

2014

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Recommended Citation

Wheeler, Deborah L. and Govoni, Jane M. (2014) "An ESOL Curricular Model: Infuse ESOL Standards in Teacher Education," *TAPESTRY*: Vol. 6: Iss. 2, Article 3.

Available at: <https://stars.library.ucf.edu/tapestry/vol6/iss2/3>

An ESOL Curricular Model: Infusing ESOL Standards in Teacher Education

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Abstract

Florida approved teacher preparation programs provide coursework in English to Speakers of Other Languages (ESOL) based on a mandate that began for graduates in 2004; however, there are few studies on the effects of an ESOL integrated model. The data show that an ESOL-infused program effectively prepares teacher candidates in demonstrating ESOL standards. The data were applied to a Likert scale and the results revealed that the program ranked between the ranges of average and exceeds expectations. The results will foster further research on a larger scale on ways to effectively prepare teacher candidates to work with English learners (ELs).

This study examined the effects of an ESOL-infused program in an elementary education program at a private college in Florida. Since 2004, teacher candidates graduating from elementary, exceptional student education, pre-Kindergarten/ primary, or English education programs are eligible for certification in their respective area and are endorsed in ESOL. Those seeking certification in areas such as math, science, social studies, physical education, or computer literacy, complete a minimum of 60 hours of ESOL training or a three-credit survey course in ESOL.

The stipulations of the 1990 League of United Latin American Citizens (LULAC) et al. v. State Board of Education Consent Decree (henceforth known as the 'Consent Decree'), the 2003 Stipulation modifying the Consent Decree, and Florida Statute 1004.04 are the legal basis for teacher training across the State of Florida. The Consent Decree formed the framework for compliance with federal and state laws and jurisprudence regarding the education of English learners. The primary Supreme Court cases that affected the decision were *Lau v. Nichols* (1974), *Plyer v. Doe* (1982), and *Castañeda v. Pickard* (1981). Bernhard, Diaz, and Allgood (2005) reported:

In order to prevent a lawsuit for inadequate provisions of education for linguistic minorities, in 1990, [the State] signed the Multicultural Education Training Advocacy (META) decree, which required school boards to submit annual status reports on steps taken to provide adequate education for ELs. (p. 266)

Section 1004.04 of the Florida Statutes indicates (3)(c) State-approved teacher preparation programs must incorporate:

Appropriate English for Speakers of Other Languages instruction so that program graduates will have completed the requirements for teaching limited English proficient students in Florida public schools (Florida Department of Education).

There are few states that specifically require university coursework in ESOL. Currently, these states include Alaska, Arizona, California, Florida, New York, Pennsylvania, and Massachusetts. Florida leads the way, even though there was more than a ten year span from the inception of the stipulation of the Consent Decree to the mandate for teacher preparation programs. During this time, teacher candidates graduating from teacher education programs were not required to enroll in additional hours in ESOL in order to be in compliance with state mandates for public schools. The rationale behind a lack of ESOL training in higher education was primarily due to the fact that the Florida Consent Decree did not specifically stipulate ESOL training for teacher education programs. In 2001, the statutes and rules changed to require “pre-service teacher-education programs in the state (Section 240.529, F.S., and State Board of Education Rule 6A-5.066, F.AC.) to prepare teacher candidates to teach [limited English proficient] students consistent with the requirements in the ESOL Consent Decree” (p. 1).

Initially, teacher education programs did not have a sufficient ESOL curriculum to teach their candidates. Therefore, institutions across the State had to develop a plan to meet the mandate for ESOL training. In 1998, Florida Atlantic University (FAU) was the first institution to offer a program which integrated ESOL in teacher preparation for elementary education majors. This was the starting point for other institutions and by 2001, all state-approved teacher education programs in Florida were required to offer ESOL training. By 2004, graduates from state-approved teacher education programs began to enter the profession with their ESOL endorsement or respective ESOL coursework. Teacher candidates began to enroll in education courses taught by qualified faculty to integrate ESOL standards in assignments, assessments, and class activities. College and university professors teaching the ESOL-infused courses had to hold a minimum of 45 hours in ESOL training. Faculty teaching the ESOL-stand-alone courses,

...have an advanced degree (at least a master’s degree) in the field (Applied Linguistics, TESOL), Bilingual Education, or a closely related area, such as Foreign Language Education, Second Language Acquisition, Multicultural Education. A faculty member with an advanced degree in a closely related area should also have either an ESOL Endorsement or equivalent training and experience in ESOL(Technical Assistance for Teacher Preparation: Meeting the Needs of ELLs, FLDOE, 2011).

In spite of the fact that ESOL training in Florida has been part of teacher preparation programs for years, there have been relatively few studies to determine its overall effectiveness. Coady, de Jong, and Harper (2010) identified that, “despite nearly a decade of preparing teachers through ESOL-infused programs, we know little about the impact of this model on teacher education or on EL achievement” (p. 8). Daniel and Percy (2014) emphasized that most elementary teachers receive little or no preparation to guide them (p. 100). These authors continue to state that “a largely unanswered question is ‘why’ more teacher education programs have little or no focus on educating ELs” (p.100). In sum, the literature on preparing teacher candidates to work effectively with English learners remains largely conceptual (Heineke, 2014, p. 118).

Program Evaluation of the ESOL-Infused Model

In this study, candidates in an ESOL- infused elementary teacher education program in Florida were observed on their application of ESOL strategies and ability to demonstrate knowledge of the ESOL standards. The observation instrument focused on the frequency in which ESOL strategies were applied by candidates to demonstrate knowledge in the five ESOL domains, which are based on the Standards for the Recognition of Initial Teacher Preparation in P-12 ESL Teacher Education (TESOL, 2010), outlined in the Consent Decree. These include:

- Domain 1: Culture (Cross-Cultural Communication and Understanding);
- Domain 2: Language and Literacy (Applied Linguistics);
- Domain 3: Methods of Teaching ESOL;
- Domain 4: ESOL Curriculum and Materials Development;
- Domain 5: Assessment (Testing and Evaluation) (Florida Bureau of Student Achievement through Language Acquisition, FLDOE).

