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Comparing Student Assessments and Perceptions of Online and Face-to-Face Versions of an Introductory Linguistics Course

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Abstract

This article examines the issue of whether linguistics is better suited for a face-to-face (F2F) environment than an online teaching environment. Specifically, it examines assessment scores and student perceptions of the effectiveness of an introductory linguistics course at an undergraduate state university that has been taught multiple times in both online and F2F modes. To study this issue data was collected about the types of students enrolled in either version of the course, including their GPAs and course grades. A survey with both closed- and open-ended questions was also used to ask students about their experiences and perceptions of the two environments. Students responded to questions on factors such as procrastination, engagement with socially sensitive discussion topics, preferences for discussion modality, and motivations for course enrollment. Results of the data problematize the notion that linguistics (and perhaps other disciplines) is equally suited for an online and F2F environment since students fare better academically and engage more with the F2F linguistics course. Results also show that students with higher GPAs gravitate toward F2F classes. Regarding the course itself, convenience is the primary category that students consistently noted as a reason for selecting the online linguistics course versus its F2F counterpart. Even so, results do show some effectiveness in treating linguistic content online. Suggestions and strategies are offered to further strengthen online delivery of linguistic material to overcome some of the structural hurdles presented by student enrollment patterns and (dis)engagement.

Introduction

When we first decided to teach introductory linguistics as an online course at our undergraduate institution, we were initially met with some incredulity. One colleague remarked, “Wait. Linguistics? . . . *Online?* Don’t you and your students need to, you know, make and analyze random sounds with your mouths? How’s that going to work?” Our colleague’s surprise at this endeavor is neither unusual nor unfounded. When we began to develop online and hybrid versions of the course, many humanities and

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social science courses had already been taught in online formats at our university for several years. But linguistics, up to that point, had been taught only as a face-to-face (F2F) course. We had no precedent to follow and we, too, had genuine concerns about how staples of the field, such as phonology and syntax, could be taught asynchronously, without a chalkboard, in a disembodied virtual space. Moreover, the lack of both precedent and acknowledgment of pedagogical approaches to linguistic content online within existing scholarship became apparent to us. To our knowledge, little has been published and researched about the efficacy and prudence of delivering introductory linguistics courses online.

Even if research and practice in the pedagogy of online linguistics has been somewhat slow to develop, online teaching has become a major mode of teaching in most universities today. Currently, over 30% of college undergraduates take part of their coursework online (Driscoll, Jicha, Hunt, Tichavky, & Thompson, 2012), and this number will surely continue to increase. There has been a growing body of research on online pedagogy, much of which centers on the ongoing debate concerning the quality of online versus F2F courses (Blake, 2009; Lancashire, 2009; Leong, 2010). Online courses deliver content that students can explore and learn, bolstered by video lectures and podcasts that can be replayed as needed; those students ask and answer questions with the instructor and one another that are archived for later reference in online forums; and students take both asynchronous self-assessments and instructor-graded assessments that help them evaluate their learning. Lancashire (2009) notes that online pedagogy might encourage a more thorough engagement with course content than F2F: “Extensive attendant online course materials—teacher commentaries, discussion-board entries, and chat room logs—ensure that students pay full attention to what a teacher says and can review every word uttered during a course up to the final examination” (p. 3). But as Helms (2014) has noted, very little empirical research has been done to compare the effectiveness of the same course delivered in both online and F2F formats within particular disciplines. Hence, it is not clear whether F2F and online courses are meeting the needs of similar student populations. It is not certain that asynchronous discussion achieves the sort of provocative back-and-forth that often arises during in-class debates. And most germane to the topic of this article, it is unknown whether certain disciplines—and subjects within disciplines—are better suited for one mode of delivery over another. For example, Blake (2009) notes that foreign language instructors have at times been hesitant to deliver courses online because second language learning depends on live conversation/interaction for refining cultural and grammatical acumen, especially for improving oral proficiency. But empirical research is needed to determine if such hesitation about online delivery of certain subjects is justified.

To study these issues, this article addresses three related questions that guided research on online delivery of course content at an undergraduate university. First, is the discipline of linguistics suitable to be taught online? Second, can student grades, both in the university generally and in linguistics courses specifically, reveal significant information about the types of students likely to enroll in F2F versus online versions of a course? And third, what are student perceptions of the effectiveness and approachability of an online version of a linguistics course and its F2F counterpart? To address these questions, this article first presents reflections on the unique aspects of linguistics that problematize its delivery in an online format. Quantitative data is then presented showing the distinctive academic profile, based on GPAs, of university students that took an online versus a F2F version of the same linguistics course when given a choice between the two formats. Additional data from student assessment scores are offered to illustrate differences in student performance in these supposedly identical versions of an introductory linguistics course. Next, survey data are presented that address student perceptions of the effectiveness of the online versus F2F versions of the course. The student survey data can and should be viewed in light of the general academic profile and performance of the students who self-selected one of the two delivery modes. Finally, after a discussion of these data, specific recommendations are offered to help linguistics instructors meet the specific difficulties and demands of teaching linguistics online.

Literature Review

Research on online teaching often compares online with F2F courses (Driscoll et al., 2012; Helms, 2014; Logan, Augustyniak, & Reese, 2002; Summers, Waigandt, & Whittaker, 2005) as well as offers advice about “best practices” (Clark-Ibáñez & Scott, 2008). Most of these studies seemingly confirm Russell’s (1999) postulate that there is “no significant difference” between online and F2F classes. Russell (1999) has an impressive list of research to support his position that there are no significant differences between modes of delivery. Summarizing the findings of a U.S. Department of Education (USDOE) meta-analysis of various course delivery modes, Helms (2014) writes the following: “Interestingly then, it appears that, if done ‘correctly,’ the online delivery modality can provide the same (or at least not significantly different) learning environment/opportunity as the F2F (traditional) modality” (p. 147). Even so, Helms’s own research on F2F versus online versions of an undergraduate psychology course finds significant differences in student performance in these modes. Online psychology students were much more likely to have lower GPAs and lower course grades than their F2F peers.

