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# Practical Phonetics for Language Learners: Evaluating a Blended Course

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## Abstract

This paper evaluates the online components of a blended course in practical phonetics for language learners. The purpose is to determine whether these components helped learners (N=73) meet the course objectives: academic knowledge (introductory articulatory phonetics), subject skills (ear-training, production-training, and International Phonetic Alphabet recognition), transferable skills (digital audio recording), and lifelong learning skills (online independent study). Effectiveness was assessed through correlations among multiple measures of participation, a 20-item attitude survey, and final examination scores. Results suggest that the blended environment has helped the students meet the course objectives. The paper includes specific recommendations for further course development.

Keywords: phonetics, practical phonetics, blended learning, Moodle, pronunciation

With computer technology an essential yet nearly invisible part of daily life, many educators are turning to blended learning environments. Blended learning is the “thoughtful fusion” of face-to-face classroom teaching and online learning experiences, a synthesis that involves rethinking the course design and restructuring the contact hours (Garrison & Vaughan, 2008). Blending can occur at the activity,

course, program, or institution level, but course-level blending is one of the most common ways to blend (Graham, 2006). This study focuses on a blended course in phonetics. As a subject area, phonetics is particularly suitable for blending because it uses both sound and vision and because it requires students to learn practical skills through intensive practice (Gonzales, 2003). Phonetics educators hope that bringing technology into the classroom will make phonetics easier and cheaper to teach, as well as more attractive to prospective learners (Dickens, 2005).

This paper evaluates a blended course in *practical phonetics for language learners* (PPLL) taught at a Japanese university. The evaluation was undertaken for two reasons. First, Japanese universities have been late in adopting blended learning for economic, cultural, and technical reasons (Jung & Suzuki, 2006), and strong doubts about blended learning still exist. Evaluations such as this one are needed to help establish the credibility of blended learning at the institutional level. The second reason for the evaluation is to ensure course quality and inform course planning.

The first two parts of this evaluation assess whether the students have achieved the course objectives to a satisfactory level and whether the course has added to student satisfaction and motivation. The third part appraises the effectiveness of the online components in relation to each course objective. It is clear that evaluation goes beyond eliciting students' opinions; rather, it is related to course objectives. Generally speaking, what are the course objectives of a practical phonetics courses?

The first course objective of this —and of any— PPLL course is academic: to introduce students to concepts in introductory articulatory phonetics and phonology (e.g., the articulatory system, phonemes and

allophones, word and sentence stress, prosody). Phonetics instructors (Hasegawa, 2001; Jenson, 2005) often remark on the considerable amount of rote learning that articulatory phonetics requires. Because this academic content can be presented in a short time but takes a long time for students to absorb and remember, it could be better left to computer-based training (Jensen, 2005).

The second objective of any PPLL course is to help learners develop the three essential subject skills of phonetics (Ashby, 2002). The first skill is discriminating problematic phonemes through ear-training. Such ear-training produces long-term improvements in both perception and production (Akahane-Yamada, Tohkura, Bradlow & Pisoni, 1994). The second skill is the production of these phonemes through pronunciation practice (or “production-training”). The third skill is recognition of the International Phonetic Alphabet (IPA), an ability considered to be a core element in phonetics education (Hazan & Dommelen, 1997).

To sum up, a teacher of a traditional practical phonetics course teaches academic concepts and helps students develop three subject skills: ear-training, production-training, and IPA recognition. However, in blending this PPLL course, two additional course objectives are assumed. One is the ability to use the necessary computer technology, a transferable skill that can be applied beyond the PPLL course. Another implicit course objective is the ability to study independently online, a lifelong learning skill. Therefore, the following evaluation frames the course objectives in terms of academic knowledge, subject skills, transferable skills, and lifelong learning skills (CLPD, 2009).

## Method

### The PPLL Course

This elective PPLL course is for first-year students majoring in English Language and Cultures. The course, taught primarily in English, meets 90 minutes once a week for 13 or 14 weeks. In the first semester there is one course section with about 50 students; in the second semester there is a second course section with about 50 students and a third evening program course section with about 25 students. The students' English language skills range from low to high, and very few of them have had previous instruction in English pronunciation or linguistics. The class meets in a computer classroom where Audacity audio recording freeware is installed. Students borrow headsets from the computer center for use during class time only. The online environment is Moodle, a freeware course management system (CMS). Two constraints strongly affected course design: the classroom is not available for independent study involving audio and the CMS can be accessed by only up to 25 students simultaneously.

The course follows a skill-driven model of blended learning, involving a tightly scheduled group learning plan, instructor-led overview and closing sessions, synchronous learning labs, and the support of learners through email (Valiathan, 2002). Below is a description of the traditional and online environments in relation to the course objective framework.

#### *Academic knowledge: Concepts in phonetics*

Traditional environment: Half of each class session is spent in traditional classroom mode, covering one chapter of the phonetics textbook. The textbook is primarily discovery-based, presenting a problem for the students to explore in order to discover the linguistic

explanation. The textbook is supplemented with PowerPoint lectures.

Online environment: For every weekly lecture, the following is uploaded to the Moodle website: PowerPoint lectures, a link to a YouTube video related to the topic, and short quizzes about phonetics concepts. Students are required to complete quizzes within several weeks of the lecture.

