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# Effectiveness of Pre-service Teacher Education Programs: ESOL Endorsement or Infusion?

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**Abstract**

Researchers in teacher preparation programs have proved that endorsement and infusion models work well for pre-service teachers to reach students, especially English Language Learners (ELLs). However, there is still a debate about which model is the best for better learning gains. This study attempts to fill the gap by investigating which model works for ELLs. After pre-service observations and teaching periods, teacher candidates from endorsement and infusion model programs applied a post-test to students, and then these teachers also answered a 16-item questionnaire based on their students' post-test results. The researcher looked for the effectiveness of pre-service teacher program through the use of Factorial ANOVA statistics. The main purpose was to identify the effectiveness of endorsement and infusion models, and suggest future directions for new models based on the results. Results indicated that endorsement models in the present study were better than infusion models in reaching ELL needs. The implications are discussed in the paper.

**Keywords:** Endorsement, infusion, ELL, teacher preparation, teacher candidate.

## Introduction

Almost 20 years ago, the diversity in most of the countries was not a complicated issue; however, especially after globalization and the immigration fluctuation around the world, the population in most of the countries has been increasingly becoming more diverse (Lavery, Nutta, & Youngblood, 2019). Therefore, during the past twenty years, main practices of teacher educators have dramatically changed to adjust the needs of students immigrating. One of the reasons of this change was the striking diversity in school demographics as a result of this fluctuation. Recent demographic data showed that linguistically and culturally diverse students constituted an increasingly strong presence in schools and communities in practically every state in the United States (Nutta, Mokhtari, & Strebel, 2012). All public schools in the United States (U.S.) include English learners (ELLs), and these learners make up around 9% of the population (U.S. Department of Education 2019 Statistics). "Under Title VI of the Civil Rights Act of 1964 (Title VI) and the Equal Educational Opportunities Act of 1974 (EEOA), public schools must ensure that ELL students can participate meaningfully and equally in educational programs" (U.S. Department of Education 2019 Statistics). According to National Center for

Education Statistics conducted in Fall 2016 (National Center for Education Statistics [NCES], 2019), there were 4,339,392 ELLs in public schools in the United States, and it is expected to grow more. However, this number does not include the private school population. It was estimated that two-thirds of these students were in at least one course taught by mainstream teachers. Growth in K–12 ELL enrollments has increased in the past twenty years. One in twenty public K–12 students was an ELL in 1990; in 2008, it was one in nine. It has been predicted that in twenty years it would be one in four (Goldenberg, 2008).

National demographic data during the past decade indicated that ELLs represented the fastest-growing student population in U.S. schools, with significant growth in grade six through twelve (National Center for English Language Acquisition [NCELA], 2019). The number of ELLs was 9.6 percent, or 4.9 million students in fall 2016, which was higher than 8.1 percent, or 3.8 million students in fall 2000 (NCES, 2019). There are still remarkable increases of ELLs in most states.

An examination of the growth in ELL enrollment during the past decade indicated that although the number of all pre-K to 12 students increased from 46 million in 1997–1998 to 49.9 million in 2007 and 2008 by 8.5 percent, the number of ELLs increased from 3.5 million to 5.3 million in the same ten-year period, which is more than 50 percent (Nutta et al., 2012). With the continued shift in demographics, educator preparation professionals, school leaders, education researchers, and policy makers were paying more attention to the learning and teaching needs of students, for whom English is not their native language (Ballentyne, Sanderman, & Levy, 2008; Daniel & Pray, 2017; de Jong, Naranjo, Li, & Ouzia, 2018; Pray, Daniel, & Pacheco, 2017; Williams, 2017).

Despite these statistics, the argument for preparing all educators to teach and assess ELLs should be more than an appeal to respond to demographic trends. Student headcount matters little to the individual English learner struggling to understand instruction in an English-speaking classroom. For that individual student, what matters most is a teacher who is sensitive to ELLs' needs and can apply knowledge and skills specifically in meeting those needs. Whether a teacher works in San Antonio, Texas, or Minot, North Dakota, she should be well-prepared to teach and assess ELLs placed in her class from the first day of enrollment. Therefore, teacher preparation must expand its focus to address the needs of ELLs. Yet unequivocally, a call to action is intensified by the escalating ELL enrollment nationwide (Nutta et al., 2012).

