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English language learners (ELL) are a growing population in U.S. schools. ELL students are expected to meet the same learning standards as their native English-speaking peers. The progress of ELL students has been poor and evidence suggests that teachers are not prepared to help these students. Many best practices in teaching ELL students are similar to best practices for teaching physical education (PE).

The purpose of this study was to determine the effectiveness of a four week “PE Plus” intervention designed to incorporate Greek and Latin stems into the PE classroom. A curriculum was designed including warm-up activities which incorporated Greek and Latin stems that were previously taught in the students’ English Language Arts (ELA) class. Students participated in three to four stem warm-up activities per week, for four weeks, as part of their regular PE instruction. Pre and post-tests on student knowledge of these stems were given in the ELA class and compared over time as well as with a control group who did not participate in the warm-up activities. After four weeks, the control group received the intervention, and the original experimental group served as the control. Following each “PE Plus” lesson, students were asked to complete a five-question survey about the effect of the warm-ups on their knowledge of stems and enjoyment of the activities.

Although changes in stem test scores were not significant, the qualitative data analysis of the field notes, students responses, and reflections indicated that the “PE Plus” warm-ups were enjoyable, students were engaged in the activities, and students felt that participation helped them learn their Greek and Latin stems.

PHYSICAL EDUCATION FOR LANGUAGE ACQUISITION

IN MIDDLE SCHOOL ELLS

by

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Approved by

_____
Committee Chair

I would like to dedicate this work to my family, my husband Jason, children Henry and Emily, and my parents Jim and Betty, I could not have done it without your encouragement and support. I would also like to thank my coworkers and principals for going out of their way to help make it all happen.

APPROVAL PAGE

This dissertation, written by Anna Arlart Winstead, has been approved by the following committee of the Faculty of The Graduate School at the University of North Carolina at Greensboro.

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CHAPTER I

PROJECT OVERVIEW

The population of English language learners (ELL) in public schools in the United States is rising. As of 2015, 9.5% of public-school children were ELL students (National Center for Educational Statistics, 2018). The progress of ELL students has been poor. Many teachers are not prepared to support their learning and as a result, students are not reaching their maximum potential. Beginning level ELL students are often isolated, vulnerable, and at risk for failing out of school (Zacarian & Haynes, 2012). A report by Constantinou and Wuest (2015) shows that including academic language in the physical education (PE) classroom can enhance the language learning of ELL students. Additional research, though limited, suggests PE is a beneficial environment to support and further the English language learning of ELL students (Donnelly et al., 2016; Gomez & Jimenez-Silva, 2012; Mavilidi et al., 2016). The research on English language acquisition within the PE environment is lacking in the adolescent population. Current research is specific to early childhood and elementary populations or does not identify a target population (Bell & Lorenzi, 2004; Gomez & Jimenez-Silva, 2012; Rosborough, 2014; Sato, Walton-Fisette, & Kim, 2019). Further investigation is warranted to determine the teaching methods applicable to PE lessons that have the greatest impact on English academic language acquisition for adolescent ELL students. Evidence gained from this study will inform the instruction of adolescent PE students as well as ELL students with the goal of improving academic language learning.

Background

ELLs continue to enroll at increasing rates in public schools in the United States. In South Carolina public schools, as of 2012, the average ELL population is 5.4% (Education Commission of the States, 2014). ELLs are defined as students with limited knowledge of the English language. These students are either new to the United States and/or come from homes where the primary spoken language is something other than English. In South Carolina, all students are held to the same academic learning standards and standardized testing benchmarks regardless of their level of English language proficiency. Many ELL students are not meeting these standards.

Much of the research on effective strategies for language acquisition suggest supporting language learning in all content areas. The majority of this research focuses on math, language arts, science, and social studies as the content areas. A study incorporating PE and Irish language learning proved to be effective in benefiting the acquisition of Irish in elementary age students. Students enjoyed learning in an active environment. Teachers observed that students were more engaged and responsive to learning and that physical demonstrations helped to address gaps in language understanding (Ní Chróinín, Ní Mhurchú, & Ó Ceallaigh, 2016). There is a limited body of similar research in the use of PE as an environment to support and further the English language learning of ELL students (Donnelly et al., 2016; Gomez & Jimenez-Silva, 2012; Mavilidi, et al., 2016). This research suggests that the PE environment is successful in benefiting language learning.

Acquiring Language

The three major aspects of second language acquisition include input, output, and feedback. Each aspect can be supported through high-quality PE instruction.

Students acquire input from a variety of sources including peers, teachers, and their home environment. Physical education classrooms provide a variety of input opportunities through verbal description of activities accompanied by physical demonstrations and supported by visual, written, and pictorial cues. Repetition of the proper vocabulary is also part of effective input. This repetition is easily incorporated in the PE classroom through teacher instruction and feedback as well as through Cooperative Learning (CL) and the use of academic language (Calderon, Slavin, & Sanchez, 2011).

The next aspect of second language learning is output. In this phase, the learner begins to produce the new language. For successful output, learners must analyze the language and make modifications, if needed, in order to make their message comprehensible. Physical education teachers can scaffold students output through student-teacher interactions and by providing opportunities for ELL students to communicate with their native speaking classmates about lesson content.

The final aspect of language acquisition is feedback which includes implicit and explicit information about what is possible in the new language. Implicit feedback is offered each time an ELL hears a native speaker communicate. Additionally, it is important to provide feedback through requests for clarification when language is used incorrectly. Physical education teachers can support feedback through their conversations with ELL students. The PE setting can also provide opportunities for extended conversations on a topic that is familiar and comfortable for the students providing them with valuable input, output, and feedback in support of their language learning. These meaningful interactions with teachers and peers help ELL students

develop critical thinking skills, practice normal interaction and become familiar with typical school-based vocabulary and tasks (Bell & Lorenzi, 2004).

ELL Best Practice

Effective strategies for supporting English language acquisition include academic vocabulary instruction integrated into other content areas, the use of a student's primary language, peer buddies with the same primary language, the use of visuals, conducting demonstrations, CL opportunities, and instruction on word parts (roots/stems, prefixes & suffixes) (Bauer & Manyak, 2008; Bresser, Melanese, & Sphar, 2009; Calderon et al., 2011; Cruz & Thornton, 2012; Echevarria, Vogt, & Short, 2018; Short, Becker, Cloud, Hellman & Levine, 2018 and Short & Echevarria, 2005). Including academic language in the PE classroom will enhance the language learning of ELL students (Constantinou & Wuest, 2015). Academic language is defined as "the language used in school to acquire new or deeper understanding of the content and communicate that understanding to others" (Gottlieb & Ernst-Slavit, 2014, p. 4). Knowledge of Greek and Latin stems can help students predict the meaning of new words containing familiar stems helping to build their academic vocabulary (Echevarria, et al., 2017; Palumbo, Kramer-Vida, & Hunt, 2015). Effective lessons for ELL students incorporate content objectives, specific to the subject being taught, as well as language objectives designed to facilitate language learning. Instruction on word parts, including roots/stems, prefixes, and suffixes are an important aspect of language objectives for ELL students. Greek and Latin stems are a part of the English Language Arts (ELA) curriculum in all grade levels at the study school. When the PE teacher emphasizes the teaching and learning of stems and related vocabulary, both English speakers and ELL students are learning new vocabulary applicable to PE, as well as other subject areas.

The strategies used to teach academic language in the PE setting are beneficial strategies for teaching ELL students English language vocabulary, as well as providing an opportunity for them to practice discourse in a comfortable setting (Constantinou & Wuest, 2015). These strategies include, but are not limited to: demonstrations, the use of pictures and equipment, opportunities to use the language, visually posting new vocabulary, repetition of the vocabulary, and CL groups (Klingner, Boardman, Eppolito, & Schonewise, 2012; Martin, Klinkenborg & Wetherington, 2018; Samalot-Rivera, Treadwell, & Sato, 2018). Effective PE teachers incorporate these strategies into their lessons to facilitate the learning of PE academic language for all students, not just ELL students (Gomez & Jimenez-Silva, 2012; Martin, et al., 2018). By applying these strategies to the teaching of Greek and Latin stems, PE teachers can enhance the language acquisition of their ELL students.

