Game consoles for English

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This study will look at the use of game consoles as a tool for learning English. The ten-week project involved students from a Japanese university who were given a game console and software for TOEIC preparation. Their use of the consoles was monitored, their progress evaluated, and their feedback assessed. The results obtained showed a positive effect upon student motivation to engage in self-study compared to a control group that did not use game consoles.

この研究は英語を学ぶ器機としてゲームコンソールの役割を調査するもので、日本の大学で１０週間TOEIC準備問題をゲームコンソールで使った学生についての報告である。コンソールの使用を監視し、進歩を評価し、フィードバックを査定した結果、コンソールを用いなかった統制群に比べ、実験群は自己学習に対する動機づけが上昇した。

Computer-Assisted Language Learning (CALL) has become an increasingly useful tool. At the same time a lot of people in Japan (and across the world) are living their daily lives with more and more technological equipment on their person. Although once viewed by some parents and teachers as an entertainment distraction that impedes student learning, the portable video game console has evolved into a key teaching tool, breaking with traditional academic methods (Kageyama, 2008). Modern game consoles can aid language learners in virtually anything from spelling practice to listening to video dialogues. This project attempts to combine these two traits and investigate the use of handheld game consoles as a motivational self-study instrument for learning English. The authors were interested in whether students would undertake more autonomous study because they had game consoles and were encouraged to use them.

Literature review

The Internet, word processing, PowerPoint presentations, chat rooms, Computer Mediated Communication (CMC), which involves such things as email and voice to voice communication, as well as online journals / blogs (web logs), Moodle, Corpus, Podcasts, streamed videos, electronic dictionaries and many more form the world of CALL. This has received increasing attention in the EFL literature (Keller 1987; Jones 2001; Bax 2003; Howatt & Widdowson 2004; Ioannou-Georgiou 2006; Levy & Stockwell 2006; Timuçis 2006; Chapelle & Jamieson, 2008). Bax (2003) looks to a future in which the use of CALL is as natural a part of a language lesson as a pen or a book. Ioannou-Georgiou (2006) identifies factors that would help achieve this state of normalization of CALL. Among those factors she noted are the use of appropriate hardware and software, easy access, integration of technology into the syllabus, and personalization of the technology. Levy and Stockwell (2006) note that we must ensure "CALL materials are used in an appropriate, principled, and effective way" (p. 3).

When trying to define and understand how CALL can help in motivating students the work of Dörnyei (2004) proves useful. His enquiry into motivation brings forth many points for the teacher and others involved in the field of education: Highlight and demonstrate aspects of L2 learning that learners are likely to enjoy; make curriculum and teaching materials relevant to the students; make learning more stimulating and enjoyable by breaking the monotony of classroom events through attractiveness of the tasks; avoid social comparison; avoid face-threatening acts; and increase student motivation by actively promoting learner autonomy. Holec (1981) states that autonomy is the "ability to take charge of one's own learning" (p. 3) and that there "must be a learning structure in which control over the learning can be exercised by the learner" (p. 7).

When analyzing the results of the investigation, the work of Keller (1987) and his ARCS Model of Motivation will prove useful. This was developed as a framework for assessing motivation and designing effective instruction. He describes four factors that motivate: attention, relevance, confidence and satisfaction.

It is hoped that the use of CALL and the particular TOEIC practice material that was used in this investigation meet these criteria. By giving the students material that is directly relevant to their field of study, in a form that is different and enjoyable to use, as well as something that can be done on one's own away from the scrutiny of possibly censorious colleagues, it is hoped that the students will find motivation in this experience.

The investigation

This review explains much of what the investigation was driven by: to investigate what would happen if students were given a popular new technology with software that was directly relevant to them. It was decided to use commercially available TOEIC software. The reasons for these were manifold. In Japan, as in other cultures with a Confucian tradition, the future livelihood of students rides heavily on how well they fare in the exam-based education system. Thus, a high score on a major standardized test, such as the TOEIC, is often viewed as mastery of written English in Japan, South Korea, Taiwan, the PRC, and other Asian countries. It may also be noted that Japan, while boasting the most TOEIC test-takers worldwide annually, scores second-lowest among Asian countries (Kindler, 2003). Japanese university students hoping to gain a competitive edge in the national and global job markets upon graduation might therefore find the use of this software relevant and advantageous in helping them attain higher TOEIC scores. The authors wanted to investigate what effect having a portable game console and suitable software would have on student learning patterns and results.

