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Frozen by fear: Can digital scaffolding help students start writing?

Daniel Mills
Ritsumeikan University
eslteacherjapan@gmail.com

Olivia Kennedy
Omi Brotherhood Junior High School
olivia_l_kennedy@yahoo.com

Despite having studied English for some 33 months, the students at the private junior high school in Japan described in this paper had never before been asked to write original compositions in the language. The researchers undertook a quasi-experimental pilot study in which the 156 (n=156) participants were each asked to write four compositions, two using Microsoft Word and two using pencil and paper. Their writings were analyzed for length, Japanese word usage, grammar, and spelling. Descriptive statistics and graphs show that the students produced higher word counts using pencil-and-paper, but used fewer Japanese words in their computer-based writings.

Introduction

While students in junior and senior high schools in Korea, the United States, and Britain use computers and mobile devices to research, learn about, and connect with the world around them, most students in Japan are still reading printed textbooks and doing written tasks in notebooks with pencils. One common reason given for this dependency on analog tools in the digital age is the fact that the Japanese writing system is notoriously difficult to learn. Many adults find that as they start to use technology in the workplace, their ability to recall the Chinese characters that they need to write slips away, and their reliance on the technological crutches grows. Because parents and educators want students to master the language, they therefore often artificially limit students' access to and usage of technology.

This hesitancy is also carried over to the teaching and learning of foreign languages.

Forum

While it would seem that two of the barriers to fluency of written language production, anxiety about correct spelling, and lack of confidence regarding grammar, can be eliminated or reduced by the scaffolding tools that are part and parcel of many word processing systems, teachers here in Japan do not seem to be making use of these tools. Few schools in Japan seem to be using word processing to facilitate the writing process. However, there does not seem to be a viable reason why students should not be allowed to use computer technology for the composition of writings in English. Research that investigates the efficacy of such scaffolding is needed, therefore, to potentially improve the teaching of writing in the Japanese junior high school classroom.

English education in Japan

In Japan, some 98% of the population studies English for six years or more (**MEXT**, 2011c), yet few presently achieve communicative competence (**MEXT**, 2011b). This can perhaps be explained by the fact that the government stipulates that public schools use the grammar-translation method, a system initially instituted by the post-war government, then intent on gathering scientific knowledge and technical knowhow so as to compete more effectively in the global economic market (McVeigh, 2004). It is also important to note that English is studied here as a foreign language (**EFL**), rather than a second language (**ESL**). In countries where this is true, most people have little opportunity or need to use English in their working or daily lives (Tse, 1995). Students have little contact with English outside of the classroom (Chen, 2001; Cheng, 1998), instead studying the language purely as an academic subject.

Students are examined in five core academic subjects for entry into high school and again for entry into university. In the English examinations at both levels, however, while reading comprehension and grammatical knowledge are both carefully examined and there is a short aural comprehension section, the testing of writing and speaking skills is severely limited. Because many teachers focus on the skills that will be tested, little class time is allocated to language production. Washback, or the influence of testing on teaching and learning (see Alderson & Wall, 1993), is a serious problem.

In 2011, however, the Commission on the Development of Foreign Language Proficiency acknowledged English as the *lingua franca* (**MEXT**, 2011a), "a medium of communication for people who have different first languages" (Burridge & Mulder, 2001, p. 303) and recognized that the Japanese public require "a capability of smooth communication with people of different cultures and countries" (**MEXT**, 2011c, p. 3). While the 2003 Action Plan to Cultivate Japanese with English Abilities had previously stipulated that all students should graduate junior high school having passed Grade Three of the Society for Testing English Proficiency (**STEP**), the 2011 plan asked that students be taught to speak and write about their own views using English that corresponds to this level. It was also stated that, "classes must be shifted from lecture style toward student-centered language activities by employing such educational forms as speeches, presentations, debates and discussions" (**MEXT**, 2011c, p. 3). While these two targets may seem modest, they are in fact very problematic. Because most of the Japanese Teachers of English (**JTE**s) presently employed in public schools were themselves educated in this system, many are not confident in their ability to produce compositions or converse freely in English, the language that they are employed to teach. They may not feel able, therefore, to impart these skills to their students.