**Literature Review**

The recent nationwide call for high accountability standards for all students and the renewed emphasis on high-quality teaching implied that all U.S. public school teachers are expected to be adequately prepared to educate the growing ELL population whether they had English as a second language (ESL) preparation, or not. Unfortunately, it is evident that much more needs to be done to ensure that mainstream teachers are prepared to provide the instruction that will enable ELLs to successfully learn academic content while developing language proficiency. According to the National Comprehensive Center for Teacher Quality, only Alaska, Arizona, California, Florida, New York, and Pennsylvania require all teachers to have some preparation to teach ELLs (August & Shanahan, 2006; He, Journell, & Faircloth, 2018; McGraner & Saenez, 2009; Nutta et al., 2012).

However, research shows that the majority of mainstream classroom teachers feel unprepared to teach ELLs (Nutta, Strebel, Mokhtari, Mihai, & Crevecoeur-Bryant, 2014), even in the states such as Florida where integration of ELL content into mainstream teacher training programs is a necessity (O'Brien, 2011). In a recent study conducted by the National Center for Education Statistics, it was found that 54 percent of the mainstream teachers at k-12 grades

were teaching ELLs; however, only 20 percent of them felt they were properly prepared to meet ELLs' needs (Nutta et al., 2012). According to the report by the National Education Association, 97.5% of the teachers who teach ELLs or who have ELLs in their classrooms do not have a degree in ESL. Although the number of teachers of ELLs increased to 44 percent in the 2003–2004 school year, only about 14 percent of the teachers surveyed reported that they had received some training or professional development (eight hours or more) to teach these students (NCES, 1999). This situation has not changed much considering the ratio between the increasing number of ELLs and the number of mainstream classroom teachers (NCES, 2019).

The shortage of adequately prepared teachers is consistent with findings of other researchers (Nutta et al., 2014; Lucas, 2011; Menken, Antunez, Dilworth, & Yasin, 2001). In Texas State, researchers reported that endorsements were awarded to teachers for merely passing a paper-and-pencil examination coupled with one-year teaching experience involving one or more ELL students. Additionally, Menken et al. (2001) found that many states require little of teachers seeking an endorsement or certification to teach ELLs. Therefore, endorsement programs had a bad reputation. Instead, infusion programs gained importance. At this point, it is crucial to distinguish endorsement from infusion.

Because of the confluence of three factors such as the need to graduate teachers with the ESOL endorsement, the 120-hour rule, and the overlap in content of the five endorsement courses with the general teacher education curriculum, the educators were prompted to consider an alternative approach known as ESOL infusion in Florida. Infusion means, "infusing EL [ELL] issues into general teacher preparation curricula" so that teacher candidates can handle the ELLs in their classrooms (Nutta et al., 2012). Here, regarding the ELL issues, Nutta et al. (2012) refers to ESOL strategies. On the other hand, Reeves (2010) calls endorsement as *add-on ESOL certification*. When teachers perform abilities to educate ELLs and intend to meet ELL needs "by taking coursework, participating in practicum, and passing a standardized certification test," they obtain endorsement certification (Daniel & Pray, 2017, p. 788). There are several institutions offering infusion instead of endorsement across Florida State. However, the effectiveness of infusion in relation to endorsement programs is still questionable, as it was not applied in most of the states and there is not enough research to prove the ineffectiveness of these models. In other words, researchers in teacher preparation programs have proved that endorsement and infusion models work well for pre-service teachers to reach students, especially ELLs. However, there is still a debate about which model is the best for better learning gains. Therefore, this study attempts to fill this gap by investigating which model works for ELLs.

### *Theoretical Framework: Interactionist Model for Content and Language Knowledge in Class*

As mentioned above, the demographics have been changing as a result of globalization and immigration fluctuations. Therefore, the theories and practices of how ELLs learn languages at schools have also been changing rapidly. "Thirty years ago, ELs [ELLs] received formal language instruction in an ESOL classroom while the mainstream classroom was viewed as an opportunity for natural language learning through exposure to the target language" (Lavery et al., 2019, p. 373). However, this situation was not a favorable one because ELLs had to learn language before they learned any content knowledge (Nutta et al., 2012), and this model left its place to models that prioritize ELLs' learning language and content simultaneously. Regarding this, it has been proven that ESOL teachers alone could not help students succeed because ESOL teachers lacked content knowledge. Therefore, teachers with both content knowledge and language teaching skills were needed (Nutta et al., 2012).