Methods

For the investigation, the researchers asked 25 first-year English majors from KWU to participate in the study. These students were already divided into two separate cohorts. Students from both groups were comparable in English proficiency. The majority reported low self-efficacy in English reading, writing, speaking, and listening ability prior to this intervention. Only 3 of the 13 students from the experimental game console group (hereafter referred to as the "GC Group") had already owned Nintendo DS-Lite game consoles. Those who did not were allowed to borrow a game console from their instructors. None of the students had had any prior experience taking the TOEIC. However, the majority of the students from both groups were taking a TOEIC class concurrently with this investigation as well as other English courses.

An initial TOEIC was administered to all members of both groups. The students were also asked to complete a pretest questionnaire. In a weekly diary both groups were asked to log their frequency of English self-study outside of class for a 10-week period in the spring semester of the 2008-2009 academic year. In this log they noted what type of self-study they did, how long their study sessions were, and where these sessions took place. After ten weeks, the students were given another TOEIC test and took a posttest questionnaire, which was completed before the results of the tests were made known.

The technology

Levy and Stockwell (2006) note that the "developments in smaller, more sophisticated storage units … have led to much more flexibility, versatility, and access as far as language learning is concerned" (p. 205). This investigation taps into that. While there are several portable handheld game consoles currently on the market, this investigation used the Nintendo DS-Lite as it seemed to be the most popular among the target student population, as well as having features and compatible software suitable for the investigation. Although the investigation initially proved to be quite costly to the researchers, with each game console retailing at 16,800 yen and each TOEIC software program costing 4,500 yen at the time of starting the project, it would later prove to be a worthwhile investment. This investment was met by research funds made available by KWU.

The members of the GC Group who did not already have a Nintendo DS-Lite game console were given one along with TOEIC software. The software was commercially available and includes a multitude of sample TOEIC questions, giving the user both practice and feedback on the various sections of the TOEIC, and extrapolates a general score. The Control

Group was not given the technology, but was given guidance and instruction concerning self-study. This included direction towards free websites that could be used (including TOEIC style practice), access to material in the university self-study room (which also includes TOEIC practice material), and guidance to podcasts, readers, and library material. Obviously the material used by both groups was different. This is an unavoidable aspect of this project. However, it is important to note that both groups had access to TOEIC material.

Results and discussion

TOEIC scores

The mean TOEIC scores of the groups were compared both before and after the intervention as shown in Figure 1.

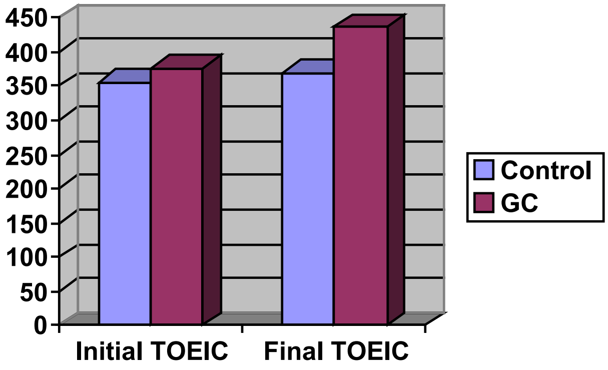

Figure 1. Mean TOEIC scores

The mean TOEIC scores before the intervention revealed only a slight difference between the Control Group (355.4) and the GC Group (368.3), whereas the mean TOEIC scores after the intervention revealed a more significant (p<0.01) disparity between the Control Group (368.3) and the GC Group (435.8). While the Control Group increased its collective mean TOEIC score by 3.6%, the GC Group showed a remarkable increase of 16.3%, nearly five times that of the Control Group. In addition, while only 2 of 12 students from the Control Group showed a significant (p<0.01) increase (average of +29%) in their TOEIC scores, 5 of 13 students from the GC Group increased their TOEIC scores by an average of +43%. Furthermore, within the Control Group more than half (7 of 13 students) increased their TOEIC scores, ranging from a moderate +7% gain to a dramatic +58%. On the negative side, while only 1 of 13 students from the GC Group showed a noticeable decrease (-9%) in TOEIC score, nearly half (5 of 12 students) from the Control Group showed a significant (p<0.01) drop in their TOEIC scores ranging from -9% to –29%. While the highest score from the Control Group was a respectable 460 on the final TOEIC, the highest score from the GC Group was 580. These improvements were made within a 10-week period and were reflected in the amount of self-study reported. With regard to self-study outside of class, less than half of the students from the Control Group submitted their weekly self-study logs. In other words, more than half from the Control Group reported no self-study over the course of the investigation, in contrast to the GC Group in which all members submitted their weekly self-study diaries.