 The importance of providing opportunities for students of foreign languages to produce

original written language should not be denied, however. Chapelle and Jamieson (2008) stated that the importance of such writing is two-fold. First, the act of writing forces the learner to pause to think about the language that he or she is producing. Second, writing in a second or foreign language makes the learner aware of any gaps in their knowledge thereof. While this is clearly of benefit to the learning process, it can also be a debilitating experience as learners come face-to-face with their own failings.

Writing with technology

In recent years, computer-based writing has largely replaced handwriting as the primary mode of written communication for both personal and professional use in many countries. The widespread use and acceptance of computer-based writing is understandable due to the many advantages the technology provides. For example, in most word-processing software programs, users can easily delete, move, or insert text, all of which can facilitate the revision process (MacArthur, 1998). In addition, tools that check the writer's spelling or grammar and provide dictionary and thesaurus functions can save users time and allow them to concentrate on the process rather than the mechanics of writing. For learners of languages, these tools provide both immediate feedback regarding errors and the opportunity to correct them (Chapelle & Jamieson, 2008). Research conducted by Doughty and Williams (1998) showed that when students are engaged in activities where they are given opportunities to identify and then fix problems with their own writing, language ability is improved. The use of error correction software to provide students practice in error identification and correction has been demonstrated to improve students' ability to write in a foreign language (Burston, 2001; Liou, 1991). Furthermore, Wolfe, Bolton, Feltivoch, and Welch (1993), Wolfe, Bolton, Feltovich, and Niday (1996) and Russell and Haney (1997) all demonstrated that students tend to write longer texts with computers than with pen- or pencil-and-paper. However, as Lee (2002) pointed out, increased length does not always mean higher quality.

Despite these positive findings in terms of student accuracy and learning, the usage of computers for writing has, however, been shown to reduce the amount of planning (Daiute, 1986; Haas, 1989; Thiesmeyer, 1989; Lee, 2002) and revision (Harris, 1985; Daiute, 1986) that students engage in. This planning and revision can provide learners with many important language-learning opportunities (Hyland, 1993). Teachers must, therefore, be aware of the need to support learners when utilizing word processing software. Hyland (1993) also suggests that students must not only be made familiar with keyboarding skills and writing software, but also receive explicit instruction in computer-based composition. This may be particularly important in countries where technology is used infrequently in educational settings, or where students are unfamiliar with technology.

Technology integration in Japanese education

Japan is internationally recognized as one of the most technologically advanced countries in the world, yet instructional technology has diffused more slowly here than in other developed nations (Aoki, 2010). In fact, in 2003, *The Economist* and IBM ranked Japan as 23rd in the world in their "e-Learning Readiness Ranking" (Suzuki, 2009). The e-Learning Readiness Rankings were replaced in 2004 by the similarly named "e-Readiness Rankings." The most

recent of these, released in 2009, ranked Japan in 22nd place (Economist Intelligence Unit, 2009), showing little improvement over the course of six years.

In 2002 and 2003 the **MEXT** created guidelines for the creation of new Information Studies courses in junior and senior high schools in Japan. However, "schools have much leeway in interpretation and implementation [of these guidelines] (Lockley, 2011, p. 94). Despite the fact that these classes are mandated in Japanese secondary schools, Lockley (2011) found that 11% of university students surveyed had never participated in any Information and Communication Technology (**ICT**) usage or training upon graduating high school. In addition, many students who had received training in programs such as PowerPoint, Excel, and Word, had forgotten how to use these programs by the time they entered university (Lockley, 2011). This may suggest that students lack opportunities to practically apply the knowledge taught in these classes (Lockley, 2011). Results of a study conducted with university students in Japan by Murray and Blyth (2011) seem to confirm these findings. They showed that despite two to eight years of experience with **ICT**s, students lacked experience in software crucial for employment in the modern workforce: word-processing, spreadsheet, and presentation software. Of particular importance here was the fact that 55% of the university students surveyed by Murray and Blyth (2011) had "never" or "almost never" used word-processing software such as Microsoft Word.

