Linguistically Inclusive TESOL Course Design and Its Effect on Pre-Service Teacher Education

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Abstract

Lack of linguistic awareness prevents teachers from catering to English learners. This study proposed a new linguistically inclusive course and compared pre-service teacher knowledge of the linguistic features of five frequently spoken languages in the course versus standard courses. Odds of a correct answer on linguistic questions increased significantly in 28% of the areas tested. The inclusive course showed increased linguistic awareness compared to standard courses.

Keywords

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Introduction

The role of linguistics in the United States' education system is seldom stressed even though English has become a lingua franca. Without the need to learn about other languages, pre-service teachers often enter occupations with little linguistics knowledge, a concept described as "linguistic hegemony" where preservice teachers have little knowledge of basic linguistic features of the most frequently spoken world languages (Rodriguez-Mojica et al., 2019), which poses a problem for meeting the academic needs of English learners (ELs). Knowledge of English alone does not make a teacher an expert in English teaching, and sociocultural elements in a teachers' background impact how students are taught (Rodriguez-Mojica et al., 2009). Linguistic awareness, in the context of this study, means understanding of languages and linguistic concepts as well as how the language of another influences learning, perspectives, and actions.

The idea that preservice teachers in the US schools lack sufficient knowledge about language is research-supported. A study regarding metalinguistic awareness explored the knowledge of pre-service teachers in identifying English errors. English errors in nine of fourteen parts of speech were identified correctly in less than 70% of participants tested (Schoonmaker & Purmensky, 2019). Fielding-Barnsley and Purdie (2005) surveyed 340 participants made up of pre-service and current teachers and found similar problems in pre-service grammar knowledge. The participants in the study (Fielding-Barnsley & Purdie, 2005) successfully identified errors such as the number of syllables in a word, however they were unable to identify the actual term "syllable". The term "syllable," for example, was only identified correctly by 46% of participants when provided the definition (Fielding-Barnsley and Purdie, 2005). There were gaps in pre-service teachers' knowledge of linguistic features of world languages as well. A study about linguistic awareness found that only 50% of participating teacher candidates could correctly answer the questions in six out of twenty-five linguistic areas tested (Thibaut & McLaughlin, 2020). Thibaut & McLaughlin's study also found that out of the twenty-five linguistics areas tested, only three showed significant increases in the number of correct responses by the end of the semester (2020).

Research data supports the claim that teachers lack sufficient linguistic training. Lindahl surveyed 116 pre-service teachers' perception of language development and found the pre-service teachers were frustrated with not having sufficient information (2018). Participants also felt that their English knowledge did not sufficiently cover what was necessary to understand language (Lindahl, 2018). Finding a way to tackle language skills of pre-service teachers is clearly necessary. Despite adopting undergraduate curricula applying skills in TESOL training, instructors of TESOL courses for pre-service teachers show negative perception of pre-service teacher preparation. In one study with ten educational institutions, 74% of instructors indicated that education faculty were unprepared to use EL education strategies in their courses (De Jong et al., 2018). The question remains how EL teaching strategies can be better implemented.

Without understanding languages, providing corrective feedback for students to improve in English is stifled. In one study, two hundred seventy-five learners of Arabic were asked to interpret corrective feedback; the study showed that the instructor's feedback was interpreted correctly only 33% of the times there was a syntactical error (Mackey et al., 2007). There were worse results with morphological errors, 40% of the time indicating a correct response, and phonological errors, 18% of the time indicating a correct response (Mackey et al., 2007). Without the ability to provide such feedback, teachers are limited in how they can assist their EL

learners and they may cause their students frustration. Providing the linguistic knowledge to understand both why a student makes a mistake and why something is considered correct in English may limit this problem. Differentiating instruction, a necessity when teaching ELs, also becomes problematic without linguistic knowledge. Universal Design Learning (UDL) stresses the importance of modified curriculum being accessible for all learners including ELs (Rice Doran, 2015). Without knowledge of specific linguistic challenges associated with ELs' acquisition of the English language, modifying curricula becomes difficult.

