

## COLLEGE STUDENTS' PERCEPTIONS OF ONLINE LEARNING: KNOWLEDGE GAIN AND COURSE EFFECTIVENESS

Sachiko MATSUNAGA

California State University, Los Angeles  
United States  
smatsun@calstatela.edu

**Abstract:** This paper reports the results of research into college students' perceptions of knowledge gain and reactions to their learning experiences in an online general education course. Statistical analyses on data from two types of questionnaires showed: (a) overall knowledge gain regardless of participants' backgrounds (age, gender, and ethnicity), which was unrelated to their instructional preference; (b) overall preference for online to in-class environment regardless of participants' backgrounds, except an age difference in rating on hypothetical in-class quizzes. Further quantitative analyses identified ease of participation and self-reflection as strengths of online delivery; these were together related to many important aspects of learning. These quantitative data were largely compatible with participants' comments. Based on these findings, future studies are suggested, and possible ways to improve online course design and delivery are discussed.

### INTRODUCTION

With the rapid advancement of technology, the number of online courses and of students who take them have increased exponentially in the U.S. since 2002 (Allen & Seaman, 2013). Largely due to the availability of massive open online courses (MOOCs), Carey (2015) even predicts MOOCs and other online learning materials' takeover of American colleges and universities, except 15 to 50 of them, in his book *The End of College: Creating the Future of Learning and the University of Everywhere* (cited in Heller, 2015). Although this is unlikely in the immediate future (Heller, 2015), one of the benefits of online courses, particularly asynchronous ones, is a drastically increased accessibility to college courses for traditional and non-traditional students alike.

While measuring student learning outcomes is important in any college course, in online courses it is also important to measure students' perceptions of learning. This is because online course completion rates are low, particularly those of MOOCs, which are "generally in the single digits" (Heller, 2015). Certainly high motivation is needed to complete an online course (Dennis, Bunkowski, & Eskey, 2007), but students' perceptions of learning in an online environment can also influence their decision to complete the course, and upon completion, take additional ones. Moreover, given that those who complete MOOCs are "disproportionally well-educated men with office jobs" (Toyama, 2015), and that the college student population will be increasingly diversified in the U.S., it is also worthwhile to know whether the difference in students' backgrounds (e.g., age, gender, and ethnicity) makes any difference in their perceptions of online learning.

Previous studies on students' perceptions of online learning, however, seem to have narrow focuses in limited areas or disciplines. For example, Dixon, Dixon, and Siragusa (2007) investigated adult learners' perception of an online course in a training and development program, and Gibby (2007) examined the perception of learners of Spanish as a foreign language on different types of online interactions. The former found the adult learners' preference to work alone, and the importance of their sense of control over the learning material and environment for successful completion of the unit of study. The latter identified four important elements of effective interactions in an online foreign language course: "making regular announcements, helping learners draw connections between the interactions and their learning goals, maintaining and organizing archives and keeping response times as close to 24 hours as possible." While these are valuable findings, additional studies are necessary to answer more broad questions on perceptions of learning in an online environment as opposed to a traditional one, and their relationship to students' backgrounds if any. In addition, it would be valuable to know the relationship between perceived effectiveness of the two types of instruction and perceived knowledge gain.

Thus, the present study investigated college students' perception on knowledge gain and the efficacy of online delivery vs. hypothetical in-class delivery of an upper-division general education course offered at an urban American university. The course, which was 10-weeks long, was taken by students across disciplines who represent the diverse population of the university, and was offered asynchronously, except on the first day of instruction and the midterm and final exam days. On these three days, the class met physically for orientation and paper exams. Online activities required students to post their response to one of the discussion questions after studying each chapter of the main textbook with the instructor's notes, comment on another student's

posting of his or her response, take online chapter quizzes, post a PowerPoint file to present a chapter from another textbook, comment on another student's PowerPoint file of a chapter presentation, submit a research paper to the instructor, post a PowerPoint file to present the research paper, comment on another student's PowerPoint file of his or her research paper, and submit a self-reflection of learning to the instructor at the end of the course. There was also an optional chat-room session to review the covered materials before the midterm and final exams, which was recorded for all students to use if needed.

In the present study, five research questions were asked: (a) Did the participants feel that they gained knowledge by taking the online course? (b) How did they perceive the effectiveness of online delivery of the course as opposed to a hypothetical in-class delivery of the same course? (c) Did their backgrounds make a difference in how they perceived the efficacy of the two types of instruction? (d) Was their overall perception of online learning as opposed to in-class learning related to their perceived knowledge gain? (e) Was there a positive perception on any specific aspects of the online learning experience? If so, how was it related to their backgrounds and other aspects of effective online instruction? By answering these questions with quantitative and qualitative data, this paper aims to draw a broad picture of online learning in a high-impact general education course at an urban American university.