In regard to assessment of students in these different modes, some researchers have noted that assessment conditions were similar in the online and F2F versions of a statistics course they studied (Summers et al., 2005). Other researchers, however, examined a course where the assessment tools were similar, but testing conditions were very different. When asked about the testing conditions within these courses, Driscoll (personal communication, April 9, 2013) noted that online students were allowed to use their textbooks during testing while F2F students were not. Cluskey, Ehlen, and Raiborn (2011) found that in a range of courses, students often cheat when allowed to take online exams with no sort of proctoring system. Students in F2F courses typically have proctors and little to no access to the Internet or other outside sources during exams. Thus, testing conditions among different modes of delivery can vary considerably.

Previous studies of courses in F2F and online environments have addressed not only assessment, but also the manner of delivery of course content in multiple disciplines. Logan et al. (2002), Summers et al. (2005), Smart and Cappel (2006), and Driscoll et al. (2012) examined purportedly identical online and F2F courses in the fields of library science, statistics, business, and sociology, respectively. The online courses in each discipline relied on lectures that these scholars generally assumed to be identical to those in equivalent F2F courses. But even though both online and F2F courses can employ lectures, it should be noted that a recorded lecture in an online course is not the same as a F2F lecture. An important difference is the mode of delivery: Online lectures can differ widely in form, using different technologies—for example, RealAudio for Logan et al. versus PowerPoint for Driscoll et al. Online instructors may also choose to present themselves visually (using programs like Panopto) or provide only their disembodied voice as a narrator walking students through visual presentations of course material. In terms of advantages, Driscoll et al. note that students’ ability to review lectures, an unlikely possibility in the F2F classroom, is a major benefit of online learning.

One particular area of concern among researchers and practitioners of online pedagogy has been student engagement. When comparing F2F and online students, one variable that has been addressed in prior studies has been the tendency to procrastinate. Elvers, Polzella, and Graetz (2003), for example, generally find no consistent differences in psychology students’ procrastination in F2F and online versions of the same course, though they do identify a negative correlation between performance on assessments and tendency to procrastinate only for the online students. To combat disengagement and maintain enrollment in online courses across the curriculum, multiple scholars have argued that instructors must employ strategies for increasing student interaction and providing a sense of community, especially for courses that are difficult to teach online (Clark-Ibáñez & Scott, 2008; Gaytan & McEwen, 2007; Tschudi, Hipple, & Chun, 2009).

Even though online scholarship has often acknowledged the need to adapt pedagogical strategies in online course offerings to increase student engagement, most previous studies of courses offered in

both online and F2F formats have argued in support of Russell's (1999) postulate. Taken together, these comparative studies of delivery modes have formed a near consensus that there are no significant differences in the content or delivery of that content to students in these different learning environments. Even though comparisons of student attitudes toward online and F2F versions of the same course have been largely underexamined, even these rare studies have tended to confirm Russell's research. For example, Elvers et al. (2003) found no significant differences in student attitudes toward the effectiveness of online and F2F versions of a psychology class, and Driscoll et al. (2012) found no significant difference in reports of student satisfaction with online and F2F versions of a sociology class. While some small challenges to Russell's "no significant differences" postulate are offered by scholars, it should be noted that the potential indistinguishability and effectiveness of F2F versus online delivery has remained untested in a variety of disciplines, including linguistics.

While each academic discipline has unique challenges associated with delivering its content in an online modality, linguistics has several particularly challenging obstacles. For instance, units on phonetics and phonology require hands-on learning—literally—with students feeling their throats when producing voiced versus unvoiced phonemes. Equally problematic are units on syntax, which often require an extraordinary amount of back-and-forth in the classroom, with the drawing of diagrams and constituency trees. Thus, the technical challenges of teaching particular subfields of linguistics demand a scholarly examination of the effectiveness of online and F2F treatment of linguistic material. Unfortunately, most scholarship on linguistics pedagogy at the university level has thus far been focused on F2F classroom techniques. While limited in scope, such research has outlined productive strategies for increasing student learning and engagement: For example, Durian, Papke, and Sampson (2009) discuss effective ways to integrate sociolinguistic analysis into activities and discussion; Curzan (2013) describes methods for integrating linguistics into courses for teachers who are training to enter K-12 language arts education; and Lasnik (2013) reviews strategies for maintaining student participation when discussing syntax in graduate courses. But to our knowledge, no research has been published about the efficacy and pedagogical soundness of delivering introductory linguistics courses online. To extend scholarship on linguistics pedagogy into considerations of the teaching of linguistics in online environments, this paper offers both data and practical suggestions. In short, we aim to answer the following: First, is the discipline of linguistics suitable to be taught online? Second, can student grades reveal significant information about the types of students likely to enroll in F2F versus online versions of a course? And third, what are student perceptions of the effectiveness and approachability of an online version of a linguistics course?

In addressing these questions, the present study of an undergraduate linguistics course adds to existing scholarship on online and F2F learning in several important ways. From a survey of relevant studies, it is clear that many social sciences—such as psychology and sociology, but not linguistics—have been represented in prior research comparing online and F2F versions of the same course. And while many studies of linguistics pedagogy have been conducted, they have been focused on the F2F classroom. For some reason, research on online linguistics courses, and how those courses might compare to F2F ones, has not been a primary focus in existing scholarship. Many prior studies of F2F versus online courses have examined one-term course offerings for comparison, with relatively small student populations. Our study spans multiple terms in which both F2F and online versions of a course were offered, providing relatively large samples of students whose assessment scores ($N = 315$) and survey responses ($N = 136$) can be split into F2F and online subgroups and compared with one another. Because we examine a model in which students self-select their delivery modality rather than being randomly assigned to it—that is, during the period of study, students at our university had the option of taking either the F2F or online versions of the class each term—the results can be compared to similar nonrandomized studies to explore student motivations for enrollment and their *ex post facto* reflections on the experience. And finally, prior studies of F2F and online versions of a course do not typically examine student perceptions or, if they do, tend to look only at course evaluations. The present study expands the investigation of student perceptions of modality by surveying student attitudes and motivations for taking

online versus F2F versions of the same course, including topics such as procrastination, convenience, and technical difficulty of course material.