Linguistically inclusive courses for the purpose of this study means intentionally adding linguistics, grammar, and language information to instruction and applying the information to TESOL teaching strategies. In this study, a linguistically inclusive course was designed to promote critical thinking, apply TESOL material, and further linguistic awareness. We hope to measure linguistic awareness of inservice teachers in a TESOL course and compare how the modified course achieves its goals versus the standard course examined in past studies (Thibaut & McLaughlin, 2020). We also hope to determine if the developed course has consistent effects across multiple semesters to assess its consistency and legitimacy.

Materials and Methods

Two objectives were explored in this study: course design and course evaluation. Implementation of a linguistically inclusive course necessitates construction of course changes outlining linguistic feature topics and TESOL terminology. Once created, this design is used in learning situations to apply the material; the design is described in the following sections as a reference. The course is divided into two parts: the required course content and linguistic features topics.

The TESOL course in this study was sixteen weeks long and consisted of a focus on instructional materials, assessment, and application. A multi-faceted approach to designing a new course including linguistic instruction applied to TESOL concepts was necessary. The material for the undergraduate TESOL course is based the book by Nutta et al. (2014). Assignments from the original course were kept intact with additional key terms and concepts. Service learning in TESOL courses has been shown to be effective and therefore also remained the same (Garver et al., 2018; Macknish, 2018; Schneider, 2019).

Supplementary terminology is in Table 1. This list of key terms provided instructors with a model of how topics can be introduced alongside the standard TESOL course. Definitions for the supplementary terminology were retrieved from various sources (Bussmann et. al.,1996; American TESOL Institute, 2006; NCELA, 2006; Salmon, 2008; Nutta et al., 2014; Kamusella, 2018; TESOL International Association, 2019; Justia, 2019; US Department of Education, 2019). Quiz content came from book material, assignments, and key terms and was infused with linguistic information.

To confirm information accuracy, many resources were consulted. Information regarding Spanish and Mandarin Chinese was mostly found in grammar textbooks and language research (Bradley & Mackenzie, 2004; Ross & Ma, 2006; Fausey and Boroditsky, 2011; Lyovin et. al., 2017). For Vietnamese and Arabic, research of specific grammatical elements as well as textbook information was used substantially (Thompson, 1987; Ngo, 2006; Shaqra, 2007; Pham & Kohnert, 2009; Lyovin et al., 2017; Nguyen & Dutta 2017; McEnery et al., 2019). To introduce the basic linguistic features of Haitian Creole, a holistic approach comparing it with French was used (Valdman, 1988; Coffman Crocker, 2009).

Table 1

Unit 1, Unit 2, and Unit 3: Supplementary Terminology for Each Week

Week	Supplementary Terminology
	Unit 1
1	EL, ESL, EFL, ESOL, LEP, L1, L2, Basic Interpersonal Communicative Skills (BICS), Cognitive Academic Language Proficiency (CALP), orthography
2	Beginning Level of Oral Language Proficiency, Intermediate Level of Oral Language Proficiency, Advanced Level of Oral Language Proficiency, SLIDE, TREAD, TPR, Code-switching, interference, interlanguage, overgeneralization
3	Languages of the USA, Plessy v Ferguson, Meyer v Nebraska, Brown v Board of Education of Topeka, ESEA, Lau v Nicholas, EEOA, Castañeda v Pickard, Plyler v Doe, NCLB, ESSA
	Unit 2
5	Phoneme, phonology, diphthong, IPA, syllable, cognates, faux amis, homonymy, intonation, acquisition
6	Linguistic register, collocation, concordance, corpus, denotation, connotation, comprehensible input, syntax, semantics, morphology
7	Sapir-Whorf Hypothesis (Linguistic Relativity), prescriptivism, culturally responsive instruction, slang, idiom, pidgin, creole, polysemous words, Pluricentric language, monocentric language
	Unit 3
9	Language family, etymology, dialect, haplology, ellipsis, analytic language, synthetic language, circumlocution (periphrasis), lexicon
10	Cases, direct object, indirect object, articles, grammatical number, superlatives, grammatical gender, classifiers, animacy, clusivity
11	Conjugation, active/passive voice, tense, aspect, mood, modal verbs, negation, transitive/intransitive verbs, copula
12	Lingua franca, BASIC English, additive/subtractive bilingualism, bilingual education, culture shock, acculturation, endangered and dead languages, plagiarism, immersion

Pre-service teachers were provided a description of each language based on the topic, supplemental terminology, and course-required content. The resources and citations for information were supplied with online course content including the supplemental terminology and examples comparing the world languages to English. The linguistic topics covered in Units 1, 2, and 3 can be found in Appendix A.