According to Lavery et al. (2019), second language acquisition theories evolved to reflect the roles of teachers who are knowledgeable about both content and ELLs' target

language. One of these theories is interactionist approach in which a collaborative environment is emphasized for whole class learning through interaction. In this model, communicative input for ELLs should be comprehensible (Krashen, 1985) along with communicative and meaningful output (Swain, 1985). ELLs should be able to use the target language with their peers in a meaningful and communicative way to interact with each other and to scaffold the content information through interaction (Vygotsky, 1978). Based on interactionist model, these components are crucial for proficiency building. However, providing opportunities for these components to happen in class depends on teachers and how teachers are trained. If teachers are trained in a way that allows both academic content and language knowledge at the same time, the interaction among the ELLs as well as ELLs and their peers might occur. Therefore, teachers should know how to provide opportunities for ELLs to have them be immersed with the material and the content knowledge while supporting their language needs. Doing this requires mainstream teachers to know second language acquisition process, "to communicate with ELs [ELLs] so they comprehend the lesson topic, and to support ELs' communication so they can successfully demonstrate achievement of the objectives" (Lavery et al., 2019, p. 373). Therefore, in both endorsement or infusion programs, instructed second language acquisition or interactionist components are included in the curriculum, and teacher candidates are taught how to modify materials for ELLs to scaffold their content and language knowledge; however, it is still a question which program works better for a naturalistic learning in which both content and language are learned simultaneously through interacting with peers and with the modified material.

***Purpose***

The main purpose of this study is to identify the effectiveness of endorsement and infusion models and suggest future directions to construct new models based on the results. The results of the present study are based on the mean differences between ELL groups, for the post-test scores after pre-service teachers' performance. Additionally, the present study seeks to determine whether there are any mean differences in the post-test scores of students regarding having a pre-service teacher with endorsement program and infusion program. The last purpose of this study is to identify the interaction on the post-test scores between levels of being an ELL and levels of having a pre-service teacher from an endorsement/infusion program.

***Research Questions***

1. Is there any statistically significant mean difference between ELL and non-ELL groups in terms of the post-test scores?
2. Is there any statistically significant mean difference between having a pre-service teacher from an endorsement program and having a pre-service teacher from an infusion program in terms of post-test scores?
3. Is there any statistically significant interaction on the post-test scores regarding being an ELL/non-ELL and having a pre-service teacher from an endorsement/infusion program?

***Operational Definitions***

For the purpose of the present study, ELL is defined as the students learning English as well as content courses such as math, science, and language arts at the same time while non-ELL is defined as native speakers of English and students who have been exited from ESOL programs. In addition, *endorsed* is defined as the participants to endorsement programs that prepare teacher candidates in teaching and assessing ELLs such as Elementary Education and English Language Arts Education programs which award the ESOL endorsement after 300 hours of ESOL education while *infused* is defined as the participants to infusion programs

where teacher candidates enrolled in Science Education, Mathematics Education, and Social Science Education programs in which the 60 hours of education in ESOL content is infused throughout the required coursework (Nutta et al., 2012). However, infusion that is used in the framework here means "infusing EL [ELL] issues into general teacher preparation curricula" (Nutta et al., 2012, p. 17). Finally, the post-test is referring to the test that the students complete after the pre-service teachers practiced their skills or taught.

## Methodology

### *Participants*

Of all the ELL participants (n=1272), 700 of them were randomly selected for the purpose of this study among the eight counties in Central Florida and the Florida Virtual School within the 2017 school year. The counties are Orange, Seminole, Osceola, Lake, Citrus, Marion, Volusia, and Brevard in Florida. The Florida Virtual School is a national online public school. The breakdown of the schools within the counties is as follows: Orange County has a total of 178 elementary, middle, and high schools; Seminole County has a total of 57 elementary, middle, and high schools; Osceola County has a total of 46 elementary, middle, and high schools; Lake County has a total of 44 elementary, middle, and high schools; Citrus County has a total of 18 elementary, middle, and high schools; Marion County has a total of 47 elementary, middle, and high schools; Volusia County has a total of 69 elementary, middle, and high schools; and Brevard County has a total of 82 elementary, middle, and high schools. All of the participating schools are selected by different districts according to their own policies.