When an effective ESOL-infused curricular program has been implemented, and the standards are successfully conveyed by the instructor teaching the content courses, then the teacher candidates are expected to actively apply and demonstrate their acquired knowledge in the five ESOL domains along with ESOL strategies and appropriate modifications while participating in the content courses. Additionally, a solid foundation in ESOL includes various field placements to support candidates' mastery of the standards. In providing this opportunity, an ESOL-infused program is essential to building a profession of educators who are highly qualified and effective in teaching a culturally and linguistically diverse group of students. A survey by Williams and Amodei (2014) affirmed that ESOL training for teacher candidates increases awareness of culturally responsive teaching. Ballantyne et al. (2008) explained the approaches for colleges/universities in preparing pre-service teachers as "stand-alone classes focusing on the needs of ELs, an 'infused' curriculum in which each faculty member incorporates materials of relevance to ELs into courses across the curriculum, or combining these approaches" (p. 16).

Applying ESOL Strategies

The purpose of this study was to collect data on elementary education majors infusing ESOL strategies at one private institution in Florida. Two research questions guided this study:

1. While enrolled in an ESOL-infused teacher education program, how do teacher candidates demonstrate ESOL strategies to support English learners (ELs)?
2. What are teacher candidates' strengths and weaknesses when applying ESOL strategies in the five ESOL domains: culture, curriculum, methods, assessment, and linguistics?

Methodology

In order to evaluate how candidates applied ESOL strategies, an expertise-oriented evaluation approach was utilized in a classroom setting. Field research was conducted using direct observation and a frequency-count observation instrument to record data. An ESOL-endorsed observer with experience in the field of education recorded application of ESOL

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strategies. The observer also had experience implementing a multicultural curriculum and had extensive experience instructing teacher candidates in ESOL courses, diverse populations, and additional education courses.

The data provided an evaluation of the strengths and weaknesses of an ESOL-infused program and enabled a review of the potential weaknesses in the classroom (English, 2000). Observation of the teacher candidates' application of ESOL strategies was considered the most reliable method of collecting data due to the participants' ability to accurately convey the ESOL strategies in their natural setting which consisted of the content courses in which the teacher candidates initially applied their knowledge.

Participants

The participants were juniors and seniors from diverse ethnicity and approximately 20 years old who were teacher candidates enrolled in an ESOL-infused program at a private college. In addition, the participants were selected due to the commonality that they had with the students attending the ESOL-infused program at various colleges and universities throughout the state. They were selected based on their enrollment in an elementary education ESOL-infused program. For the purpose of this study, twenty (n=20) candidates were observed as they demonstrated specific ESOL strategies indicated on the data collection instrument.

Instrument

This instrument was a frequency-count checklist that enabled the observer to tally the frequency of application of ESOL strategies aligned to the five ESOL domains (see Appendix A). Desimone (2009) posited that observations provide an effective research method to document and measure good teaching pedagogy, instructional practices, and learner experiences.

Reliability and validity of the instrument were determined. The observations were done mid-semester to support learning in methods courses and ESOL stand-alone courses. Candidates were expected to reference culture, curriculum modifications, methods, assessment, and linguistic strategies as well as present information from methods courses that demonstrated support for ELs. The use of visuals, computer technology, and instructional strategies specific to various levels of language proficiency and multiple forms of assessment for ELs were identified. Similarly, knowledge about how language is modified in math, science, language arts, and social studies for ELs was demonstrated as part of the linguistic component. Additional strategies included highlighting key concepts, presenting problem-solving activities, using gestures and nonverbal communication, and demonstrating appreciation of linguistic and cultural diversity. Desimone (2009) claimed, "Properly conducted observations can provide comprehensive, objective measures of what occurs in professional development and resulting classroom instruction" (p. 181). Therefore, classroom observations should replicate ESOL strategies that candidates utilize in the PreK-12 classroom.

To reduce observer effect, faculty teaching the content courses at the college disclosed to all candidates that an observation would be conducted for the purpose of program evaluation. In addition, faculty shared that the observation would focus on candidates' infusion of ESOL strategies. No further details of the observations were provided.

College faculty were asked to teach as usual; however, a request was made that

observations be scheduled to examine interactive activities that allowed candidates to participate, interact, share their knowledge, or present a specific lesson. Hence, a lecture was not conducive to demonstrating knowledge of ESOL strategies. Observations of each class were completed twice for consistency and to determine if ESOL strategies were routinely applied. The ESOL strategies described or demonstrated were recorded using the observation instrument (See Appendix A). Verification of applying ESOL strategies appropriately was evidenced during data collection.

As the teacher candidates implemented ESOL strategies, the frequency of the ESOL strategies were recorded on the observation instrument using a tally mark. At the same time, a record of the specific examples of the strategies that were applied were denoted on the observation instrument. In addition, the application of knowledge in the five domains outlined in the consent decree was reviewed.

Data collection. An average of the frequency checks in each of the ESOL domains for four methods courses was calculated. For example, math received one frequency score for each of the ESOL domains, as did social studies, science, and language arts courses. The results for each course are shown using a bar graph (See Appendices B-E). The data collected for each methods course were aligned to the ESOL domains. The mean score for each was calculated to show the overall strengths and weaknesses of candidates' ability to apply ESOL strategies.

After each set of observations, a quality assessment was conducted by applying the data to a Likert scale. One Likert scale rating was provided for each of the five ESOL domains. The Likert scale rated the overall knowledge base of candidates; thereby, delineating the strengths and weaknesses of the teacher candidates' application of strategies as they related to each of the five domains. The tallies in each of the five ESOL Domains were rated on the Likert scale that ranged from 0 (*unobserved or expectations were not achieved*) to 7+ (*exceeds expectations*). The comprehensive results of the observations were statistically analyzed to determine the mean, mode, and standard deviation. The results were graphed on a bell curve. This statistical analysis can be used to predict the likelihood that the same results will happen at this college when the content courses are observed in the future.

A list of specific activities and ESOL application strategies was formulated based on the results recorded on the observation instrument. The data were collated and categorized according to the specific domain. The data were analyzed using bar graphs to record the frequency of occurrence and the results from each method course were analyzed separately. An analysis of the data was calculated to measure the standard deviation to predict the results that would be expected in future observations in this teacher preparation program.

Data analysis. To answer the first research question, a list of specific activities and ESOL application strategies was formulated based on the results recorded on the observation instrument. The data were collated and categorized according to the domain correlation.

To answer the second research question, the data were analyzed using bar graphs to record the frequency of occurrence, and the results from each content course were analyzed separately. Then, conclusive data were analyzed using a Likert scale that denoted a rating for the teacher candidates' overall use of ESOL strategies that correlated to the five domains in the consent decree. An analysis of the data was calculated to measure the standard deviation to

predict the results that would be expected in future observations at this college. For example, 80% of the time when courses are observed, the results will be a score between 4 and 6 for the frequency of teacher candidates' application of ESOL strategies in the content courses.