*Subject skills: Ear-training, production-training, and IPA recognition*

Traditional environment: Instructor-led choral ear-training and production-training are done in conjunction with lectures. Students also briefly review reading IPA in chorus from “flashcards” displayed on center monitors. The flashcards are actually Quicktime movies, with each word written in IPA followed by its regular spelling shown at one-second intervals.

Online environment: Half of each class session is devoted to computer-based ear-training, production-training, and IPA recognition practice. This work is self-paced and is done individually. First, students download from the Moodle site the audio files for the textbook listening and pronunciation exercises. After completing the listening exercises, students record the pronunciation exercises using Audacity, and then send the audio files as attachments to a dedicated instructor account for feedback. After completing these exercises, students do Moodle quizzes, some of which include IPA reading or ear-training. In the meantime, students who need more help with pronunciation solicit and receive individual tutoring from the instructor.

*Transferable skills: Computer skills for recording and attaching audio files*

Traditional environment: During the first two class meetings, students are taught the technical skills they will use throughout the course. A manual with minimal explanations but clear screenshots

explains how to log on and use the online site, how to record audio and save in mp3 format, and how to send the audio file as an attachment.

Online environment: Students are given the Japanese-language site address for Audacity, but no other specific online help is provided.

*Life-long learning skills: Independent online study*

Online environment: Although deadlines are set for the online quizzes and pronunciation exercises, students decide when to complete required assignments and how to use the computer-based class time. Students do need to work online outside of class hours to complete all of the assignments, and how they do this depends on their home computer facilities. They need to plan ahead to make good use of their limited computer-based class time.

## Subjects

The evaluation is based on the work of students ( $N=73$ ) enrolled in the two second-semester course sections of 2008 who took the final course examination, including students who did not pass the course. The first-year students in the university's day program ( $n=51$ ) are recent high-school graduates with a traditional orientation to academic learning. The night program group ( $n=22$ ) is more varied, with very motivated adult students as well as low-level recent high-school graduates.

## Evaluation Part 1: Course Objectives

Table 1 describes the seven course objectives and explains how they were assessed for this evaluation.

Although the course objectives have been met, the scores on the academic section of the final exam are low. It would be useful to see whether English language ability correlates with these results; if so,

**Table 1. Assessment of Course Objectives (N=73)**

	Objective	Assessed by	Expressed as	Result
Academic knowledge				
1	Student understands basic concepts in articulatory phonetics	50 multiple-choice or T/F questions on online section of final exam <sup>1</sup>	Average %	61%
Subject skills				
2	Ear-training: Student discriminates phonemes, number of syllables, word & sentence stress.	25 multiple-choice questions on listening section of final exam	Average %	69%
3	Production-training: Student sometimes pronounces problematic minimal pairs	12 production exercises <sup>2</sup>	Average number completed	11
4	IPA recognition: Student recognizes IPA symbols for phonemes	25 questions on written section of final exam	Average %	67%
Transferable skills				
5	Audio recording software: Student records exercise at audible volume and saves as mp3 file	12 production exercises	% of students doing at least once	100%
6	Sending attachment: Student attaches and e-mails mp3file	Production exercises e-mailed as audio attachments	% of students doing at least once	100%
Lifelong learning skills				
7	Online independent study: Student accesses Moodle	Moodle access	Average number of accesses	270

Japanese-language translations should be added to the textbook readings. Other recommendations are to conduct an item analysis and to consider replacing the academic section of the final exam with periodic short tests. The final exam should be reserved as an opportunity for students to display their progress and evaluate themselves in the practical subject skills.



## Evaluation Part 2: Student satisfaction and motivation

Student satisfaction and motivation regarding the online environment were measured through a Likert-type survey, originally with 26 items. Students responded to each statement by marking 1 (*strongly disagree*), 2 (*disagree*), 3 (*neither agree nor disagree*), 4 (*agree*), or 5 (*strongly agree*).

Nine statements (Q 1-9) elicited student perceptions of whether they had achieved the learning objectives in the four areas. The statements concerning academic knowledge were based on a survey assessment of a phonetics program taught to pre-service teachers in Columbia (Lechowska, 2005). Ten statements (M 1-10) concerned the motivation, ease, and effectiveness of the online Moodle component. Seven statements (A 1-7) concerned the motivation, ease, and effectiveness of recording using Audacity. These were modeled on a survey assessment of an online applied linguistics course taught to undergraduates in Taiwan (Katchen, 2004). To improve reliability by requiring students to read the questions carefully, of these 26 statements, six were negatively worded (Q7, Q2, M10, M6, A5, A3).

The statements were translated into Japanese by a native speaker and were randomly re-ordered within each section of the survey. The non-anonymous survey was administered during the final class meeting during the final examination. The survey stated and it was also announced that responses would not affect grades in any way, and all students completed it.

## Analysis

The scores of the six negative statements were recoded and the statements were reworded to make the directionality the same. Data was analyzed using SPSS version 11. Analysis showed that reversed

items did not increase reliability, but contained more than 30% misresponses, so those six items were deleted from the survey data. This left 20 items: seven statements about the course learning objectives, eight concerning the online Moodle component, and five about recording using Audacity (see Appendix).

## Results

**Table 2. Student Perceptions of Achievement in the Course Objectives**

Survey Item	<i>N</i>	Min.	Max.	<i>M</i>	<i>SD</i>
Q4 Phonetics useful for pronunciation	72	1	5	4.33	.75
Q9 IPA useful for pronunciation	73	1	5	3.99	.77
Q6 Phonetics useful for English	73	1	5	3.99	.86
Q1 Pronunciation improved	73	1	5	3.66	.85
Q3 Listening improved	72	1	5	3.44	.90
Q8 Interest in online study	73	1	5	3.40	1.04
Q5 Computer skills	73	1	5	3.16	1.03

Students feel that phonetics (Q4, Q6) and IPA recognition (Q9) are useful, and have become somewhat interested in studying online (Q8).

