helped to improve your overall English language skills? ¹	3.86	1.22	4.27	1.18	+0.41
2.	How much do you think the DynEd Software has helped improve these English skills? ¹					
2.1	Listening	4.55	1.15	4.99	1.01	+0.43
2.2	Speaking	2.40	1.00	3.66	1.29	+1.26
2.3	Reading	3.02	1.24	3.74	1.24	+0.72
2.4	Writing	2.23	0.89	2.54	1.16	+0.31
2.5	Grammar skill	3.38	1.10	+0.35		
3.	How many hours per week did you spend using the DynEd software? ²	3.16	0.86			
4.	How many hours per week do you think you need to use the DynEd software to really improve your English language skills? ²	3.67	1.20			
5.	Overall, how interesting was the DynEd Software? ³	4.01	1.40			
6.	Overall, how difficult for you were the practice activities in the DynEd Software? ⁴	3.67	0.99			
7.	Overall, how much effort did you give when using the DynEd Software? ⁵	4.24	1.28			
8.	How much do you think the DynEd Software helped motivate you to improve your English ability? ¹	4.32	1.45			
9.	In class, you were given 60 minutes to use the DynEd software. How many minutes do you think the DynEd software should be used in class? ⁶	4.33	1.35			
10.	How interesting were the practice activities of the DynEd Software? ³	4.16	1.35			
11.	How much do you think the practice activities helped improve your Listening ability? ¹	4.40	1.31			
12.	How much do you think the practice activities helped improve your Speaking ability? ¹	4.14	1.37			
13.	How much do you think the practice activities helped improve your Grammar ability? ¹	3.86	1.33			
14.	In order to pass the Mastery Tests, you needed a score of 80% or better. How difficult was it for you to pass at this 80% level? ⁴	3.85	1.35			
15.	How well do you think your score on the Mastery Test showed how well you learned the material covered in that lesson? ⁷	4.87	1.10			
16.	How well do you think your score on the first Placement Test showed your: ⁷					
16.1	true overall English level?	3.79	1.17			
16.2	true Listening level? ⁷	4.03	1.15			

16.3	true Speaking level? ⁷	3.00	1.10			
16.4	true Grammar level? ⁷	3.82	1.16			
17.	In your opinion, how does your true English level compare to the results of the final Placement Test? ⁸	3.24	0.80			

Rating criteria: 1 (not at all – very much) 2 (1 = 1hr, 2 = 2hrs, 3 = 3hrs, 4 = 4hrs, 5 = 5hrs, 6=6+hrs) (scale = 1 - 6) 3 (not interesting – very interesting) 4 (very difficult – very easy) 5 (no effort – all my effort) 6 (1 = 0, 2 = 20, 3 = 40, 4 = 60, 5 = 80, 6 = 90) 7 (not at all – very well) 8 (my level is a lot lower – my level is a lot higher)

Discussion

The authors felt that the data support the usage of CALL as a major tool to improve the overall English abilities of the students in a controlled classroom setting. Most CALL software is used as a supplemental study tool. In this study, it was the major part of the study for one semester. Having said this, time spent outside of class versus inside of class was roughly 3.5 times more. This was primarily due to the two objectives set down for the class: completion of 2 levels (4 modules) and at 36 hours of study including the 11 hours of in-class work. The average of roughly 44 hours was more than the authors had expected and were pleasantly surprised by this finding. This may show that students were motivated to study more hours than necessary for either wanting a good grade or for their own personal reasons.

Study Records

When looking at the data in the RMS, it is obvious that the students put in a lot of time and effort in the CALL lab. Although the increase in placement test scores (+0.6) may not seem all that impressive, it was statistically significant and does indicate that the students' English levels did increase over the twelve-week period. The authors had hoped that the hours of in-class and out-of-class work in the CALL lab would lead to a greater improvement in their final placement test scores; however, considering the effort put into making these increases, the authors are satisfied with the results.

The requirement of needing a score of 80% or better to pass the Mastery tests in order to move on to the next level seemed appropriate and achievable for most students. It is true that as the students moved up in level, the information being studied along with the Mastery test score's increased in difficulty. Yet, the authors found that the students could still achieve the required levels.

It must be stated that not only answering questions correctly would enable a student to move up to the next level, but it was also possible to gain "points" by accessing the 6 language buttons as well. This combination may have helped students achieve their targeted goals by not focusing so much on getting the correct answer every time they took a skills test, but also on the credit that would be given for trying their best.

One must be careful, however, when describing the usage of the language buttons. Upon inspection of the data in the RMS, it was obvious that in order to move to the next level, a few students were abusing this credit system by simply pushing buttons and not really en-

gaging the software in any meaningful way. There was no way the software could monitor this behavior and take appropriate action. Therefore, effective use of the DynEd software necessitated either the students policing themselves or the instructor carefully monitoring the data in the RMS to look for irregularities in button points.