For instance, if the bell curve is evenly distributed, the program would be considered ineffective or perhaps inconsistent. A weak program would reveal that many areas of the program need to be evaluated for improvement. Areas of the program that may need improvement might include improving the instructors' performance or the curriculum. Further analysis may reveal that evaluating additional aspects of the program is necessary; however, the program evaluation may also indicate that these areas are strong and effective.

Analysis of Research Question 1

Qualitative data were collected to answer the first research question: While attending the content courses in the ESOL-infused program, how were teacher candidates demonstrating that they acquired the knowledge of ESOL strategies that can be applied in the content courses to support ELL students? Next, the strategies applied by the teacher candidates in the content areas were examined as they correlate to the five domains. McNamara (2009) stated, "Strategies provide the means to tackle complex problems in more efficient ways and, with practice, the strategies lead to skills that become automatic and quick over time" (p. 34). Therefore, it is critical that the teacher candidates learn the ESOL strategies to assist ELs in the public school classroom with acquiring the essential concepts that will promote a secure foundation of knowledge in the content areas.

Elementary math. The first research question addressed how candidates demonstrated and applied knowledge of ESOL strategies while enrolled in ESOL-infused methods courses. Observations of their ability to apply ESOL strategies to **math** were completed as they taught in an elementary public school classroom during final internship. The school was populated by over 50% Hispanics and provided an opportunity to obtain direct experience with ELs. Observations indicated ESOL strategies being used throughout lessons. Cross-cultural competence was evidenced by the non-threatening and comfortable learning environment created. Acceptance of diversity by enabling equal participation by all students and providing equal attention was observed. Additionally, candidates expressed a clear understanding of the impact of culture in the academic and social process.

However, no observable data were found of references to ELs' culture, relating to the ELs' culture, or implementing cultural activities. For example, when reviewing the months of the year and the days of the week, the native language of an EL was not a strategy considered, even though presenting the information in multiple ways was reported. By incorporating ELs' native language in the lesson, ELs may have been able to relate to the months in English with the months that they are familiar within their native language, and the monolingual English-speaking students would have had the opportunity to learn a second language.

Overall, candidates provided meaningful educational experiences, attempted to accommodate all learning modalities, and provided scaffolding of content. Additionally, effective reading strategies and methods such as modeling, realia, manipulatives, visuals, and repetition were observed. Teacher candidates utilized songs and relevant math books with

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familiar objects to support comprehension. Opportunities for oral-language development were presented, as well as charts, labels, and scaffolding of background knowledge.

Elementary science. The observations of candidates participating in **science** revealed their understanding of a language-rich environment, cultural and linguistic acceptance, and an inviting classroom which respects diversity. They discussed how to connect parents of ELs with the school, classroom, and community and ways to establish a diverse classroom environment. Explanations as to how to meet the needs of all students and to establish equality were provided. Similar to the results in math, candidates did not implement cultural activities, nor did they refer to culture or relate the lessons to ELs' culture. The candidates indicated assessment through comprehension questions, observations, journals, and a list of vocabulary words using word banks. This was demonstrated by reviewing vocabulary from the life cycle of a frog lesson. The directions were explained slowly and clearly in a step-by-step process. One candidate required ELs to complete a KWL chart after reviewing the information with other classmates and when asking questions, encouraged the use of the book as a resource.

Candidates demonstrated their knowledge of ESOL strategies by applying gestures, slower speech, pictures, and total physical response (TPR). The information was repeated in several different ways to assist with linguistic development and provide comprehensible input for ELs. In addition, modeling, cooperative-learning strategies, comprehension questions, motivational techniques, and specific praise were observed. Numerous ESOL strategies such as visuals, reading strategies, and comprehension checks appropriate for all levels of English proficiency were demonstrated.

One candidate began a lesson about tadpoles by reviewing background knowledge and then proceeding with an in-class field trip. Students discussed with a partner their observations and the lesson included additional visuals, and an assessment in which the candidate modeled. Another planned a lesson on polar bears using a picture book, key vocabulary, and by reviewing strategies for reading. In addition, the content of the lesson was connected to students' lives. ESOL strategies demonstrated in science met the linguistic and cultural needs of a diverse student population. Effective reading strategies such as chunking, previewing-predicting-confirming, and reading, rereading, and recalling were recorded. When discussing polar bears and the arctic with first graders, one candidate applied a chapter walk. Furthermore, candidates challenged ELs with questions that required higher order thinking skills. They monitored ELs' understanding throughout the lessons by encouraging peer assistance.

Additional observations revealed their awareness in making the lesson meaningful with a variety of ESOL methodologies to support ELs. A candidate gathered the ELs' background knowledge, helped to recall prior information and then asked the ELs to pretend that they were tadpole eggs. The candidate then used drama as they physically progressed through the life cycle of a frog. Eventually, all students were hopping around the room like frogs. Two books filled with pictures of the life cycle of a frog were read. ELs' attention was maintained by active involvement in the learning experience. Science lessons inclusively included numerous reading strategies for ELs with multiple learning modalities. August et al. (2010) confirmed that "combining good science teaching with scaffolding and a focus on language development is an effective method for helping English language learners in science classroom" (p. 6).

Elementary language arts. Observations in **language arts** methods courses also

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revealed that candidates were successful in applying ESOL strategies. They applied cross-cultural strategies, such as being familiar with the culture of an EL and relating to ELs' culture. Additionally, the role of diverse cultures into a curriculum, such as cultural reading materials in English and ELs' native language was discussed. In one methods class, an extensive multicultural annotated bibliography using a variety of genres was required. The genres included realistic, nonfiction, biographies, historical fiction, fantasy, traditional, and use of poetry. Research included books from six different cultures. In another language-arts methods class, reading games for ELs were designed, laminated, and ready to be used with ELs in field experience. Each educational activity observed was determined to assist candidates in understanding diversity and providing cultural insight and competence.

Observations confirmed that the candidates were able to plan and develop a curriculum to support ELs and include appropriate strategies and modifications. They researched and constructed reading games to teach fluency, phonological skills, vocabulary, letter-sound recognition, and sight-word recognition. Each of the reading games was planned to provide support for ELs at various proficiency levels, and were noted as interactive, engaging, and visually supportive. The directions for the games were clearly designed to support ELs' linguistic and cultural comprehension. Candidates demonstrated their knowledge of the role of reading in content areas and confirmed that using literature was essential in facilitating learning and cultural understanding. They shared that they would provide cultural books, native language books, and offer a variety of genres such as folklore, for all students to learn from and enjoy.