For this study, one undergraduate TESOL course for pre-service teachers was examined. 62 of the 100 pre-service teachers enrolled in the course completed surveys and chose to participate. Participants completed an online survey both at the beginning and the end of the course. Due to COVID-19, only one semester of survey data was available. Two semesters of quiz data were collected: during the second semester, 100 pre-service teachers completed the quizzes but did not take a survey. The survey consisted of five sections: Spanish, Mandarin Chinese, Vietnamese, Haitian Creole, and Arabic. These languages were chosen to make the results comparable to a pre-service teachers' linguistic awareness study conducted previously (Thibaut & McLaughlin, 2020). The surveys from the Thibaut & McLaughlin study were used with permission (2020).

Survey responses were analyzed using three approaches. First, an analysis comparing the correct versus incorrect responses on individual questions was examined. This was used to find how responses differed for everyone by the end of the course. Second, a measurement of the number of questions out of the twenty-five that each participant correctly answered provided an

overall grade that could be compared. Finally, comparing the overall grade at the end of the linguistic TESOL course versus a previous study's standard TESOL course without added linguistic awareness information provided a control to measure the difference between courses.

A McNemar's test was used to compare study participant correct and incorrect responses at the start versus end of the semester. Identifiers approved by an IRB were used for data, linking responses to measure change over time. The data was binomial and linked: answers were either correct or incorrect (binomial) and participants provide an identifier to link start and end data (Fagerland et al., 2014). Four groups were counted: group 1 are those who answer correctly both at the start and end, group 2 are participants who answer correctly at the start but are incorrect at the end, group 3 are participants who answer incorrectly at both the start and end, and group 4 are participants who answer incorrectly at the start but correctly at the end of the semester. This shows which areas improved due to the course.

The second approach analyzed the percentage of questions teach participant answered correctly at the start versus the end of the semester. This analysis used both a frequentist dependent-samples t-test and a Bayesian paired-samples t-test to analyze how linguistic awareness changed over the semester: this limits problems with p-value misinterpretation (Wasserstein & Lazar, 2016). Cohen's d measured effect size: interpretation of it was low- 0.2, medium- 0.5, and large effect size- 0.8 (Cohen, 1988).

Another approach compared the linguistically inclusive course semester and the standard course semester. This analysis used both an independent-samples t-test and a Bayesian independent samples t-test. To compare data with the course without the linguistically inclusive additions, access to secondary research data in an online data repository was requested and approved by an IRB. No repository data and data published in the Thibaut & McLaughlin study (2020) was reported again in this current study. Comparison of these two semesters helped determine how the linguistically inclusive course performed.

Interpretation of Bayes factors and *p*-values was based on Held & Ott's (2018) interpretation levels. Interpretation of Cohen's d was based on original effect size interpretation (Durlak, 2009). Uninformed Bayesian priors and a random walk Metropolis Markov Chain Monte Carlo method were used. An alpha value of 0.05 for *p*-value interpretation was applied.

Participants also completed quizzes at the end of each unit. Quiz scores helped determine if pre-service teachers were able to identify TESOL terminology and the linguistic features of the five specific world languages. Scores were gathered and grade distribution was analyzed. Quizzes had ten questions applying the linguistic topics for each unit to both the supplemental terminology and standard TESOL course concepts. Quizzes taken by the participants were graded and grade distribution across two semesters was examined. COVID-19 occurred during the second semester of quiz implementation which forced coursework to go fully online. Examining the differences in grades across the two studied semesters helped determine if the linguistically inclusive course works online, if COVID-19 seriously changed linguistic feature quiz results, and whether the course was consistent with results. Grade data from these quizzes provided more numerical evidence to determine if pre-service teachers understand linguistics in context of TESOL. Due to COVID-19, all three course units were expedited to be completed before the class transitioned to fully online: weeks 1-9 instead of 12 weeks.