It should be mentioned that in order to answer the first research question on perceived knowledge gain, the participants were asked to rate the level of pre-course knowledge and post-course knowledge on an anonymous questionnaire taken on the final exam day. Therefore, their pre-course knowledge was rated reflectively. According to Rockwell & Kohn (1989), compared to the traditional pretest, the reflective pretest is "more able to accurately reflect on the degree of change in knowledge or attitude" (cited in Davis, 2003), because "it is answered in the same frame of reference as the post-test" (Sevens and Lodl, 1999). When using the traditional pretest-posttest, "respondents oftentimes overestimate their level of knowledge on a particular subject" (Pratt, McGuigan, & Katzev, 2000, cited in Davis, 2003). Thus, with the retrospective pretest methodology (i.e., reflective rating of their content knowledge), the present participants were given an opportunity to more accurately assess their baseline level of content knowledge and the degree of change as a result of the course, and they provided the researcher with more meaningful data, as previously demonstrated by Davis (2003) in his study of program impact.

It should also be pointed out that the present study asked participants to comparatively rate the effectiveness of online delivery of the course and that of a hypothetical in-class delivery on another anonymous questionnaire taken on the final exam day. The rating on in-class delivery had to be hypothetical due to the impossibility of teaching the same course to the same participants in two different modes. Moreover, at the university at which this course was taught, once a curriculum with a specific mode of instruction is formally approved, that specified mode has to be used in instruction; thus, conducting in-class instruction to another group of participants from the same population was not possible, either.

## **METHODS**

### ***Participants***

18 students in an urban university in Southern California volunteered to participate in the study. They were enrolled in an upper-division general education course entitled "Language Diversity in Urban America" delivered asynchronously on Moodle, a course management system used at the university. Six were male and 12 were female, aged 20 to 37. Eight had an Asian background, and 10 had a Hispanic background.

### ***Materials***

The materials were two types of anonymous questionnaires: one was the participants' self-assessment of the levels of content knowledge before and after taking the online course (see Appendix A); the other was their evaluation of the online delivery of the course versus a hypothetical in-class delivery of the same course (see Appendix B). Both questionnaires asked the participants to indicate their level of agreement with each statement using a six-point scale (1-strongly disagree and 6-strongly agree). As shown in Appendix A, the content knowledge questionnaire contained 16 statements, based on the content of each chapter of the main textbook used in the course (e.g., "I know roughly how many languages are spoken in the U.S."); on each statement the participants provided two ratings of their knowledge levels: one reflective rating of the knowledge before the course and another rating of the knowledge after the course. As shown in Appendix B, the course delivery questionnaire had nine statements (e.g., "I was able to interact with classmates"); on each statement they provided two ratings of their evaluations: one on the online delivery of the course, and another on a hypothetical in-class delivery of the same course. The participants were also asked to provide comments on the most and least beneficial aspects of the online course delivery, and their bio data (i.e., age, gender, and ethnicity) at the end of the questionnaire.

**Procedure**

Data were collected on the final exam day. Before distributing the stapled sets of questionnaires to each of the potential participants (i.e., all final exam takers in the classroom), the IRB (Institutional Research Board) briefing was orally given, including the purpose of the study (i.e., to better the instruction based on the data to be collected) and the procedure of the questionnaires (i.e., what the participants were expected to do), which were also shown in writing and projected on a large screen during the entire final exam period (150 minutes). The participants answered the questionnaires after finishing the final exam, and placed the completed questionnaires into a box located in the front of the classroom. It took them no more than 100 minutes to complete the final exam, leaving 50 minutes for data collection, which was more than sufficient for the briefing before the exam and completion of the questionnaires after the exam.

**RESULTS**

**Students' perception of overall knowledge gain**

Table 1 shows the participants' average ratings on their agreements with the 16 content knowledge statements, categorized by age, gender, and ethnicity, before (2.07) and after (5.43) the course. The data were first analyzed, using a one-way Analysis of Variance (ANOVA) for repeated measures with pre-and-post instruction as a within-subject factor. The result showed a main effect of instruction,  $F(1, 17) = 234.91, p < .001$ , indicating significant knowledge gain overall. To further investigate whether the age, gender, and ethnicity of the participants made any difference in perceived knowledge gain, correlational analyses were conducted. As seen in Table 2, age, gender, and ethnicity had no relationship with the participants' overall knowledge gain ( $p > .05$ ).