Physical Activity and ELL

The use of physical exercises and gestures to teach a new language was effective in a study with preschool children (Mavilidi et al., 2016). The integration of physical activity specific to the meaning of the content being learned positively impacted student retention. The study revealed that incorporating movement specific to the concepts being taught is more effective than generic movements or no movement at all. Additionally, PE teachers can support language acquisition by introducing concepts and vocabulary in the students' native language, with a visual aid, and with the English word. These strategies help students to better understand the skill as well as learn the English words for the vocabulary (Samalot-Rivera, et al., 2018). Developing vocabulary is an important aspect of ELL instruction and can be supported through CL activities, including small group work and problem-solving activities (Dyson, Linehan & Hastie, 2010).

Students can participate in relay activities where they collect letters or words and use them to create meaningful words and sentences. These strategies benefit both ELL students as well as native English speakers (Bell & Lorenzi, 2004).

Socializing and ELL

The social aspect of the PE classroom facilitates language learning when a safe environment is created, and students feel comfortable speaking and learning (Gomez & Jimenez-Silva, 2012). The social aspect of language learning is critical for adolescent ELLs. In a cooperative PE environment, students are encouraged to interact with their classmates and have a multitude of opportunities to practice language use and to experiment with new language skills (Turuk, 2008). Language learning requires abundant practice and then more practice (Snow & Campbell, 2017). Cooperative learning is a proven strategy effective for general education students, ELL students, students with exceptionalities, as well as PE instruction (Dyson, et al., 2010; Gersten & Baker, 2000; Johnson, Johnson, & Roseth, 2010; Miller, McKissick, Ivy, & Moser, 2017). Strategies such as CL also encourage positive supportive interactions among students (Dyson, et al., 2010; Gersten & Baker, 2000; Johnson, et al., 2010; Miller et al., 2017). Learning language requires the combination of experiential learning opportunities and strategies that appeal to all types of intelligences (Philominraj, Bertilla, Ramírez-Muñoz, & Fuentealba, 2018). Developing strategies like CL within the unique environment of the PE classroom has the potential to positively benefit the academic language acquisition of ELL students. Properly designed PE classes will provide an opportunity for ELL students to practice their language through communication and collaboration with their native speaking and English-speaking classmates.

With similar best practice teaching strategies in both ELL classrooms and PE classrooms, PE provides an appropriate environment to facilitate the learning of stems and English academic language required for success in school (Gottlieb & Ernst-Slavit, 2014). Due to the fact that linguistic diversity is rising, PE teachers are being expected to include teaching strategies appropriate for their ELL students and teachers are in need of the skills in order to achieve this (Gomez & Jimenez-Silva, 2012). Further investigation is warranted to determine the most effective PE teaching methods that have the greatest impact on learning roots/stems and English academic language for adolescent ELL students.

Purpose and Aims

The purpose of the study is to evaluate a specially designed "PE Plus" curriculum to determine its effectiveness in facilitating Greek and Latin stem learning for ELL students.

Specific Aim #1: Evaluate the effectiveness of PE instruction that incorporates ELL best practices to facilitate English academic language learning of Latin and Greek stems in middle school ELL students.

Specific Aim #2: Assess student perceptions of the effectiveness of the "PE Plus" curriculum on their learning of Greek and Latin stems.

Methods

This study used mixed methods to address the purpose and aims (Creswell, 2015). A convenience sample was recruited from adolescent ELLs in grades 6-8 at a school in South Carolina who were enrolled in PE during the fall semester of the 2019-2020 school year. At the time of the study, there were 115 ELL students enrolled at the designated school, accounting for 13.4% of the overall school enrollment, which is above

the national average. Of these students, 48 receive daily ELL services from the ELL teacher and the other 67 are consultative, meaning that they are still being monitored by the ELL teacher but do not receive pull-out instruction. A total of 45 ELL students enrolled in PE for the fall semester. Twenty-seven ELL students returned parental consent forms and signed the student assent form. The native language of 17 of the participants was Portuguese, for eight it was Spanish and the remaining two were native Vietnamese speakers. Nineteen of the 27 participants received daily ELL services for 40 minutes with a certified ELL teacher. The other eight participants were classified as consults. Eighty percent attendance was required for the study and all students met this requirement. Students were placed in Group A or Group B based on which section of PE they were assigned to. There were 18 students in Group A and 9 students in Group B. The students in Group A were either entering, emerging, or developing, which are the three lowest levels according to the WIDA proficiency scale. The students in Group B were either consultative or expanding, bridging, or reaching, which are the three highest levels according to the WIDA proficiency scale (Board of Regents of the University of Wisconsin System, 2019).

Measures

Multiple data sources were used to provide a more complete picture of the impact of the PE environment and teaching strategies used in the “PE Plus” curriculum on Greek and Latin stem learning in ELL students. Quantitative data included student test scores on three stems tests. Qualitative data were collected from student surveys, field notes, and critical reflections by the principal investigator (PI), myself.

Stems Tests. Data were collected on the students’ knowledge of stems and their meaning through a standard test given to all students in their ELA class. This test was

given bi-weekly five times during the eight weeks of the study. Three of the five tests were used for comparison. The stems are introduced in lists of 8-10 depending on the grade level. Students were introduced to the list, given two weeks to learn and study the list, and then tested. Once a list appeared on a test, it appeared on all successive tests. Test one had 10 questions, test 2 had the same 10 questions plus 10 new questions, test 3 had the same 20 questions as test 2 plus 10 new questions and so on. The tests built on each other and got longer and more difficult as new stems are added every two weeks. Stems tests were given before and after the “PE Plus” interventions.

Surveys. Students’ perceptions of the effectiveness of the interventions and their enjoyment of the activities were collected through surveys completed following each stem warm-up activity. Survey questions can be found in Appendix A. Questions 1 and 3 were rated on a scale of 1-5 ranging from *not at all, to somewhat, to very much,* and questions 2, 4, and 5 were open ended responses.

Teacher Evaluations. Implementation fidelity is one way to provide for dependability. In order to support this several teachers observed the PI’s implementation of the “PE Plus” instruction including the ELL teacher, several ELA teachers, and the other PE teacher at the school. These observers used the form in Appendix B and focused on APS sections 4, 6, 7 and 8. Their primary purpose was to look for evidence to support implementation fidelity and student engagement in the activities.

Field Notes. Finally, in order to ensure that the curriculum was implemented as designed, the PI kept field notes and completed a critical reflection following each lesson. These notes were recorded immediately following each PE Plus lesson. The field guide template included in Appendix C was used.