Results

Figure 1 has McNemar's test results indicating counts and groups listed by color for the 62 participants. The four categories are based on whether a participant had the correct response at the start of the semester as well as whether that same participant then had a correct or incorrect response at the end of the semester. This is based on the same survey used in Thibaut & McLaughlin's previous study (2020).
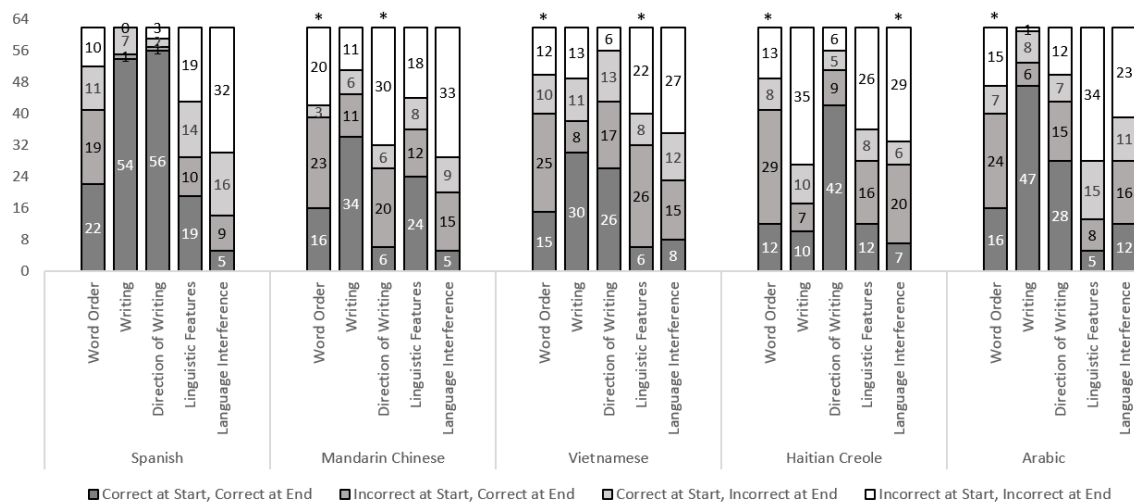
Figure 1
Counts associated with McNemar's Test

Table 2 explores the results of Figure 1 through odds ratios (OR), their associated 95% confidence intervals (CI), and *p*-values from the McNemar's test. The odds of getting a correct answer on word order questions at the conclusion of the linguistically inclusive course are 4.01 times the odds, 95% CI [1.89, 8.51], *p*= <0.001 of getting a correct answer on Mandarin Chinese word order at the start of the semester, 2.82 times the odds, 95% CI [1.36, 5.86], *p*= 0.017 of getting a correct answer on Vietnamese word order at the start of the semester, 4.31 times the odds, 95% CI [2.02, 9.15], *p*= 0.001 of getting a correct answer on Haitian Creole word order at the start of the semester, and 14.04 times the odds, 95% CI [3.33, 59.3], *p*= 0.003 of getting a correct answer on Arabic word order at the start of the semester. The odds of getting a correct answer regarding word order in four out of five of the languages surveyed were much higher for students who had completed the linguistically inclusive course versus those at the start of the semester.

Table 2
Odds Ratios and Significance

Language	Word Order		Writing		Direction of Writing		Linguistic Features		Language Interference	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Spanish	1.8	[0.87, 3.74]	0.13	[0.02, 1.08]	0.79	[0.2, 3.08]	0.75	[0.37, 1.51]	0.58	[0.26, 1.29]
Mandarin Chinese	4.01*	[1.89, 8.51]	1.46	[0.68, 3.12]	3.1*	[1.38, 6.95]	1.3	[0.64, 2.64]	1.63	[0.73, 3.63]
Vietnamese	2.82*	[1.36, 5.86]	0.77	[0.37, 1.62]	1.28	[0.6, 2.71]	3.66*	[1.68, 7.95]	1.31	[0.62, 2.75]
Haitian Creole	4.31*	[2.02, 9.15]	0.83	[0.38, 1.8]	1.74	[0.72, 4.2]	1.69	[0.81, 3.51]	2.85*	[1.29, 6.29]
Arabic	14.04*	[3.33, 59.3]	0.75	[0.26, 2.16]	1.68	[0.8, 3.53]	0.54	[0.24, 1.23]	1.48	[0.72, 3.03]