Motivational scores

Table 1 displays the average motivational scores for each of the eight questions asked on the pretest and posttest questionnaires given at the beginning and ending of the investigation. Scores were based on a Likert scale from a minimum score of 1.0 to a maximum score of 7.0. Questions 1, 3, 4, 6, and 8 pertained to the use of game consoles and so could not be asked of the Control Group on the posttest. This reflects the authors' interest in the game console effect. However, the survey could, in hindsight, have benefited from more investigation into differences between the two groups. The pretest and posttest surveys may be found in Appendixes 1 and 2, respectively.

A comparison of the average motivational scores for each of the eight questions from the pretest revealed low motivation for both groups on most questions, especially questions 3 and 4, which asked students how confident they felt using English and computers/technology. However, following the use of the game consoles the average motivational scores of the GC Group, when asked on question 3 about their confidence in using English and on question 4 about their confidence in using technology, jumped from 2.77 to 5.08 and from 3.85 to 4.58, respectively. Perhaps the most telling motivational statistic of all in regard to learner autonomy, question 1 asked if studying English outside of class was fun. The average motivational score of the GC Group increased from 4.77 to 5.83 on the posttest indicating that students indeed were beginning to enjoy self-study outside of class more than they did prior to the intervention. Moreover, question 5 revealed that even at this early stage of their university studies students were aware of the importance of getting a high score on TOEIC for their future careers (6.33 out of 7.0). When asked on question 6 if they thought using game consoles was a convenient way to study English, students overwhelmingly answered positively (6.62 out of 7.0), showing a slight increase on the posttest. Questions 7 and 8 asked students from the GC Group whether or not using a game console could help improve their TOEIC scores and their English skills, respectively. Although the posttest survey showed slight drops in average motivational scores, from 6.0 to 5.5 on question 7 and from 5.85 to 5.33 on question 8, it should be reiterated that the posttest was given

Table 1. Average motivational scores from pretest and posttest surveys

Group pretest and posttest	Question							
	1	2	3	4	5	6	7	8
GC group pretest	4.77	5.69	2.77	3.85	6.15	6.23	6.00	5.85
Control group pretest	4.62	4.38	2.38	2.92	6.76	5.54	5.08	5.38
GC group posttest	5.83	5.42	5.08	4.58	6.33	6.62	5.50	5.33
Control group posttest	X	4.55	X	X	6.64	X	5.55	X

before students saw their final TOEIC scores, most of which had risen significantly.

The number of self-study sessions reported by each group on their weekly self-study logs was also compared, as shown in Figure 2.

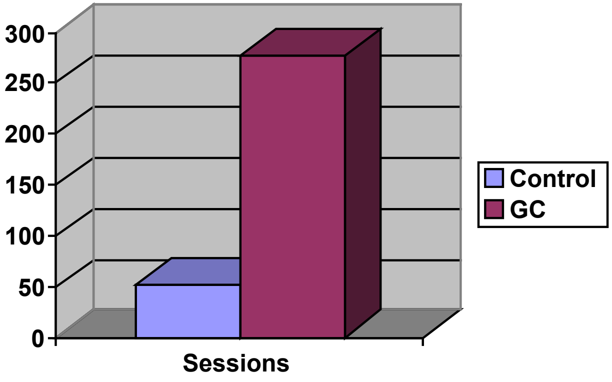

Figure 2. Reported self-study sessions

While the Control Group had reported 52 individual self-study sessions over the 10-week period, the GC group reported 277 sessions, more than five times that number. When translated into self-study minutes, the GC group logged a total of 6,331 minutes, more than doubling the total self-study time of the Control Group (3,109 minutes). In addition, on a per student basis, while the Control Group averaged 239 minutes of self-study (approximately 24 minutes per week per student), the GC Group more than doubled that number, dedicating an average of 489 minutes to self-study per student during the investigation. It should also be noted that this disparity is even more pronounced when given the fact that one student from the Control Group had accounted for 1,080 minutes, amounting to more than a third of the total self-study minutes logged for her group, thus further skewing the data. Figure 3 displays the total self-study time logged by each group in minutes.