Indeed, observations in language-arts methods courses demonstrated their strengths in applying ESOL strategies. The objective of enhancing an understanding of culture, language arts, literature, and reading strategies was observed. It was reported that assignments improved the candidates' understanding of ways to use literature to advance reading and writing, and that utilizing cultural books was beneficial. One candidate explained how to incorporate folklore into a unit to support ELs' learning about other countries; while another explained how to create a unit about Irish American literature to teach about immigration. It was reported that using multicultural literature as a teaching tool reduces stereotyping and prejudice and that multicultural anthology was important for ELs' academic development.

Additional ESOL strategies incorporated were reading inventories, comprehension checks, listening comprehension, self-correcting as well as implementing an interest-attitude survey and seeking parental involvement to better meet the needs of ELs in their classrooms. Furthermore, information regarding how to assess ELs included a matching game, word wheel, literacy circle, reading inventory, observations, and alternative authentic assessments. Knowledge on how to give silent-reading assessments, listening-comprehension assessments, oral-reading assessments, and miscue analysis was recorded. For example, a candidate noted that asking questions that required "yes" or "no" answers was an effective assessment strategy. Another stated that ELs could draw if they were unable to write in English; and another stated that ELs could write in their native language, point to the correct answer, or complete a graphic organizer. Moreover, a willingness to provide ELs extra time and bilingual dictionaries to assist in completing assessments was reported.

Elementary social studies. During the observations of **social studies** methods classes, candidates actively participated in exchanging lesson plans and center activities. While they

shared the information in their lesson plans, the strategies applied to culture were apparent as they expressed how it was beneficial to include research of ELs' culture and in lessons on a daily basis. References to other countries were noted in discussing lessons, and cultural competence was most definitely evidenced in planning. Altogether, demonstration to plan ESOL strategies and modifications in social studies by using visuals, word banks, labels, technology, songs, and developing lessons that encompassed all learning modalities was recorded.

For example, candidates shared their lesson plans about landforms and climate, and for each lesson provided graphic organizers, cooperative-learning opportunities, and vocabulary instruction. One lesson offered a PowerPoint with pictures of real landforms and authentic instruction, which included higher order thinking questions, combined with diverse grouping, and a graphic organizer to be completed through a think-pair-share activity. The lesson culminated with an assessment that required students to write a short story about what they learned, and after completing the writing assignment, the students were expected to create a clay model of a landform. For ELs at lower proficiency levels in English, the assessment was modified to allow them to draw a landform to demonstrate their comprehension of the lesson.

Observations of candidates who developed social-studies centers revealed that several did not plan and develop full support for ELs. For instance, one created a word-find activity that did not include any modifications or strategies for ELs. In addition, another formulated a lesson about Veterans, which required students to answer questions by researching on the Internet; yet, this center activity did not incorporate any modifications or strategies for ELs. Both of the center activities would have been very difficult for ELs to complete if they were in the first two stages of second-language acquisition. However, most created centers that included multiple strategies and modifications for ELs at all proficiency levels.

For example, a center was created that required students to develop a personal timeline, and directions for completing it in the ELs' native language as well as an example of a finished project for ELs to follow. The activity incorporated group work with ELs assigned to a partner and visuals and additional support resources, such as books and computers. Furthermore, the timeline was about the students' life from birth to present, and following that, students included historical events that occurred during that time period. The candidate explained that if the center posed difficulty for ELs to write the information, they could draw the required information.

Another center activity that incorporated a variety of ESOL modifications and strategies was that of an ancient culture game in which a candidate made boxes filled with visuals and facts about three ancient cultures and countries of Egypt, India, and China. This center activity was developed to meet the linguistic needs at all proficiency levels, and it was fashioned in a way that ELs could work with a partner or individually. Even though some created centers that were not conducive to meeting the needs of ELs, many other lessons and centers were complete with strategies to satisfy the learning needs and linguistic needs of a diverse group of students.

In a similar manner, observations continued to produce results that demonstrated candidates' ability to incorporate and apply ESOL strategies. A variety of resources, including computers, maps, videos, songs, and PowerPoint presentations to assist with providing comprehensible input for ELs was recorded. Additionally, ways to implement graphic organizers and reading strategies such as read-aloud and pre-teaching of vocabulary were discussed. Samples, labels, cooperative learning, and realia were also evidenced throughout lessons. For

example, the candidates provided an explanation of an economic lesson about money and savings, and a lesson on trading and bartering. For the lesson, American money and money from another culture were used. ELs chose a book for a read-aloud based on respective cultural background. This lesson concluded with a sequence chart for ELs to collaborate and complete.

Similarly, candidates developed lessons about trading and bartering, where students created a tribe using macaroni noodles, beads, and string along with various other materials. Students followed the description of the game and learned how to trade and barter the goods. Most of the lessons demonstrated knowledge of how to apply ESOL strategies. Another candidate taught a lesson on Lewis and Clark and provided a list of questions for ELs to answer using computers, ELs worked with a partner for this activity. Another created a lesson with a center activity about U.S. Presidents filled with visuals, picture cues, simplified vocabulary, and cooperative learning activities.

Predominantly, observations in social studies methods courses revealed that a variety of assessment strategies were discussed which included the use of graphic organizers, comprehension questions at all four proficiency levels, cloze questions, the use of word banks, oral exams, and alternative assessments such as creating a poster, self-assessment, peer assessment, portfolio, or a rubric. In a like manner, many strategies to support language needs were demonstrated such as active, hands-on activities, KWL charts, cooperative learning, visuals, charts, graphs, and oral responses specific to ELs' proficiency levels. Additional strategies included pointing to items in the lesson, highlighting key vocabulary words, using videos, books, and songs in a lesson, and previewing the textbook prior to reading it.

These effective ESOL strategies along with candidates' indication that they would show ELs as much as they could throughout a lesson, label items, and try to teach to all learning modalities were recorded. One shared a lesson about map reading and the American colonies, and expressed how using a graphic organizer and preteaching vocabulary would benefit ELs. Another teacher candidate created a lesson about maps and stated that developing a key to assist ELs with reading the map, strategically choosing a partner for ELs, and offering pictures would be beneficial in supporting ELs.

Analysis of Research Question 2

Quantitative data were collected to answer the second research question: What are the teacher candidates' strengths and weaknesses when applying ESOL strategies for culture, curriculum, methods, assessment, and linguistics? To answer this question, the mean scores were analyzed to delegate the strengths and weaknesses of the teacher candidates' ability to apply ESOL strategies in each of the content-area courses of math, science, social studies, and language arts. The mean represents the average frequency of observable ESOL strategies in each of the content courses as aligned to the ESOL domains on the observation instrument. The mean ranges for this study were 0 to 11.