The odds of getting a correct answer at the end of the linguistically inclusive course versus the start of the course are 3.1 times higher (CI [1.38, 6.95], p= 0.009) for Mandarin Chinese direction of writing, 3.66 times higher (CI [1.68, 7.95], p= 0.017) for Vietnamese linguistic features, and 2.85 times higher (CI [0.72, 3.03], p= 0.003) for Haitian Creole language interference. Four of the other five languages in these categories did not show values indicative of a major change. Writing specifically had no odds ratio indicative of a change. Spanish had no change in in any of the categories studied.

Descriptive statistics from comparing the linguistically inclusive course start versus end results are listed in Table 3. Data from the end of the standard course was accessed with permission from past research and re-examined to compare the overall grade for survey participants (Thibaut & McLaughlin, 2020). The number of pre-service teachers enrolled in the standard course (N= 56) was less than the number of pre-service teachers enrolled in the linguistically inclusive course (N= 62).

Table 3
Descriptive Statistics

	N	Mean	SD	SE	Mean Difference
Semester with Linguistically Inclusive Course Versus Semester with Standard Course					
End of Linguistically Inclusive Course	62	56.92	19.091	2.444	11.632
End of Standard Course	56	45.29	13.302	1.778	
Start versus End of Linguistically Inclusive Course Semester					
Start of Linguistically Inclusive Course Semester	62	47.34	12.695	1.625	9.574
End of Linguistically Inclusive Course Semester	62	56.92	19.091	2.444	

Table 4 explains results of independent samples tests and dependent samples tests.

Table 4
Frequentist and Bayesian Statistical Results

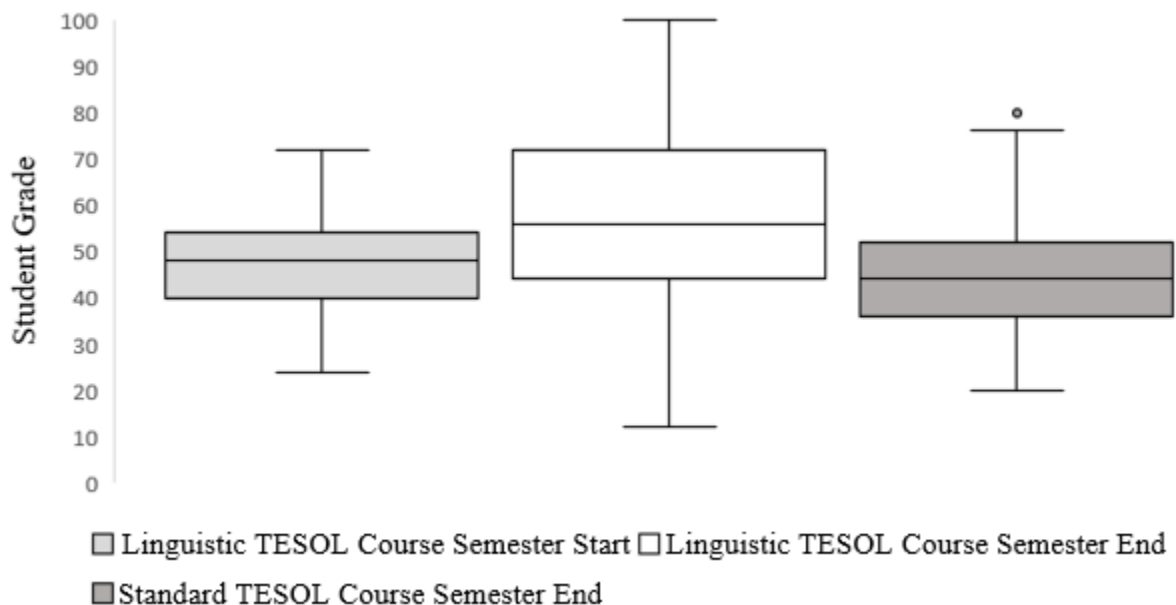|	Frequentist Statistics					Bayesian Statistics			Effect Size		
				95% CI			95% CrI			95% CI	
Semesters	t-value	df	p-value	Upper	Lower	BF_{10}	Upper	Lower	Cohen's d	Upper	Lower
Start v. End of Linguistically Inclusive Course	4.14	60	<0.001*	4.949	14.198	166.7	4.87	14.28	0.591	0.227	0.952
End of Linguistically Inclusive Course v. End of Standard Course	3.79	116	<0.001*	5.556	17.709	90.9	5.59	17.67	0.707	0.331	1.080