"PE Plus" Intervention

A four-week "PE Plus" curriculum composed of warm-up activities focused on improving knowledge of targeted stems and their meanings was created and implemented by the PI. This curriculum was designed to facilitate the learning of ELL students and included cooperative activities, demonstrations and the use of visuals to incorporate Greek and Latin stems and their meanings into three PE lessons each week. The instruction on stems list one lasted two weeks and was followed by the post-assessment which included the pre-assessment of the next list of stems. This was followed by another two-week intervention on new stems from list two and a post-assessment. For the second round of instruction with Group B, students received a mix of list one and two for the first two weeks and a mix of lists three and four for the second two weeks. Additionally, students participated in activities throughout the sport aspect of the lesson that incorporated their stems in order to engage their brain and enhance their language learning. This curriculum was created with input from the ELL teacher at the study school in order to ensure that the teaching strategies used were consistent with best practices for ELL instruction. The selected Greek and Latin roots/stems were taught through physical demonstrations of stem meanings, engagement in physical activity, and CL activities with native language speakers as well as English speaking peers. Students were organized into CL groups which included ELL students, bilingual speakers of the ELL student's native language as well as native English speakers. Initially students were grouped heterogeneously based on their level of language acquisition to offer language support for the Stem aspects of the lessons. These groups were designed to encourage conversations and the use of the new vocabulary. Later on, as students became more familiar with the Stem warm ups, I grouped them heterogeneously based on their

physical skill level to support sport skill learning. It was challenging to group students heterogeneously for both language and skill because students who are lower level English speakers are not necessarily lower level in the sport skills. “PE Plus” activities included: Spell the Stem now DO the Stem, Partner Fitness, Stem Match Relay, Stem Memory Relay, I have/Who has, Stem Charades, Stemgrams, and Words with Stems. Detailed descriptions of each warm-up activity are included in Appendix D. The activities were implemented in the above order, beginning with the easier task of matching and advancing to more complicated tasks like creating actions to demonstrate the meanings and applying stems to new vocabulary.

As the PI, I delivered the “PE Plus” curriculum. To ensure implementation fidelity, detailed lesson plans, an example is included in Appendix D, were used to ensure that all aspects of the curriculum were accurately delivered. In addition, detailed field notes were kept along with critical reflections.

Procedures

In the 5th week of the semester, parent consent forms were sent home for the use of student data in the study. Student assent was obtained from the students whose parents gave consent. Following IRB approval and approval from the school district students took their first Stems assessment. The Monday following the pre-assessment, “PE Plus” instruction began with six and eighth grades, however, seventh grade was a week behind, so they started the following Monday. One PE class at each grade level was assigned to Group A and the other section to Group B. Group A students were the first to be instructed using the “PE Plus” model, and Group B received standard PE instruction. After four weeks, Group B received the intervention, and Group A received

standard PE instruction. Surveys were given daily following the “PE Plus” lessons and were specific to the stem warm-up used that day.

Analysis of Data

The data from the stems tests were analyzed using a Group (A/B) x Time (3 test times) mixed ANOVA for the main analyses to look at overall group effect, time effect, and interaction. Once all surveys were collected, frequencies and weighted averages of the scaled responses to questions one and three were calculated. Next, the other three questions were analyzed by grouping and identifying common themes in student responses. Trustworthiness was established through the use of data analysis strategies (Lincoln & Guba, 1985). For example, field notes, students’ responses and reflections were analyzed utilizing constant comparison producing five themes. Confirmability was established by continually reading and rereading field notes to code the notes into themes. In addition, field notes were compared to critical reflections and triangulated with student responses to survey questions (Lincoln & Guba, 1985). Transferability is difficult to establish however it can be argued that these findings related directly to best teaching practices and are consistent with the findings from other studies that have been carried out in the classroom (Bauer & Manyak, 2008; Bresser et.al, 2009; Calderon et. al, 2011; Cruz & Thornton, 2012; Echevarria et. al, 2017; Short & Echevarria, 2005). Credibility was established through strategies of peer debriefing with my partner teacher, another teacher at the intervention school, and with my EdD committee as part of their supervision of the project.

Findings

Stem test score results are presented first followed by survey results and finally, observations based on field note reflections.

Stem Score Results

The Stems test scores did not reveal an intervention effect. Both groups increased at mid measure and decreased at the final measure. Group B consistently scored better than group A. The mean scores for each group are displayed in Table 1. Group A received the “PE Plus” intervention between test 1 and test 3 and group B received the “PE Plus” intervention between tests 3 and 5.

Table 1

Mean Stem Test Scores Over Time By Groups

Group	Pre Test A Test 1	Post Test A/Pre Test B Test 3	Post Test B Test 5
A	78.79	86.50	76.36
B	88.33	97.67	85.00

Scores for both groups improved between test 1 and test 3 and declined between test 3 and test 5. Both groups changed over time, however, they both changed in the same direction, in the same interval. The intervention group did not improve more than the nonintervention group.

Survey Results

The surveys provided very valuable information about student perceptions of their enjoyment of the activities and the effectiveness of each warm up activity on their learning of the targeted stems. In general, the students enjoyed the activities and felt that they did help them learn their stems. The following tables summarize the results from the two Likert scale survey questions. All activities had an overall positive rating for both enjoyment and learning. Most responses ranged from somewhat to very much and the average ratings were 3.5-4.5.

Table 2

Frequencies and Average Ratings For “PE Plus” Warm-up Activities Round 1 Group A

Warm up		**1 Not at All**	**2**	**3 Somewhat**	**4**	**5 Very Much**	**Average Rating**
	“like”	2	1	9	6	22	4.13
I/Who has	*“help”*	*5*	*4*	*12*	*5*	*14*	*3.48*
Partner	“like”	3	1	13	2	13	3.66
Fitness	*“help”*	*3*	*1*	*13*	*4*	*9*	*3.5*
	“like”	1	0	6	2	11	4.1
Spell/DO	*“help”*	*2*	*0*	*7*	*1*	*10*	*3.85*
Stem	“like”	4	1	11	5	7	3.36
Charades	*“help”*	*5*	*3*	*7*	*5*	*8*	*3.29*
	“like”	3	0	10	2	8	3.52
Stemgrams	*“help”*	*3*	*0*	*10*	*3*	*7*	*3.48*
Stem	“like”	6	2	20	12	30	3.66
Memory	*“help”*	*6*	*5*	*20*	*9*	*31*	*3.76*
	“like”	5	2	32	15	25	3.67
Stem Relay	“*help”*	*13*	*3*	*22*	*12*	*24*	*3.42*
Words with	“like”	1	0	0	0	6	4.43
Stems	*“help”*	*2*	*0*	*1*	*0*	*6*	*3.89*

Row 1 responses to Question 2: Did you like today’s Stem warm-up activity?
Row 2 responses to Question 4: Did today’s Stem warm-up activity help you learn your stems?

Table 3

Frequencies and Average Ratings For “PE Plus” Warm-up Activities Round 2 Group B

Warm up		**1 Not at All**	**2**	**3 Somewhat**	**4**	**5 Very Much**	**Average Rating**
Partner	“like”	1	0	3	3	1	3.38
Fitness	*“help”*	*1*	*2*	*2*	*3*	*0*	*2.88*
	“like”	1	1	15	5	9	3.65
Spell/DO	*“help”*	*3*	*6*	*10*	*4*	*11*	3.41
Stem	“like”	0	1	5	4	10	4.15
Charades	*“help”*	*0*	*2*	*3*	*4*	*10*	*4.16*
Stem	“like”	1	3	7	7	4	3.45
Memory	*“help”*	*2*	*4*	*5*	*6*	*6*	*3.43*
	“like”	3	4	19	5	16	3.57
Stem Relay	*“help”*	*6*	*5*	*14*	*5*	*16*	*3.43*

Row 1 responses to Question 2: Did you like today’s Stem warm-up activity?
Row 2 responses to Question 4 “help”: Did today’s Stem warm-up activity help you learn your stems?

Open-ended Survey Questions

Three of the survey questions were open ended response questions and were analyzed using thematic analysis. The questions were as follows; Q2: What was the best part of the Stem Warm-up? Q4: What did you learn from today's Stem Warm-up? and Q5: What would you change about the Stem Warm-up activity to make it better? All responses were recorded and themes were developed based on the most common responses. This section breaks down the emerging themes.

Best Part. "Nothing" was the most common theme for Q2. This appeared as a response for almost half of the "PE Plus" warm-up activities. "Running" was another common theme and suggests that students enjoyed the physical activity aspect of the lessons. The next most popular theme was "everything" or "all of it". The final theme in this section was "matching". Several of the warm-ups were matching games and almost all of them required students to match stems with their meanings suggesting that students enjoyed the stem aspect of the warm-up activities.