Table 1  
*Average Ratings on the Content Knowledge Before and After the Course (N = 18)*

	Before	After	Gain
Age			
Younger <sup>a</sup>	2.25	5.36	3.11
Older <sup>b</sup>	1.93	5.48	3.55
Gender			
Male <sup>c</sup>	2.45	5.36	2.91
Female <sup>d</sup>	1.88	5.46	3.58
Ethnicity			
Asian <sup>e</sup>	2.31	5.64	3.33
Hispanic <sup>f</sup>	1.88	5.26	3.38
<i>GM</i>	2.07	5.43	3.36

Note. <sup>a</sup> $n = 8$ ; <sup>b</sup> $n = 10$ ; <sup>c</sup> $n = 6$ ; <sup>d</sup> $n = 12$ ; <sup>e</sup> $n = 8$ ; <sup>f</sup> $n = 10$ . Younger = 22 or younger. Older = 23 or older. *GM* = Grand Mean.

Table 2  
*Correlations of Bio Data and Overall Ratings on Knowledge Gain (N= 18)*

	1	2	3	4
1. Age	1	.316	.325	.241
2. Gender		1	.316	.356
3. Ethnicity			1	.033
4. Knowledge				1

Note. Knowledge = Knowledge gain between before (reflective) and after the course.

**Students' perception of the overall effectiveness of online delivery**

Due to incomplete data provided by one of the 18 participants, 17 participants' average ratings on their agreements with the nine statements about the effectiveness of online (5.39) versus hypothetical in-class (4.66) delivery of the course (shown in Table 3) were analyzed, using a one-way ANOVA for repeated measures with instructional mode as a within-subject factor. The result showed a main effect of instructional mode,  $F(1, 16) = 4.96, p < .05$ , indicating the participants' overall preference for the online delivery instead of a hypothetical in-class delivery of the course.

Table 3  
*Average Ratings on the Effectiveness of Online vs. In-Class Delivery of the Course (N = 17)*

	Online	In-class	Gap
Age			
Younger <sup>a</sup>	5.33	4.11	1.22
Older <sup>b</sup>	5.30	5.16	.14
Gender			
Male <sup>c</sup>	5.27	3.85	1.42
Female <sup>d</sup>	5.34	4.66	.68
Ethnicity			
Asian <sup>e</sup>	5.40	4.73	.67
Hispanic <sup>f</sup>	5.24	4.60	.64
GM	5.39	4.66	.73

Note. <sup>a</sup>n = 8; <sup>b</sup>n = 9; <sup>c</sup>n = 6; <sup>d</sup>n = 11; <sup>e</sup>n = 8; <sup>f</sup>n = 9. Younger = 22 or younger. Older = 23 or older. GM = Grand Mean.

In order to further investigate whether the age, gender, and ethnicity of participants were related to their overall preference for the online delivery of the course (i.e., the gap in ratings in Table 3), correlational analyses were conducted. As shown in Table 4, age, gender, and ethnicity had no relationship with the participants' overall preference for the online delivery of the course ( $p > .05$ ).

Table 4  
*Correlations of Bio Data and Overall Ratings on Preference for Online vs. In-Class Instruction (N = 17)*

	1	2	3	4
1. Age	1	.316	.325	-.108
2. Gender		1	.316	-.263
3. Ethnicity			1	-.386
4. Instruction				1

Note. Instruction = Gap on ratings between online and hypothetical in-class delivery of the course.

***Relationship between overall knowledge gain and overall preference for the online delivery***

Interestingly, when a correlational analysis was performed between the average knowledge gain (3.36 as shown in Table 1) and their overall preference for the online delivery (i.e., .73 as shown in Table 3), the result indicated no relationship ( $r = -.147, p = .573$ ). Thus, perceived knowledge gain was found to have nothing to do with overall preference for the online delivery to a hypothetical in-class delivery.

***Analyses of ratings on individual statements on the two types of instruction and their relationships with students' backgrounds***

Next, the average ratings on each of the nine effectiveness statements on both types of instruction were separately examined to see whether age, gender, or ethnicity was related to the ratings on any item in the course effectiveness questionnaire. As seen in Table 5, the results showed that only age was significantly related to ease of taking quizzes in a hypothetical in-class instruction ( $r = .547, p < .05$ ). The positive correlation found on this item (#5 in the effectiveness questionnaire in Appendix B) means that younger participants rated significantly lower on the ease of taking quizzes in a hypothetical in-class instruction than the older participants did.