Comparing the start versus the end of the linguistically inclusive course semester, participants performed better on linguistics questions after completing the linguistically inclusive course, starting with a lower average grade on linguistics questions (M= 47.34, SD= 12.695) versus the end of the course (M= 56.92, SD= 19.091) with a mean difference of 9.574, 95% CI [4.949, 14.198], t(60)= 4.14, p= <0.001. The Bayes factor BF_{10} was found. A BF_{10} of 166.7, CrI [4.87, 14.28], was found when comparing the start data versus end data of the linguistically inclusive course. Both statistical tests report a significant change in participants' linguistics awareness, with the BF_{10} of 166.7 providing 166.7 times the evidence towards the course leading

to a change in participants' awareness versus the course not causing any difference. With a Cohen's d of d=0.591, 95% CI [0.227, 0.952], there is a medium effect size, providing even more support (Cohen, 1988).

Comparing the end of the linguistically inclusive TESOL course versus the standard course showed a significant difference in the participants' linguistic awareness in independent samples t-tests and Bayesian independent samples tests. Pre-service teachers performed better on questions after completing the linguistically inclusive course, with standard course participants showing lower average grades (M= 45.29) compared to the grades at the start of the linguistically inclusive course (M= 56.92) with a mean difference of 11.632, 95% CI [5.556, 17.709], $t(116)=$ 3.79, $p=$ <0.001. Bayesian statistics support this as well, with $BF_{10}=$ 90.9, CrI [5.59, 17.67]. There is very strong support that there is a difference between the scores. Cohen's d similarly indicates a medium effect size with d= 0.707, 95% CI [0.331, 1.080]. Figure 2 helps to visualize these results in a box-and-whisker plot.

Figure 2
Box and Whisker Plot Comparing the Linguistically Inclusive Course and the Standard Course

☐ Linguistic TESOL Course Semester Start ☐ Linguistic TESOL Course Semester End
☐ Standard TESOL Course Semester End

Average quiz score data was collected for semester 1 (the semester which implemented the proposed linguistically inclusive course), and semester 2 (the linguistically inclusive course implemented during COVID-19, covered in 9 weeks rather than 12).

Table 5 shows the percentage of students who got grades from A through F as well as the average score of the class. Note that semester 2 consistently had worse performance compared to semester 1.

Table 5
Average Grades on Quizzes for Each Semester

Variable	Unit 1 Quiz		Unit 2 Quiz		Unit 3 Quiz	
	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2
A grade (90-100%)	100%	55.30%	19.23%	21.18%	78.85%	47.07%
B grade (80-89%)	0%	14.12%	33.65%	12.94%	12.5%	16.47%
C grade (70-79%)	0%	18.82%	14.42%	14.12%	8.65%	17.64%
D grade (60-69%)	0%	9.41%	20.19%	15.29%	0%	7.06%
F grade (0-59%)	0%	2.35%	12.51%	36.47%	0%	11.76%
Average Class Grade	100%	84.35%	71.54%	65.41%	91.73%	80.82%

Due to the data violating equal variance and normality assumptions, non-parametric Mann-Whitney U tests were conducted. Results of this in Table 6 show that pre-service teachers in the COVID-19 semester (semester 2) produced worse scores in all three quizzes.