Purpose of the study

The overall purpose of this study was to examine whether or not the usage of computers could empower a cohort of Japanese junior high school students to start writing in English. They had never before been asked to write original compositions in English, and the researchers feared that, confronted by a blank sheet of paper or screen, the students would be so overwhelmed that they would not be able to write anything at all. Thinking back to the way that the students expressed themselves orally, there was also a concern that the students would pepper their sentences with Japanese words when they were unsure of translations or English spelling. Perhaps the students' focus on the new and largely unfamiliar computers would let them forget their anxiety towards language production. Possibly the scaffolding that Microsoft Word provides in the form of Grammar and Spell Check would allow the students to write more freely and confidently than they would when asked to write using pencil-and-paper. To this end, the following four research questions were formed:

RQ1 – Does computer writing show higher word counts than handwriting?

RQ2 – Does computer writing include fewer Japanese words than handwriting?

RQ3 – Does computer writing show fewer spelling errors than handwriting?

RQ4 – Does computer writing show fewer subject-verb agreement errors than handwriting?

A secondary goal was to show the **JTE**s that, with adequate guidance and support, the students are ready and willing to start producing language, and that the task of introducing a writing component to the course need not be an overwhelming burden to the teaching staff.

Method

Setting and participants

The 156 students who took part in the series of five lessons were all third-years at a private Christian mission school in central Japan. At the time of this study, the students had completed a minimum of 33 months of English instruction, with four lesson hours each week, totaling about 330 hours of contact time. Some 54% of these students would go on to graduate with the 2003 **MEXT** goal of Grade Three of the **STEP** or higher. In their first year, all students had also completed a six-month, once weekly computer course that included a word processing component. At ages 14 and 15, they are also clearly digital natives, "children born after 1980 who from birth have experienced the digital world as a natural part of their daily lives and regularly access rich resources in digital format for information and entertainment" (Palfrey & Gasser, 2008).

The computer laboratory has 40 workstations equipped with **NEC MY18A/B**-3 computers, running Windows **XP** Professional. The Media Room is only usually in use some four hours a week. First-year students use it during this time for tightly controlled prescribed classroom activities. Second and third year students have no computer access at school. One reason that the Media Room is so under-utilized may be that parents are hesitant to allow computer access without careful supervision. Because the teaching staff is too busy to provide such supervision during break times or after school, this is not a realistic option. While parents recognize their children will need computer skills in the future, many worry that they lack the maturity needed to navigate the potentially dangerous situations that increased computer access may present. One particular worry is that children may meet dangerous individuals online, and not have the maturity to recognize that they should not meet them face-to-face.

Procedures

Four intact third year classes, regularly taught by one of the researchers, were selected for this study. It should be noted that the intact nature of the classes used, and the resultant lack of randomization of research participants, limits the generalizability of the findings. Each class was to meet five times over the period of approximately one month. For Classes J31 and J32, the first two sessions were conducted in the classroom, where students wrote short compositions using pencil-and-paper. The third session was held in the Media Room where students were given practice in keyboarding. Sessions four and five were also held in the Media Room where students wrote short compositions using Microsoft Word.

Aware that as the students became accustomed to the writing process, their compositions would naturally improve, the researchers planned to reverse the schedule for Classes J33 and J34, with the first three sessions held in the Media Room, and the final two sessions held in the classroom. Unfortunately, due to a scheduling problem, the classroom writing session scheduled on February 8th for Class J34 had to be conducted in the Media Room instead. Therefore, the data collected from Class J34 consists of three compositions written using Microsoft Word and one composition written using pencil-and-paper.

Table 1: Schedule of writing classes.

