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AN EVALUATION OF TABLET COMPUTERS FOR UBIQUITOUS LANGUAGE LEARNING

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ABSTRACT

This study presents an evaluation of a pilot project requiring 118 top incoming first-year Japanese university students to buy their own tablet computers for everyday use in their English lessons as part of a special academic track curriculum aimed at preparation for study abroad. The principle aim was to determine the potential of tablet computers as a “good enough” multi-purpose tool (Capps, 2009) for bridging the gap between in-class and out-of-class learning. These 118 students and 310 others with access to a variety of technologies, including tablets with wi-fi, but only on a shared basis, were given online surveys as a means of comparing the types, frequencies, and purposes of their digital tool use inside and outside the classroom. The results indicate that tablet computers may indeed be an adequate replacement for dedicated technologies such as voice recorders and digital audio players, but not for others such as electronic dictionaries and paper-based materials.

1. INTRODUCTION

In April 2013, Kanda University of International Studies (KUIS) was awarded a Ministry of Education Project for Promotion of Global Human Resource Development Grant for up to five years of funding to create a program to enable and eventually encourage at least 40% of its approximately 430 incoming English majors to study abroad and at least 100 of these students to attain a TOEFL-ITP score of 600 or better by graduation. Although students in the English Department had long been streamed into tiers on the basis of standardized test scores, the response to this new challenge was to target the top 120 incoming students with a special Academic English track to help them qualify for study abroad as early as possible. The principal

interventions involved enrolling these students in an Accelerated English course to provide them with an extra three hours of lesson time each week and requiring them to purchase tablet computers to allow them to pursue their studies anyplace and anytime (Pea & Maldonado, 2006). The exclusive nature of these measures, however, resulted in a splintering of the Freshman English course into two distinct curriculums, a Standard Track and an Advanced Track, offering potentially unequal educational opportunities (DiMaggio, Hargittai, Celeste, & Shafer, 2004). A proposal was then made to expand tablet computer adoption across all tiers from the following year, but first an evaluation of the initial implementation was conducted to ensure the adequacy and worth of its continuation. This paper reports on the results of an investigation into two main questions:

- 1) How well suited are tablet computers for in-class English study? In other words, are they sufficient by themselves, or do they need to be supplemented with other technologies?
- 2) How well suited are tablet computers for out-of-class English study? That is, do learners with tablet computers actually engage in more out-of-class English study than those without them?

2. METHOD

Data were collected via a 9-part Survey Monkey questionnaire, a link to which was sent along with an invitation message to the official university email accounts of 428 first-year

English majors in the last two weeks of the 2013 spring semester. Both the questionnaire and the invitation message were written entirely in Japanese.

The questionnaire comprised 25 items grouped into 10 general topic areas with one to eight items each. With the exception of a comment space at the end, all items required only closed responses. Table 1 lists the general topic areas and shows the number of items for each.

Table 1. General Topic Areas and Numbers of Questionnaire Items

Topic Area	No. of Items
English Skill Needs and Interests	2
English Learning Activity Structures	2
Out-of-Class English Study Habits	3
Private Technology Ownership	1
Frequency of In-class Technology Use	2
Frequency of Out-of-class Technology Use	3
Pre- & Post-Enrollment Technological Proficiency	2
Potential Benefits of Using Technology for English Learning	8
Ideal Technological Environment for Learning English	1
Other Comments*	1
Total	25

*Open-ended

Of the 310 Standard Track and 118 Advanced Track students who received the invitation to answer the questionnaire, the numbers providing complete responses were 59 (19%) and 31 (26%), respectively. Thus, the latter group was slightly overrepresented. Given the exploratory

nature of this study, however, no statistical hypothesis tests were conducted. Rather, comparisons were made of the descriptive statistics for key survey items, which are identified, analyzed, and discussed in the next section.

3. DISCUSSION

To answer the first research question, regarding the suitability and self-sufficiency of tablet computers for in-class study, the survey respondents were asked to assess on a 6-point scale (0 = lowest, 5 = highest) the potential of nine then-in-use technologies for improving speaking and listening in their Freshman English (i.e., oral communication) class and a subset of seven for improving reading and writing in their Literacies class. The results are summarized in Tables 2-5, where the highest rated (i.e., reportedly most useful) technologies are highlighted for each group.

Table 2. Median Perceived Technology Potential for Improving Speaking in Class

	Standard Track	Advanced Track
Paper-based materials	3	2.5
Electronic dictionary	4	3.5
Voice recorder	5	5
Digital audio player	4	4
Desktop computer	3	3
Laptop	3	4
Tablet	3	4
Smartphone	4	4
Internet	4	5

For the purpose of improving speaking ability, voice recorders were chosen by both groups as most valuable (see Table 2), despite the fact that the mode frequency of their reported in-class use was only one to two times per month in a course that met four times per week. However, the Advanced Track students gave an equally high rating to the Internet and, with the exception of smartphones, for which there was no difference, they placed greater value on portable devices with wifi access. In this case, however, mode reported in-class Internet use was three to four times per week for students in the Advanced Track but only one to two times per month for those in the Standard Track.