Table 6
Mann-Whitney U Tests Comparing of Each Semester

Semester	Median	Sample Size	U	p-value	Effect Size (Rank Biserial Correlation)	95% Confidence Interval	
						Lower	Upper
				Quiz 1			
Semester 1	100	104	1456.0	<0.001*	0.667	0.565	0.750
Semester 2	90	85					
				Quiz 2			
Semester 1	80	104	5221.0	0.020*	0.195	0.031	0.349
Semester 2	60	85					
				Quiz 3			
Semester 1	90	104	5826.5	<0.001*	0.318	0.162	0.459
Semester 2	80	85					

Discussion

Data gathered indicates promising results for increasing pre-service teachers' linguistic awareness with a need for further improvement. Looking into individual survey questions regarding five of the most frequently spoken world languages, there were few questions that have over half of participants indicating the correct response by the end of the semester. This matches the troubling results of a previous study (Thibaut & McLaughlin, 2020), which had nineteen rather than fifteen. However, the linguistically inclusive course showed promise. Seven of the twenty-five linguistic areas surveyed showed big increases in odds of getting a correct response. The odds of getting a correct response were higher after completing the linguistically inclusive course for word order of Mandarin Chinese (OR= 4.01), Vietnamese (OR= 2.82) Haitian Creole (OR= 4.31), and Arabic (OR= 14.04). The odds of a correct response were also higher questions about the direction of writing in Mandarin Chinese (OR= 3.1), linguistic features of Vietnamese (OR= 3.66), and linguistic interference questions in Haitian Creole (OR= 2.85) after completing the linguistically inclusive course.

These findings suggest word order awareness improved consistently in four of the five languages examined. Other areas also improved. Direction of writing showed higher percent of

correct responses regarding only Mandarin Chinese. Linguistic feature awareness changed significantly only for Vietnamese, and language interference questions had a big increase in correct responses only for Haitian Creole. Reasons may be that the survey questions influenced responses, the teaching favored certain languages, or guidance was insufficiently provided to pre-service teachers.

Comparing overall scores by the end of the semester when the linguistically inclusive course was implemented shows the percentage of correct answers out of the twenty-five questions at the start versus the end of the semester changed greatly. With a mean grade improving by 9.574% with a 95% CI [4.949, 14.198], p-value= <0.001, BF_{10}= 166.7, CrI [4.87, 14.28], instructors can expect a 4.87% to 14.28% increase in linguistic awareness. Though only seven of the twenty-five linguistic areas showed greater odds of getting a correct response through implementing this course, the average increase in pre-service teacher linguistic awareness improved as a whole. Unfortunately, the average score on the questions at the end of the linguistically inclusive course was 56.92%, which is still far from ideal.

To conclude that the course was the actual cause of the improvement, the linguistically inclusive course participants were compared to a control group with standard a course. The average score out of the twenty-five linguistic questions was a 45.29% at the end of the standard course versus 56.92% at the end of the linguistically inclusive course. This 11.63% increase, CI [5.556, 17.709], p= <0.001, and BF_{10}= 90.9, CrI [5.59, 17.67], was a big change, but given the large number of failures, more adjustments are necessary.

The average class score on the linguistic feature quizzes showed worse results during the COVID-19 semester likely due to condensing the 12-week course into 9-weeks. The instructor condensed, rather than removed, information. In any case, Mann-Whitney U results show there is consistently better results when linguistically inclusive course is implemented over 12 weeks rather than a condensed 9-week period, providing evidence that the original 12-week course is preferable. Unfortunately, COVID-19 introduced many confounding variables which makes interpretation difficult. Additional factors may have also played a role such as the low number of semesters performing the study, the quality and content included and excluded from the course, and the delivery method of the course. As only one instructor participated, the teaching method of the instructor may have influenced the ultimate findings.

Conclusion

This study hoped to create a linguistically inclusive course and to test its viability in increasing linguistic awareness. Through the multiple statistical approaches examining pre-service teacher linguistic awareness, this study concludes that the linguistically inclusive course is more effective at promoting linguistic awareness in some minor ways. Pre-service teachers gained knowledge of specific linguistic concepts, though there are still problems in applying linguistic knowledge to TESOL scenarios and knowing more complex linguistic concepts. The odds of having a correct response increased in seven out of twenty-five areas surveyed. The average score determined by the percent of linguistic questions answered correctly showed overall large improvement in linguistic awareness by 9.574%. Pre-service teachers' average score on linguistic features quizzes was 11.632% lower when implementing standard compared to linguistically inclusive courses.