	23-Jan	28-Jan	6-Feb	25-Feb	27-Feb
J31	Classroom	Classroom	Media Room	Media Room	Media Room
	Writing 1	Writing 2	Keyboarding	Writing 3	Writing 4
	24-Jan	28-Jan	6-Feb	25-Feb	27-Feb
J32	Classroom	Classroom	Media Room	Media Room	Media Room
	Writing 1	Writing 2	Keyboarding	Writing 3	Writing 4
	15-Jan	29-Jan	12-Feb	19-Feb	26-Feb
J33	Media Room	Media Room	Media Room	Classroom	Classroom
	Keyboarding	Writing 1	Writing 2	Writing 3	Writing 4
	18-Jan	25-Jan	1-Feb	8-Feb	22-Feb
J34	Media Room	Media Room	Media Room	Media Room	Classroom
	Keyboarding	Writing 1	Writing 2	Writing 3	Writing 4

Keyboarding practice. Before completing the two computer-based writing tasks, each group of students took part in a one-hour introductory keyboarding class. For this session, students used a free online typing tutorial called pken (www.pken.com). This site is developed and maintained by the makers of the pken, a Japanese standardized typing test. The site was chosen because it provided students with instructions in Japanese, and could be accessed despite the school's firewalls.

Students were first taught how to log on to the computers and then given instructions regarding how to access and use the pken site. Each student worked on the site for approximately 45 minutes. The participants progressed through lessons that taught them first about the position of letters on the keyboard and which fingers to use to type each letter (Fig. 1) and later how to enter English words and sentences (Fig. 2). The website also taught them how to produce capital letters and appropriate punctuation marks.

Figure 1. Location of letters and fingering in pken (www.pken.com)

Figure 2. Typing English sentences using pken (www.pken.com)

Writing sessions. Each writing session, both pencil-and-paper and computer-based, followed the same pattern.

1. The classes began with a flashcard session reviewing some 50 verbs with which the students were already familiar. These vocabulary items were taken from the students' English course textbooks from first to third years. This was done to remind students of vocabulary that they had learned thus far in their English studies that might aid them in their writings.
2. Next, a paragraph written in Japanese was projected onto a screen at the front of the classroom. This composition was written in Japanese in such a way that the English expressions needed to translate it were clearly evident. In pairs, students worked orally to translate the paragraph into English. The researchers asked the students to do this orally, talking freely with their peers, in order to reduce potential anxiety.
3. When all the pairs had finished, the class was shown the translated composition on the screen and the students were asked to compare their own translation with it. This was done because the JTEs had been worried that students would fail to recognize that the level of the sample texts was within their own capability. By forcing them to produce the language (albeit through a translation activity), all students came to a natural awareness of their own ability.
4. Finally, they were given several minutes to ask questions about how the paragraph had been translated. A JTE fielded these questions in Japanese. Most questions posed related either to vocabulary choice or subject-verb agreement.
5. Next, the students were asked to identify what the paragraph was about. The JTE led them to a clear understanding of the topic, and then set them to write a composition of similar length on the same topic.

Data analysis

After each writing session, the participants' compositions were collected. In the classroom, a paper was collected from each student, while in the Media Room compositions were first saved to the central server, and then printed by the researcher.

It is important to note that while all compositions were collected at the end of each writing session, they were not returned to the students until the study had been

completed. Students, therefore, did not receive feedback that may have affected subsequent compositions.

The word count, the number of Japanese words used, the number of spelling errors, and the number of subject-verb agreement errors was recorded and these data were then entered into a Microsoft Excel spreadsheet. Data relating to errors were converted to percentages so as not to skew the data of students writing longer compositions. The researchers then calculated mean and standard deviation for each variable.

While the students did the series of five lessons with the members of their own homeroom class, the researchers saw no reason to keep these four data sets separate. There was no benefit to be gained by analyzing the classes individually: considering they had all been taught by the same teacher, and had been allocated into their respective classes so as to keep the average test scores similar between groups. The following statistics were therefore calculated using the data for all participants and for all of the writings they submitted:

Table 2: Mean and standard deviation of word count.

	M	SD
Computer	55.02	32.95
Pencil-and-paper	68.73	38.17

Table 3: Mean and standard deviation of Japanese words, spelling errors, and subject-verb agreement errors.

