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Overcoming Technology Issues

Phillip Murphy and Dirk MacKenzie
Corresponding author: murphy@kanda.kuis.ac.jp
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**FACULTY AND ADMINISTRATION IN COLLABORATION:
OVERCOMING TECHNOLOGY ISSUES**

Philip Murphy and Dirk MacKenzie

Kanda University of International Studies, Japan

ABSTRACT

The following study was conducted at a university in Japan specializing in foreign language studies. One morning, when university administration took a snapshot of student-computer usage in a computer-equipped classroom, it was discovered that approximately 50% of computers were not in use. Considering teacher demand for access to these classrooms, this result was perceived by administration as problematic. This study, therefore, began in an effort to explain the situation more clearly. While the initial focus was on factors influencing student-computer use in class, it became clear that the larger issues of both Internet and technology access were also problematic. Accordingly, data were collected via a teacher survey (N=68) with questions covering classroom design; Internet-connection speed; wireless Internet access across campus; mobile-learning technology; performance of classroom computers; sharing of student computers; projection systems; and support for existing technology and technological innovation. Faculty perspectives were gathered (a) in order to gain a greater understanding of the technology-related needs for the teaching/learning environments and (b) to help improve access to the Internet and technology across campus. Findings were used in a collaborative effort by educators, university administration, technicians and architects to improve Internet access, and to allocate Computer Assisted Language Learning (CALL) resources more effectively in order to maximize usage. The implications of the findings for both administration and teachers are discussed below.

1. INTRODUCTION

The following study was conducted at a university in Japan specializing in foreign language studies. One morning, when university administration took a snapshot of student-computer usage in one of the custom-built teacher-designed computer-equipped classrooms (Blended Learning Spaces (BLSs), see below), approximately 50% of computers were found to be not in use. Considering the high teacher demand for access to these classrooms, university administration perceived this result as problematic. In contrast, however, the result for lecturers was not seen as problematic as computers are not always constantly used in lessons. In other words, technology needs vary depending on the lesson or activity: sometimes computers are not used, sometimes one computer per student is necessary, sometimes one computer per pair is needed, and sometimes only one computer per group is sufficient. Nevertheless, the question raised by university administration was extremely pertinent and stimulated the need for further investigation. Given the (a) limited number of BLSs and computer-equipped classrooms and (b) the limited number of locations with wireless Internet access, effective allocation of these resources was key to maximum usage. Therefore, in a bid to gain a greater understanding of the technology-related needs for the teaching/learning environments and (b) to help improve access to the Internet and technology across campus, data were collected via an intra-departmental survey of lecturers (N=68). The results are discussed below.

Another important goal of the project was to promote collaboration between those involved in the design and construction of classrooms and facilities. In 2003, a learning centre was opened as a result of a collaborative effort between educators, university administration, technicians and architects. The model adopted for designing the '2003 BLSs' in the centre is shown below (see Fig. 1).

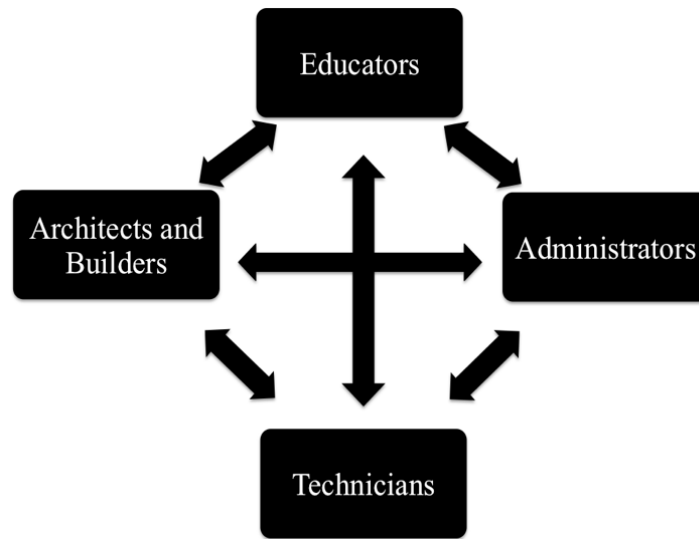


Fig. 1 (The 2003 collaborative design model for BLSs)

In contrast, in 2009, another set of classrooms was constructed called the ‘2009 BLSs’; however, the classrooms were constructed for the lecturers rather than the lecturers being asked to collaborate during the design process (see Fig. 2). Accordingly, a number of issues are associated with these rooms as discussed below.