I Learned. Responses for this survey question fell under one of two themes; "stems/meanings" or "nothing". These were the top two responses for all "PE Plus" activities, all grade levels, and both rounds of intervention. Regarding the "stems/meanings" theme, two students noted that they learned that "You can have fun with stems.", along with an additional five who noted that the warm-up helped them "remember and help for the test", "to always know your stems", and that "stems can be used for fun". These responses support the use of the "PE Plus" warm ups as an enjoyable tool to facilitate the language learning of ELL students. Three additional students noted that they learned "a lot", one stated "some", and another answered "stuff". This suggests that students felt that they did learn something that would help

them with their stem tests from the activities. The second theme, “nothing”, was equally as popular as the first theme. Several students specifically noted that they did not learn anything because “I know my stems”. This may have been the case for other “nothing” or “nada” answers to this question.

What Would You Change? The overwhelming response to this question was “nothing”. This response by itself does not supply very much useful information. I asked students to be more specific with their responses. Did their “nothing” response imply that it was ok, how it was, or perhaps there was nothing that could make it better. The latter is most likely not the case because for the Stem Charades warm-up, for example, 23 out of 28 respondents indicated that they at least somewhat liked the activity. Additionally, for round two of the Stem Charades warm-up 17 out of 19 respondents stated that they felt that the warm-up at least somewhat helped them learn their stems and 19 out of 20 respondents stated that they at least somewhat liked the activity. This could indicate that they didn’t want to change anything because it was fine the way it was.

Field Notes, Students’ Response and Reflections

Through the use of the constant comparison method, there were several themes that emerged from my field notes, students’ responses and reflections. After reading and rereading my notes several times the following themes continued to arise: nonparticipation, support, demonstrations, familiarity, and fun.

Non-Participation. Non-participation or avoidance of the activity was observed in all grade levels and in all warm-up activities. Students were observed not following directions, just walking instead of running, and not completing their stem record sheet. In some situations, the non-participation was more than just avoiding the activity. Some students were shy and didn’t want to be embarrassed by acting out a stem meaning in

front of their peers. “I did notice that there were several girls who never came up and acted out the meaning of a stem. When I asked them they seemed shy and said that ‘we didn’t want to do it in front of everyone’.” (Field note, 10-23). Some ELL students were left out by the rest of their group who were trying to hurry up and get the warm-up over with. “Some of the English-speaking students try to take over the warm-up in order to get it done faster so that they can move onto the sport aspect of the lesson” (Field note, 10-17). Overall the ELL students still reported enjoying the activities and learning their stems through the activities.

Support. Throughout my notes I repeatedly found mention of student needs for support or positive effects of having support from another student or the teacher. One 8th grade student seemed distant and often complained of headaches and did not want to participate. I observed her talking with another student and put them in the same CL group. This changed everything and she became more engaged and stopped asking to sit out (Field note 10-17). This supports research that shows that the use of peer buddies and CL groups are effective strategies for ELL students (Klingner et al., 2012 & Samalot-Rivera et al., 2018). I also had repeated notes about posting stems and meanings for students to see. This provided visual support of the stems they were working with. They always had the stems posted or both stems and meanings written on the stem cards they were working with (Field note 10-7). Finally, I had many observations about success with stems and or the skill aspect of the lesson when students worked with their peers. When students worked with a partner “they quickly got their stems paired up with the meanings” (Field note 11-11) during Spell the Stem now DO the Stem. When students were paired with a higher skilled partner this helped them to be more successful. “I had one ELL student who was very shy about playing and I

paired her with a male ELL student who is very good at soccer" (Field note 11-7). I told her he would make her look good because he knows how to pass accurately so she will be able to concentrate on the skills and not have to chase the ball. "This worked out very well for both students. He did a great job of encouraging her and making it easier for her to be successful and she was able to feel success (with the skill)" (Field note 11-7).

Demonstrations. According to the field notes, demonstrations were a part of almost all of the lessons. In many of those lessons there were also observations that students needed additional demonstrations. For example, "I need to do clear demonstrations of the stem matching part of the activity, students were taking the meaning cards and moving them instead of looking at the card and putting it back under the cone" (Field note, 9-23). Other lessons included observations of when demonstrations were successful in supporting student understanding. "I did a sample of the game with my class and then we raced" (Field note, 10-1). The class who participated in the demonstration did much better than the other class. This is in line with research that suggests that demonstrations are best practice for teaching ELL students (Bell & Lorenzi, 2013).

Familiarity. When the ELL students were presented with a task or a sport that they were familiar with, they appeared much more engaged, outgoing, and confident in both their language skills and their athletic skills. When we started our unit on soccer I observed a group of ELL boys who were really engaged in the activity. "I can see that they are more comfortable and willing to jump in. Their confidence level is much higher than it has been with some of the other sports" (Field note, 11-5). The students in group B seemed to be more confident in their stem knowledge and consistently "did a pretty good job with the stem matching" (Field note, 10-21, 10-24, 11-11, & 11-19). Since

students in group B had been working with the stems in List 1 and 2 since the beginning of October, they seemed to be more familiar with them and were able to complete the stem aspect of the warm-up quickly and accurately.

Fun. The field notes are full of observations of students having fun with games, competitions, and working with their classmates. In one lesson students did the stem warm-up and as they went along, they were to plan how they would act out the stem meanings for charades later in the week. As they were planning I went around and asked them, “How are you going to act out this meaning?” (Field note, 11-7). The students were engaged in planning and “eager to show me their actions” (Field note 11-7). In another lesson students made comments on their surveys about enjoying working together as a group to pair up their stems and meanings (Field note, 11-19). Students enjoyed the version of charades where all cooperative groups were acting out the stem meanings for me to guess. “They seemed to be really into it, there was a lot of cheering and laughing” (Field note, 11-8).

Discussion and Implications for Practice

When evaluating student’s surveys and my field notes and reflections it was evident that students seemed to enjoy the “PE Plus” warm-up activities and that they felt that they were helpful in learning their Greek and Latin stems. Even though student Stem Test scores did not reflect a significant impact, students felt that they did learn their stems from the activities and there was evidence of student engagement in the activities. The literature provided limited data for the adolescent ELL population but supported the use of physical activity, CL, and integration as strategies to facilitate language learning. Field notes, students’ responses and reflections suggest that students learned from their

classmates through social interaction supporting the use of CL groups to facilitate language learning for ELLs.

Based on the enjoyment and perceived help reported by the students, as well as observations of student engagement, these warm-up activities could be generalized and used to facilitate learning in other content areas. Content-specific vocabulary from core classes could be integrated to support student learning. These activities could also be used with general education students. Integrating science or social studies vocabulary or concepts into the PE classroom using these same warm-up activities could facilitate students' understanding of these concepts. Classroom teachers could also use the "PE Plus" warm-ups in order to engage students in kinesthetic learning. Additionally, these activities could be used to teach English speakers a new language.

The findings of this study suggest that additional research is needed within the adolescent population. Repetition of this study with a focus on the stems that were targeted in the instruction may lead to different results on the Stem Tests. Comparing the student responses to only the questions on Stem List 1 and 2, which were included in the "PE Plus" curriculum, may result in more accurate data on the effectiveness of the activities on Stem Test scores. Since students felt that the warm-ups helped them learn, additional research incorporating PE vocabulary, sight words, or other content area vocabulary would add to the validity of these findings and support the transferability to other content areas.

Moving forward, the PE classroom can be used as a place to facilitate the language learning of ELL students. Participation in familiar content, incorporation of relevant vocabulary, and the use of CL groups are strategies that continue to prove successful for teaching ELL students.