**Table 3. Student Perceptions of Online Materials**

Survey Item	<i>N</i>	Min.	Max.	<i>M</i>	<i>SD</i>
M4 Online quizzes helpful	73	1	5	3.92	.85
M8 Materials helpful	72	1	5	3.89	.78
M3 PowerPoint slides helpful	73	1	5	3.84	.93
M9 IPA flashcards helpful	73	1	5	3.82	.82
M7 Materials convenient	73	1	5	3.71	.86
M1 Online materials easy to use	73	1	5	3.70	.86
M2 Liked online materials	73	1	5	3.49	1.00
M5 Materials increased motivation	72	1	5	3.40	.94

In terms of effectiveness, students feel that the online environment (M8) and its individual components (M4, M3, M9) helped them to learn. They feel that Moodle is quite easy and convenient to use (M7, M1) and somewhat motivating (M2, M5).

Table 4. Student Perceptions of Audacity

Survey Item	<i>N</i>	Min.	Max.	<i>M</i>	<i>SD</i>
A4 E-mail feedback useful	72	1	5	4.14	.74
A6 Audacity helped pronunciation	73	1	5	3.92	.83
A2 Audacity increased motivation	73	1	5	3.90	.90
A7 Liked using Audacity	73	1	5	3.19	1.12
A1 Audacity easy to use	73	1	5	3.16	1.13

*Effectiveness:* Students clearly feel that it is effective for them to use Audacity for digital recording and then to receive feedback by e-mail (A6, A4). *Motivation:* Although students feel that using Audacity increased their motivation (A2), opinions are divided as to whether it is easy to use (A1) or whether they like it (A7).

### Evaluation Part 3: Effectiveness of the online environment

This section evaluates the effectiveness of the online environment. For this evaluation, effectiveness is defined as a relationship among student achievement, student participation, and student satisfaction and motivation. The stronger that relationship, the more effective the online environment. In effective learning, action (participation) might interact with emotion (motivation and satisfaction) to produce a result (achievement). Effective learning may also follow the path of achievement leading to deeper satisfaction which fosters more participation. In this evaluation, a hypothesis predicting directionality or causality is not being tested.

As far as possible, for each of the seven course objectives, the following data are used: 1. Achievement is evaluated through performance on related final test sections; 2. Participation in the online environment is evaluated through the frequency of access to and/or scores on related online activities and resources; and 3. Motivation regarding the course objective and satisfaction regarding the online

delivery are evaluated through responses to related survey items.

**Objective 1 Academic Knowledge: Understanding of basic concepts in articulatory phonetics**

*Achievement:* Phonetics content knowledge was evaluated through the academic knowledge section of the final exam. The mean % score for 72 students was 61.3 ( $SD=17.3$ ).

*Online participation:* Student use of the online resources to reinforce academic knowledge was evaluated using two variables. The first is the mean % score for the 28 online quizzes on academic content knowledge. These graded quizzes could be taken twice within a required time limit and the highest grade was recorded. The mean % score for 73 students was 98 ( $SD=27.8$ ).

The second variable was the frequency that each student accessed the 37 PowerPoint mini-lectures (five to ten slides each) throughout the course.

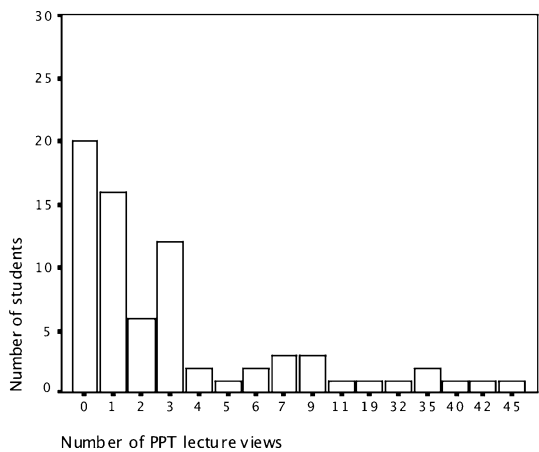


Figure 1. Number of PowerPoint lecture views.

*Motivation and satisfaction:* Student perception of the usefulness of phonetics was evaluated through responses to Q4 and Q6 on the survey. Student perception of the usefulness of the online PowerPoint lectures was evaluated through responses to M3 on the survey.

**Table 5. Responses to Survey Items Concerning Phonetics Content Knowledge** (*1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree*)

	1	2	3	4	5
Q4 Phonetics useful for pronunciation	1	1	3	35	32
Q6 Phonetics useful for English	1	2	15	34	21
M3 PowerPoint slides helpful	2	3	17	34	17

Scatterplots for each dependent variable against the independent variable (test scores) were checked for linearity, and bivariate correlations (Spearman's *rho*) were computed listwise.