The mean scores were analyzed through the use of a bar graph for each of the content areas. Then using the mean score, a quality assessment was applied to each of the five domains using a Likert scale, which, in turn, provided an evaluation of the ESOL-infused program at the college. Finally, a statistical analysis was conducted to determine the standard deviation of the

mean to provide a measurement of the probability to predict results for future observations at this college.

Observations during **math** indicated that strategies were applied in linguistics ($M = 6.5$) to show a strength in knowledge in this domain. However, the mean in cultural competence ($M = 3.0$) indicated that candidates applied fewer strategies during math. This may indicate that they have less applicable knowledge about the effects of culture when teaching math (See Appendix B).

The observations during **science** indicated that strategies were applied in the area of ESOL methods. Data show that candidates were able to implement strategies applicable to ELs' various proficiency levels. The observations revealed a mean application in assessment to be 2.5 out of a frequency range from 0 to 11. The data indicate that candidates applied more ESOL strategies for ELs' various proficiency levels in methods ($M = 7.0$) and less in assessment. Thus, candidates did not readily identify ways to assess ELs while participating in science (See Appendix C).

The mean frequency range of use of ESOL strategies in curriculum support for **social studies** was 10.5 using a scale of 0 to 11. The data indicate that candidates have ample knowledge and ability to apply ESOL strategies when developing respective content to support ELs. Nevertheless, an average rating of $M = 5.5$ was recorded for culture when applying ESOL strategies. This indicates that their ability to apply cultural competence in social studies was weaker than the other domains (See Appendix D).

Observations in **language arts** revealed an average rating of $M = 11.0$ for cultural competence, which was relatively high. This outcome indicates that they effectively applied their knowledge of culture in language-arts; however, assessment received an average rating of $M = 4.5$, which indicates that candidates applied fewer strategies in this domain. Their ability to apply ESOL strategies to culture was stronger (See Appendix E).

Overall, candidates frequently applied ESOL strategies to all of the ESOL domains. The data were further analyzed using a Likert scale to evaluate the efficacy of an ESOL-infused model in this teacher education program. To evaluate the strengths and weaknesses, a total of each of the tallies from the observations of the methods courses was calculated to formulate a mean score and then applied to the five ESOL domains. The mean score for each of the ESOL domains was applied to the Likert scale to produce an evaluation of the program. The Likert scale ranged from 0 (*unobserved or expectations were not achieved*) to 7+ (*exceeds expectations*).

The domain of **culture** for methods courses received a mean score of $M = 5.875$ and, when applied to the Likert scale, resulted in a rating of *above-average expectations*. The domain of **curriculum** for methods courses produced a mean score of $M = 7.75$ and, when applied to the Likert scale, resulted in a rating of *exceeds expectations*. The **methods** mean score was $M = 6.81$ and, when applied to the Likert scale, resulted in a rating of *above-average expectations*. The mean score for **assessment** was $M = 4.75$ and, when applied to the Likert scale, resulted in a rating of *average*. Finally, the mean score for **linguistics** was $M = 7.25$ and, when applied to the Likert scale, resulted in a rating of *exceeds expectations*. The scores from the Likert scale signify areas in which the ESOL-infused program may need to make improvements to enhance specific

ESOL domains as well as strengthen ESOL infusion.

The Likert scale revealed that the elementary education ESOL-infused program was strong and effective in producing average and above-average expectations in the five ESOL domains. The results indicate that knowledge and application of ESOL strategies in **assessment** was within the average range and as a result, the program should look to improve ways to promote more ESOL strategies in assessment. An evaluation of the program's **curriculum**, as well as classroom instruction and instructor training in ESOL should be done to identify the specific areas that may need to be improved. The Likert-scale results for the domains of culture and methods indicated above-average expectations; thus, knowledge and application of ESOL strategies in both of these domains was strong.

An analysis of the data revealed that an ESOL infused program is an effective model. Scores from the Likert scale ranged from *average* to *exceeds expectations* and the data from class observations revealed ESOL strategies were effectively used in elementary classrooms. Additionally, candidates reviewed language arts and social studies course assignments and within these assignments, they directly applied ESOL strategies to their lessons and activities. The findings indicate that an ESOL infused program is effective and candidates are acquiring the essential knowledge of ESOL strategies for the elementary classroom. This evidence aligns with Williams and Amodei's (2014) study that showed an increase in teacher candidates' awareness of culturally responsive teaching after enrolling in a one-year ESOL strategies course. Dellicarpini (2014) reiterated the need to ensure collaborative activities throughout infused pedagogy courses to enhance learning for all students (p. 138).

The ESOL-infused program evaluation data were applied to a histogram for the purpose of formulating an analysis for standard deviation through a bell curve (See Appendix F). The histogram depicts the number of instances ESOL strategies were applied in methods courses per the number of observations that occurred; thereby, showing the number of tallies recorded on the observation. Vertically on the histogram, the frequency of tally counts recorded on the observation was denoted, which signifies the frequency at which the same number of tallies was recorded on the instrument during observations. The most tallies that were recorded were 20, but this occurred only one time. The number 56 represents the sample size, which is the total of the five domains, four methods courses, and two observations per course.

The bell curve represents the mean for the ESOL-infused program and shows that candidates were able to apply ESOL strategies for all domains on a consistent basis, as well as consistently apply ESOL strategies across content areas. The peak of the bell curve is the mean number of tallies and indicates that, regardless of the domain and regardless of the content-area course the number of tallies averaged 6.71 for this ESOL-infused program. However, the standard deviation of 3.561 reveals a relatively larger deviation from the mean. It is highly probable that the mean of 6.71 will be evident in future observations at this institution; however, the mean is not a statistical standard that can be used to predict results for other colleges and universities implementing an ESOL-infused model. Therefore, a prediction cannot be made regarding the implementation of ESOL strategies at other institutions of higher education; yet, the observation instrument can be utilized as the standard-evaluation instrument and applied as a tool to identify the efficacy of an ESOL-infused program in other teacher education programs. In addition, the observation instrument enables a comparison between institutions.

Interpretation of Results

The results of the observations indicated that candidates applied research-based, theoretically sound, pedagogical philosophies when using specific ESOL strategies. Lessons were reported to be designed with developmentally appropriate activities and provided support for students from diverse cultural backgrounds and at varying English proficiency levels. Methods to demonstrate concepts and enhance content vocabulary, as well as opportunities for students to learn from each other, were observed and reported. Indeed, active participation in the learning process was noted.