Method

In order to compare an online versus a F2F linguistics course, the following methodology was used. The focus of research was Introduction to Language and Linguistics, an undergraduate course individually taught by the authors at a large state university in the southeastern United States. It is one of several courses that fulfill a linguistics requirement for English majors, though it is a required course for all English Education majors. While the F2F and online versions of the course necessarily differ in method of delivery (e.g., the use of F2F PowerPoint lectures versus Camtasia lectures in the online version), they are alike in their content, pacing, and goals. Each version devotes identical allotments of time to the same subfields of linguistics, including phonology, morphology, syntax, language acquisition, and sociolinguistics. And both F2F and online versions use a mixture of lecture and class discussion to strengthen students' knowledge of grammar, in both Standard English and nonstandard dialects.

First, a profile of the type of student who would take the online versus F2F version of this introductory linguistics course was studied by examining the GPAs for students in each subgroup: online students versus F2F students. Five consecutive semesters were examined (fall 2011–spring 2013) and a total of 317 GPAs were averaged: 167 in online sections and 150 in F2F sections. There were two sections offered each semester and students could choose which course they wanted. If they chose the online course they also had to pay an extra \$300 in fees for computer-related support. The GPAs were collected from an instructor-accessible university database during fall 2013, even though the courses were offered in various semesters. In other words, the GPAs represent all the university coursework taken by students, both before taking the introductory linguistics course and afterward. A comparison of GPAs, of course, is not sufficient evidence to fully characterize student profiles; however, it does provide insight into the types of students who were likely to select which modality they preferred when offered two versions of the same course within the same term.

One concern about the data collection of GPAs via this method was that the five online courses and five F2F courses were taught by two different faculty members. It is thus possible that students selected their courses based on the reputation of the professors and not whether the courses were online or F2F offerings. So a second comparison was done. This explored the GPAs in online versus F2F sections for students in sections taught by the same professor. Since the same instructor did not teach both F2F and online sections during the same terms, this comparison was necessarily conducted over different periods of time (F2F: spring 2008–summer 2009; online: fall 2011–spring 2013). This second comparison examined the GPAs of 167 students in online sections and 164 in F2F sections.

Second, an examination of the performance of these students was carried out by comparing assessment scores on course material: midterm exams, final exams, and final course grades. In both the online and F2F versions of the course offered by the same professor, the assessments were a midterm exam that covered introductory material on prescriptive and descriptive grammar, neurolinguistics, sociolinguistics, phonetics, and phonology. The final exam covered second language acquisition, syntax and morphology. The final course grade included these two exams, quizzes and homework.

Third, an electronic student survey was developed and sent to 264 students (with 136 students responding) in fall 2013. All students who were enrolled in one of the F2F or online versions of the course in the periods listed above (and who had available, functioning university e-mail addresses) were invited to participate. There was a 52% response rate. Response rates for online and F2F students were similar: 48.5% of respondents enrolled in the online version of the course and 51.5% took the F2F version. The survey was approved by IRB before dissemination with each student giving his or her consent before answering specific course-related questions. The first set of questions dealt with demographics (gender, age, major course of study and number of online courses taken). The next set of questions asked students about their general experiences with online versus F2F classes, especially in

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terms of their perceptions of the effectiveness of the modes of delivery. Finally, students were asked a series of questions about their experiences in their linguistics course; variables such as procrastination, engagement with class discussions, and motivations for course enrollment were explored for both subgroups of students.

Whenever possible the questions for F2F and online sections were kept identical in the survey to allow for statistical comparisons between subgroup responses. But due to the differing nature of course delivery some questions were necessarily adapted for different subgroups of survey respondents. For example, when asking F2F students why they chose the F2F version rather than an online class, we included the following option: “I do not like the idea of paying \$300 for an online class, so I took it face-to-face.” Since lower course fees could serve as an impetus for enrollment only for the F2F students, this question was posed only to those students who identified as enrollees in the F2F course. While methodologically necessary, the occasional differentiation in the questions posed to each subgroup limited the possibility of statistical analysis for those items. Even so, the differing questions allowed the researchers to fine-tune the survey analysis in the hopes of unearthing noteworthy distinctions in the attitudes of face-to-face and online linguistics students. All tests of statistical significance on quantitative data were calculated with SPSS software. A difference in means or medians was considered significant if the p -value was less than .05 ($\alpha = .05$).

To compare the survey data from open-ended responses of F2F and online students, we categorized student comments according to themes that were salient in the surveys: convenience, difficulty of material, interaction, organization, resistance to online classes, and content review. As Patton (1990) and Huberman and Miles (1994) note, analysis of survey data begins with grouping answers from different people to common questions. These groupings then become themes with which to organize the data. Looking for common themes ensured that consistent and somewhat generalizable trends emerged during analysis.

Results

Comparisons of GPAs and Test Scores

There is a noticeable difference in the type of student who takes online versus F2F sections of linguistics. The data from five semesters of linguistics courses shows students enrolled in F2F courses had, on average, GPAs that were 0.312 higher than those of their peers who enrolled in the online version of the course. An equal variances t test demonstrated that there is a statistically significant difference in the mean GPA of online ($M = 2.802$, $SD = .702$) and F2F ($M = 3.114$, $SD = .593$) students enrolled in linguistics classes taught during the same terms, $t(315) = 4.25$, $p < .001$, $d = 0.48$. Table 1 shows the average GPAs of students in each term and overall within each mode of delivery. In each semester, the average GPA for the online students was lower than the average for the F2F students. F2F student GPAs were consistently higher than online student GPAs, and the average disparity in each term ranged from 0.255 to 0.424 points.

Table 1 Comparison of GPA: Students Who Took Online vs. F2F Course, Same Semester, Different Instructors

	Online	No. of students		F2F	No. of students	Difference GPA
Fall 2011	2.974	$n = 34$		3.303	$n = 34$	0.329
Spring 2012	2.805	$n = 38$		3.230	$n = 36$	0.424
Summer 2012	2.948	$n = 27$		3.315	$n = 10$	0.367
Fall 2012	2.712	$n = 35$		3.016	$n = 35$	0.304
Spring 2013	2.598	$n = 33$		2.853	$n = 35$	0.255
Average GPA	2.802	$N = 167$		3.114	$N = 150$	
Average difference	0.312					

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As mentioned above, in order to account for any influence from the professor instead of the online versus F2F modality, a second comparison of GPAs was conducted. In this comparison all courses were taught by the same professor. Table 2 represents two pools of students taught by the same faculty member over consecutive semesters, though the periods of online and F2F instruction were not overlapping when controlling for the instructor. Even so, the same pattern emerges: online linguistics courses attract students with lower GPAs.