### *Instruments and Measurements*

The dataset used in the present study was obtained from secondary data that were comprised of the information about teacher candidates who completed a Teacher Work Sample (TWS) during 2017 for one of the academic education programs they attended and who reported complete demographic data and assessment scores for $n \geq 10$ students. TWS data were obtained through the TWS GraphMaker (Version 5.1.2; Lavery, 2012). This is a type of software creating multiple student pre-test and post-test assessment scores graphs to assist pre-service teachers in analyzing student learning gains. The final dataset included anonymized data with pre-assessment and post-assessment scores as well as demographic information for $N$ = 12,794 K-12 students (*n* = 1272 ELLs). The instrument to collect the data is a questionnaire in which the pre-service teachers need to answer questions such as "What was the average POST-TEST score? Enter the number that appears above the post-test bar (do not include the % sign). Use the same graph you used for question 11." The pre-service teachers enter these numbers to the system by using the TWS GraphMaker™, a software tool that allows pre-test and post-test assessment scores for K-12 students. Even though the GraphMaker™ seems to be a reliable source for calculating the means and percentages before entering it to the questionnaire system, there was no access to the questionnaire items and their validity and reliability.

### *Procedure*

This is a cross-sectional study in which data were collected through the TWS, which is a reflective documentation of an instructional unit that uses a pre and post-assessments to measure student learning gains on the content taught, using the TWS GraphMaker™, a software tool that allows pre-test and post-test assessment scores for K-12 students taught by multiple teacher candidates during student teaching to be compiled into a single dataset. In cross-sectional studies, data are obtained at one point in time, but from different ages or at different stages of development (Gall, Gall, & Borg, 2010; Fraenkel, Wallen, & Hyun, 2012). Even though the data may seem that there was an experimental design involved, this current study

includes only the post-test surveys in relation to the main purpose, and therefore, it is considered a non-experimental cross-sectional study.

First, necessary ethics committee or institutional review board permissions were obtained even if the data were obtained from an existing database because the data included human subjects. This also means that the dataset obtained by the researcher included only the cumulative scores of the tests. There was no access to the survey items and the open-ended questions. The identities of all the participants were strictly protected. The only person who could see the items and the surveys was the TWS administrator that the researcher interviewed to understand the process teacher candidates went through. According to what TWS administrator explained, pre-service teachers attended and observed classes at the schools in the counties mentioned twice a week during the whole semester in order to fulfill the Internship II requirements. These teachers were assigned to different grade levels in these schools randomly. After observation, they planned and administered a pre-test to diagnose students' knowledge on a topic from the curriculum, analyzed the results obtained, planned a unit of instruction on the same topic tested in the pre-test and taught that unit taking students' needs into account. Finally, they prepared and administered a post-test based on their teaching of that unit of instruction only. That was what they analyzed and reported to the TWS. The post-test scores were the ones the current researcher used for the purpose of this study.

## Results

### *Descriptive Statistics*

*Frequency Distribution*. In order to gain a clearer perspective of the sample, a frequency distribution is examined. Even though all teacher candidates have background on how to teach ELLs in mainstream classrooms, some are required to be in infusion programs and some need to be enrolled in a program that offers endorsement. Therefore, it is vital to have a look at the percentages. The percentage of the pre-service teachers who are in an infusion program is 36%, while this percentage is almost doubled (64%) by the pre-service teachers who are in the endorsement programs ($N_{endorsed}$=447, $N_{infused}$=253). This is interesting considering the fact that the number of the fields that offer endorsement by the state standards is less than the number of the programs that apply infusion. For instance, while teacher candidates enrolled in Elementary Education and English Language Arts Education programs have ESOL endorsement after 300 hours of ESOL education, the pre-service teachers enrolled in Social Science Education, Science Education, and Mathematics Education programs have infused ESOL content along with the required coursework.

Additionally, it is also important to analyze the number of classes that include ELLs because some classes that pre-service teachers were teaching include ELLs while some do not have any ELL students. Based on the statistical calculations, 90% of the classes that pre-service teachers were teaching did not include ELLs while 10% included ELLs ($N_{ELL}$=70, $N_{non\text{-}ELL}$=630).

*Measures of Central Tendency and Variability.* Considering the percentages above, looking at the measures of central tendencies and variability of post-test is important. The distribution of the post-test that was done after the pre-service teachers taught was defined by a mean of 81 and a standard deviation of 18.7. As a result, this suggests that the distribution is slightly negatively skewed (*Skewness* = -1.395). However, when the histogram is examined, it can be easily seen that the mean is affected by the high number of students getting a score of 100 from the post-test. This suggests that the post-test might be too easy for the students or they might remember the pre-test and did well in this test.