Table 3. Median Perceived Technology Potential for Improving Listening in Class

	Standard Track	Advanced Track
Paper-based materials	3	3
Electronic dictionary	3	4
Voice recorder	4	4.5
Digital audio player	5	4.5
Desktop computer	3	3
Laptop	4	4
Tablet	3	5
Smartphone	4	5
Internet	4	5

Similar to their appraisal of voice recorders for speaking, Standard Track students rated digital audio players, a technology they reported using only once or twice per month, as most useful for

listening (see Table 3). Advanced Track students, on the other hand, while acknowledging the potential of voice recorders, saw the greatest utility in tablets, smartphones, and the Internet, for all of which they reported much more frequent in-class use.

Table 4. Median Perceived Technology Potential for Improving Reading in Class

	Standard Track	Advanced Track
Paper-based materials	5	5
Electronic dictionary	5	5
Desktop computer	3	4
Laptop	3	4
Tablet	2	5
Smartphone	3	4
Internet	4	5

In the case of reading, both Standard and Advanced Track students gave the highest utility ratings to traditional paper-based materials and electronic dictionaries (see Table 4). However, Advanced Track students saw equal value in the Internet and tablets and even rated all other computing devices more highly than did their Standard Track counterparts.

Table 5. Median Perceived Technology Potential for Improving Writing in Class

	Standard Track	Advanced Track
Paper-based materials	5	5
Electronic dictionary	5	5
Desktop computer	3.5	4
Laptop	4	4
Tablet	3	4

Smartphone	4	3
Internet	4	4

While the profiles of the Standard and Advanced Track students showed clear differences in their appraisals of the various technologies for speaking, listening, and reading, for writing they were remarkably similar, with both groups expressing a clear perceived advantage for paper-based materials and electronic dictionaries (see Table 5). One possible explanation is greater proficiency in handwriting over typing. The most notable and interesting difference here is that the relative utility of tablets and smartphones is reversed for the two groups, possibly reflecting the differently weighted effects of access and screen size limitations.

On the basis of the preceding evidence, it might be argued that tablets are indeed sufficient tools for in-class English study, with no need for supplementation by other technologies except possibly for writing, where paper-based materials and electronic dictionaries might still be employed, but other expensive devices such as voice recorders, digital audio players, and desktop and laptop computers might be dispensed with. However, since track assignment was not random but based on initial English proficiency, which might be linked to educational opportunity, students were also asked how long they privately possessed various technologies prior to their enrollment at KUIS and how proficient they felt with each both prior to enrollment and at the conclusion of the first 15-week semester. The mode responses among Standard Track and Advanced Track students with regard to length of pre-enrollment tablet computer ownership were ‘never’ (82%) and ‘1 to 3 months’ (43%), respectively. On the other hand, on a 6-point scale representing their self-assessment of their proficiency with tablet

computers to that same point (0 = lowest, 5 = highest), the median scores were 1.3 for the Standard Track and 1.5 for the Advanced. Moreover, the mode response in both groups was 0. Thus, despite higher pre-enrollment tablet ownership rates, Advanced Track students indicated no appreciably greater tablet proficiency.

The end-of-semester self-assessment on the same 6-point scale showed tablet proficiency improvement for both groups—Standard Track students had potential lesson time access to a limited number of loaner tablets that their teachers could sign out on a first-come first-served basis—but the Advanced Track students had by then gained a clear advantage. Whereas the median self-assessment among Standard Track students had risen to 1.7, that of the Advanced Track students jumped to 4.1, surpassing their proficiency with all other technologies except electronic dictionaries (4.7) and smartphones (4.5). Median self-assessed proficiency for laptop computers, available to both groups on the same sign-out basis as tablets for the Standard Track students, was exactly 3.9 across the board. In short, the class requirement of private tablet ownership led not only to tablet mastery but to a greater degree of technological proficiency overall.

To answer the second research question, regarding the suitability of tablet computers for out-of-class study, the survey respondents were asked to report the amount of time they spent on out-of-class English study and the frequency of their use of the same nine technologies for these purposes. The results are summarized in Tables 6-8.