**Table 6. Correlations among the Six Academic Content Variables (N=71)**

	Academic content final exam	Online quizzes	PPT views	Q4	Q6
Online quizzes	.61**				
PPT views	.18	.12			
Q4	.16	.09	-.03		
Q6	.06	.05	.07	.43**	
M3	.11	-.06	-.02	.28*	.40**

\*\*  $p < .01$  level (2-tailed); \*  $p < .05$  level (2-tailed)

There is a moderate positive relationship between achievement on the online quizzes and on the academic section of the final exam. This finding confirming the effectiveness of the quizzes is both meaningful and practical. It is probable that the online quizzes help students assimilate and solidify the academic content, but future research is

needed to confirm a causal relationship.

There was no correlation between test achievement and how often students accessed the PowerPoint lectures. However, students who feel that phonetics is useful also feel that the slides are helpful. The PowerPoint lectures, which had already been prepared for the regular classroom environment, can be uploaded to the CMS within seconds, and so are cost-effective resources despite their uneven use.

The online quizzes are an effective use of technology for reviewing academic concepts. This course should also use technology better to support the discovery-based learning that is promoted in the textbook. There are many tools, both physical and computer-based, that allow phonetics students to visualize articulatory phenomena (Arai, 2003).

For example, this course already introduces the concept of *linking* through discovery-based learning. Students use Audacity to record separate words and then paste them together in a “sentence”. Intrigued by the unnaturalness of the result, they discover why linking is important. This activity works because students are already familiar with Audacity and can focus on the discovery instead of the technology. One goal for this course will be to increase such discovery-based activities while smoothly incorporating the appropriate technology.

## **Objective 2 Subject Skill: Ear training**

*Achievement:* Ability in ear training was evaluated through the listening section of the final exam. The mean % score for 73 students was 68.7 ( $SD = 10.2$ ).

*Online participation:* Students were instructed to download and complete two phoneme discrimination exercises before completing each production exercise, but these were not scored for a grade. For this objective, there is no variable for online participation.

*Motivation and satisfaction:* Student perception of listening improvement was evaluated through responses to Q3 on the survey. Eight students strongly disagreed or disagreed, 24 were neutral, and 40 agreed or strongly agreed that their listening had improved.

No correlation was found between performance in discrimination of phonemes and student perception of improvement. A recommendation for this course is to make the listening discrimination exercises mandatory. If possible, exercises should be re-recorded with multiple-talker models (Neri, A., Cucchiarini, C. & Strik, H., 2002) rather than only one voice. Finally, links to publicly available online listening exercises should be added for optional self-study listening practice.

### **Objective 3 Subject Skill: Production training**

*Achievement:* There is no variable to measure achievement in production.

*Online participation:* Participation in the pronunciation exercises was evaluated by the number of production exercises that were satisfactorily completed. Overall, students were able to pass two-thirds of the pronunciation exercises the first time they recorded them. For the remaining one-third, students re-recorded and e-mailed the file several times before receiving a passing score. There was considerable variation, with a few students completing all of the exercises the first time and a few who needed to do most exercises several times. During the semester, over 1,200 audio files were submitted for feedback.

*Motivation and satisfaction:* Student motivation regarding production training was evaluated through responses to Q1, Q4, and A2 on the survey. Student satisfaction regarding the online delivery of production training was evaluated through responses to A4 and A6 on the survey.

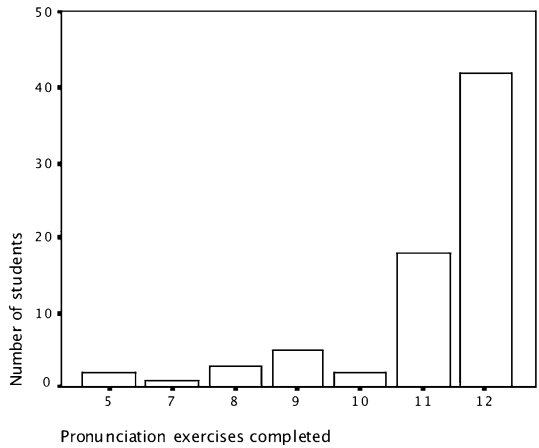


Figure 2. Number of pronunciation exercises completed.

Table 7. Responses to Survey Items Concerning Production Training  
(1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, 5 = *strongly agree*)

	1	2	3	4	5
Q1 My pronunciation has improved.	2	6	13	46	6
Q4 Phonetics useful for pronunciation	1	1	3	35	32
A2 Audacity increased motivation	1	4	15	34	19
A4 E-mail feedback useful	1	2	3	46	20
A6 Audacity helped pronunciation	1	2	16	37	17

Bivariate correlations (Spearman’s *rho*) were computed listwise.

Table 8. Correlations among the Six Production Training Variables (N= 71)

	A2	A4	A6	Q1	Q4
A4 E-mail feedback useful	.48**				
A6 Audacity helped pronunciation	.55**	.38**			
Q1 Pronunciation improved	.24*	.14	.30*		
Q4 Phonetics useful for pronunciation	.46**	.37**	.39**	.24*	
Pronunciation exercises completed	.12	.05	.12	-.05	.09

\*\* p<.01 level (2-tailed); \* p<.05 level (2-tailed)



There is a positive relationship among student perceptions of the usefulness of e-mail feedback, usefulness of Audacity, and usefulness of phonetics. This is an important finding because it means the students sense a relationship between the academic and practical skills in production training. However, the number of pronunciation exercises successfully completed did not correlate with student perception of improvement in pronunciation.

A recommendation for this PPLL course is to empower students by training them to self-assess their pronunciation. First, self-assessment should be built into the production exercises. Periodic peer-assessment could also be done by having a student record several times and having a partner choose the best recording (Televnaja, 2007). Finally, the addition of a pre-course and post-course recording would permit data to be gathered on production ability.