Table 2 Comparison of GPAs of Students Who Took the Online vs. F2F Section of an Introductory Linguistics Course, Same Instructor but Different Semesters

	Average GPA	No. of students
Fall 2011–spring 2013: Online sections	2.802	<i>N</i> = 167
Spring 2008–summer 2009: F2F sections	3.212	<i>N</i> = 164
Average difference	0.410	

The difference in GPAs for online and F2F students, roughly 0.410, is again noteworthy. An equal variances *t* test demonstrated that there is a statistically significant difference in the mean GPA of online ($M = 2.802$, $SD = .702$) and F2F ($M = 3.212$, $SD = .641$) students enrolled in linguistics classes taught by the same instructor, $t(329) = 5.54$, $p < .001$, $d = 0.61$.

In addition to student profiles based on GPAs, a comparison of assessment scores was completed to analyze how the students performed in the two classes. In Table 3, data is presented on three different assessments in nine different courses (five online and four F2F, one of which was a double section) from various semesters. Student scores were included in this comparison only if at least one of the assessments was fully attempted; final grades from students who enrolled in the course but failed to complete at least one exam were excluded from the analysis. A comparison of student grades confirms what Urtel (2008) and Keramidas (2012) have indicated in their studies of other disciplines: Students tend to perform better on assessments in a F2F class.

Table 3 Comparison of Exam and Final Course Grades of an Introductory Linguistics Course Given Online and F2F

Number of online students, fall 2011–spring 2013	Mid-term exam mean	Final exam mean	Final grade mean		Number of F2F students, spring 2008–summer 2009	Mid-term exam mean	Final exam mean	Final grade mean
<i>N</i> = 146	79.47	69.29	72.26		<i>N</i> = 159	88.91	79.80	84.29

T tests revealed statistically significant differences in the means of F2F and online scores based on all three measures listed in Table 3: midterm exam averages (online $SD = 18.866$, F2F $SD = 10.307$), $t(220) = 5.35$, $p < .001$, $d = 0.62$; final exam averages (online $SD = 24.347$, F2F $SD = 16.238$), $t(249) = 4.39$, $p < .001$, $d = 0.51$; and final grade averages (online $SD = 21.630$, F2F $SD = 11.992$), $t(222) = 5.93$, $p < .001$, $d = 0.69$.

What is particularly noteworthy is the final course average. There was approximately a 12 percentage-point difference between the online and F2F classes. Put in other terms, the class average for online courses was a C, while the class average for F2F courses was a B. It should also be noted that all exams for the online courses were open-book and open-note but were timed. Exams in the F2F classes were closed-book and timed. And the exams were similar in both types of classes; in fact, exams in both formats used many of the same questions.

Responses to Closed-Ended Survey Questions

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In addition to an examination of GPAs and exam scores, a survey was conducted to compare student perceptions of the two courses. The first section of the survey investigated demographics and general experiences with online courses. Demographic results included the following:

- 82% of respondents were female, both in the F2F and online versions of the course.
- 55% were of traditional college age (18–24 years old). 21% were 25–30 years old, 17% were 31–40, and almost 8% were 41 years old or older.
- 99% were English or English Education majors.
- 89% of respondents had taken at least one online course during their university studies.

Before conducting the survey, it was hypothesized that English Education majors would be more likely to enroll in the F2F version of the course so that they could observe examples of grammar instruction within a physical classroom space. It was unclear whether other demographic variables, such as the gender or age of a student, would impact the student’s desire to enroll in one version of the course or another. Interestingly, chi-square tests of independence failed to reveal statistically reliable differences in the likelihood of enrollment in F2F or online versions of the course based on gender, $\chi^2(1, n = 129) = .001, p = .980, phi = -.002$, or on major, $\chi^2(1, n = 104) = 1.186, p = .276, phi = .107$. Similarly, age did not turn out to be a significant factor in traditional (18–24 years old) versus nontraditional students’ choice of format, $\chi^2(1, n = 130) = .246, p = .620, phi = -.044$. Students over the age of 30 were more likely to enroll in the online course, and students under 30 were more likely to enroll in the F2F version. But a chi-square test also failed to show a significant difference in these enrollment patterns, $\chi^2(1, n = 130) = 2.024, p = .155, phi = -.125$. In other words, while overall GPA and assessment performance were likely to differ for F2F and online students in linguistics courses, the demographic variables investigated among survey respondents did not correlate with their enrollments in either mode of delivery.

The survey had two questions regarding online courses in general. These questions were answered by both F2F and online students. The survey questions were the following:

- I am more likely to engage with class material in an online environment than in a F2F environment.
- When it comes to class discussions, which do you prefer: traditional in-class discussions, or online discussions using bulletin boards or programs like VoiceThread?

Results for these two questions are given in Table 4 and Table 5, respectively.

Table 4 *I am more likely to engage with class material in an online environment than in a F2F environment.*

Likert scale value (answer choice)	Number of online respondents	Number of F2F respondents	Total number of respondents
5 (Strongly agree)	4	1	5
4 (Agree)	10	3	13
3 (Neither agree nor disagree)	24	6	30
2 (Disagree)	19	15	34
1 (Strongly disagree)	6	36	42
I have never taken an online course.	0	6	6

Table 5 *When it comes to class discussions, which do you prefer: Traditional in-class discussions, or online discussions using bulletin boards or programs like VoiceThread?*

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Answer choices	No. online respondents	No. F2F respondents	Total no. respondents
In-class discussions	30	60	90
Online discussions	22	6	28
I have no preference	11	1	12

Regarding the data in Table 4, a Mann-Whitney test indicated that agreement with the statement “I am more likely to engage with class material in an online environment than in a F2F environment” was, perhaps unsurprisingly, significantly greater for online students (*Mdn* = 3, *Neither agree nor disagree*) than for F2F students (*Mdn* = 1, *Strongly disagree*), $U = 785.5$, $p < .001$, $r = .53$. But there was a sharp contrast in the intensity of response: 59% of F2F students strongly disagreed with the statement, while only 6% of online students strongly agreed with it.