CHAPTER II

DISSEMINATION

My aim for dissemination is to share my findings with my school faculty with the goal of improving language learning for our ELL students. The first step will be to meet with my school principal and ELL teacher. Results from both the quantitative and qualitative data analysis will be shared in support of the use of PE and the “PE Plus” warm-ups as a way to facilitate language learning for ELL students. The next step will be to schedule a presentation during an upcoming school wide Professional Learning Community (PLC) meeting. The purpose of this presentation will be to share my findings and the “PE Plus” warm-up activities with the faculty within my school.

Initial Meeting

A meeting will be scheduled with my principal and the ELL teacher to share the findings from the study. At this meeting I will share the results including stem test scores for both groups and the statistical analysis. Then I will discuss the survey results demonstrating student enjoyment and perceptions that the activities helped them learn their stems. The goal of this meeting will be to share evidence that PE can be a beneficial place to facilitate language learning for ELL students. By implementing the “PE Plus” warm-ups, ELL students will be able to practice valuable language stems that will help them build their vocabulary (Echevarria, Vogt & Short, 2017; Palumbo, Kramer-Vida, & Hunt, 2015). Finally, during this meeting, we will plan a time to present the warm-up activities to the rest of the staff during an upcoming PLC meeting.

Professional Learning Community Presentation

This presentation will take place during one of our monthly PLC meetings. I will start by reporting the Stem test data and analysis, and then share the student-reported data on enjoyment and help with learning their stems. Next I would describe the format of the “PE Plus” curriculum and describe how it was implemented with my classes. The presentation slides are included in Appendix F. This will be an active presentation in which all of the faculty at my school will participate in the “PE Plus” warm-up activities. Since students reported enjoying the warm-ups and felt that they helped them learn the stem content, classroom teachers could use the same warm-up activities to facilitate the learning of content specific academic language for their ELL students. Each grade level at my school has three teams of 3-4 teachers. The students assigned to each team of teachers are divided into 3 or 4 groups respectively. On four-person teams, one teacher teaches each of the core subjects: math, ELA, science, or social studies. For teams with three teachers, each teacher instructs in one core area and also teaches an additional core subject to one group of students. For example, a teacher may teach science to all students on the team and also teach math to one group of students. All teams and groups of students include ELLs. For the purpose of PLC meetings, the Special Education teachers and the exploratory teachers are grouped together. Exploratory teachers include: Art, PE, Band, French, Computer Literacy, Chorus, Strings, Study Lab, and Gateway to Technology. All of these teachers also teach ELLs.

Activity 1

Activity 1 will start with the lower level thinking activities like matching and recalling. These warm ups include Partner Fitness, Spell the Stem now DO the Stem, Stem Match Relay, and Stem Memory Relay. Teachers will be placed in CL groups with

their grade level teams. Each team will receive a sample lesson plan including one of the "PE Plus" warm-ups. As a group they will read the lesson and become "experts" in that warm-up. Each CL group will then teach their warm-up to the rest of their grade level.

Activity 2

Once each CL group has taught their assigned warm-up activity, the teachers will be regrouped by subject area. All sixth-grade ELA teachers will form a group, all seventh-grade math teachers will form another group and so on. Once in their subject specific groups, teachers will brainstorm ways that they could use these warm-up activities to support the language learning for ELLs in their subject. Some examples might include having students partner up and search for definitions for subject specific vocabulary. Students could be given a list of vocabulary and the meanings of each word could be hidden around the room, with their partner students could go on a scavenger hunt to find the correct meaning for each vocabulary word. Additionally ELL students could teach their partner/classmates the vocabulary words in their native language. Another option would be to have students play a memory game with English vocabulary and the same vocabulary in the native language of the ELL students. This would help ELL students learn the English vocabulary. Once they have played this way then they could play with the vocabulary and the meanings in English. The final step will be to share what their group talked about with the rest of the faculty.

Activity 3

Next, we will move into higher order thinking warm-ups, Stem Charades, Stemgrams, and Words with Stems. This time teachers will be placed in CL groups with teachers of the same subject but different grade levels. Science teachers from grades six, seven, and eight will make up a CL group. Each group will be assigned a warm-up

and given time to read, play, and become an expert on their assigned activity. Next they will be regrouped with their grade level team where they will each share their warm-up.

Activity 4

As in activity 2 teachers will be placed in CL groups with their same grade-level core subject teachers. In these groups teachers will brainstorm ways they could use these strategies within their classrooms to support ELL students. Examples could include assigning CL groups a concept and having them come up with a mime/silent presentation to demonstrate the concept to the rest of the class. A version of stemgrams would be a great way for CL groups to demonstrate knowledge of content specific vocabulary. Groups could spell terms relevant to the content being studied but then in order for that word to count for their group they could be required to use it in a sentence that reflects the meaning of the term or concept. Once everyone has shared, they will choose one strategy to share with the rest of the faculty.

Closing

Teachers will leave this presentation with a list of activities and ways that they can use them within their specific classroom to facilitate the language learning of their ELL students. Teachers will be informed that “true heterogeneous grouping” is difficult to achieve. Implementation of an innovative pedagogy is not business as usual it is labor intensive and hard work. (Dyson, Colby & Barratt, 2016) Each teacher will have a copy of the “PE Plus” warm-ups to take with them. My hope is that by participating in the activities and having the time to brainstorm how to use them with their grade level and core subject peers, teachers will be more likely to use them with their students.

CHAPTER III

ACTION PLAN

My action plan for this research includes three goals. My first goal is to publish the "PE Plus" curriculum. My second goal is to complete additional research on ways to facilitate second language acquisition for both ELL students as well as English speakers learning a new language. My final goal is to become a leader within my district regarding the importance of PE as a valuable aspect of a comprehensive education for all students.

Publications

Ideally, I would like to publish my curriculum for use by PE and ELL teachers across the country. I am most interested in publishing in one of the following journals: *Journal of Physical Education, Recreation & Dance*; *Strategies*; or *English Language Teaching Journal: ELT*. *Journal of Physical Education, Recreation & Dance* and *Strategies* both focus on the practical application of research within the physical education classroom. The *English Language Teaching Journal* does the same for research in English language learning. An article outlining the findings of my dissertation including the "PE Plus" curriculum would be submitted for publication.

Additional Research

In the long term, it is my vision that my findings will lead to additional research regarding ELL and best practice including physical education for facilitating academic language learning in both the ELL population as well as native English speakers learning

a new language. For the ELL population I would like to continue to look for strategies to facilitate language learning through physical activity in both the PE setting, as well as in content area classrooms. This project has served as a stimulus leading me to additional questions and a desire for more in-depth knowledge about the ELL population and how to facilitate their language learning. It has created a greater understanding of the challenges facing ELL students and their teachers. I would like to continue this research and investigate the integration of other academic language into PE as well as explore other ways that PE can benefit beginning ELL students with language learning, as well as with acclimation to a new culture. Finally, I would like to expand my research to other aspects of PE that may benefit ELL students. These will include investigating the activity level that best facilitates language learning, and how the incorporation of culturally diverse sports and activities can help ELL students feel connected to their new school. I am also curious about all students learning a second language, not just ELLs. I would be interested in exploring how foreign language immersion students can benefit academically from PE being used as an instructional strategy for language acquisition. For native English speakers learning a new language, perhaps PE could become the setting for introducing a foreign language at an early age.