#### **Objective 4 Subject Skill: IPA recognition**

*Achievement:* The ability to recognize IPA was evaluated through the IPA recognition section of the final exam. This section was a paper test in which 20 words and five phrases involving linking were written in IPA. Students were required to write them using normal English spelling. The mean % score for 73 students on this section of the test was 67.1 (SD=16.37).

*Online participation:* Student use of the online resources for IPA recognition was evaluated through the number of times the IPA flashcards were viewed. There were 10 sets of flashcards which were often used in class. These flashcards were accessed 187 times by 38 students, mostly in preparation for the final exam. About half of the students never viewed the IPA flashcards, and about a quarter of them viewed them between one and four times. In contrast, one student,

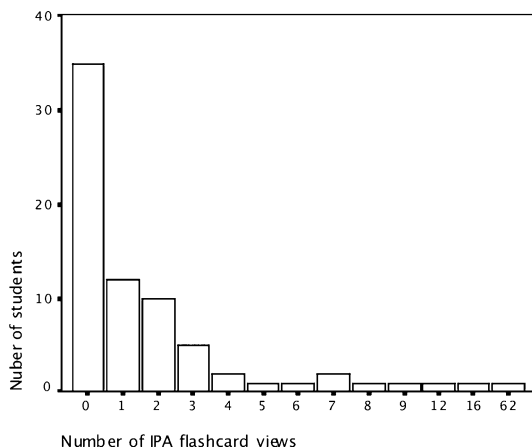


Figure 3. Number of IPA flashcard views.

who viewed the flashcards 62 times, accounted for one-third of the total views.

*Motivation and satisfaction:* Student motivation in terms of the usefulness of IPA was evaluated through Q9 on the survey. Three students strongly disagreed or disagreed, ten were neutral, and 60 agreed or strongly agreed that IPA is useful for pronunciation.

Student satisfaction regarding the online delivery of IPA training was evaluated through M9 on the survey. Two students strongly disagreed or disagreed, 23 were neutral, and 48 agreed or strongly agreed that the IPA flashcards are useful for pronunciation.

Scatterplots for each dependent variable against the test scores were checked for linearity, and bivariate correlations (Spearman's  $\rho$ ) were computed listwise.

There is a weak relationship between the number of times students viewed the IPA flashcards and how well they performed on IPA recognition on the final exam. Generally, the ability to recognize IPA is linked to a belief in its usefulness.

Table 9. Correlations among the Four IPA Recognition Variables (N=73)

	IPA final exam	IPA flashcard views	Q9
IPA flashcard views	.24*		
Q9 IPA useful for pronunciation	.30*	.25*	
M9 IPA flashcards helpful	.10	.19	.35**

\*  $p < .05$  level (2-tailed)    \*\*  $p < .01$  level (2-tailed)

Because IPA needs to be absorbed and memorized, but requires little or no clarification, a self-directed approach should work well for this skill (Hofmann, 2006). Presently, the course offers several resources for IPA recognition—within some of the online quizzes, at the end of each chapter in the textbook, and with the IPA flashcards. Such redundancy makes for good blended learning because it allows students to receive the same input in various formats over time (Rossett, Douglass, & Frazee, 2003). The problem is that these resources are not required assignments. IPA recognition should probably be practiced through a two-tiered approach with both required and extra-credit assignments.

The scope and sequencing of the IPA flashcards is also critical. The first nine sets of flashcards included words using all phonemes, which was too challenging for some students. Late in the course, a flashcard set with a drill for each vowel was added because some students needed more help with vowels. The words in each drill contained only the target vowel and only consonant sounds written with IPA symbols that are the same as the alphabet. This enabled students to focus on the vowel sound-symbol connection confidently and enthusiastically. A recommendation for this PPLL course is to create more IPA “drills” focusing on single phonemes and sequence them carefully within the flashcard sets.

**Objectives 5 & 6 Transferable Skills: Audio recording and e-mailing attachments**

In order to do production training and receive feedback, students needed to have or acquire two transferable skills: the ability to record and save audio as mp3 files using Audacity, and the ability to e-mail the audio file as an attachment. Students received screenshot manuals and step-by-step in-class training on how to do this. They were not taught how to log on to the university server or the university e-mail program because this information had been given to them during university-wide computer guidance.

The students began the PPLL course with differing levels of computer expertise. Fortunately, experienced students moved about the classroom and offered their classmates assistance without being asked. By the end of the semester, a few students had even bought headsets and downloaded Audacity so that they could complete the pronunciation exercises at home.

*Achievement/online participation:* Students were considered able to record, save and send audio files if they did this at least once. All students were able to record and attach at least one production exercise.

*Motivation and satisfaction:* Student motivation regarding the use of Audacity was evaluated through A7, and satisfaction was evaluated through A1 on the survey.

**Table 10. Responses to Survey Items Concerning Computer Skills**  
(1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree)

	1	2	3	4	5
Q5 I learned some new computer skills.	5	12	28	22	6
A1 It was easy to record using the computer (Audacity).	2	25	15	21	10
A7 I liked recording using the computer (Audacity).	5	16	22	20	10

In retrospect, survey item Q5 is ambiguous. Negative responses could indicate either that students already had sufficient computer skills before beginning the course or that they were not able to acquire the skills that they needed.