For Table 5, a chi-square test of independence showed a statistically significant difference in the responses of online and F2F students indicating their preferences for discussion format, $\chi^2(2, n = 130) = 27.38$, $p < .001$, $V = .459$. Of the F2F respondents, 90% indicated a preference for traditional in-class discussions, while only 35% of online respondents preferred online discussion. In fact, a plurality of online students (48%) reported that they preferred traditional in-class discussions.

Exploring student attitudes towards discussion more deeply, a later portion of the survey asked each subgroup the following question: “ENGL 3035 [Introduction to Language and Linguistics] covers some sensitive topics, such as the relationship between race and dialects. Did you feel more comfortable discussing these topics because it was a[n] [face-to-face or online, depending on respondent’s chosen mode of delivery] class?” We speculated that given some sociolinguistic topics of discussion, including African-American English versus Standard English, students might be more willing to engage with such sensitive topics in the online class given its relatively more anonymous nature. But neither subgroup felt more comfortable in class discussion because of the chosen modality. Majorities of both F2F (68%) and online (57%) students answered “No” or “The online format did not affect my comfort level with discussing sensitive topics.” Furthermore, a chi-square test of independence failed to reveal a statistically significant difference in the responses of online and F2F students to this question, $\chi^2(1, n = 128) = 1.75$, $p = .186$, $\phi = .117$.

To determine whether online and F2F students differed in their perceptions of engagement in the course, the survey posed the following prompt to each subgroup of students: “When taking ENGL 3035, I felt like I was part of an engaged community of student scholars.” Each student was asked to provide a statement of agreement or disagreement on a 5-point Likert scale, ranging from 5 (*Strongly agree*) to 1 (*Strongly disagree*). A Mann-Whitney test revealed a statistically significant difference in the responses of F2F and online students, $U = 1019$, $p < .001$, $r = .46$: F2F students had a mean response of 4.46 and median of 5, whereas online students had a mean response of 3.48 and median of 4. In other words, F2F students showed more intense feelings of engagement and belonging to an academic community than did their online peers.

To explore perceptions of engagement further, all students were asked about their tendency to procrastinate with the following question: “Are you more likely to procrastinate in a face-to-face class or an online class?” As previously mentioned, 89% of all respondents had taken at least one previous online course, so most students had had some experience with online courses and could answer this based on their previous experience. Out of the 130 respondents to this question, 8% responded that they were unsure about their likelihood to procrastinate in either format, and 4% responded that they could not state a preference because they had never taken an online course. A chi-square test of independence revealed a statistically significant difference in the responses of F2F and online students when reporting their likelihood to procrastinate in either modality, $\chi^2(3, n = 130) = 9.458$, $p = .024$, $V = .270$. Approximately 63% of F2F students responded that they were more likely to procrastinate in an online class, while only

37% of online students responded that they were more likely to procrastinate in an online class. More interestingly, 41% of online students—a plurality of online respondents—said they were equally likely to procrastinate in either modality, compared to 22% of F2F students who said they were equally likely to procrastinate in either modality.

The survey also inquired about reasons for taking the online class versus the F2F class. But since the questions asked of each subgroup contained necessary but slightly different wording, responses could not be compared directly for statistical analysis. Even so, 71% of online students reported that convenience or scheduling was the primary reason for taking the class in an online format. Only 3% of the online students reported that they learn better in this environment. Of the F2F students, 85% responded that one reason they opted for the F2F section was that they learn better in a F2F environment. These responses dealing with preferences were elaborated upon in the open-ended questions and survey results discussed below.

Responses to Open-Ended Survey Questions

Finally, the survey asked for written comments. The question for the online and F2F subgroups was similar: *Please provide any comments about taking the course in an online (F2F) format rather than a F2F (online) format.* There were 31 comments from online students. After examining the comments, five themes emerged. Most students' comments contained more than one of these themes:

- **Convenience**
 - Nine respondents (29%) commented on the convenience of taking an online class.
- **Difficult Material**
 - Nine respondents (29%) commented on the fact that linguistics had difficult material, with eight of these students ultimately claiming linguistics material is inherently too difficult for an online format.
- **Interaction**
 - Thirteen respondents (42%) commented on interaction. Four students preferred the online interaction because they are shy students or because of the sensitive nature of the topics. Nine students commented that they would have preferred F2F interaction.
- **Organization**
 - Fourteen respondents (45%) commented on the fact that the instructor's organization of schedule and course materials was a key factor in a successful online course.
- **Review**
 - Five respondents (16%) commented that the ability to review recorded lectures was a benefit of the online format.

A major theme of the comments from online students centered around the notion of *interaction* with the professor and peers. Interaction was also related to the theme of difficult material. Of the students who commented on interaction, most desired interaction with the professor (and not classmates) so as to have their content questions answered more quickly. Also prevalent were comments that mentioned that the convenience of an online format was central to students' decision to take and remain in the course. One student noted that the convenience of the online format positively impacted the learning experience: "I could take it at my leisure and listen to the lectures in the comfort of my home at any time of the day. If I wanted to go back and listen to a lecture before an assessment, I had the opportunity. I didn't have to depend on my note-taking skills like I would have in a lecture class." However, most convenience-themed comments from students focused on convenience in terms of flexible scheduling rather than the beneficial effects of the online format on learning of course content.

There were 39 comments from F2F students. After examining the comments, three themes emerged. Most students' comments contained more than one of these themes:

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- **Interaction**
 - Twenty-seven respondents (69%) commented on the need for interaction with the professor and classmates to learn the material and also process both technical and provocative aspects of the course. They did not believe that knowledge of such technical material could be achieved without significant interaction with the professor, and they were skeptical that such necessary interaction could be accomplished online.
- **Difficult Material**
 - Twenty-four respondents (62%) commented on the technical nature of the material and that they did not understand how such material could possibly be presented online.
- **Resistance to Online Mode**
 - Twenty respondents (52%) commented on a hesitancy to take online courses and the fact that only certain subjects could conceivably be taught online. They thought linguistics should not be one of those courses. Indeed, there seemed to be an inherent bias against online courses in general from many F2F students, either due to a previous bad experience with an online class or due to general distrust of online learning (even if a student reported no prior experience with online classes).