Fig. 2 (The 2009 non-collaborative design model for BLSs)

Following discussion of the results from the survey, the conclusions comprise both suggestions for promoting collaboration as demonstrated in Fig. 1 and also recommendations for future classroom development and technological innovation.

2. LITERATURE REVIEW

Before discussing the results of the survey, the following section comprises a brief overview of the literature on Blended Learning and Blended Learning Spaces.

2.1 Blended learning

Blended learning is often defined as a combination of face-to-face classroom learning and out-of-class, online learning. That is, the blending happens asynchronously (Banados, 2006; Harker & Koutsantoni, 2005; Kupetz & Ziegenmeyer, 2005; Neumeier, 2005; Rovai & Jordan, 2004; Stracke, 2007). Recent technological advances, however, have made it possible to connect to the Internet with smaller, less intrusive devices, such as smart phones or tablets (iPads) allowing a more synchronous blending of online and face-to-face activities within the same class session and in the same classroom space. In language education, where learners may struggle to navigate web pages or applications in a second or foreign language, and with the importance of face-to-face speaking and listening practice, synchronous blending has a variety of potential learning benefits.

2.2 Normalisation

Chambers and Bax (2006) use the term CALL “normalisation” to describe “a state where computers are fully integrated into pedagogy” (that is, in the classroom), and “are used every day by language students and teachers as an integral part of every lesson, like a pen or a book” (pp. 465-466, citing Bax, 2003). In order to achieve this seamless integration, they argue, “CALL facilities will ideally not be separated from ‘normal’ teaching spaces” and “the classroom will

ideally be organised so as to allow for an easy move from CALL activities to non-CALL activities” (p. 470). A BLS is a physical environment that provides for both ideals.

2.3 Blended Learning Spaces

The term ‘Blended Learning Space’ has been used at Kanda University of International Studies (KUIS) since 2002 to describe classrooms that can provide constant online access for students, computer-based multimedia tools, and flexible furniture for face-to-face activities. The ‘2003 BLSs’ are square and spacious. Desks and chairs are lightweight, moveable, stackable and of adequate size. Technology found in these rooms includes 32 wireless laptops stored in a cabinet, all necessary power packs and cables, a music/sound system, a teacher’s computer, satellite TV channels and a moveable projector. Large images can be projected onto the front wall of each classroom, which is covered with white non-reflective paper. The ‘2009 BLSs’, in contrast, have curved walls and vary in size. The elongated shapes of the rooms result in a larger distance from the back to the front of the rooms than the 2003 BLSs. Desks and chairs are also movable and stackable, but they are heavier and smaller than those found in the 2003 BLSs. Technology found in these rooms includes 32 wireless laptops stored in a cabinet, all necessary power packs and cables, a music/sound system, a fixed teacher’s computer and a ceiling-mounted projector. Images are projected onto a fixed screen on the front wall of the classroom; however, images are not as large as those possible in the 2003 BLSs. Despite the differences, both the 2003 and 2009 BLSs have proven to be highly popular and they are in constant demand.

When the BLSs were designed, the goal was to build in as much flexibility as possible to accommodate different modes of learning. As Johnson (2002) comments:

The Kanda instructional system has implications for the design and equipment of classrooms. Classrooms which facilitate individualized learning are desirably different from those which require students to move through a course in lockstep progression. At Kanda we have been fortunate to have been involved in the planning of new classrooms which are ‘blended learning spaces’. These are rooms with wireless access to the Internet and have furniture which permits flexible group arrangements to accommodate the need for whole-class, small-group, pair, and individual study (Johnson, 2002).

BLSs are classrooms designed to blend the best of traditional classroom teaching with the flexible advantages of state-of-the-art technology. Students can work in various group formations and/or with various media tools. There is no need for a “computer day” as teachers can blend technology into their everyday pedagogy. What distinguishes the BLSs from other classrooms across campus are the laptop computers with wireless Internet access available for each student, and what distinguishes them from traditional computer labs is that the laptops are not always out on the desks, but are housed in a cabinet in the corner of the room when not in use. A BLS can thus accommodate a variety of classroom setups (for example, group discussion, class presentations, poster presentations, individual students at laptops, pairs at laptops, and so on).

3. RESEARCH METHODOLOGY

The survey conducted for this project comprised both institution specific and general questions. For the purpose of this paper, 17 questions with general application have been selected for discussion (see Appendix 1). The questionnaire was administered online using Survey Monkey (N= 68). Questions were asked in connection with the Internet, student computers,

projection systems/TVs, classrooms, support and technological/innovation. The results are detailed below.