	Japanese Word		Spelling Errors		Subject-Verb Agreement Errors	
	M	SD	M	SD	M	SD
Computer	1.79%	0.07	2.68%	0.07	1.50%	0.02
Pencil-and-paper	4.40%	0.19	2.54%	0.05	1.74%	0.03

In order to make the differences between the students' compositions written in the two modes of writing clearer, graphs were also drawn for each variable. These graphs were created using the means in the tables above:

Using descriptive statistics and the above graphs, the researchers were able to form some preliminary answers to their research questions. In many cases, the data revealed answers that were contrary to the expectations formed at the beginning of the study:

RQ1: *Does computer writing show higher word counts than handwriting?*

Contrary to expectation, the participants produced higher word counts using pencil-and-paper (M = 68.73, SD = 38.17) than when using the computers (M = 55.02, SD = 32.95).

RQ2: *Does computer writing include fewer Japanese words than handwriting?*

The participants in this study did in fact use fewer Japanese words when writing with a computer (M = 1.79%, SD = 0.07) than when writing using pencil-and-paper (M = 4.40 %, SD = 0.19).

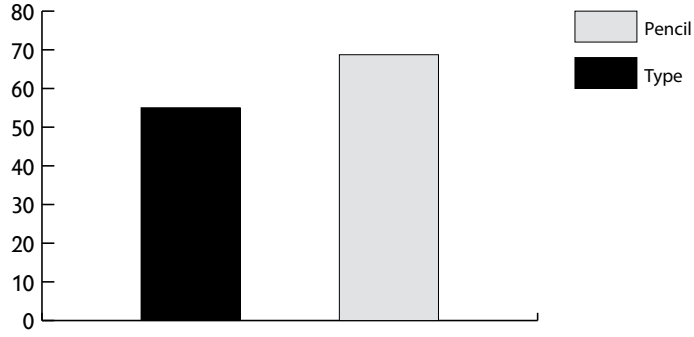

Figure 3. Mean of word count in typed versus handwritten composition.

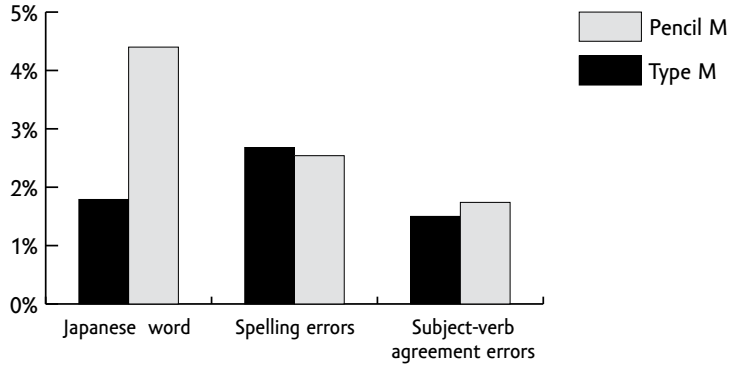

Figure 4. Mean of Japanese words, spelling errors, and subject-verb agreement errors in typed and handwritten composition.

RQ3: *Does computer writing show fewer spelling errors than handwriting?*

While the data are extremely close, there were very slightly fewer spelling errors in compositions using pencil-and paper (M = 2.54%, SD = 0.05) than with computer-based compositions (M = 2.68%, SD = 0.07).

RQ4: *Does computer writing show fewer subject-verb agreement errors than handwriting?*

Again, there is little difference in the data relating to errors in subject-verb agreement between pencil-and-paper compositions (M = 1.74%, SD = 0.03) and compositions written using Microsoft Word (M = 1.50, SD = 0.02). Nevertheless, there was a small increase in such errors in the paper-and-pencil compositions.

Discussion

This research project began with the assumption that computer-based writing would provide students with the scaffolding they needed to take their first steps towards English

composition. The data collected, however, seemed to indicate that the computer software did not provide the level of help that the researchers had anticipated. Though there were two areas where computer-based writing outperformed pencil-and-paper writing, these were relatively small differences. The first of these was in the reduction of Japanese word usage, as outlined in **RQ**2. The second was in the number of subject-verb agreement errors, which relates to **RQ**4.