### *Inferential Statistics*

Factorial ANOVA was computed to determine whether there was a mean difference for post-test scores between having a pre-service teacher from a program with endorsement and infusion, and whether there was a mean difference for post-test scores between ELLs and non-ELLs, and lastly to identify the interaction on post-test between endorsement-infusion and ELL-non-ELL categories. The alpha level was .05. Post-test score was the dependent variable while ELL and endorsement served as the independent variable.

The null hypotheses were:

***Null 1:*** There is no statistically significant mean difference between ELL and non-ELL groups in terms of the post-test scores.

***Null 2:*** There is no statistically significant mean difference between having a pre-service teacher from an endorsement program and having a pre-service teacher from an infusion program in terms of post-test scores.

***Null 3:*** There is no statistically significant interaction on the post-test scores regarding being an ELL/non-ELL and having a pre-service teacher from an endorsement/infusion program.

Table 1. Mean Scores of Endorsement and Infusion Groups

| **Groups** | **ELL** | **Mean** | **Std. Deviation** | **N** |
|---|---|---|---|---|
| | 0 | 76.91 | 20.40 | 233 |
| Infused | 1 | 70.31 | 17.32 | 20 |
| | Total | 76.38 | 20.23 | 253 |
| | 0 | 84.56 | 16.50 | 397 |
| Endorsed | 1 | 77.74 | 21.61 | 50 |
| | Total | 83.80 | 17.26 | 447 |
| | 0 | 81.73 | 18.40 | 630 |
| Total | 1 | 75.61 | 20.63 | 70 |
| | Total | 81.12 | 18.71 | 700 |

Table 2. Factorial ANOVA Results

| | **df** | **Mean Square** | **F** | **Sig.** | **Partial Eta Squared** | **Noncent. Parameter** | **Observed Power[b]** |
|---|---|---|---|---|---|---|---|
| Endorsed vs. infused | 1 | 2961.020 | 8.844 | .003 | .013 | 8.844 | .844 |
| ELL vs. non-ELL | 1 | 2344.451 | 7.002 | .008 | .010 | 7.002 | .753 |
| Interaction: Endorsed vs. infused * ELL | 1 | .683 | .002 | .964 | .000 | .002 | .050 |

Based on the Factorial ANOVA results, there was a statistically significant effect of being an ELL or non-ELL student on the post-test scores ($F$ = 7.002, $df$ = 1, 696, $p < .05$). Group difference explained less than 1% of the variance in score. Non-ELL group score ($M$ =

81.73, *SD* = 18.40) were higher than ELL group scores (*M* = 75.61, *SD* = 20.63). Power to detect this difference was .753.

There was also a statistically significant effect of endorsement-infusion (*F* = 8.84, *df* = 1, 696, *p* < .05). Pre-service teachers' program type accounted for 1.3% of the variance in score. The endorsement group (*M* = 83.80, *SD* = 17.26) scored higher than the infusion group (*M* = 76.38, *SD* = 20.23). Power to detect this difference was .844.

However, there was not a statistically significant interaction effect (*F* = .002, *df* = 1, 696, *p* > .05). Interaction between the type of pre-service teachers' program (endorsement-infusion group), and ELL vs. non-ELL groups accounted for 0% of the variance in score. Power to detect this effect was .050. The model (endorsement vs. infusion, ELL vs. non-ELL, and interaction between the two) explained 5% of the variance in score. The interaction effect was not statistically significant but the main effects were statistically significant. However, because it is known that which groups differ from each other, post hoc tests were not needed.

## Conclusion

Results of the present study indicate that there was a significant effect of program type on pre-service teaching; however, unlike the one mentioned in the literature, the results of the present study showed the opposite. It means that endorsement system in pre-service teaching programs worked better than infusion programs considering the means of these two groups. The endorsed pre-service teachers were more successful in increasing the scores of the students while the pre-service teachers in infusion programs lag behind even though it may be a good program applied in the fields mentioned. This finding aligns with Verkler's (2003) and Verkler and Hutchinson's (2002) findings. In these studies, training in endorsed programs increased student outcomes in a short time; however, longitudinal studies would be needed to claim the efficacy of these endorsed programs. On the other hand, the low efficacy of infusion programs may be because of the fact that infusion programs need more time and organization in terms of infusing ELL strategies into the pre-service teacher training programs considering the comparison between endorsement programs' history and the history of infusion programs. As Williams (2017) also described:

> As migrant enrollments in U.S. schools steadily escalate each year, leaders of teacher education programs must recognize that preparing teachers to meet the needs of ELs [ELLs] begins with infusing strategies into content and placing preservice teachers in English- language settings for field experiences. Teacher educators must accordingly develop a plan for expanding the number of generalist teacher candidates who are exposed to EL [ELL] settings during field experiences (p. 27).