4. RESULTS

The first four questions were connected with Internet connectivity. For Question 1, although four lecturers (9.8%) of the 41 respondents had no experience using the 2003 BLSs, nobody strongly agreed that the connection was fast enough, four (9.8%) agreed, four (9.8%) were neutral, 15 (36.6%) disagreed, and 14 (34.1%) strongly disagreed. Similar results were found with Question 2 for the 2009 BLSs with 14 (34.1%) of the 41 respondents not having used the classrooms. Nobody strongly agreed that the Internet connection was fast enough, three (7.3%) agreed, four (9.8%) were neutral, six (14.6%) disagreed and 14 (34.1%) strongly disagreed. For Question 3, 33 (80.5%) of 41 respondents strongly agreed that having wireless Internet connectivity across campus was important, with five (12.2%) agreeing, two (4.9%) neutral, one 2.4% disagreeing, and nobody strongly disagreeing. For Question 4, 23 (56.1%) of 41 respondents strongly agreed that having wireless Internet connectivity for mobile technology (for example, smart phones and tablet computers) in classrooms was important, with seven (17.1%) agreeing, eight (19.5%) neutral, one (2.4%) disagreeing and two (4.9%) strongly disagreeing.

Questions 5, 6 and 7 were on the topic of student computers provided in the classrooms. Firstly, in response to the question why lecturers might not always incorporate laptop use in their BLS lessons (Question 5), 19 replies suggested that computers might not be necessary depending on the lesson, nine lecturers were concerned about the set-up time involved and one lecturer commented that the Internet speed was simply too slow. Question 6 asked why lecturers'

students might not use one laptop each in BLS lessons. Among the replies, 19 lecturers commented that they felt they could promote more face-to-face interaction, five commented that they could save time, five stated that it might be unnecessary depending on the lesson, two lecturers commented that students could help each other, two lecturers said it was to reduce the demand on the wireless connection, and one lecturer said that it might depend on student choice. As for Question 7, why might only some students use laptops in BLS lessons, 12 lecturers suggested that the reason was due to student choice or individualization, six mentioned that it might be unnecessary depending on the lesson, four said it was due to group work, five stated that it was due to differentiation or pacing where students can work through an assignment at their own pace and may need computers at different time.

Question 8 asked whether lecturers had any comments about projection systems or TVs at KUIS. In response to this question, five mentioned that the projected image in the 2009 BLSs was too small, four mentioned that the flat-screen TVs in non-BLSs were good, three noted that the projected image in the 2003 BLSs was too small, three believed the old TVs in the department were useless and there were two comments that the screens in the 2009 BLSs were too reflective as projection surfaces.

The following three questions were connected with the type of computer-equipped rooms that lecturers preferred. For Question 9, although four (9.3%) of the 43 respondents had never been scheduled to use the BLSs, 28 (65.1%) strongly agreed that they preferred BLSs to normal computer labs, six (14%) agreed, three (7%) were neutral, two (4.7%) disagreed, and nobody strongly disagreed. For Question 10, 27 (62.8%) of the 43 respondents strongly agreed that they preferred BLSs to non-BLSs, 13 (30.2%) agreed, 3 (7%) were neutral, 0 disagreed and 0 strongly disagreed. For Question 11, although six (14%) of 43 respondents had no experience using the

BLSs, 19 (44.2%) strongly agreed that they preferred the 2003 BLSs to the 2009 BLSs, 10 (23.3%) agreed, five (11.6%) were neutral, three (7%) disagreed and nobody strongly disagreed.

Question 12 provided the opportunity for lecturers to give general comments about the 2003 BLSs. In the responses, two lecturers noted that these classrooms provided the best environment, one noted the potentially beneficial access to satellite TV, and two lecturers noted that the Wi-Fi was slow. Lecturers gave general comments about the 2009 BLSs in Question 13. Challenges related to the use of technology in the classrooms were noted by seven lecturers, and challenges related to the classroom environment were also noted by seven lecturers. There were also comments about non-BLS classrooms in Question 14 with 10 lecturers mentioning the need for new technology, and one further lecturer commenting about inappropriate classrooms in terms of, for example, their small size and cumbersome desks

For Question 15, lecturers commented about support for existing technology. In response to this question, 10 lecturers mentioned how finding support for troubleshooting in the use of technology could be problematic, four noted that support should be given in the use of wireless and mobiles, and there was one final comment to highlight the importance of preparing and supporting students for life after university with regard to training them in the use of technology.