Leadership

As long as ELL students are held to the same standard as their English-speaking peers, teachers will need to find as many opportunities as possible to expose them to and facilitate their language learning. Following the completion of this study, I hope to be a leader within my school and district in the area of ELL learning in the PE setting. By demonstrating the value of PE within the ELL population, it is my hope that more schools within my district will see the importance of PE opportunities for ELL students as part of

a comprehensive education. We know the positive value of PE and PA for a healthy lifestyle (CDC, 2020), but we need more solid evidence of its positive effects on academic achievement, including English language learning. Teachers also require continuing education and professional development to stay current with best practice in effective instruction for our ELL students (Ni Chróinín et al., 2016; Sato, et al., 2019). I would like to be a leader and advocate for this within my district, and eventually the state of South Carolina. To advocate I will share the results and "PE Plus" curriculum with the other PE and ELL teachers in my district during a district wide professional development day. Next, I will attempt to make an even greater impact by presenting my findings and warm ups to PE teachers from across the state by hosting a session at the annual state wide PE conference. Continued research and dissemination of my findings locally, as well as across the state, will help raise awareness about the importance of PE for language learners.

BCSD Professional Development Conference

I will submit a proposal to host a session during the annual Berkeley County School District (BCSD) Professional Development Conference. This conference is divided into two groups, with sessions for middle and high school teachers in the morning and elementary teachers in the afternoon. I will present my findings to both groups because the literature suggests that these teaching strategies can be beneficial to students of all ages. This session will follow the same format as the PLC meeting with my school faculty. It will also be an active session where participants will play the games and brainstorm ways that they could use the activities to facilitate language learning within their classroom.

Statewide Physical Education Convention

Finally, I will share my research findings with other PE teachers across the state of South Carolina. I will submit a proposal to present at the annual South Carolina Alliance for Health, Physical Education, Recreation, and Dance convention held in November each year. This presentation will also follow the same format as the PLC presentation and the BSCD conference presentation. I will share my findings and then the attendees will participate in the activities and brainstorm ways that they could use them within their own classroom to facilitate language learning, physical activity, and help ELL students acclimate to their new school.

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APPENDIX A

SURVEY QUESTIONS

Class Period _____ Grade _____ Date: 9-23-19

Circle one

My primary language is ENGLISH ESPAÑOL PORTUGUÊS TIẾNG VIỆT

1. How much did you like today's Stem warm-up activity? Circle the number.
¿Cuánto te gustó la actividad de calentamiento de Stem de hoy? Encierra en un círculo el número.
O quanto você gostou da atividade de aquecimento do Stem de hoje? Circule o número.
Bạn thích bao nhiêu ngày hôm nay Hoạt động khởi động của thân cây? Khoanh tròn số.

1	2	3	4	5
Not at all		Some		Very much
De ningún modo		Algunas		Mucho
De modo nenhum		Algumas		Muito
Không có gì		Một số		Rất nhiều

2. What was the best part of the Stem Warm-up?
¿Cuál fue la mejor parte del calentamiento del vástago?
Qual foi a melhor parte do aquecimento do Stem?
Phần tốt nhất của sự khởi động gốc là gì?

3. How much did today's Stem warm up activity help you learn your stems? Circle the number.
¿Cuánto te ayudó la actividad de calentamiento de Stem de hoy a aprender tus tallos? Encierra en un círculo el número.
Quanto a atividade de aquecimento do Stem ajudou você a aprender seus rastros? Circule o número.
Làm thế nào nhiều ngày hôm nay Hoạt động hâm nóng thân cây giúp bạn tìm hiểu thân cây của bạn? Khoanh tròn số.

1	2	3	4	5
Not at all		Some		Very much
De ningún modo		Algunas		Mucho
De modo nenhum		Algumas		Muito

Không có gì Một số Rất nhiều

4. What did you learn from today's Stem Warm-up?
¿Qué aprendiste del calentamiento de vástagos de hoy?
O que você aprendeu com o Warm Stem de hoje?
Bạn đã học được gì từ ngày hôm nay Thân cây khởi động?

5. What would you change about the Stem Warm-up activity to make it better?
¿Qué cambiarías de la actividad de Calentamiento del tallo para mejorarla?
O que você mudaria sobre a atividade de aquecimento do Stem para torná-la melhor?
Bạn sẽ thay đổi gì về hoạt động Khởi động gốc để làm cho nó tốt hơn?

APPENDIX B

OBSERVATION FORM

ET1: Classroom Observation Record

Teacher's name: _____ **Course:** _____

District: _____ **School:** _____

Date: _____ **Time: from** _____ **to** _____

Lesson topic: _____ **Observer:** _____

Domain 2: Instruction

APS 4: ESTABLISHING AND MAINTAINING HIGH EXPECTATIONS FOR LEARNERS **AN EFFECTIVE TEACHER ESTABLISHES, CLEARLY COMMUNICATES, AND MAINTAINS APPROPRIATE EXPECTATIONS FOR STUDENT LEARNING, PARTICIPATION, AND RESPONSIBILITY.**
A. *What did the teacher expect the students to learn from the lesson? How did the teacher convey the purpose and relevance of the lesson to the students? In what ways did the students demonstrate that they understood what the teacher expected for them to learn?*
B. *What did the teacher expect the students to do during and after the lesson? How did the teacher convey expectations for student participation and for accomplishing related assignments and tasks?In what ways did the students demonstrate that they understood what the teacher expected them to do?*
C. *How did the teacher help the students take ownership of the learning (e.g., by making the learning relevant to the students, using scaffolding, providing opportunities for students to engage in self- assessment and reflection, teaching compensatory strategies when necessary)?*

APS 5: USING INSTRUCTIONAL STRATEGIES TO FACILITATE LEARNING **AN EFFECTIVE TEACHER PROMOTES STUDENT LEARNING THROUGH THE EFFECTIVE USE OF APPROPRIATE INSTRUCTIONAL STRATEGIES.**
A. *What instructional strategies did the teacher use during the lesson?*
B. *In what ways did the teacher vary the instructional strategies during the lesson, and why?*
C. *What evidence suggests that the instructional strategies were—or were not—effective in terms of promoting student learning and success?*

APS 6: PROVIDING CONTENT FOR LEARNERS **AN EFFECTIVE TEACHER POSSESSES A THOROUGH KNOWLEDGE AND UNDERSTANDING OF THE DISCIPLINE SO THAT HE OR SHE IS ABLE TO PROVIDE THE APPROPRIATE CONTENT FOR THE LEARNER.**
A. *What evidence suggests that the teacher did—or did not—have a thorough knowledge and understanding of the content? If content errors were made, did the teacher recognize and correct them?*
B. *What was the content of the lesson, and how did the content relate to the learners and the learning?*
C. *How did the teacher organize and present the content in order to make it clear and meaningful to the students and to promote higher levels of knowledge, skills, and/or cognitive processing?*

APS 7: MONITORING, ASSESSING, AND ENHANCING LEARNING **AN EFFECTIVE TEACHER MAINTAINS A CONSTANT AWARENESS OF STUDENT PERFORMANCE THROUGHOUT THE LESSON IN ORDER TO GUIDE INSTRUCTION AND PROVIDE APPROPRIATE FEEDBACK TO STUDENTS.**
A. *How did the teacher monitor student engagement, understanding, and performance during the lesson?*
B. *What adjustments, if any, did the teacher make during the lesson, and why?*

C. *What types of instructional feedback did the teacher provide to the students, and how effective was the feedback in terms of enhancing student learning?*

Domain 3: Environment

APS 8: MAINTAINING AN ENVIRONMENT THAT PROMOTES LEARNING **AN EFFECTIVE TEACHER CREATES AND MAINTAINS A CLASSROOM ENVIRONMENT THAT ENCOURAGES AND SUPPORTS STUDENT LEARNING.**
A. *Describe the physical environment of the classroom.*
B. *What type of affective climate did the teacher create for the students?*
C. *In what ways did the teacher establish a culture of learning in the classroom (e.g., by facilitating inquisitiveness, motivation to learn, cooperation, teamwork)?*

APS 9: MANAGING THE CLASSROOM **AN EFFECTIVE TEACHER MAXIMIZES INSTRUCTIONAL TIME BY EFFICIENTLY MANAGING STUDENT BEHAVIOR, INSTRUCTIONAL ROUTINES AND MATERIALS, AND ESSENTIAL NONINSTRUCTIONAL TASKS.**
A. *What were the teacher's expectations for student behavior? In what ways did the students demonstrate that they understood the ways in which they were expected to behave? How did the teacher address inappropriate student behaviors, if any, during the lesson?*
B. *In what ways did the teacher maximize—or fail to maximize—instructional time?*
C. *How did the teacher manage noninstructional routines and transitions between activities and/or classes?*

Additional comments*: (optional)*

APPENDIX C

FIELD NOTE/REFLECTION GUIDE

Field note observations:

Field observations will written up using Schatzman and Strauss' (1973) model of writing field notes. This method organizes the material into three categories, *Observational Notes* (O), *Theoretical/Interpretive Notes* (I), and *Methodological Notes* (M). Observational notes are statements or descriptions about what was happening in the classroom or gymnasium.