A clear pattern emerged in the data from the F2F students. Twenty-seven of the 39 comments dealt specifically with the essentialness of interaction, both with the professor and fellow students. Equally prevalent were comments that acknowledged that students felt the material was too difficult to be covered online. A representative comment from one student emphasized the importance of F2F interaction with the instructor, especially regarding difficult technical material in the course, such as phonology: “For a course like linguistics, I think it is vital to be able to be in a face to face environment. We’re learning not only pronunciation (which to me means you need to be able to see the mouth shape), but we need to have the professor there to hear us to let us know if we’re doing it right/wrong. I have taken online courses with video and I feel as though I didn’t learn as much b/c there was not the immediate interaction between teacher/student and student/student.”

Discussion

Data Analysis and Implications

Overall, the preceding presentation of GPA, assessment, and survey data from students enrolled in an online or F2F version of an introductory college course in linguistics raises several salient points. The first is that, at least in this study, students who are more likely to succeed academically are more likely to enroll in the F2F course and shy away from the online version of the course. Students with lower GPAs tend to opt for the online course and, once enrolled, tend to fare worse on exams and overall course grades than their F2F peers. These data from linguistics courses corroborate studies of students in online versus F2F courses in other disciplines, such as sociology (Driscoll et al., 2012) and psychology (Helms, 2014), which have also found that online students tend to have lower GPAs and perform worse on assessments in online versions of a course than F2F ones. We tend to agree with the reasoning of Driscoll et al. (2012) that the observed lower assessment scores in online classes may be explained by the types of students most likely to enroll in them, rather than the format itself: “Student aptitude is the most important predictor of student performance, and it is only the increased presence of stronger students in the F2F sections of the course that creates the appearance of the online classroom being a less effective learning environment” (p. 321). Our quantitative research cannot explain why students with lower GPAs are more likely to sign up for the online versions of linguistics courses at our university, but the survey results suggest that convenience of course scheduling and access to course content is a driving force for those opting for the online version over the F2F one. Clearly, more research in other academic disciplines is necessary in order to more fully characterize the relationship between GPAs and students’ motivations for choosing online delivery over F2F delivery of the same course.

One factor that does not seem to strongly influence the enrollment or ultimate success of students in the online versus F2F introductory linguistics class is the age of students. First, while the present study

contains a large percentage of non-traditional-age students, as mentioned above, there was no statistical significance in the reported age of a survey respondent and his or her likelihood of enrolling in F2F or online versions of the course. Second, previous researchers have found that older learners tend to earn higher class grades in online classes (Dabbagh, 2007; Wojciechowski & Palmer, 2005) and that older learners spend more time on posting, reading messages, and accessing the course site (Ke & Kwak, 2013; Ke & Xie, 2009). One possible conclusion is that older learners are more intrinsically motivated and self-directed, which are “two critical learner characteristics required by the online learning environment” (Fe & Kwak, 2013, p. 44). So, while older students may have more demands on their time due to jobs and family obligations, we do not conclude from the data that the overall lower performance of online students is attributable to age. Even so, scholars should explore courses in a wider variety of disciplines to more deeply examine the relationship between demographic characteristics, such as age and other variables, such as motivation for enrollment, and success in online classes.

Elvers et al. (2003) analyze procrastination as an extrinsic factor; they explore whether the online modality impacts a student’s likelihood to procrastinate. In recommending directions for future research, Helms (2014) advises scholars to examine procrastination as an intrinsic “trait-based” factor that might influence one’s selection of an online or F2F course. The survey data in this study did show a significant difference in F2F and online students’ self-perceptions regarding their tendency to procrastinate in either modality. F2F students are much more likely to adopt the extrinsic view that enrollment in an online course will increase their tendency to procrastinate. A plurality of online students, however, reported that neither format influenced their tendency to procrastinate. These data may suggest that fear of extrinsic causes of procrastination may impact course selection for some students, but also that many other students may perceive their own procrastination to be less dependent on external factors, such as method of course delivery. In any case, it must be remembered that such survey data reveal student self-perceptions rather than objective measures of procrastination in a course. Further research is needed to examine whether or not extrinsic and intrinsic motivations for procrastination differ for online and F2F students.

Furthermore, survey data of students in both courses revealed that the decision to enroll in an online or F2F course was driven by several factors beyond academic performance and motivation. Principal among these is the desire for interaction and engagement. Both the online and F2F students felt as though significant and more meaningful interaction with course material, classmates, and the professor is inherently lacking in an online format. Online students reported that convenience and scheduling were primary factors in their decision to enroll, and even they tended to mention that F2F classes offered better opportunities to interact and engage with course material. Indeed, classroom interaction and participation are integral to good teaching, and research cites interaction and participation as key to effective learning and retention of material. Hull and Saxon (2009) provide an extensive catalogue of research on computer-mediated higher education and conclude that a “consensus among theorists, researchers, and practitioners of educational technology and distance education is that interactivity is a critical variable in learning” (p. 627). Fortunately, technology is constantly improving, and these improvements may provide increasing opportunities for more meaningful interaction in online courses.

Emerging technology allows for various sorts of interaction that many survey participants in this study note is lacking in online formats, and, most significantly, it allows students who are naturally prohibited from participating in a F2F class to do so in an online—and thus less threatening—environment (Summers et al., 2005; Clark-Ibáñez & Scott, 2008). Pointing to online discussion boards as a particular safe haven for students, Tschudi et al. (2009) summarize many of the advantages of online discussion forums. Yet they also acknowledge that the asynchronous nature of online courses, with students often separated from one another by time and space, has the potential to create “a lack of a sense of community [which] may lead to learner disconnection, dissatisfaction, and dropout” (p. 124). The present study of students’ perceptions of interaction in linguistics courses corroborates this notion that students are more likely to feel disconnected in an online course than its F2F counterpart. While interaction is one theme that was prevalent in our data for online students, we suggest that future and more in-depth qualitative research examine how this theme—as well as the other themes of convenience, difficult material, organization, and ability to review course material—influence students’ decision to

select online sections. Also valuable would be an exploration of how these themes, as corroborated by future surveys, affect ultimate student success in linguistics and other technical classes.