Regardless of the increase in linguistic awareness, this study reaffirms previous study findings from Thibaut & McLaughlin (2020) that pre-service teachers lack adequate knowledge

of linguistic features of commonly spoken languages of ELs in the USA. Even with the implementation of the linguistically inclusive course, the average survey score was 56.92%; this is unacceptable. Without understanding basic features of a language, providing feedback is hampered, individualizing education to meet academic needs of ELs is a challenge, and understanding of the language error origin is difficult.

 While this course has made improvements, more changes are needed. Pre-service teachers in the course provided feedback desiring a clearer linkage between teaching ELs and linguistics and felt that if a more active-learning approach was used, better understanding of linguistic concepts could be achieved. The instructor echoed this sentiment. Recommendations for improvement include active learning choose-your-own adventure scenarios, role-play games, and sharing of real scenarios of linguistics and TESOL from service-learning. Better designing the delivery of the course and the testing to be active learning focused like this may be one way to improve pre-service teacher linguistic awareness in the future.

 Quiz results show that the twelve-week design was more effective than the nine-week course. Due to COVID-19, determining efficacy of the quizzes is difficult. Instructors can find from this data that quizzes are usable and that they produce a relatively good distribution of grades. The sample size being studied is relatively small; this was accounted for through effect sizes but repeating the study would allow greater accuracy (Fritz et al., 2012). This study encourages other instructors to repeat the experiment and to expand on the languages included in their courses.

 This study has potential implications for undergraduate pre-service teacher preparation programs. Universities must investigate whether the teacher candidates are acquiring the TESOL skills in all courses included in their program of study. Relying solely on one TESOL course may not be enough. Regardless of one's role in education, there is a need to learn about the culture, languages, and backgrounds of ELs to better meet their academic needs. Awareness of the miscommunication occurring cross-linguistically can always improve. While the course presented here still shows lackluster results, linguistically inclusive case-based learning may be worthwhile to pursue in the future.

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Appendix 1

Unit 1 Linguistic Topics

Language	Week 1: Writing System	Week 2: Direction of Writing	Week 3: Order
Spanish	Alphabet, accent marks	Left to right horizontally	SVO
Mandarin Chinese	Logography, radicals, traditional and simplified characters	Left to right horizontally (modern day). Top to bottom vertically from right to left historically.	SVO
Vietnamese	Alphabet, tones	Left to right horizontally	SVO
Haitian Creole	Alphabet, accent marks, contractions	Left to right horizontally	SVO
Arabic	Abjad, colloquial Arabic versus MSA	Right to left horizontally. Reading books back to front.	VSO

Unit 2 Linguistic Topics

Language	Week 5: Phonetics	Week 6: Linguistic Registers	Week 7: Relativity
Spanish	Phoneme differences	Formality pronouns, conjugation	Reflexives
Mandarin Chinese	Tones and voiced vs. voiceless consonants	Honorifics	Idiomatic phrases
Vietnamese	Tones, less consonant clusters	Kinship terms, honorifics	Blue-green color distinction
Haitian Creole	Nasalization, phoneme differences	Formality, conjugation	Creoles, base twenty
Arabic	Vowel phonemes, starting with consonants	MSA v Arabic dialects	One's before ten's place with numbers

Unit 3 Linguistic Topics

Language	Week 9: Language Families	Week 10: Nouns and Adjectives	Week 11: Verbs	Week 12: Other Features
Spanish	Romance language, Indo-European	Word order of nouns/adjectives, gender, pronouns	Conjugation, subject dropping, tenses, aspect	Languages of South America, phonetics script
Mandarin Chinese	Sino-Tibetan, Chinese languages	Inclusivity, classifiers, no articles	Lack of conjugation, adjectival verbs	Mandarin and Cantonese differences
Vietnamese	Austroasiatic	Classifiers, animacy, singular versus plural, lack of articles	Lack of conjugation, short words	Where Vietnamese is spoken
Haitian Creole	Indo-European, romance language	Word order, gender, pronouns	Auxiliary verbs, questions	Haitian Creole versus French
Arabic	Afro-Asiatic, Semitic languages	Gender, singular v plural v dual	Infinitives in English are not the same in Arabic	Where Arabic is spoken, dialects