Pre/Post Course Placement Tests

Overall gains in the placement test saw a small yet significant gain of 0.6. When counted student-by-student, however, test scores rose dramatically (89.3%) vs. down (1.5%) with no change was witnessed in the remaining 9.2%.

Positive results were split into two groups arbitrarily set at 0.01 to 0.99 for the moderate change group (52.8%) and 1.0 and above for the high change group (36.5%). This was done to further study how well the students performed. Only one grouping was used for the negative change because of a lack of numbers (2 students only) and spread of scores (0.2 and 0.3). This indicates a marked improvement as shown in pre/post placement test scores.

However, it must be noted that there was no control group to judge outside factors such as whether the students only improve because of this English class or did other classes also have an impact on the final placement test scores. Another question is whether the close to 90% of the students who improved on the tests learned other skills outside of the university that may have helped them to better their scores. Answers to questions such as these can never be fully measured or answered. The authors are nonetheless pleased with the positive outcome.

Pre/Post-Course Questionnaire

The other area examined was the Pre/Post-Course Questionnaire. The Pre/Post-Course Questionnaire was split into two parts: a listening section and a speaking section. A DynEd Usage section was also included in the questionnaire to get feedback about how students felt about using the DynEd system.

Pre/Post descriptive statistics went up from 1.039 to 1.050 (0.99 – 1.665) on the average. Once again, the authors are not sure how this statistical information may be evaluated in terms of how well the students' improved their English skills, but an increase does suggest a positive outcome.

Another positive outcome was that there were only 9 questions out of 49 from both parts of the questionnaire that decreased. When looked at carefully, 7 questions were from listening skills that were not stressed in the software package. These included using English in class with classmates, listening to English on radio/TV/Internet, buying special English listening materials and using it on your own, watching English movie without subtitles, listening to songs, and attending English lectures at this university. As previously mentioned, since none of these areas were either used or stressed in the software's courseware, the authors felt they were interesting but can not be used as a critique of the DynEd software. These decreases did, however, remind the authors that perhaps a few other areas of interest could be stressed somewhere in the syllabus for this class.

The final two areas that decreased were in the speaking skills section (Table 5, Questions 4.2 and 5.3) As for students not being able to say what they want (Question 4.2), the authors feel it has more to do with self confidence than with a learned behavior from this class. One reason for the drop in the "shadowing" score (Question 5.3) might be that many of the students had been introduced to shadowing in a previous course and their initial reactions were based on that experience. It is interesting that after using the DynEd software that doesn't specifically target shadowing activities, student ratings on this question decreased showing a possible re-consideration of the usefulness of shadowing for improving speaking skills.

And finally, the information on how students' personally thought they did was yet another very positive outcome. Although their cumulative score of 66.67% thought they did well in the class is not the most outstanding statistic found in this research, it may point to the fact that students who work hard in and outside of class to achieve set goals are happy with their achievements.

Conclusions and Implications for Further Research

The authors believe that CALL can be an integral part of any language learning situation, if used properly, to improve the acquisition of the targeted language. In doing so, based on the results of the present study, at the very least, several points must be taken into consideration. First, once a program has been established that uses CALL as a major part of the learning experience for the learners, it should be carried out throughout the entire time the learners are learning. In other words, you should not have it one year and not the next. Consistency and repetition seem to be crucial in learning situations.

Next, it takes time for a student to learn how to use CALL efficiently and effectively. A considerable amount of time should be spent on a thorough explanation of the system that is to be used. Time spent on proper explanation of the system may take time to do in the beginning but will save time in the long run with better results from the learners.

Another point to remember is the setting of realistic goals for the learners. The authors had certain time and level achievement goals in mind for the learners. Having some previous experience with the learners and some level of knowledge of the software package that will be used is necessary. Without these, student goals and appropriate usage of the software may adversely affect the learning experience of the students.

And finally, because of the nature of CALL, instructors must point out the importance of additional study outside of the classroom to the participants. As is true with most things, one must practice what they learn in class. It is the same in using CALL to its best advantage: extensive work inside the classroom to make sure all participants know how to use it to their advantage.

The study also gave rise to other areas which require further investigation. This study included a small number of students at one university. More comprehensive studies need to be conducted at various locations with various students to see if the results in this study are generalizable. Also absent in this study was a control group used for comparison; therefore, future studies should attempt to compare students required to use software as part of the curriculum with students who use the CALL lab as purely self-study. This explicit

versus implicit use of CALL lab resources would do much to show whether a self-study approach can be effective. In addition, studies comparing different student populations (male vs. female, beginner vs. advanced, motivated vs. unmotivated, etc.) are also needed.

References

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Biodata

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