While interaction and convenience were major themes for online students, other factors led F2F students to take linguistics in the F2F format. Students commented that the material is too technical for online learning, that it requires hands-on attention, and that it necessitates a back-and-forth exchange in a classroom environment. It is true that online students learned the linguistics material in the online classes, though assessment data showed a lower success rate for online students than their F2F peers. It may be the case that successful performance in an online course requires extra initiative and more external motivation than in a F2F equivalent. In short, linguistic content can be learned effectively by online students, but such learning requires more dedication on the part of students and more initiative on the part of instructors to create opportunities for engaged learning.

Suggestions for Teaching Linguistics in Online Environments

It is undeniable that there were several factors influencing student choice about modality: extra tuition, limited choice of sections open for enrollment, and preconceived notions about online courses. The data presented here show that students acknowledge that online courses can cover the material, but students question whether such coverage in an online format can simulate an interactive and personal engagement with fellow students and the professor with a subject matter that is challenging and provocative. Language is at the heart of the human experience. It is technical, personal, and -according to the perceptions of many students- best discussed in person. Yet there are ways to mitigate the perceived disconnectedness of an online linguistics course: a few of these strategies are highlighted below.

One area of linguistics that encourages interactivity and critical thinking in both F2F and online contexts is dialect analysis. Curzan (2013) provides examples of successful exercises in her own college courses: such as analysis of nonstandard American dialects that encourage future K-12 teachers to think critically about linguistic diversity (pp. e4–e5). These exercises promote “challenging discussions that do not necessarily get sparked just from a reading but benefit from the catalyst of face-to-face conversation” (p. e8). Durian et al. (2009) have shown how analysis of regional variation, such as the data presented in the Linguistic Atlas of the Middle and South Atlantic States (LAMSAS), helps students in F2F classrooms learn how to create generalizations from sometimes very messy data (pp. 231–232). This sort of F2F activity can be adapted to online courses via the use of discussion boards to increase the interaction that survey respondents in this study indicated was a necessity in their learning of linguistic content. Students can work together to analyze dialect patterns in publicly accessible websites, such as LAMSAS (<http://us.english.uga.edu/lamsas/de-maps/>) or the American Dialect Survey (<http://www4.uwm.edu/FLL/linguistics/dialect/maps.html>).

So how can the promotion of dialect equality be achieved in the online classroom, especially in light of online students feeling disconnected from their professors and classmates as indicated in the survey? Recall that 90% of F2F students and 48% of online students in this study prefer “regular in-class discussions to online discussion.” To mirror the sort of interactive and immediate discussion that happens in a F2F class, we suggest that instructors develop activities based on the work of Dennis Preston (2011), who uses blank maps of the United States to elicit responses from people about where “correct” or “pleasant” English is spoken. Such activities require students to negotiate the meaning of Standard English itself, as advocated by Curzan (2009): Who speaks the standard, and who, exactly, decides what is or isn’t standard in the first place? Students in online courses can easily use software such as VoiceThread to articulate their views and interact online on these questions and debate with one another about the role of Standard English in American society. While some of the immediacy of a live discussion may be lost, it is, nonetheless, a viable equivalent.

Some students have commented that F2F discussions can become uncomfortable when such social topics as ethnicity, dialect and “proper” forms of language are debated. For example, in an anonymous course evaluation for one of our F2F classes, a student described his or her reservations about discussing African-American English (AAE): “I didn’t like the exercise of sitting in a circle and openly

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discussing black vernacular. I felt like no matter what I said, black ppl [people] in the class were getting offended, and the forum made me feel very uncomfortable.” The quantitative results of the present study did not show that F2F or online students perceived either modality to be more appropriate for discussing socially sensitive topics. Even so, it is possible that an online forum might encourage more discussion of such topics than a F2F classroom because online students are often more anonymous than their F2F peers: The race, gender and age of an online student may be less apparent than they would be in a F2F classroom. Moreover, online instructors can take more time to formally correct erroneous or socially insensitive comments from students, codifying such corrections in writing on discussion boards or site announcements. The chance for students to discuss their intuitive knowledge about sociolinguistics with experts through asynchronous discussions can clarify or rectify students’ views on critical sociolinguistic concepts.

A prevalent theme in the survey was that linguistics material is too technical to treat in an online class. This concern, coupled with the fact that students with lower GPAs tend to opt for online classes, makes it necessary to have material and activities that explain these technical aspects as clearly and engagingly as possible. Lasnik (2013) has found that interactive class participation is a key element of the successful teaching of syntax; he provides a number of specific suggestions for guiding students through productive questions and answers in F2F exchanges (pp. e15–e16). By using software such as Flash, online instructors can achieve a significant amount of interactivity with syntax, which is a necessity for this technical aspect of the course. While the interactivity is not the same as in F2F courses, there is still a significant amount of dynamism to be found in such applications. Some sample screen shots from publicly available online syntax tutorials (http://avts.kennesaw.edu/projects/st/syntaxTrees_Ex1.html) are given in Figure 1 and Figure 2:

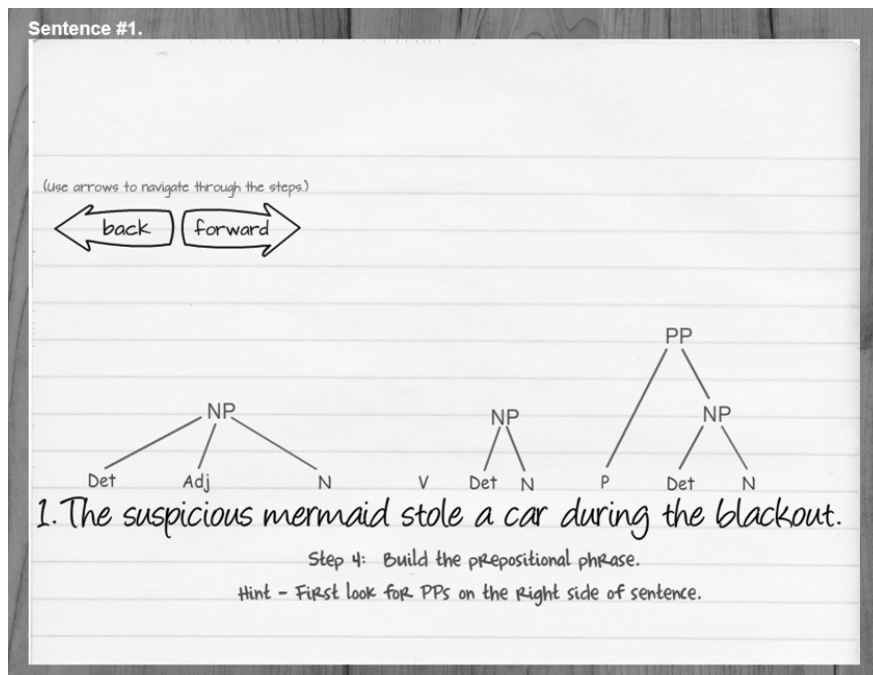


Figure 1. Syntax tree tutorial, early stage of drawing.

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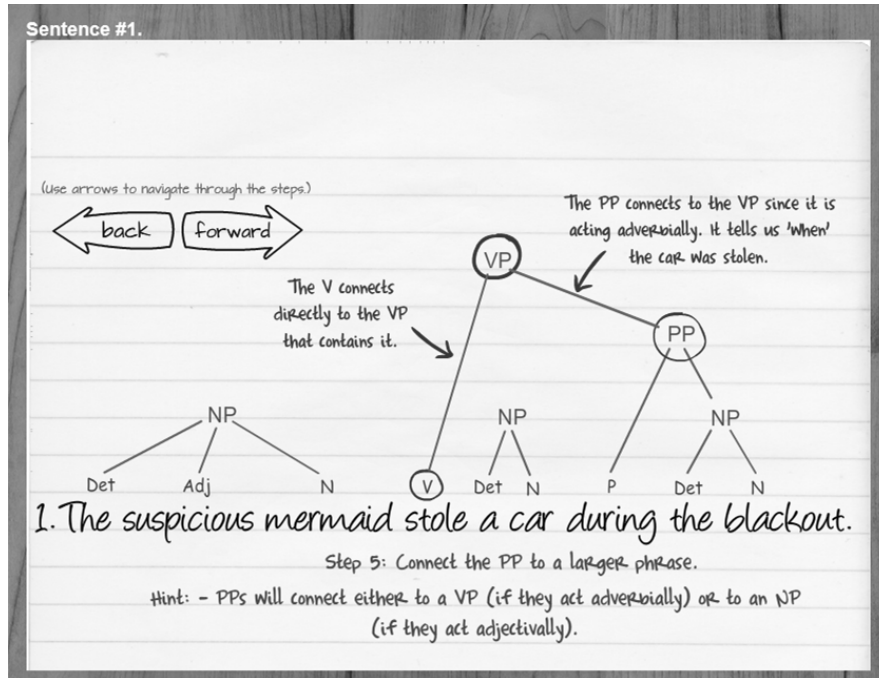


Figure 2. Syntax tree tutorial, later stage of drawing.

In one sense, these tutorials developed out of practical necessity: Instructors needed to devise a way to show syntax trees as an analytical process and to teach students how to show modification and complementation in a graphic form. But this software can serve as more than a supplement to lecture. For classes with student populations that have advanced skills in software such as Flash, or even in programs such as PowerPoint or Microsoft Paint, participants can be tasked to work independently or collaboratively to create their own digital syntax trees. Even though this approach to syntax may lack some of the dynamic spontaneity of a F2F dialogue, the online tutorials with related practice exercises help students focus on the logical sequence of steps that characterize syntactic inquiry—to trace how words form phrases, phrases form clauses, and clauses form sentences. More empirical research is needed to evaluate the pedagogical effectiveness of such activities in online linguistics courses, but student comments such as the following hint at their efficacy: “The online trees tutorial was extremely helpful. I think other tutorials would also be beneficial because they helped to reinforce or add to my notes.”

These are but a few examples of ways to increase interaction with material and classmates in an online linguistics course. Data collected from students indicate that it is incumbent on professors to think of ways to increase this interaction and explain difficult material well so as to more closely mirror the sorts of interactions achieved in F2F linguistic courses.

Conclusion and Future Research

The present study of student assessment and perceptions in online and F2F versions of an introductory linguistics course offers the following conclusions:

- The F2F and online versions of introductory linguistics should be considered distinct courses, primarily because the student populations likely to enroll in each version differs significantly, and the perceptions of those enrolled differ significantly.
- Variables such as gender, age, and major focus (English vs. English Education) did not seem to influence students' decisions to enroll in either mode of delivery. But students with lower GPAs were more likely to opt for the online course. And once enrolled, online students tended to fare significantly worse on course assessments than their F2F peers.

- F2F students were more likely to feel engaged with course material than were online students, especially in terms of contributing to class discussion and feeling like part of a scholarly community.
- F2F students felt that they were more likely to procrastinate in online courses. Online students, however, were more likely to report that the type of course format would not impact their tendency to procrastinate.
- Using current and developing technologies, instructors in online linguistics courses must devise and implement more interactive exercises that help students remain engaged with the highly technical content of the discipline. And more empirical research must be conducted to evaluate the effectiveness of such activities for different student populations.
- More research is needed to evaluate the effectiveness of online delivery of other linguistics courses. It is quite possible that the results observed in the present study depend as much on the introductory nature of the course as on the difficulty of linguistic content in general. In other words, perhaps GPAs, assessment scores, and student perceptions in an advanced online course might differ markedly from those in an introductory course.

While the data presented in this study reflect the findings of previous studies suggesting some major similarities between F2F and online iterations of the same course, it is unwise to conclude that there are no significant differences in these modes of delivery—at least when student success and student perceptions of courses in both formats are compared. In particular, survey data from both types of courses have shown that students in linguistics certainly don't perceive these courses to be identical options. What's more, it is clear that instructors must recognize and anticipate these differences in modes of delivery, and differences in the populations most likely to enroll in these modes, in order to better engage students with linguistic material at the undergraduate level.

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