**Table 11. Correlations among the Three Variables Concerning Computer Skills (N=73)**

	Q5 skills	A1
A1 It was easy to record using the computer (Audacity).	-.02	
A7 I liked recording using the computer (Audacity).	.25*	.27*

\*  $p < .05$  level (2-tailed)

Despite an apparent relationship between ease of use and satisfaction, a more thorough and ongoing survey is needed to accurately track student ability to use technology.

A recommendation would be to explicitly introduce all computer-based actions, even “simple” ones such as viewing a PowerPoint lecture. Students who are familiar with each action should be paired with those who are not. This investment of a few minutes of class time should encourage fuller use of the online resources.

There is a variety of online resources and tools, such as audio files, online courses, and dynamic illustrations, that are available for teaching phonetics and increasing students’ practical skills (Carrera & Pons, 2007). Phonetics course developers are excited because they feel that technology can break down unnecessary divisions between phonetic theory and practice (Ashby, Figueroa-Clark, Seo, & Yanagisawa, 2005). This PPLL course should continue to integrate technology when the benefits outweigh the risks. Minimizing the risks means careful planning, judicious implementation, and thoughtful evaluation.

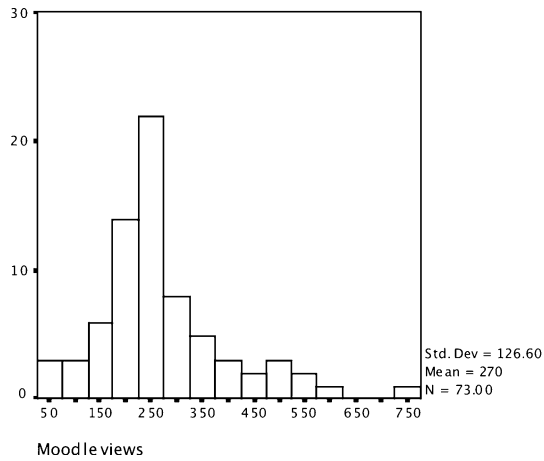


Figure 4. Number of times online materials were accessed.

**Objective 7 Lifelong Skill: Independent online study**

*Achievement/online participation:* Achievement and participation in independent online study was evaluated by the total number of times the Moodle CMS was accessed.

*Motivation and satisfaction:* Student motivation regarding online study was evaluated through Q8, M2, and M5. Student satisfaction regarding online study was evaluated through M1, M7, and M8.

**Table 12. Responses to Survey Items Concerning Independent Online Study**  
(1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree)

	1	2	3	4	5
Q8 Interest in online study	3	12	20	29	9
M2 Liked on-line materials	3	6	28	24	12
M5 Materials increased motivation	3	7	27	28	7
M1 On-line materials easy to use	1	6	17	39	10
M7 Materials convenient	1	5	19	37	11
M8 Materials helpful	1	3	11	45	12

Scatterplots for each dependent variable against the frequency of views were checked for linearity, and bivariate correlations (Pearson's  $r$ ) were computed listwise.

**Table 13. Correlations among the Seven Variables Concerning Independent Online Study (N= 72)**

	Q8	M2	M5	M1	M7	M8
M2 Liked on-line materials	.47**					
M5 Materials increased motivation	.49**	.67**				
M1 On-line materials easy to use	.49**	.72**	.58**			
M7 Materials convenient	.54**	.53**	.55**	.57**		
M8 Materials helpful	.48**	.61**	.67**	.56**	.81**	
Moodle views	.24*	.22	.28*	.18	.20	.24*

\*\*  $p < .01$  level (2-tailed); \*  $p < .05$  level (2-tailed)

Of the 21 possible correlations, most were significant. There is a very strong positive relationship between students' perception that the online materials are convenient and that they are helpful, with a causal relationship quite likely. Generally, students who feel the online materials are easy to use also like them and are motivated by them. There is a relationship between students who have become interested in online study and students who find the online materials convenient, helpful and motivating. These findings are expected but important, and further research should be done to investigate a causal relationship.

A possible explanation for the lack of a significant relationship between the convenience and ease of online materials and the number of times the materials were viewed could be that students who had difficulty using the online materials actually needed to access more often to accomplish less. For this reason, frequency of access might not be the most accurate measure of involvement in online study, although it is most practical.

## Discussion

This evaluation suggests that moving the PPLL course into a blended environment has helped the students meet the course objectives. Student online performance is correlated to both content knowledge of phonetics and IPA recognition. Students recognize that digital recording, instructor feedback, and knowledge of phonetics are important for developing their production skills.

The deep evaluation of this PPLL course has produced many specific recommendations for further development. In terms of course content, production skills should be strengthened by making the listening discrimination and IPA recognition exercises mandatory. Student self-development in pronunciation should be encouraged by requiring student self-assessment of pronunciation and by overtly directing students to online resources.

In terms of delivery of content, this course is still somewhat conservative. The trend in blended learning is an increasing use of visualization, individualization, and hands-on learning (Bonk, Kim, & Zeng, 2006). However, the online part of this course functions mostly as an extension of a face-to-face traditional learning environment. By judiciously incorporating more discovery-based activities and by leading students into the present online activities more carefully, the course components should become better integrated and the technology should become less visible.

An on-going challenge for this PPLL course is to strike a balance between the Academic and Skills objectives, and the Lifelong Skills objective. There is an inherent tension between the need to require less-motivated students to access materials and the desire to encourage independent learning. Blended learning requires a certain amount of self-discipline on the part of the students, so an ongoing challenge is



how to design environments that can support learners' growing ability for independent study (Graham, 2006).