When asked about the support available at KUIS for technological innovation in Question 16, two lecturers mentioned that investment was needed to update technology and six noted the importance of collaborative support. The last question analysed here, Question 17, provided the opportunity to generally comment about technology. One lecturer noted that better dialogue needed between all parties involved in technological policy and planning, five lecturers highlighted the need for better technology and one lecturer explained the need for technicians to support students, teachers and researchers.

5. DISCUSSION

Based on the results obtained from the survey, administration's question about why only half of the computers were in use at a given time can be answered in terms of both technological and pedagogical issues. With regard to the former, it is clear that access to the Internet and Internet speed are important considerations for lecturers. However, with approximately 50% of lecturers not satisfied with the Internet speed in the BLSs, it was understandable that certain lecturers chose to either avoid using the laptops or they used them sparingly in terms of both numbers and time in their lessons. It appears, therefore, that technological issues in terms of the practicality of actually using the technology, for example set-up times, and Internet speeds deemed appropriate by lecturers, may have to take precedence in pedagogical considerations. Whilst it was disappointing to find out that approximately half of the lecturers using the BLSs found the quality of the computer/Internet technology to be unsatisfactory in terms of the technology itself, it was reassuring to know that technology was not always simply being used for the sake of using it; lecturers were not using the technology if they considered it a pedagogic hindrance. Indeed, lecturers noted that students did not use one laptop each for reasons such as saving time and reducing the demand on the network.

Irrespective of the technological reasons for students not using a computer each, pedagogic reasons for using fewer computers were simply determined by whether the lesson necessitated the use of computers. For example, 19 lecturers noted that they did not use one computer each as one of their goals was to promote face-to-face interaction, four lecturers noted that they wanted to promote group work so that students could collaborate, and two lecturers noted that they wanted students to help each other. Another common answer from 13 lecturers highlighted the desire to cater for student individualisation by providing student choice. Given

the potential for individualisation, five lecturers commented about the possibility of students studying at different speeds and, therefore, possibly needing computers at different times.

Another important goal of this project was to promote collaboration between educators, university administration, technicians and architects involved in the design and construction of classrooms and facilities. It was reassuring to see, therefore, that BLSs collaboratively designed by lecturers in 2003 were generally considered to be superior to the 2009 BLSs, which were simply presented to lecturers. With 79.1% of lecturers preferring BLSs to computer labs, and 93% preferring BLSs to non-BLSs, it is clear that there is that positive support for BLSs is abundant. With only 7% in disagreement, 67.5% preferred the 2003 BLSs to the 2009 BLSs. As for the reasons, two lecturers explained that the 2003 BLSs provided the best environment with one lecturer adding that there was the bonus of satellite TV. It was also noted by seven lecturers that there are technological issues associated with the 2009 BLSs; for example, five lecturers noted how the image projected by the ceiling-mounted projector was too small, especially for students at the back of the classroom, and the boards used for screens were too reflective. Additionally, seven lecturers commented about the inappropriate environmental challenges such as the layout of the classrooms, the size of the classrooms and the type of desks. These issues could have easily been avoided had lecturers been able to collaborate in the design and specifications of the 2009 BLSs. Given that all fixtures, fittings and furniture had been collaboratively hand picked by lecturers for the 2003 BLSs, it was reassuring and understandable that there were no major negative comments in these areas apart from the fact that the older technology and equipment naturally needed updating/replacing. Irrespective of the type of classroom, however, support for existing technology was an important need for lecturers. To address the problematic issue of support for the use of technology, comments from lecturers

included calls for technicians to support students, teachers and researchers. In short, better dialogue was recommended.

There were numerous comments about future opportunities for development and innovation. Despite the fact that the 2003 BLSs were considered superior to other classrooms in terms of the functionality, practicality, technology and the environment, there was a general feeling that investment was needed not only for updating technology, but also for technological innovation and support. Certain lecturers expressed their desire to prepare students and to provide them with lifelong skills with regard to using technology. As an example, technological innovation in terms of incorporating mobile technology was felt to be overdue. However, in order to accommodate the possibility of both technological development and innovation, improving Internet access across campus (92.7%) and improving Internet access for mobile technology (73.2%) was thought to be crucial.