Furthermore, in the present study, non-ELLs had higher scores compared to ELLs based on the post-test or after the teacher candidates taught ELLs. The reason behind this might be that ELLs might not feel confident about what they know since the content is in another language. This finding aligns with some of the previous study finings (Bunch, 2013; de Jong, Harper & Coady, 2013; Lucas & Grinberg, 2008). One of the reasons why ELLs fall behind is the communication and academic achievement gap in the mainstream classrooms (Nutta et al., 2012). Therefore, this gap should be closed by pre-service and in-service teachers by providing modifications. Modifying class-work, homework, materials, or tasks to make them fit the abilities of the ESL students does not mean expecting less from these students (Daniel & Pray, 2017). It actually means providing these students with more multimodal activities, more audio-visuals and simple explanations so that they can understand the task in a meaningful way. This would also help native speakers or native English-speaking students because meaning is clarified through audio-visual support and the knowledge that is gained becomes multimodal

(Author, 2016). In addition, by practicing such modifications within endorsement programs, monolingual pre-service teachers could empathize ELL situations and learn how to address ELL needs as they progress in such programs (Williams, 2017).

When reflected on the results and the literature about the infusion and endorsement models, it is indicated that endorsement models help the students regardless of being an ELL or not, and therefore, teacher education programs should keep using and improve endorsement models more instead of infusion models. In addition, there is one new approach to the infusion concept, called *One-Plus Model* that was designed by Nutta et al. (2012). This model of ESOL strategy infusion includes various measures to incorporate a focus on teaching and assessing ELLs throughout teacher preparation curricula. Because teacher preparation programs' resources and goals vary, the model accounts for differing circumstances and contexts while upholding quality assurances for whatever level of commitment an institution can support. Designed to be flexible yet comprehensive, the model encompasses all aspects of teacher preparation, including courses, field/clinical experiences, candidate assessment, faculty development, and scholarship, as well as program administration, evaluation, and accreditation. The *One Plus Model* indicates the "stackable nature of the model, which enables programs to build up from developing candidates' rudimentary knowledge and skills about educating English learners" (Nutta et al., 2012, p. 47). This is for the purpose of developing qualifications in teaching a wide variety of subjects to ELLs and also for the purpose of extending the model to specialization in teaching ESOL. Any or all of these options may be pursued through application of the model. Therefore, this model might be an alternative for infusion models; however, based on the current program applications, endorsement models are better than infusion models.

**Limitations and Implications**

Besides the results drawn from the present study, there are also some limitations. First, because of the nature of the TWS surveys, the researcher could not have access to the specific survey taken by the pre-service teachers. This means that the researcher could only see the cumulative scores of the tests provided by the TWS administrator. In other words, the dataset were obtained from an existing program and the questionnaire items cannot be identified. However, the person who constructed the survey was interviewed, and based on the information from her, the reported number of questions in the survey was 16, but this might not be enough for a teacher candidate to express the quality of teaching he/she provided since they were multiple choice questions. Therefore, the internal validity of the study cannot be interpreted. As a future direction, the access to the questionnaire could be provided. Questions could be examined to check the quality and reliability through Cronbach alpha levels, and more open-ended items could be added. Open-ended items provide more insight in understanding the real teaching situation and atmosphere because the evaluator could write his/her ideas besides answering a survey that is already tailored. The items in the questionnaire were answered only by the pre-service teachers without any supervision or obtaining any comments from supervisors; therefore, some other external comments should be included in the questionnaire to understand the real difference between endorsement and infusion models.

Furthermore, this survey covers only one state and some schools in this state, so it cannot be generalized; the sample size is considered as a limitation (Fraenkel et al., 2012; Shadish, Cook, & Campbell, 2002). However, even though the study is a regional one; this does not mean that it cannot address to a wide variety of audience. With the implications provided for diverse educational contexts, it may reach a wide audience such as other states and countries that have ELLs. This directly adds to the value of the study. As a future direction, the same type of pre-service teacher training program can be applied in any other states or countries with different schools that have ELLs or any second language learners within the same scope,

regardless of public or private, to see the differences or any other external factors affecting the results. Also, the TWS surveys do not take the nature of schools the pre-service teachers were at. However, considering the nature of schools could have affected the results of the present study. For future studies, both the type of schools and the type of content area could be specified to obtain more specific and narrowed-down results

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