Table 5  
*Correlations of Bio Data and Ratings on Taking Quizzes Online and In Class (N = 17)*

	1	2	3	4	5
1. Age	1	.316	.325	-.348	.547*
2. Gender		1	.316	-.058	.005
3. Ethnicity			1	-.183	.035
4. Online Quiz				1	-.109
5. In-Class Quiz					1

Note. \* $p < .05$ . Online Quiz = Ease of taking quizzes online. In-Class Quiz = Ease of taking quizzes in a hypothetical in-class environment.

Interestingly, when one-way ANOVAs for repeated measures were run separately on the nine items in the course effectiveness questionnaire, there were only two aspects in which the mode of instruction made a significant difference: one was ease of participation,  $F(1, 16) = 11.72, p < .01$ , and the other was self-reflection of learning,  $F(1, 16) = 6.96, p < .05$ . These are items #2 and #8 in the effectiveness questionnaire (Appendix B), respectively, and the participants' average ratings on ease of participation (5.41 [online]; 3.70 [in-class]) and self-reflection of learning (5.41 [online]; 4.58 [in-class]) are shown in Table 6. The main effects found on these two items mean that the participants felt they were able to participate in discussions and reflect their learning to a greater degree in the online course than in a hypothetical in-class environment. As seen in Table 7, correlational analyses further indicated that the participants' backgrounds did not make any difference in these results ( $p > .05$ ).

Table 6  
*Average Ratings on Participation and Self-Reflection of Learning in the Online vs. In-Class Delivery of the Course*

	Online	In-class	Gap
Participation			
Age			
Younger <sup>a</sup>	5.50	3.00	2.50
Older <sup>b</sup>	5.33	4.33	1.00
Gender			
Male <sup>c</sup>	5.50	3.66	1.84
Female <sup>d</sup>	5.36	3.72	1.64
Ethnicity			
Asian <sup>e</sup>	5.25	3.75	1.50
Hispanic <sup>f</sup>	5.55	3.66	1.89
<i>GM</i>	5.41	3.70	1.71
Self-Reflection			
Age			
Younger <sup>a</sup>	5.37	4.25	1.12
Older <sup>b</sup>	5.33	4.33	1.00
Gender			
Male <sup>c</sup>	5.33	4.50	.83
Female <sup>d</sup>	5.45	4.63	.82
Ethnicity			
Asian <sup>e</sup>	5.50	4.62	.88
Hispanic <sup>f</sup>	5.33	4.55	.78
<i>GM</i>	5.41	4.58	.83

Note. <sup>a</sup> $n = 8$ ; <sup>b</sup> $n = 9$ ; <sup>c</sup> $n = 6$ ; <sup>d</sup> $n = 11$ ; <sup>e</sup> $n = 8$ ; <sup>f</sup> $n = 9$ . Younger = 22 or younger. Older = 23 or older. *GM* = Grand Mean.

Table 7  
*Correlations of Bio Data and Ratings on Preference for Online vs. In-Class Instruction on Participation and Self-Reflection (N = 17)*

	1	2	3	4	5
1. Age	1	.316	.325	-.376	-.228
2. Gender		1	.316	-.047	-.006
3. Ethnicity			1	.097	-.039
4. Participation				1	.641**
5. Self-Reflection					1

Note. \*\* $p < .01$ . Participation = Gap on ratings between online and hypothetical in-class delivery of the course on ease of participation. Self-Reflection = Gap on ratings between online and hypothetical in-class delivery of the course on self-reflection of learning.

**Relationships of ease of participation and self-reflection of learning with other aspects of online delivery**

How were ease of participation and self-reflection of learning in which online delivery was preferred, related to other aspects of online instruction? This question was investigated by conducting correlational analyses. As seen in Table 8, the results indicated that item #2 (ease of participation) was significantly correlated with all but two items: ease of taking quizzes (item #5) and meaningful learning (item #9). Item #8 (self-reflection of learning) was significantly correlated with all but two items: ease of taking quizzes (item #5) and understanding of materials (item #1). These results mean that although these two positive aspects (items #2 and #8) of online delivery were not related to ease of taking quizzes, they were together related to all other important aspects of learning, including understanding materials and having a meaningful learning experience.