## Conclusion

Teachers and institutions need to disseminate results from evaluations of blended-learning courses (Sharpe, Benfield, Roberts, & Francis, 2006) because this area is so new, complex, and diverse. It is hoped that the results of this case-study evaluation will be helpful to PPLL instructors who are considering blending their own courses. Langdon & Taylor (2005) correctly warn that it takes a lot of time and effort to build content, create a multi-sensory environment, and instruct and motivate students. By sharing the results of evaluations, perhaps that burden can be reduced.

The teaching of practical phonetics for language learners is poised for a transformation as it goes online. Instructors who are ready to be part of this transformation should plan carefully, but enjoy the unexpected; they should be willing to work hard, but be realistic about what can be achieved; and they should be ready to share their challenges and achievements.

## References

- Akahane-Yamada, R., Tohkura, Y., Bradlow, A. R., & Pisoni, D. B. (1996). Does training in speech perception modify speech production? *ICSLP 96. Proceedings, Fourth International Conference on Spoken Language, 2*, 606–609. doi: 10.1109/ICSLP.1996.607434 Abstract retrieved from IEEE Explore database.
- Arai, T. (2003). Physical and computer-based tools for teaching phonetics. *Proceedings of the 15th International Congress of Phonetic Sciences*, 305–308. [http://www.splab.ee.sophia.ac.jp/papers/2003/2003\\_04.pdf](http://www.splab.ee.sophia.ac.jp/papers/2003/2003_04.pdf) Accessed

Dec. 27, 2008

- Ashby, M., Figueroa-Clark, M., Seo, E., & Yanagisawa, K. (2005). Innovations in practical phonetics teaching and learning. *Phonetics Teaching and Learning Conference 2005 PDF Proceedings*. [http://www.phon.ucl.ac.uk/home/johnm/ptlc2005/ptlc2005\\_proc\\_index.htm](http://www.phon.ucl.ac.uk/home/johnm/ptlc2005/ptlc2005_proc_index.htm) Accessed Jan 9, 2009
- Bonk, C. J., Kim, K. J., & Zeng, T. (2006). Future directions of blended learning in higher education and workplace learning settings. In C. J. Bonk & C. R. Graham (Eds.), *The handbook of blended learning: Global perspectives, local designs* (pp.550-567). San Francisco: Pfeiffer.
- Carrera, J. & Pons, C. (2007). Development of technological tools for teaching and learning Catalan phonetics via the Internet. *Phonetics Teaching and Learning Conference 2007 PDF Proceedings*. [http://www.phon.ucl.ac.uk/ptlc/ptlc2007\\_web\\_proindex.html](http://www.phon.ucl.ac.uk/ptlc/ptlc2007_web_proindex.html) Accessed Dec. 30, 2008
- CLPD (Centre for Learning and Professional Development). (2009). *Evaluation*. <http://www.adelaide.edu.au/clpd/online/designing/evaluation/> Accessed Jan. 10, 2009
- Dickens, A. (2005). Event report: The future of phonetics. *The Higher Education Academy Subject Centre for Languages, Linguistics and Area Studies*. <http://www.llas.ac.uk/events/archive/2243> Accessed Jan 2, 2009
- Garrison, D. R. & Vaughan, N. D. (2008). *Blended learning in higher education: Framework, principles, and guidelines*. San Francisco: Jossey-Bass.
- Gonzales, J. (2003). English phonetics instruction and the course web site. In J. Pique-Angordans, J. Pique, M. J. E. Esteve & M. L. G. Valor (Eds.), *Internet in Languages for Specific Purposes and Foreign Language Learning*. Castello de la Plana, Spain: Universitat Jaume I.
- Graham, C. R. (2006). Blended learning systems: Definition, current trends, and future directions. In C. J. Bonk & C. R. Graham (Eds.), *The handbook of blended learning: Global perspectives, local designs* (pp.3-21). San Francisco: Pfeiffer.
- Hasegawa, H. (2001). Eigo onseigaku no jugyou wo kosatsu suru. [A review of an English phonetics course]. *Kansai Gaikoku Daidaku Kyouiku Kenkyuu Houkoku Dai-no-gou* [*Kansai Gaidai Educational Research and Report, No.2*]. <http://ci.nii.ac.jp/naid/110000089921/> Accessed Dec 28,