1) Observational notes are statements of observations of events experienced and contain as little interpretation as possible.
2) Theoretical or interpretive notes are the researcher's interpretations that emerge from the observation. This is an attempt to draw from one's knowledge or professional understanding of Physical Education. The researcher interprets, infers, and new concepts are developed and linked to existing knowledge.
3) Methodological notes contain memos to one's self of changes that could be made to the methods or questions that the observational notes raise. This Methods note may lead to asking the teacher, student, or principal a question that emerges from this data collection. This is also a critical review of the intervention and a critique of the researcher's tactics or bias. These could be reminders about what to look for in the next class or future observations or questions that should be asked during interviews, etc...

Note: Field notes need to be typed and edited as soon as possible after the observation.

Critical reflexive journal:

In addition to writing field notes the researcher should write a reflection journal. This journal should be **reflexive**, that is, taking into account researcher knowledge and bias and the school **context**. This journal should contain a **critical reflection** of what has been observed related to the teaching and learning process. It may also include contextual considerations and further interpretations (Marshall & Grossman, 2016).

APPENDIX D

"PE PLUS" WARM UPS/SAMPLE LESSON PLAN

Partner Fitness
Based on your individual goals (set after initial Fitnessgram testing) you and your partner will choose nine exercises to complete. Keeping in mind your individual goals you should choose several activities from each component of fitness. You and your partner will complete these exercises together using each other for support and motivation. Document your sets and reps on your record sheet. Following each exercise complete task 2 (see below) and then move on to your next exercise.
When you have completed each exercise rate your perceived exertion and make a check the box to stay the same or increase next week.
For this activity partners will search for the meaning of a selected stem. There will be a bucket of stems in the center of the gym and the meanings will be hidden under cones spread out throughout the gym. Take turns with your partner searching for the meaning. Start from the bucket, run to a cone, check for the meaning, return to the bucket and let your partner have a turn. Once you find the match return them and move on to your next fitness activity. Please do not take the meaning from the cone, write it down and place it back under the cone. Return your stem to the bucket before moving on.

Spell the Stem now DO the Stem
Students will get a partner from within their cooperative group. Each student will have a record sheet with the exercises for each letter, the meanings and a 5 or 10 next to the meaning. The Stems will be posted on the whiteboard.
Step 1: Determine which stem goes with the meaning on your record sheet. Record the stem on the line next to the meaning.
Step 2: Exercise: Find the exercise that goes with each letter in the stem. For example, if the stem is "helio" they would find the exercise that goes with H, then E then L and so on. Then find the number next to the meaning on their sheet to determine how many of each exercise they will do. Do the exercises.
Step 3: Repeat until you have completed all matches and all exercises.
Note: Keep an eye on your RPE and adjust your repetitions as needed.

Stems Match Relay
Step 1: Students will take turns running from the cone to the other side of the gym to collect 1 letter card. They will run back to their cone and high five the next student in line and then go to the end of the line. This will continue for time OR until ALL letter cards have been collected (this will be determined by the size of the class, it will not exceed 4 minutes).
Step 2: Cooperative groups will have 2 minutes to use their letter cards to spell as many of the stems from Stems list 1 as they can. Students will record their stems on their record sheet.
Step 3: Students will take turns running from the cone to the other side of the gym to collect 1 stem meaning card. Once they have the card they will run back to their cone and decide if that card matches any of the stems they were able to spell in step 2. If it does then they will keep them as a pair, if not they will pass the meaning card to the next

person in line who will return it and pick up another meaning card and repeat the process. Continue until ALL stem meaning cards have been collected. Students will then record the meanings next to the stems on their record sheet.
Step 4: Go over stems and meanings and be sure that students have recorded them properly on their record sheet.

Modifications: The letter cards took too long. Next time I had students place the stem cards and the meaning cards in a messy pile on the opposite side of the gym and they took turns running across to pick up one card at a time. Once they had all of their cards then they would match the meaning with the stem and record them on their record sheet.
Then to make it go faster I had them pair them up as they came back to their group instead of waiting until they had all of their cards.
NOTE: This warm up became the Stem Matching Game and the names Stem Matching and Stem Relay were used interchangeably.

Stems Memory Relay
Step 1: Students will take turns running from the cone to the other side of the gym and turning over two memory cards. If the two cards contain a stem and a meaning that match then they will keep the cards and run back to their cone, if they do NOT match then they will turn both cards back over and runback to their cone.
When they get back to their cone they will high five the next student in line and then go to the end of the line. This will continue for time OR until ALL matches have been collected (this will be determined by the size of the class, it will not exceed 6 minutes).
Step 2: Students will then record all stem-meaning pairs on their record sheet.
Step 3: Go over stems and meanings and be sure that students have recorded them properly on their record sheet.

Modifications: In order to support ELL students and make the process go faster I had students go with a partner to look for a pair.

Stem Charades
The teacher will tell the first person when to go and they will run to the teacher. The teacher will show the students one of the stems. The students will run back and act out the meaning of the stem for their team to guess. Teams will guess the meaning and the stem that matches. The first team to guess correctly wins that round. Then the next person in line will take their turn.

Modifications: I had students plan their movements the day before, this helped make the game go faster and helped them be more successful in guessing the stem and meaning. Next time I had them hold up the stem card when they knew the answer instead of calling it out. There were a lot of students just going back and telling their group the stem instead of acting it out so the next time I had each group come up with movements for each stem.
Final Modification: Each team sent one person to my partner teacher and he showed them a stem card. Then they went back to their team and they had to figure out the meaning. They had to remember the movement and then ALL members of ALL groups acted out the meaning and I (the primary investigator) had to guess what stem they were

acting out. Students really enjoyed this. They loved acting out the stems for me to guess and there was a lot of cheering, laughing, and smiling.

Stemgrams

All groups will be seated behind a cone. All of the Stemgram tiles will be face down in the center of the gym. When the teacher says go group member will take turns running to the center and grabbing one tile at time until they have a total of 7 tiles. On the signal each group will turn over their tiles and begin to spell as many stems and/or meanings as they can. If they have a tile they cannot use they will take turns returning it to the pile and choosing a new tile. The first team to use all of their tiles to spell stems/meanings sits down. Then we check their work. If they are correct all groups return their tiles and we play again. If they made any errors play continues until we have a winner.

Modifications: This took a very long time. With the second class I allowed them to spell any word they could just to get the hang of the game and then the next time they play I will have them do stems and meanings only.

"I have. . . Who has?"