Table 8  
*Correlations of Ratings on 9 Items in the Course Effectiveness Questionnaire with Ratings on Participation and Self-Reflection in the Online Instruction (N = 17)*

	1	2	3	4	5	6	7	8	9
Participation	.594**	1	.521*	.735**	.140	.647**	.542*	.734*	.453
Self-Reflection	.253	.734**	.756**	.969**	.285	.826**	.731**	1	.728**

Note. \* $p < .05$ . \*\* $p < .001$ . 1 = helped understand materials; 2= easy to participate in discussions; 3 = easy to ask questions; 4 = easy to submit assignments; 5 = easy to take quizzes; 6 = received timely feedback; 7 = easy to interact with classmates; 8 = able to reflect on own learning; 9 = had a meaningful learning experience.

**Students' comments**

Finally, qualitative data from the participants' comments were examined. Positive comments expressed that they benefitted from "the notes instructor provided," "instructor feedback," "instant feedback," "the discussions and quizzes," "[ability] to interact with one another, to comment, and to see others comment," "[ability] to set own schedule," "to turn in assignments a little earlier," and "to view all work [and] grades." One student said: "It is much easier to participate online in forum discussion rather than in class. I felt like I participated in the discussions much more than I would have in class. It was very easy to turn in assignments/quizzes" (Asian female, age 23). This student further commented on gained knowledge, saying that she "[knew] particularly nothing about language diversity prior to this class." Another student expressed: "Working adults like myself appreciate all the online classes as they provide for time to continue to go to work, supporting our families, and still pursuing our aspirations of higher education. So thank you for being bold and providing an online class that is very needful in today's society" (Hispanic female, age 37).

Negative comments were on deadlines and technical problems that caused missed assignments and quizzes, lack of in-class lecture, insufficient feedback, shortage of time to discuss more, and "some confusion [at the] beginning." Three additional comments said: "[Y]ou need discipline to do an online course since you can get easily distracted with other websites"(Asian male, age 22); "Having something to turn in and do every week, though stressful was helpful in learning the material" (Hispanic female, age 23); "Amount of work in a week's span felt more intense than an in-class lecture would" (Asian female, age 20).



## DISCUSSION

The present study attempted to answer five research questions in order to draw a broad picture of online learning in a high-impact general education course at an urban American university. The first question was whether participants felt that they gained knowledge by taking the online course, and the answer was affirmative regardless of their backgrounds when reflectively compared to the beginning of the course. The second question was how they perceived the effectiveness of online delivery of the course. Compared to a hypothetical in-class delivery of the same course, the participants expressed greater overall efficacy and thus preference for the online delivery. The answer was negative to the third question of whether their backgrounds made a difference in their perception of overall online learning experience. However, on the item of ease of taking quizzes in a hypothetical in-class environment, the younger students rated significantly lower than the older students, suggesting that the younger students would be more comfortable taking quizzes online. The answer was also negative to the fourth question of whether overall preference for online delivery was related to perceived knowledge gain. This result seems to indicate that student learning would occur regardless of the instructional mode (Blake & Delforge, 2004; Chenoweth, Jones, & Tucker, 2006; Means, Toyama, Murphy, Bakia, & Jones, 2009).

To answer the fifth question of whether there was a positive perception on any aspects of online learning experience specified in the questionnaire, this study found, regardless of participants' backgrounds, their strong preference for the online delivery on two items: ease of participation and self-reflection on learning. Moreover, these two aspects of online delivery were together related to all but one aspect of learning experience: ease of taking quizzes. Given that taking quizzes is a methodological (with or without technology) matter, it is understandable that this item was unrelated to ease of participation and self-reflection on learning. What is more significant is that ease of participation and self-reflection on learning were identified as the two strongest aspects of online delivery regardless of the participants' backgrounds; the more they participated in online discussions, and reflected on their own learning, the more they felt they were understanding the course material, and having a meaningful learning experience. Previous studies also reported "a tendency toward more equal participation" (Warschauer, 1996) and "conscious reflection" (Lamy & Goodfellow, 1999) as beneficial aspects of asynchronous online courses.

The participants' comments largely reflected these quantitative data. About quizzes, for example, ease was a positive comment made by many younger students, but some older students missed the deadlines due to their busy schedule or technical problems. Although the worst quiz score was dropped from grade calculations, apparently the strict deadlines required "discipline" and caused "stress," which might have caused students, particularly older ones who had a job or family obligation, to feel extra pressure when taking online quizzes. Perhaps longer than the provided 24-hour time frame should have been given to accommodate these students. Another area that should be improved is orientation on the first day of instruction. Because one class period (100 minutes) was dedicated to explain how to navigate Moodle and the assignments (including quizzes) and deadlines, as well as course goals, student learning outcomes, grading procedures, attendance and other policies, and netiquette, "some confusion" appears to have resulted, and those who were absent on the first day missed these explanations, even though the syllabus spelled out everything. Given the importance of orientation or "learner training" (Lai & Morrison, 2013), it would therefore be better to be videotaped, offered in a separate online tutorial, or extended to two class periods in the future.