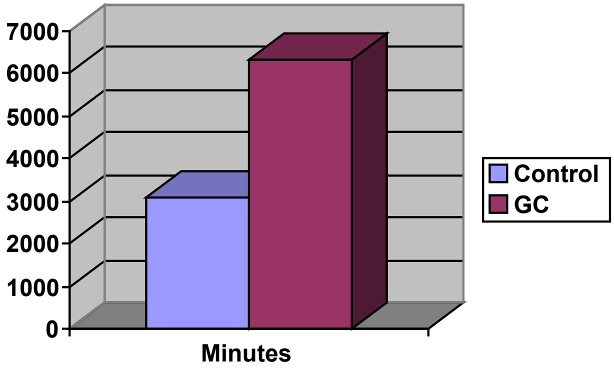

Figure 3. Reported self-study time (minutes)

The researchers also unveiled some interesting observations regarding self-study, in particular, game console use. For example, out of the 4,156 total reported self-study minutes game consoles were used by the GC group during the investigation, 3,356 were logged at home, by far the most popular place for self-study for all other locations as well. The train, which the researchers had originally surmised would be the ideal place to use the game consoles due to the lengthy commute for many of the students, proved to be the second most popular place for game console use (560 minutes). It is also noteworthy that the second most common form of self-study by the GC group was reading, to the delight of the researchers/instructors who also assigned book reports and extensive reading to both groups over the course of the investigation. Students from the Control Group, on the other hand, were engaged in very different forms of self-study activities, mainly studying for exams and watching English TV programs, movies, or DVDs at home. It should also be noted again that the data is slightly skewed here due to the aforementioned student who had accounted for more than a third of the Control Group's total self-study minutes, logging nearly all of the 1,205 total minutes for this activity in studying for the *Eiken* Exam. Table 2 reveals the types of self-study students from each group reported doing, where these activities took place, and the number of minutes spent engaged in these activities.

The fact that the GC group scored significantly higher on their final TOEIC and that they reported a significantly higher number of self-study sessions would lead one to conclude that the use of a mobile handheld game console has been beneficial in the learning of English and that it motivated the students to study more by themselves. In accordance with the factors that Keller (1987) cited in designing instruction that would motivate learners, it would seem that the students found this form of study something that grabbed their attention, made studying more relevant for their future goals, raised their confidence in using the language, and gave them satisfaction in doing so. They even

Table 2. Activity, location, and duration of self-study

Activity	Location	GC (minutes)	Control (minutes)
Game console	Bus	60	X
	Home	3351	X
	Train	560	X
	University	35	X
	Various	150	X
Listening	Home	65	35
	Train	20	X
Movie/TV/DVD	Home	90	876
	University	30	X
Music	Home	360	353
	Train	100	X
	Outside	160	50
Pronunciation	Home	X	15
Reading	Dormitory	X	60
	Home	795	295
	Train	15	85
	University	90	X
	Outside	X	105
Studying for exam	Home	120	1190
	Train	X	15
	University	X	60
Words	Home	X	60
	Train	X	15
	University	X	30
Workbook	Home	300	X
Writing	Home	X	5
English (Unspecified)	Train	30	X

reported it was fun. It would seem that Ioannou-Georgiou's (2006) call for suitable software and hardware is being met here and that Levy and Stockwell's (2006) desire that CALL be used "in an appropriate, principled, and effective way" is also adhered to.

The fact that the GC Group and Control Group were using different material means that any difference in final test results cannot simply be attributed to the use of the game consoles. However, what is striking is the general increase in self-study hours. This may be due to the software, although the Control Group did have a choice of materials. They could have chosen material they enjoyed. For example, the GC Group spent considerably more time on reading at home than did the Control Group by a margin of 795 minutes to 295 minutes. They also spent significantly more time working on their workbooks, logging 300 minutes, as opposed to none for the Control Group. Both of these study methods are conducive to TOEIC preparation, in direct contrast to the Control Group which spent more time engaged in non-TOEIC related activities such as watching movies, TV, and DVDs. The groups also knew that there would be a final TOIEC test and so they could have aimed specifically for this. The fact that the Control Group's main choice for self-study was films and music may be significant and could be investigated further in other research.