An awareness to take into account ELs' background knowledge and experience, which encompasses culture, language, learning modality, and cognitive ability, was evidenced. Candidates were presented with the theoretical application of knowledge about ESOL and then directly applied and practiced ESOL strategies during their final internship. An analysis of the Likert scale revealed that they were strong in all five domains. The results in linguistics and curriculum indicated that teacher candidates exceeded expectations in applying ESOL strategies; however, the ability to apply ESOL strategies in assessment fell in the average range when applied to the Likert scale. Results in culture and methods had a mean score that placed them in the range to indicate that applications of ESOL strategies were above average expectation.

The overall results indicate that an ESOL-infused elementary education program is effective in teaching ESOL strategies to teacher candidates. Although fewer ESOL strategies in assessment were found when applied to math, science, and social studies, a sufficient number of ESOL strategies were reported. Curriculum maintained a higher mean, indicating that candidates consciously fashioned curriculum in the respective content areas to support ELs and used ESOL modifications in planning.

Furthermore, candidates utilized a methodology that was conducive to a positive and supportive educational experience for ELs. They implemented ESOL strategies for ELs at various English proficiency levels and provided comprehensible instruction through technology, books, and other materials. Assessment in math and science courses were reported to have a relatively lower mean; however, this may have occurred because only two teacher candidates were observed and an opportunity to review additional assessment options for ELs was not available. Observations of social studies and language arts content courses revealed a higher mean for ESOL strategies applied in assessment. Candidates participating in social studies courses shared lesson plans they developed, reviewed multiple assessments, and discussed how to implement alternative assessments for ELs. During the language arts observations, an annotated bibliography and a reading game were created; consequently, the opportunity to review additional assessments did not occur. However, candidates discussed assessments when sharing their reading games.

Linguistics maintained a higher mean and factors that influenced the frequency were methodologies employed. Candidates demonstrated that they were readily aware of a potential language barrier, proper modifications, and they implemented appropriate ESOL strategies to facilitate comprehension to engage all students. An analysis of the results pertaining to the application of ESOL strategies indicates that candidates were successful in applying ESOL strategies to support ELs in the elementary classroom. Moreover, the standard deviation indicates

that candidates at this institution frequently and consistently applied ESOL strategies in content courses.

The observation instrument may be used to evaluate other ESOL-infused programs and should provide data on the efficacy of teacher preparation programs infusing ESOL standards. In addition, the instrument should facilitate data on the knowledge, awareness, and strategies used by instructors of ESOL-infused courses.

Conclusion

This research study was completed at a small college in Florida and may be replicated to other ESOL-infused teacher education programs. The results show that ESOL infusion is an effective program model for teacher candidates. In addition, the learning experience from an infused teacher preparation program was evidenced in elementary public school classrooms with diverse multicultural students learning English. Candidates were able to practice implementing strategies for students from culturally and linguistically diverse backgrounds.

The limitations of this research were that methods courses were limited to the current semester with instructors and candidates. Furthermore, even though reduction of the observer effects was employed, there may have been some instances in which an instructor prompted teacher candidates to reveal knowledge of ESOL strategies. However, they were informed prior to the study not to disclose the nature of the research.

Other factors that influenced this research were that math and science methods courses were not offered during the time of this study. Observations of teacher candidates applying ESOL strategies for math and science occurred at the local elementary school where teacher candidates interned. The school was populated primarily by ELs. Even though fewer teacher candidates were observed across areas of math and science, this did not impose a significant impact on the results.

Future research should include a variety of assessments and evaluations to obtain a more in-depth analysis of the effects of an ESOL-infused program in teacher preparation programs. Further evaluation of ESOL infusion in methods courses, along with ESOL training for faculty should be considered. In addition, evaluations of other ESOL-infused programs should be completed to provide a comparative and a better understanding of the efficacy of an ESOL infused program. The research should be conducted on different methodologies and pedagogy that prove to be successful in producing highly effective teacher candidates. Piro & Hutchinson (2014) reported that teacher candidates are expected to prepare their students to learn in a language that may not be their native language (p. 106). It is the responsibility of teacher education programs to effectively prepare teacher candidates to teach in today's culturally and linguistically diverse classroom. Thus, teacher preparation in ESOL strategies and assessments is essential in order to advocate for all students who are learning English and who are from diverse cultures. Ensuring effective teacher education programs through program evaluation will improve quality and offer compelling evidence that the teacher preparation programs at the colleges and universities can effectively graduate future teachers who can maintain high academic standards and successfully teach a multicultural classroom of students.

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About the Authors

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Appendix A

Observation Instrument

Instructor: _____

Course: _____

Date: _____

Observation Time: _____

Number of Students: _____

Observer: _____

Purpose: To identify ESOL strategies in an elementary education ESOL infused program during a 50 minute class.

Directions: Tally the frequency of pre-service teachers’ application of ESOL strategies.