As for positive comments, many participants felt it was easy to participate and submit assignments, and that they were able to interact with classmates, comment on others' postings, and see others' comments on their own postings. As evidenced in one student's comment, online discussion forums seem to have encouraged those who would speak less in class to participate. It is no wonder why ease of participation was quantitatively shown to be one of the strengths of this online course. Oddly, however, no one commented on self-reflection of learning, which was also one of the quantitatively identified strengths of the course. This might be due to the fact that participants were asked to comment on what were the most and least beneficial aspects of the online delivery of the course, and most participants said only one or two things about the technology (e.g., ease of participation, submission of assignments, and instant feedback). Self-reflection, which would not require use of technology, might not have come to their minds. Finally, one student's comment on the course content, saying that she "[knew] particularly nothing about language diversity prior to this class," seems to indicate that the retrospective pretest (i.e., reflective rating) accurately captured her perceived knowledge gain.

## CONCLUSION

Although the present study drew a broader picture of the effectiveness of an online course than previous studies, due to the small number of participants, it is not possible to make a generalization about online courses. A larger sample size is necessary, for example, to run four-way ANOVAs to additionally analyze the main effects of

participants' backgrounds as well as interactions between and among age, gender, and ethnicity. A more ethnically diverse sample is also needed, so that the data can be more applicable to increasingly diverse student populations in American colleges and universities. In addition, it is beneficial to investigate whether students' positive perception of online delivery is related to actual learning of the course materials, measured via traditional pretest and posttest (Hills & Betz, 2005). If it is unrelated, as it was with perceived knowledge gain in the present study, then knowledge gain can more definitely be said to occur regardless of mode of instruction. Furthermore, in order to further examine the exact effects of instructional modality on learning, outcomes of the same course taught in two different modes, online and in-class, should be compared.

Nonetheless, the findings of this study seem useful for future online course designers and takers. First, the participants' overall positive perception of knowledge gain and efficacy is good news for those who advocate online courses. Second, based on the results showing that ease of participation and self-reflection on learning are strengths of online delivery of the course, a recommendation can be made to ensure that future online courses stress these two aspects. Third, in order to ease online quiz taking practice, a suggestion can be made to future online course designers to further approximate online quizzes to in-class quizzes methodologically. It is the author's hope that future online courses, including MOOCs, will take advantage of the findings of this study and those studies suggested above.

## REFERENCES

- Allen, E., & Seaman, J. (2013). Changing courses: Ten years of tracking online education in the United States. Babson Questionnaire Research Group. Retrieved May 31, 2015, from <http://www.onlinelearningquestionnaire.com/reports/changingcourse/pdf>
- Blake, R. J., & Delforge, A. M. (2004). Language learning at a distance: Spanish without walls. In D. Hipple & I. Thompson (Eds.), *Selected papers from the 2004 NFLRC symposium: Distance education, distributed learning and language instruction*. Retrieved on June 18, 2015, from <http://nflrc.hawaii.edu/NetWorks/NW44/Blake.htm>
- Carey, K. (2015). *The End of College: Creating the Future of Learning and the University of Everywhere*. New York: Penguin Group.
- Chenoweth, N. A., Jones, C. M., & Tucker, G. R. (2006). Language online: Principles of design and methods of assessment. In R. P. Donaldson & M. A. Haggstrom (Eds.), *Changing language education through CALL* (pp. 147-167). New York: Routledge.
- Davis, G. A. (2003). Using a Retrospective Pre-Post Questionnaire to Determine Program Impact. *Journal of Extension*, 41(4). Retrieved August 25, 2014, from [www.joe.org](http://www.joe.org)
- Dennis, K., Bunkowski, L., & Eskey, M. (2007). The little engine that could – How to start the motor? Motivating the Online Student. *Insight: A Journal of Scholarly Teaching*, 2. Retrieved August 21, 2015, from <http://www.insightjournal.net/Volume2.htm>
- Dixon, R., Dixon, K. & Siragusa, L. (2007). Individuals' perceptions of online environments: What adult learners are telling us. In *ICT: Providing choices for learners and learning. Proceedings ascilite Singapore 2007*. Retrieved September 4, 2014, from <http://www.ascilite.org.au/conferences/singapore07/procs/dixon.pdf>
- Gibby, A. S. (2007). *Student perception of interaction in an online foreign language learning environment*. Doctoral dissertation. The University of Texas, Austin. Retrieved August 25, 2014, from [gibbya98987.pdf](http://www.gibbya98987.pdf)
- Heller, D. E. (2015). The end of college? Not so fast. *The Chronicle of Higher Education*, LXI(30), A64.
- Hill, L. G., & Betz, D. L. (2005). Revisiting the Retrospective Pretest. *American Journal of Evaluation*, 26, 501-517.
- Lai, C., & Morrison, B. (2013). Towards an agenda for learner preparation in technology-enhanced language learning environments. *CALICO Journal* 30(2), 154-162.
- Lamy, M.-N., & Goodfellow, R. (1999). "Reflective conversation" in the virtual Language classroom. *Language Learning & Technology* 2(2), 43-61.
- Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). *Evaluation of Evidence-Based Practices in Online Learning Studies*. Washington: U. S. Department of Education, Office of Planning, Evaluation, and Policy Development. Retrieved June 28, 2015, from <https://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf>
- Pratt, C. C., McGuigan, W. M., Katzev, A. R. (2000). Measuring program outcomes: Using retrospective pretest methodology. *American Journal of Evaluation*, 21(3). Retrieved May 29, 2015, from [aje.segepub.com](http://aje.segepub.com)
- Rockwell, S. K., & Kohn, H. (1989). Post-then-pre evaluation. *Journal of Extension*, 27(2). Retrieved May 29, 2015, from [joe.org](http://www.joe.org)
- Stevens, G. L., & Lodl, K. A. (1999). Community coalitions: Identifying changes in coalition members as a result of training. *Journal of Extension*, 37(2). Retrieved May 31, 2015, from [joe.org](http://www.joe.org)