Table 6. Weekly Average Out-of-Class English Study

	Standard Track (%)	Advanced Track (%)
< 1 hour	2	0

1-2 hours	21	14
3-5 hours	48	38
6-10 hours	22	38
10+ hours	7	10

While nearly half of all Standard Track students reported spending an average of three to five hours per week studying English outside of class, only a little over a third of Advanced Track students responded likewise, with equal numbers claiming six to ten hours of out-of-class English study (see Table 6). However, it must be remembered that the latter were also enrolled in an extra three-hour-per-week Accelerated English course undoubtedly requiring additional homework. In fact, in answer to a follow-up question as to the breakdown of their out-of-class English study, Advanced Track students reported spending approximately 70% of their time on compulsory assignments and 30% on self-directed study, whereas the distribution for Standard Track students was 60% to 40%.

Table 7. Mode Frequency of Tool Use for English Homework

	Standard Track	Advanced Track
Paper-based materials	3-5x/wk.	3-5x/wk.
Electronic dictionary	3-5x/wk.	3-5x/wk.
Voice recorder	Never	Never
Digital audio player	Never	Never
Desktop computer	Never	Never
Laptop	1-2x/wk.	3-5x/wk.
Tablet	Never	3-5x/wk.
Smartphone	3-5x/wk.	3-5x/wk.
Internet	1-2x/wk., Never	3-5x/wk.

With regard to frequency of individual tool use for out-of-class English study, Advanced Track students unsurprisingly indicated that they used tablets and the Internet much more often to complete their required homework assignments (see Table 7), for the nature of the given assignments may to some extent dictate the use of certain tools. More interesting is the finding that Advanced Track students continued to use these same tools for their self-directed English study, when they had the choice not to (see Table 8). Also noteworthy is the smartphone usage of the Standard Track students for homework versus self-study (cf. Tables 7 & 8), for the use of smartphones for homework was certainly not compulsory, but students who chose to utilize them to this end did not seem to see their applicability for their own private purposes.

Table 8. Mode Frequency of Tool Use for Self-Directed English Study

	Standard Track	Advanced Track
Paper-based materials	1-2x/wk.	1-2x/wk., 3-5x/wk.
Electronic dictionary	6-7x/wk.	6-7x/wk.
Voice recorder	Never	Never
Digital audio player	Never	Never
Desktop computer	Never	Never
Laptop	Never	Never
Tablet	Never	6-7x/wk.
Smartphone	Never	6-7x/wk.
Internet	1-2x/wk.	6-7x/wk.

To tie together the two central research questions, the survey respondents were finally asked to choose from the given list of tools all those they would use in their ideal English learning environment. The results are shown in Table 9.

Table 9. Top Five Tools for Ideal English Learning Environments

Rank	Standard Track		Advanced Track	
	Tool	% of Responses	Tool	% of Responses
1	Electronic dictionary	90	Internet, tablet (tie)	87
2	Laptop, paper-based materials (tie)	83	---	---
3	---	---	Electronic dictionary	83
4	Internet	76	Laptop	73
5	Smartphone	74	Paper-based materials	70

With the exception of electronic dictionaries, which are always privately owned and never supplied by the university, neither Standard Track nor Advanced Track students chose dedicated digital tools (i.e., ones with a single main purpose, such as voice recorders and digital audio players) for their ideal learning environment. Moreover, excepting tablet computers for Advanced Track students and smartphones for Standard Track students, both groups selected the same technologies, although in different orders. From these data, we might then infer that the ideal learning environment for each group reflects learner priorities within current classroom

constraints: The Standard Track students, with irregular in-class Internet access, placed greater value on electronic dictionaries and paper-based materials, whereas the Advanced Track students, with daily in-class tablet and Internet use, saw greater utility in these other technologies. Perhaps because of their larger screens, both groups preferred laptops to smartphones, but as tablets were chosen by the Advanced Track students overall, with the possible exception of paper-based materials for reading and writing, they may indeed be good enough to replace the multiplicity of other tools that have preceded them.

4. CONCLUSION

Lack of initial technological proficiency did not deter Advanced Track students from embracing tablet computers by the end of the first semester after their adoption. In fact, other than electronic dictionaries, support for dedicated technologies such as voice recorders and digital audio players was deemed no longer necessary. Nevertheless, continuing demand for laptops and paper-based materials indicated that these tools may need to remain in place until the exact reasons for their perceived extra utility become clearer. Moreover, although tablets theoretically should have allowed learners to pursue their studies anytime and anywhere, they did not actually lead to any additional elective study time. As such, their relative efficacy will also need to be investigated further.

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6. REFERENCES

- Capps, R. (2009). The good enough revolution: When cheap and simple is just fine. *Wired Magazine*, 17(9), 110-118.
- DiMaggio, P., Hargittai, E., Celeste, C., & Shafer, S. (2004). Digital inequality: From unequal access to differentiated use. In K.M. Neckerman (Ed.), *Social inequality* (pp. 355-400). New York: Russell Sage Foundation.
- Pea, R.D., & Maldonado, H. (2006). WILD for learning: Interacting through new computing devices anytime, anywhere. In K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (pp. 852-856). New York: Cambridge University Press.