I. ESOL Strategies:

Frequency Specific Examples

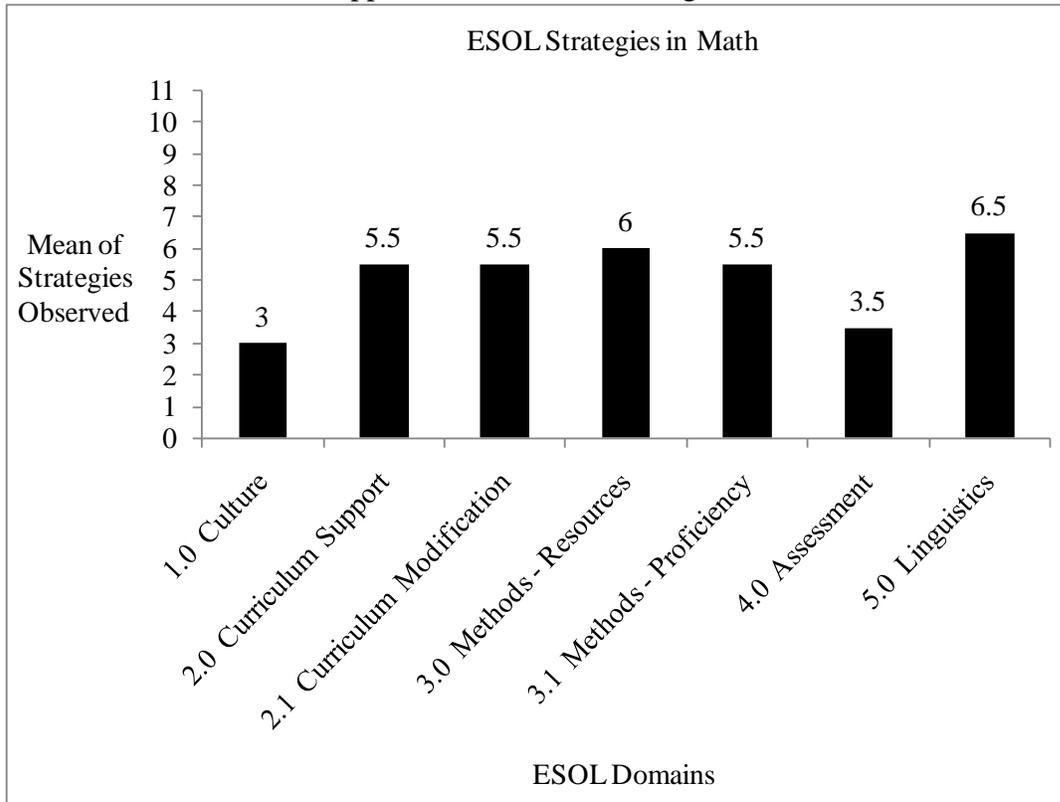
- 1.0 Applies knowledge of cross-cultural Competence (**Culture**)
- 2.0 Develops content area to support ELs (**Curriculum**)
- 2.1 Refers to ESOL modifications in planning for specific content area (**Curriculum**)
- 3.0 Provides ways to support ELs using resources, technology, or materials (**Methods**)
- 3.1 Implements strategies applicable to ELs at various levels of proficiency (**Methods**)
- 4.0 Identifies ways to assess ELs in content area (**Assessment**)
- 5.0 Demonstrates ways to modify language in content area for ELs (**Linguistics**)

<u>Frequency</u>	<u>Specific Examples</u>

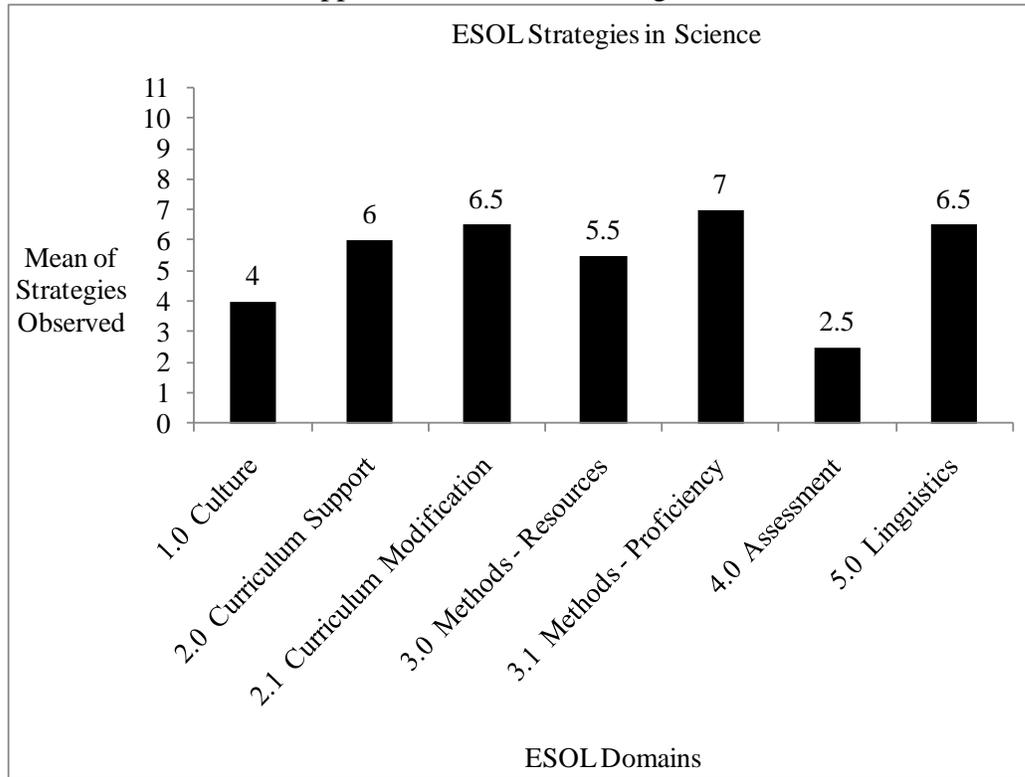
II. Observer’s General Comments:

(Revised from: J. Nutta and J. Govoni, 2011)

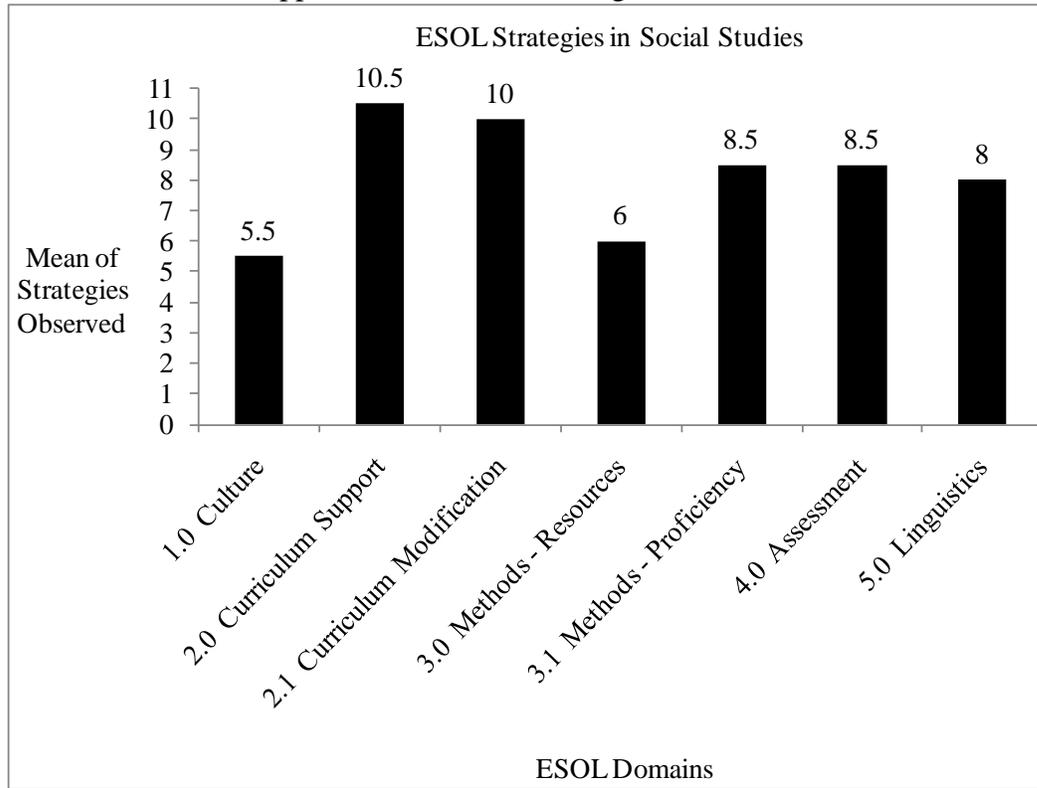
Appendix B
Application of ESOL Strategies in Math