While several studies (Wolfe, Bolton, Feltovich, & Niday, 1996; Wolfe, Bolton, Feltovich, & Welch, 1993; Russell & Haney, 1997) had previously found that word counts tended to be higher in computer-based compositions, the results of this study showed students wrote more with pencils and paper than on computers, answering **RQ**1. A possible explanation is that these students were less experienced with technology than the participants of the studies listed above. It seems that the importance of solid typing skills cannot be underestimated. Dalton, Morocco and Neale (1988), Hyland (1993) and Snyder (1993) all point to how poor keyboarding skills can distract students from the composition task at hand. It seems that one session using the pken site was not enough to prepare students adequately for computer-based writing tasks.

Few would argue that for proficient computer users, Spell Check and Grammar Check facilitate the writing process. The data collected here, however, showed little difference between compositions written with these tools (the Media Room sessions) and without them (the classroom sessions). In fact, there was only a 0.14% difference between the mean number of spelling errors in pencil-and-paper compositions and computer-based compositions. This result gave some insight into **RQ**3, but the researchers could not be sure of the reason for it. Were students simply unaware of the existence of these tools, or were they unable to use them effectively? In either case, instructors must ensure that students are familiar with both keyboarding and the software that they are using in order to overcome this problem (see Hyland, 1993).

While providing researchers with some preliminary answers into the differences between computer-based composition and pencil-and-paper composition, limitations in the research design prevented a full understanding of the significance of the results and their generalizability. Future research would therefore benefit from inferential statistical analysis and randomized sampling techniques. Greater keyboarding skills and a deeper understanding of the available scaffolding tools may also ensure that a more profound difference is seen between writings produced in the two mediums. Future research might therefore look to provide additional training in these areas to see if this would produce a more significant result. Conducting the study at different levels, perhaps with high school or university students, may also provide insight into how the maturity of the learner may affect ability to use the different writing tools.

Finally, there was an unexpected and very hopeful finding. It is important to note that despite their approximate 330 hours of English education, the students had never previously been asked to write even one sentence of their own composition in English. It seemed likely that they would freeze and not write anything at all. Both the researchers and the **JTE**s were pleasantly surprised that the students were not only able to produce understandable language, but could share their stories and experiences with their teachers through the written medium. Furthermore, as stated earlier, a secondary goal of this research was to convince the Japanese teaching staff that students were actually capable of producing their own original compositions in English. The fact that the students could

do this in both mediums has shown that writing activities can now be undertaken in either the classroom or the computer laboratory.

References

Alderson, J. C., & Wall, D. (1993). Does washback exist? *Applied Linguistics , 33*, 115–129.

Aoki, K. (2010). The use of **ICT** and e-learning in higher education in Japan. *World Academy of Science, Engineering and Technology, 42*, 854–858.

Burridge, K., & Mulder, J. (2001). *English in Australia and New Zealand: An introduction to its history, structure, and use.* Melbourne, Australia: Oxford University Press.

Burston, J. (2001). Exploiting the potential of a computer-based grammar checker in conjunction with self-monitoring strategies with advanced level students of French. ***CALICO*** *Journal, 18* (3), 499–515.

Chapelle, C. A., & Jamieson, J. (2008). *Tips for teaching with **CALL**: Practical approaches to computer-assisted language learning.* White Plains, **NY**: Pearson-Longman.

Chen, I. C. (2001). A constructivist computer-assisted language learning environment for second language/cultural learners in northern Taiwan. *Dissertation Abstracts International, A62* (12).

Cheng, Y. S. (1998). Examination of two anxiety constructs: Second language class anxiety and second language writing anxiety. *Dissertation Abstracts International, A59* (06).

Daiute, C. (1986). Physical and cognitive factors in revising: Insights from studies with computers. *Researching the Teaching of English, 20*, 14–159.

Dalton, B. M., Morocco, C. C., & Neale, A. E. (1988). "I've lost my story": Integrating word processing with writing instruction. *Paper presented at the meeting of the American Educational Research Association.*

Doughty, C., & Williams, J. (Eds.). (1998). *Focus on form in classroom second language acquisition.* Cambridge, United Kingdom: Cambridge University Press.