Toyama, K. (2015). Why technology will never fix education. *The Chronicle of Higher Education*, LXI(37), A26-A27.

Warschauer, M. (1996). Comparing face-to-face and electronic discussion in the second language classroom. *CALICO Journal* 13(2), 7-26.

### **Appendix A** **Questionnaire on Knowledge Before and After the Course**

Please indicate your level of agreement with each statement BEFORE (10 weeks ago) and AFTER (now) completing this course using a six-point scale (1-strongly disagree [SD] and 6-strongly agree [SA]).

1. I know roughly how many languages are spoken in the U.S.

	SD	SA
a) AFTER (now)	1-----2-----3-----4-----5-----6	
b) BEFORE (10 weeks ago)	1-----2-----3-----4-----5-----6	

2. I know within how many generations immigrant communities typically shift entirely to English.

	SD	SA
a) AFTER (now)	1-----2-----3-----4-----5-----6	
b) BEFORE (10 weeks ago)	1-----2-----3-----4-----5-----6	

3. I know the extent to which Native-American languages are endangered.

	SD	SA
a) AFTER (now)	1-----2-----3-----4-----5-----6	
b) BEFORE (10 weeks ago)	1-----2-----3-----4-----5-----6	

4. I know since what century Spanish has been spoken in what is currently U.S. territory.

	SD	SA
a) AFTER (now)	1-----2-----3-----4-----5-----6	
b) BEFORE (10 weeks ago)	1-----2-----3-----4-----5-----6	

5. I know the characteristics of the three waves of Chinese immigrants to the U.S.

	SD	SA
a) AFTER (now)	1-----2-----3-----4-----5-----6	
b) BEFORE (10 weeks ago)	1-----2-----3-----4-----5-----6	

6. I know why the decline of non-English language use is particularly pronounced among Filipinos in the U.S.

	SD	SA
a) AFTER (now)	1-----2-----3-----4-----5-----6	
b) BEFORE (10 weeks ago)	1-----2-----3-----4-----5-----6	

7. I know what two geographical areas maintain the highest concentration of French speakers in the U.S. (despite sharp declines in the use of French in these places).

	SD	SA
a) AFTER (now)	1-----2-----3-----4-----5-----6	
b) BEFORE (10 weeks ago)	1-----2-----3-----4-----5-----6	

8. I know the circumstances under which the first wave of Vietnamese refugees came to the U.S.

	SD	SA
a) AFTER (now)	1-----2-----3-----4-----5-----6	
b) BEFORE (10 weeks ago)	1-----2-----3-----4-----5-----6	

9. I know what contributed to the loss of vitality of the German language in the U.S.

	SD	SA
a) AFTER (now)	1-----2-----3-----4-----5-----6	
b) BEFORE (10 weeks ago)	1-----2-----3-----4-----5-----6	

10. Other than pressure to switch to English, I know why maintenance of Korean is poor among the second generation.

	SD	SA
--	----	----

- a) AFTER (now) 1-----2-----3-----4-----5-----6  
b) BEFORE (10 weeks ago) 1-----2-----3-----4-----5-----6

11. I know why the majority of Russian-speaking immigrants do not live in an ethnic community.

- SD SA  
a) AFTER (now) 1-----2-----3-----4-----5-----6  
b) BEFORE (10 weeks ago) 1-----2-----3-----4-----5-----6

12. I know why many Italians shifted to English (instead of speaking Italian) in order to communicate with other Italians in the U.S.