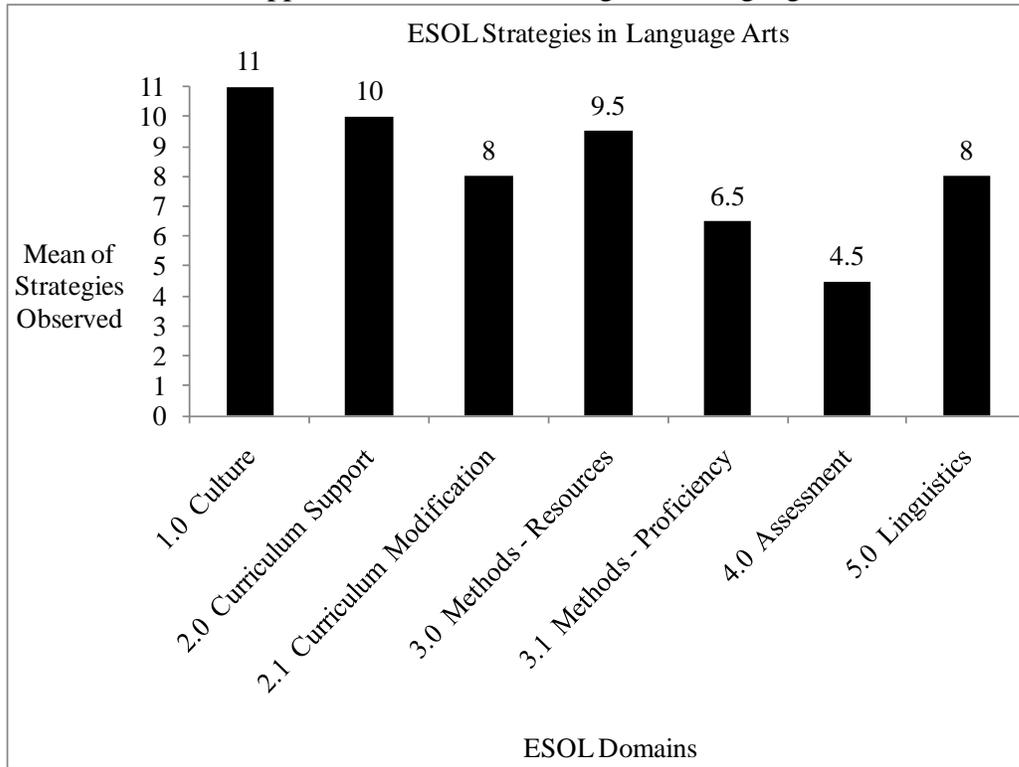
Appendix C Application of ESOL Strategies in Science



Appendix D
Application of ESOL Strategies in Social Studies



Appendix E
Application of ESOL Strategies in Language Arts



Appendix F
 Standard Deviation of the ESOL- infused Program

ESOL-infused Program Evaluation

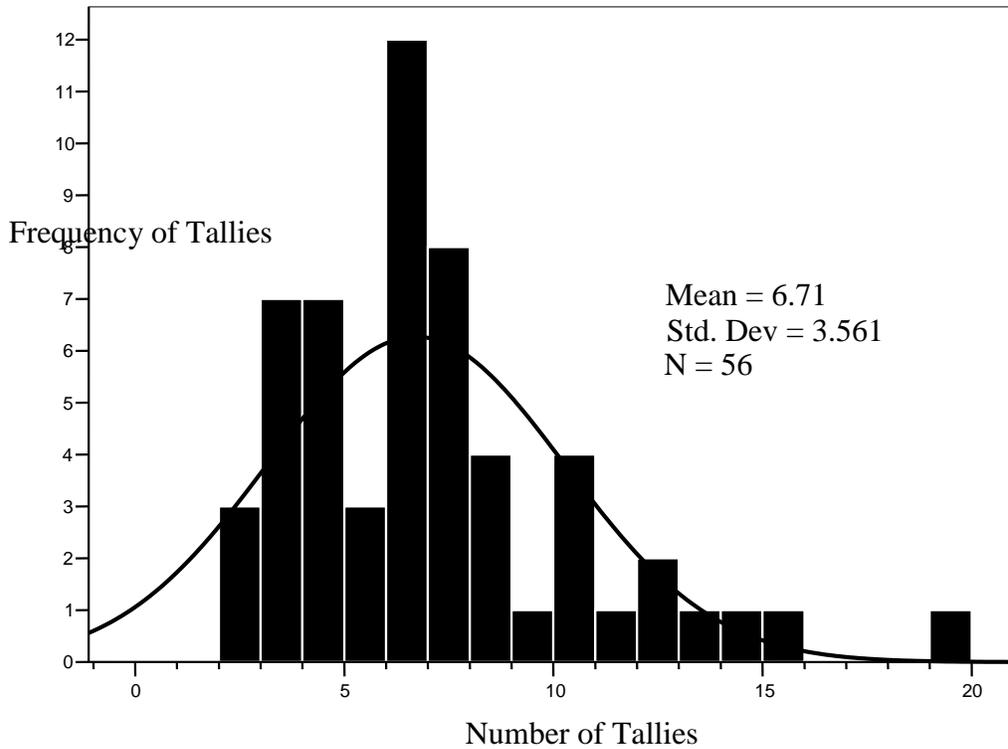


Figure. Standard deviation of the ESOL-infused program. The vertical bars in the figure denote the frequency at which the same number of tallies was recorded for each of the five domains. Mean = Average number of tallies recorded regardless of the course and domain. Std. Dev. = Standard deviation from the mean. N = sample size of the domains, content courses, and observations.