Economist Intelligence Unit. (2009). *E-readiness rankings 2009: The usage imperative.* Retrieved from http://www-935.ibm.com/services/us/gbs/bus/pdf/e-readiness_rankings_june_2009_final_web.pdf

Haas, C. (1989). How the writing medium shapes the writing process: Effects of word processing on planning. *Research in the teaching of English, 23*, 181–207.

Harris, J. (1985). Student writers and word processing: A preliminary evaluation. *Computer Composition and Communication, 36*, 323–330.

Hyland, K. (1993). **ESL** computer writers: What can we do to help? *System, 21* (1), 21–30.

Lee, Y. J. (2002). A comparison of composing processes and written products in timed-essay tests across paper-and-pencil and computer modes. *Assessing Writing, 8*, 135–157.

Liou, H. C. (1991). Development of an English grammar checker: A progress report. ***CALICO*** *Journal, 9* (1), 57–70.

Lockley, T. (2011). Japanese students' experience of **ICT** and other technology prior to university: A survey. ***JALT CALL*** *Journal, 7* (1), 93–102.

MacArthur, A. C. (1988). The impact of computers on the writing process. *Exceptional Children, 54* (6), 536–542.

McVeigh, B. (2004). Foreign language instruction in Japanese higher education: The humanistic vision or nationalistic utalitarianism? *Arts and Humanities in Higher Education, 3*, 211–227.

MEXT. (2011a). *Five proposals and specific measures for developing proficiency in English for international communication*. Retrieved from **MEXT**: http://www.mext.go.jp/component/english/__icsFiles/afieldfile/2012/07/09/1319707_1.pdf

MEXT. (2011b). *Survey results of public junior high schools and combined junior high and senior high schools*. Retrieved from **MEXT**: http://www.mext.go.jp/english/elsec/1319702.htm

MEXT. (2011c). *The present condition of senior high school education*. Retrieved from **MEXT**: http://www.mext.go.jp/component/a_menu/education/detail/_icsFiles/afieldfile/2011/09/27/1299178_01.pdf

Murray, A., & Blyth, A. (2011). A survey of Japanese university students' computer literacy levels. ***JALT CALL*** *Journal*, 307–318.

Palfrey, J. G., & Gasser, U. (2008). *Born digital: Understanding the first generation of digital natives*. New York, **NY**: Basic Books.

Russell, M., & Haney, W. (1997). Testing writing on computers: An experiment comparing student performance on tests via computer and via paper-and-pencil. *Education Policy Anaysis Archives, 5* (3).

Snyder, I. (1993). The impact of computers on students' writing: A comparative study of the effects of pens and word processors on writing context, process and product. *Australian Journal of Education , 37* (1), 5–25.

Suzuki, K. (2009). E-learning in Japan: Past, present, and future. *2009* ***KAEM*** *and the 4th* ***BK21 GGRTE*** *International Conference: Technology and Future Learning Space, Proceedings,* 9–17.

Thiesmeyer, J. (1989). Should we do what we can? In G. E. Hawisher, & C. L. Selfe (Eds.), *Perspectives on computers and composition instruction*. New York, **NY**: New York Teachers College Press.

Tse, J. K. (1995). The teaching of writing in Taiwan. *Journal of Asian Pacific Communication, 6* (1), 117–123.

Wolfe, E., Bolton, S., Feltovich, B., & Niday, M. D. (1996). The influence of student experience with word processors on the quality of essays written for direct writing assessment. *Assessing Writing, 3*, 123–147.

Wolfe, E., Bolton, S., Feltovich, B., & Welch, C. (1993). *A comparison of word-processed and handwritten essays from a standardized writing assessment*. Iowa City: American College Testing Program.

Author biodata

Daniel J. Mills is a lecturer of English as a Foreign Language at Ritsumeikan University in Shiga, Japan. He is currently studying for his Doctorate in Education (Ed.D.), specializing in Instructional Technology. His research interests include technology acceptance and integration, and mobile assisted language learning.

Olivia Kennedy is a teacher of English as a Foreign Language at Omi Brotherhood Junior High School in Shiga, Japan. Her research interests lie in the interplay between culture, learning and technology avoidance in the Japanese classroom.