- SD SA  
a) AFTER (now) 1-----2-----3-----4-----5-----6  
b) BEFORE (10 weeks ago) 1-----2-----3-----4-----5-----6

13. I know how the fact that Arabic is a *diglossic* language affects the maintenance of its dialects in the U.S.

- SD SA  
a) AFTER (now) 1-----2-----3-----4-----5-----6  
b) BEFORE (10 weeks ago) 1-----2-----3-----4-----5-----6

14. I know the characteristics of three Portuguese-speaking groups in the U.S.

- SD SA  
a) AFTER (now) 1-----2-----3-----4-----5-----6  
b) BEFORE (10 weeks ago) 1-----2-----3-----4-----5-----6

15. I know why Polish Saturday schools continue to thrive despite assimilation pressures.

- SD SA  
a) AFTER (now) 1-----2-----3-----4-----5-----6  
b) BEFORE (10 weeks ago) 1-----2-----3-----4-----5-----6

16. I know what societal multilingualism means.

- SD SA  
a) AFTER (now) 1-----2-----3-----4-----5-----6  
b) BEFORE (10 weeks ago) 1-----2-----3-----4-----5-----6

#### Appendix B

#### Questionnaire on Course Delivery and Background Information

Please indicate your level of agreement with each statement using a six-point scale (1-strongly disagree [SD] and 6-strongly agree [SA]) about (a) the online course that you have just completed, and (b) the same course delivered hypothetically in class, instead of online. Please add comments and bio data at the end of the questionnaire.

1. The course helped me learn the covered materials.

- SD SA  
a) ONLINE 1-----2-----3-----4-----5-----6  
b) IN CLASS 1-----2-----3-----4-----5-----6

2. It was easy to participate in discussions.

- SD SA  
a) ONLINE 1-----2-----3-----4-----5-----6  
b) IN CLASS 1-----2-----3-----4-----5-----6

3. It was easy to ask the instructor questions.

- SD SA  
a) ONLINE 1-----2-----3-----4-----5-----6  
b) IN CLASS 1-----2-----3-----4-----5-----6

4. It was easy to submit the assignments.

- SD SA  
a) ONLINE 1-----2-----3-----4-----5-----6  
b) IN CLASS 1-----2-----3-----4-----5-----6

5. It was easy to take the quizzes.

- |             |                                 |    |
|-------------|---------------------------------|----|
|             | SD                              | SA |
| a) ONLINE   | 1-----2-----3-----4-----5-----6 |    |
| b) IN CLASS | 1-----2-----3-----4-----5-----6 |    |

6. I received timely feedback on my work.

- |             |                                 |    |
|-------------|---------------------------------|----|
|             | SD                              | SA |
| a) ONLINE   | 1-----2-----3-----4-----5-----6 |    |
| b) IN CLASS | 1-----2-----3-----4-----5-----6 |    |

7. I was able to interact with classmates.

- |             |                                 |    |
|-------------|---------------------------------|----|
|             | SD                              | SA |
| a) ONLINE   | 1-----2-----3-----4-----5-----6 |    |
| b) IN CLASS | 1-----2-----3-----4-----5-----6 |    |

8. I was able to reflect on my own learning.

- |             |                                 |    |
|-------------|---------------------------------|----|
|             | SD                              | SA |
| a) ONLINE   | 1-----2-----3-----4-----5-----6 |    |
| b) IN CLASS | 1-----2-----3-----4-----5-----6 |    |

9. Overall I had a meaningful learning experience with the course.

- |             |                                 |    |
|-------------|---------------------------------|----|
|             | SD                              | SA |
| a) ONLINE   | 1-----2-----3-----4-----5-----6 |    |
| b) IN CLASS | 1-----2-----3-----4-----5-----6 |    |

10. Comments: Please mention what aspect of the online delivery of this course was most beneficial and least beneficial.

11. Background information/bio data

Male: \_\_\_\_\_ Female: \_\_\_\_\_  
Age: \_\_\_\_\_  
Race/ethnicity: \_\_\_\_\_