Conclusion

Though costly, bringing technology into the syllabus as a part of the students' routine proved to be a worthwhile investment and motivated them into a more autonomous style of learning where they were choosing from the flexibility that it gave them as to where and when to study. This seems to fulfill the requirements for Holec's structure where learners can take control. All in all, this investigation makes a strong case for changing the perception of the game console as merely an entertainment diversion; it has evolved into an empowering device for engaging the new generation of language learners.

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Appendix 1

Pretest survey

Please circle **one** answer to each of the following questions.

A. How would you rate your English reading skills?

Terrible Poor Average Good Excellent

B. How would you rate your English writing skills?

Terrible Poor Average Good Excellent

C. How would you rate your English speaking skills?

Terrible Poor Average Good Excellent

D. How would you rate your English listening skills?

Terrible Poor Average Good Excellent

E. How would you rate your overall English skills?

Terrible Poor Average Good Excellent

F. Which of the following is most difficult for you?

Reading Writing Speaking Listening

G. How often do you study English outside of class?

Never 30 min/wk 1-2 hrs/wk 3-5 hrs/wk 6-10 hrs/wk

H. Have you ever studied English in a foreign country?

Yes No

If so, where did you study abroad? ____________________

How long were you there? __________________________

I. How would you rate your overall computer/technology skills?

Terrible Poor Average Good Excellent

J. Do you have a Nintendo DS-Lite game console?

Yes No

If so, how often do you use it? _______________________

K. Have you ever used TOEIC software?

Yes No

If so, how many times have you used it? _______________

L. Have you ever taken a TOEIC practice test?

Yes No

If so, what was your highest score? ___________________

Please circle **one number** to each of the following questions.

1. I enjoy studying English outside of class because it's fun!

No, I don't think so. Maybe Yes, I think so.

1 2 3 4 5 6 7

2. Using a Nintendo DS-Lite game console is better than using a textbook for studying English.

No, I don't think so. Maybe Yes, I think so.

1 2 3 4 5 6 7

3. I feel confident using English.

No, I don't think so. Maybe Yes, I think so.

1 2 3 4 5 6 7

4. I feel confident using computers/technology.

No, I don't think so. Maybe Yes, I think so.

1 2 3 4 5 6 7

5. Getting a high score on TOEIC is important for my future career.

No, I don't think so. Maybe Yes, I think so.

1 2 3 4 5 6 7

6. Using a Nintendo DS-Lite game console is a convenient way to study English.

No, I don’t think so. Maybe Yes, I think so.
1 2 3 4 5 6 7

7. Using a Nintendo DS-Lite game console will improve my TOEIC score.

No, I don’t think so. Maybe Yes, I think so.
1 2 3 4 5 6 7

8.Using a Nintendo DS-Lite game console will improve my English skills.

No, I don’t think so. Maybe Yes, I think so.
1 2 3 4 5 6 7

Appendix 2

Posttest survey

Please circle **one** number to each of the following questions.

1. Studying English outside of class using a Nintendo DS-Lite game console was fun.

No, I don’t think so. Maybe Yes, I think so.
1 2 3 4 5 6 7

2. Using a Nintendo DS-Lite game console was better than using a textbook for studying English.

No, I don’t think so. Maybe Yes, I think so.
1 2 3 4 5 6 7

3. I feel more confident using English after using a Nintendo DS-Lite game console.

No, I don’t think so. Maybe Yes, I think so.
1 2 3 4 5 6 7

4. I feel more confident using computers/technology after using a Nintendo DS-Lite console.

No, I don’t think so. Maybe Yes, I think so.
1 2 3 4 5 6 7

5. Getting a high score on TOEIC is important for my future career.

No, I don’t think so. Maybe Yes, I think so.
1 2 3 4 5 6 7

6. Using a Nintendo DS-Lite game console was a convenient way to study English.

No, I don’t think so. Maybe Yes, I think so.
1 2 3 4 5 6 7

7. Using a Nintendo DS-Lite game console will improve my TOEIC score.

No, I don’t think so.   Maybe   Yes, I think so.
1   2   3   4   5   6   7

8. Using a Nintendo DS-Lite game console has improved my English skills.

No, I don’t think so.   Maybe   Yes, I think so.
1   2   3   4   5   6   7

9. Did you take a TOEIC class last semester?

Yes, I did.   No, I didn’t.

If so, who was your TOEIC teacher? ____________________