To minimise the chance of problematic situations from re-occurring with regard to the construction of facilities, results from the survey will form the basis for a presentation to be given to university administration to ensure that the educators' voices and opinions are heard. The presentation will comprise a proposal to improve classroom design, Internet access and the allocation of CALL resources more effectively in order to maximize usage. Furthermore, a return to the 2003 collaborative model for classroom design will be highly recommended.

6. CONCLUSION

Faculty perspectives were gathered through the administration of a survey in order to, firstly, gain a greater understanding of the technology-related needs for the teaching/learning environments. Based on the results from the survey, it is clear that challenges to pedagogy can

arise from technological and environmental issues. It appears crucial, therefore, for educators to play a key role in the design of learning spaces so as to provide the greatest opportunity for the normalisation of technology into pedagogy, hence the popularity of the 2003 BLSs. Interestingly, this popularity is still evident despite that fact that the 2009 BLSs are six years newer. Faculty perspectives were also gathered so that informed decisions can be made with regard to improving wireless Internet access and allocating Computer Assisted Language Learning (CALL) resources more effectively.

The results from the survey will form the basis for a presentation to be given to university administration to highlight the pedagogic needs for lecturers. Above all, it is greatly hoped that wireless access to the Internet will greatly improve both in and out of lessons. It is also hoped that future classroom development will be undertaken collaboratively by educators, university administration, technicians and architects to avoid some quite obvious pitfalls should lecturers be excluded. Therefore, adopting the 2003 collaborative approach is highly recommended.

7. ACKNOWLEDGMENTS

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9. APPENDICES

9.1: Questions and results from the survey

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No experience
1. The wireless connection is fast enough in the 2003 BLSs? (N=41)	0%	9.8%	9.8%	36.6%	34.1%	9.8%
2. The wireless connection is fast enough in the 2009 BLSs? (N=41)	0%	7.3%	9.8%	14.6%	34.1%	34.1%
3. Having wireless Internet connectivity across campus is important (N=41)	80.5%	12.2%	4.9%	2.4%	0%	NA
4. For me, having wireless Internet connectivity for mobile technology (e.g. smart phones, tablet computers) in classrooms is important (N=41)	56.1%	17.1%	19.5%	2.4%	4.9%	NA
5. Why might you not always incorporate laptop use in your BLS lessons? <ul style="list-style-type: none"> · Depending on the lesson, not necessary (19) · Set-up time (9) · Internet speed too slow (1) 						
6. Why might your students not use one laptop each in your BLS lessons? <ul style="list-style-type: none"> · To promote face-to-face interaction (19) · To save time (5) · Depending on the lesson, unnecessary (5) · So students can help each other (2) · To reduce demand on the wireless connection (2) · Student choice (1) 						
7. Why might only some students use laptops in your BLS lessons? <ul style="list-style-type: none"> · Student choice/individualization (12) · Depending on the lesson, unnecessary (6) · Differentiation/Pacing (5) · Group work (4) 						
8. Do you have any other comments about projection systems or TVs at KUIS?						

<ul style="list-style-type: none"> · Projected image in the 2009 BLSs too small (5) · Flat-screen TVs in non-BLSs are good (4) · Projected image in the 2003 BLSs too small (3) · Old TVs useless (3) · White boards in the 2009 BLSs too reflective as projection surfaces (2) 						
	SA	A	N	D	SD	NE
9. I prefer BLSs to computer labs	65.1%	14%	7%	4.7%	0%	9.3%
10. I prefer BLSs to non-BLSs	62.8%	30.2%	7%	0	0	0
11. I prefer 2003 BLSs to 2009 BLSs	44.2%	23.3%	11.6%	7%	0	14%
12. Comments about 2003 BLSs <ul style="list-style-type: none"> · Environment best (2) · Satellite TV · Wi-Fi slow (2) 						
13. Comments about 2009 BLSs <ul style="list-style-type: none"> · Technological challenges (7) · Environmental challenges (7) 						
14. Comments about non-BLS classrooms <ul style="list-style-type: none"> · Need technology (10) · Inappropriate classrooms e.g. size, desks 						
15. Comments about support for existing technology <ul style="list-style-type: none"> · Support is problematic (10) · Wireless & mobiles (4) · Prepare students for life 						
16. Support available at KUIS for technological innovation <ul style="list-style-type: none"> · Need investment (2) · Collaborative support (6) 						
17. Any other comments about technology <ul style="list-style-type: none"> · Better dialogue needed · Better technology needed (5) · Technicians should support students, teachers & researchers 						