- 2008, from CiNii database.
- Hazan, V. & Dommelen, W. van (1997). A survey of phonetics education in Europe. *Proceedings from EuroSpeech '97, 5th European Conference on Speech Communication and Technology*. Rhodes, Greece, 22-25 September 1997, Vol.4, 1939-1942. [www.amengel.de/pubs/eurospeech-rhodes-97.pdf](http://www.amengel.de/pubs/eurospeech-rhodes-97.pdf) Accessed Jan 2, 2009
- Hoffmann, J. (2006). Why blended learning hasn't (yet) fulfilled its promises. In C. J. Bonk & C. R. Graham (Eds.), *The handbook of blended learning: Global perspectives, local designs* (pp.27-40). San Francisco: Pfeiffer.
- Jensen, C. (2005). Online training and testing in phonetics. *Phonetics Teaching and Learning Conference 2005 PDF Proceedings*. [http://www.phon.ucl.ac.uk/home/johnm/ptlc2005/ptlc2005\\_proc\\_index.htm](http://www.phon.ucl.ac.uk/home/johnm/ptlc2005/ptlc2005_proc_index.htm) Accessed Jan 9, 2009
- Katchen, J. E. (2004). E-learning in an EFL linguistics class. *Proceedings of the First Conference on ELT and E-Learning in an Electronic Age: Issues and Alternatives*. Tamkang University, Taiwan, May 2004. <http://mx.nthu.edu.tw/~katchen/professional/Tamkang%20e-learn%20paper.pdf> Accessed Dec 27, 2008
- Langdon, S. & Taylor, J. (2005). "Making our lives easier": Using free learning management systems in the ESL environment. *Teaching English with Technology*, 5(3). [http://www.iatefl.org.pl/call/j\\_tech22.htm](http://www.iatefl.org.pl/call/j_tech22.htm) Accessed Feb 18, 2009
- Lechowska, B. (2005). Teaching English phonetics and phonology in Colombia. *Phonetics Teaching and Learning Conference 2005 PDF Proceedings*. [http://www.phon.ucl.ac.uk/home/johnm/ptlc2005/ptlc2005\\_proc\\_index.htm](http://www.phon.ucl.ac.uk/home/johnm/ptlc2005/ptlc2005_proc_index.htm) Accessed Dec 27, 2008
- Neri, A., Cucchiari, C. & Strik, H. (2002). Feedback in computer assisted pronunciation training: When technology meets pedagogy. *Proceedings of the 10th International CALL Conference*. University of Antwerp, 179-188. <http://lands.let.kun.nl/TSPublic/strik/publications/a95.pdf> Accessed Dec 27, 2008
- Neri, A., Cucchiari, C., Strik, H. & Boves, L. (2002). The pedagogy-technology interface in Computer Assisted Pronunciation Training. *Computer Assisted Language Learning*, 15(5), 441-467. <http://lands.let.kun.nl/TSPublic/strik/publications/a95.pdf>

- kun.nl/TSPublic/strik/publications/a95.pdf Accessed Jan. 10, 2009
- Rossett, A., Douglass, F., & Frazee, R. V. (2003). Strategies for building blended learning. *Learning Circuits*. (American Society for Training and Development.) <http://www.astd.org/LC/2003/2003articles.htm> Accessed Dec. 30, 2008
- Sharpe, R., Benfield, G., Roberts, G. & Francis, R. (2006). The undergraduate experience of blended e-learning: A review of UK literature and practice. *The Higher Education Academy*. 2006 (October), 1-4. [http://www.heacademy.ac.uk/assets/York/documents/ourwork/research/literature\\_reviews/blended\\_elearning\\_exec\\_summary\\_1.pdf](http://www.heacademy.ac.uk/assets/York/documents/ourwork/research/literature_reviews/blended_elearning_exec_summary_1.pdf) Accessed Dec. 30, 2008
- Televnaja, J. (2007). Coping with sounds: An approach to teaching phonetics at the IFL. *Zmogus ir zodis [Man and the Word]*, 9(3). <http://www.ceeol.com/aspx/getdocument.aspx?logid=5&id=99DD1466-B411-4B0A-8179-EA23F751EC2B> Accessed Dec. 30, 2008
- Valiathan, P. (2002). Blended learning models. *American Society for Training and Development: Learning Circuits*. [http://www.astd.org/LC/2002/0802\\_valiathan.htm](http://www.astd.org/LC/2002/0802_valiathan.htm) Accessed Dec. 30, 2008.

### Footnotes

- <sup>1</sup> Content was carefully balanced to reflect the amount of teaching time and the number of online activities. Questions were taken directly from online activities or written specifically for the exam. For this section, N=72.
- <sup>2</sup> Three sentences in which the first highlights one phoneme, the second highlights a contrasting phoneme, and the third sentence highlights both. These were rated on a three-point scale (1=do again, 2=sometimes OK, 3=fine).

## Appendix

### Course Evaluation Survey: Areas of Concern and Items

Area of concern	No.	Survey Item
<b>LEARNING OBJECTIVES</b>		
Academic knowledge	Q4	Knowledge of English phonetics is useful for improving my own pronunciation.
	Q6	Knowledge of phonetics is useful for understanding about the English language.
Subject skills	Q1	My pronunciation has improved.
	Q3	My ability to discriminate between English sounds has improved.
	Q9	Knowledge of IPA is useful for improving my own pronunciation.
Transferable skills	Q5	I learned some new computer skills.
Lifelong skills	Q8	I became interested in studying online outside the class.
<b>MOODLE</b>		
Motivation	M5	The online materials (Moodle) increased my motivation to learn.
	M2	I liked the online materials (Moodle).
Ease	M7	The online materials (Moodle) were convenient to use.
	M1	The online materials (Moodle) were easy to use.
Effectiveness	M8	The online materials (Moodle) helped me learn.
Moodle Features	M3	The PowerPoint slides of each lecture helped me to learn.
	M4	The quizzes helped me to learn.
	M9	The IPA “flashcards” were useful.
<b>AUDACITY</b>		
Motivation	A2	Recording using the computer (Audacity) increased my motivation to pronounce well.
	A7	I liked recording using the computer (Audacity).
Ease	A1	It was easy to record using the computer (Audacity).
Effectiveness	A6	Recording using the computer (Audacity) helped me improve my pronunciation.
	A4	The teacher’s e-mail feedback on my pronunciation was useful.