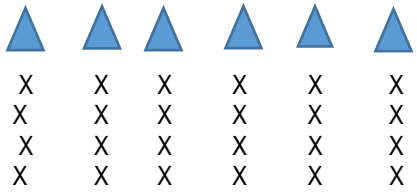
Each cooperative group will be seated behind a cone. "I have. . . Who has?" cards spread out upside-down across the gym. On the signal, the first person in each line will run down and collect a card, then they will run back and tag the next person in line who will do the same, this will continue until all cards are collected. Each student should have one card. If a student does not have a card they will be partnered with someone who has one.
Once all cards are collected ALL players will spread out in the gym and take a seat. The teacher will designate a player to start. That player will stand up and read their card out loud. For Example: I have "around". . . Who has "circum"? The player who has the meaning of the stem on the "I have" part of their card will then make their way (using a movement pattern decided on by the exercise leader in their group) to where the starting player is standing. Then they will read their card out loud and play continues until all players have read their card and completed their movement.
Modifications: This took too long to complete. The class was divided in half and two sets of cards were used creating a competition to see who could get through their set of cards first.

Words with Stems
Each cooperative group will be seated behind a cone. Meaning and vocabulary cards will be spread out on the floor across the gym. Each group will be assigned a fruit: apple, banana, orange, grape, watermelon, or kiwi. Cards will have either a word using a list 1 stem OR the meaning of one of those stems. On the signal the first person in line will run down and turn over a card looking for their group's assigned fruit. If it is theirs, they will keep it if not they will flip it back over and run back and tag the next person who will repeat the action. When all cards are collected students will sit down and begin pairing their cards – words with meanings and recording them on their record sheet.

SAMPLE DETAILED LESSON PLAN
PE Plus Curriculum Lesson Plan

Teacher: Anna Winstead **Grade/#Students:** 6th/ 40 minute lesson
Date: Sept. 16 **Unit/Lesson # & Content:** Stems List 1 & Volleyball
Equipment/Resources: letter cards, stem meanings cards, word wall cards, volleyballs

STUDENT BEHAVIORAL OBJECTIVES: [The students will…]	**INTRODUCTION (where will they be during Introduction?) At the Warrior**
[Motor, Cognitive, Affective] – LINKED to SCPES STANDARDS:	**INTRODUCTION (Focus/Review):**
Language Objective TSWBAT: follow one/multi-step directions, match instructional language with visual representation, begin/use general and high frequency vocabulary. Motor/Cognitive Objectives TSWBAT: Identify and perform critical elements of the forearm pass and overhead pass. Affective Objective TSWBAT: work cooperatively within a group to achieve goals and use equipment appropriately in a PA setting.	Warm up – Stems Relay Draw attention to the objectives posted on the whiteboard and read them out loud. Remind students of cooperative learning and classroom expectations, posted on the bulletin board.
ASSESSMENTS OF OBJECTIVES: [link assessments to objectives above]	**STUDENTS' PRIOR KNOWLEDGE/EXPERIENCE (with this lesson's content):**
Language: complete warm up activity accurately as demonstrated on their stems activity sheet. **Motor/Cognitive: peer assessment of forearm pass and overhead pass.** **Affective: completion of cooperative learning tasks for the lesson, rated by each group member on their score sheet.**	Language: Stems used in this lesson have been taught in their ELA class and they have taken a pre-test. Motor/Cognitive: Students have been exposed to volleyball skills in elementary school. This is my first experience with teaching them these particular skills.
SAFETY CONCERNS (for specific lesson activity):	**STUDENT TECHNOLOGY USE:**
Students need to make use of good personal space and communicate with classmates if a volleyball is off target and may hit someone else.	none
TRANSITION TO 1st TASK: Students will begin class in their squad spots for attendance and then transition to the Warrior when instructed. Instructions will be given for the first activity and then from the Warrior students will transition to a cone with their cooperative groups on the teachers signal.	

FORMATIONS (use diagrams)	TEACHING CONTENT/ PRACTICE ORGANIZATION	LEARNING SUPPORTS	VERBAL CUES
Each cooperative group will be seated behind a cone. Letter cards spread out on the floor.  	Stems Relay Warm up – Step 1: Students will take turns running from the cone to the other side of the gym to collect 1 letter card. They will run back to their cone and high five the next student in line and then go to the end of the line. This will continue for time OR until ALL letter cards have been collected (this will be determined by the size of the class, it will not exceed 4 minutes). Step 2: Cooperative groups will have 2 minutes to use their letter cards to spell as many of the stems from Stems list 1 as they can. Students will record their stems on their record sheet. Step 3: Students will take turns running from the cone to the other side of the gym to collect 1 stem meaning card. Once they have the card they will run back to their cone and decide if that card matches any of the stems they were able to spell in step 2. If it does then they will keep them as a pair, if not they will pass the meaning card to the next person in line who will return it and pick up another meaning card and repeat the process. Continue until ALL stem meaning cards have been collected. Students will then record the meanings next to the stems on their record sheet. Step 4: Go over stems and meanings and be sure that students have recorded them properly on their record sheet.	Extensions Up: Decide if the meaning card matches a stem before you run back to your group. (independent instead of with group support) Add additional challenge stems to the game. Extensions Down: Provide the groups with a list of the stems on List 1. Provide translations of stem meaning into student's native language.	
TRANSITION TO 2nd TASK: All students will return to the Warrior on the signal. Instructions for Activity 2 will be given and then Cooperative groups will move to a personal space in the gym where they can work.			

XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX	Volleyball Forearm Pass – 1 volleyball for each cooperative group. Each cooperative group will work in partners to practice the forearm pass. Tossing partners need to give a good underhand toss that stays in front of their partner, we will practice this if needed. Passing partners will use the proper form (see cues) to forearm pass the ball back to their partner. Students will get 5 tosses and then switch with their partner. The two members of the group who are not tossing and passing will be peer assessing the passers. They will use the rubric on their record sheet to document if their team mate is using each of the cues. Students will conference briefly before switching roles. Tossers and Passers will complete 10 passes (2 sets) and then switch with the other partner group in their cooperative group. Language component: Tossers will choose a stem from their list and call it out when they toss. The passer must call out the meaning as they forearm pass the ball back to the tosser. Choose a different stem for each toss until all have been used and then start over giving the meaning first and have the passer call out the stem that matches.	Extensions Up: Tosser can toss to the right and left of the passer so that they have to move their feet and get into position before passing. Extensions Down: Partner can drop the ball onto the passers arms instead of tossing. Language Extensions up: have passer call out a vocabulary word that uses the stem. Extensions down: repeat the same stem for all 5 tosses and then move to the next one on their next turn.	Hands together Sliding board Bend Extend
TRANSITION TO 3rd TASK: All students will return to the Warrior on the signal. Instructions for Activity 3 will be given and then Cooperative groups will move back to their space.			
XX XX XX XX XX XX	Volleyball Overhead Pass – 1 volleyball for each cooperative group. Each cooperative group will work in partners to practice the overhead pass.	Extensions up: have students move farther away from each other. Have partners return the overhead pass with a forearm pass	Window Forehead Bend Extend Elbows to Ears

XX XX XX XX XX XX XX XX XX XX XX XX	Tossing partners need to give a good underhand toss that goes above their partner, we will practice this if needed. Passing partners will use the proper form (see cues) to overhead pass the ball back to their partner. Students will get 5 tosses and then switch with their partner. The two members of the group who are not tossing and passing will be peer assessing the passers. They will use the rubric on their record sheet to document if their team mate is using each of the cues. Students will conference briefly before switching roles. Tossers and Passers will complete 10 passes (2 sets) and then switch with the other partner group in their cooperative group. Language component: Tossers will choose a stem from their list and call it out when they toss. The passer must call out the meaning as they overhead pass the ball back to the tosser. Choose a different stem for each toss until all have been used and then start over giving the meaning first and have the passer call out the stem that matches.	Have passer toss to partner, they forearm pass to overhead passer who overhead passes it back. Extensions Down: have the passer start on one knee and the tosser drops the ball onto their hands. Language Extensions up: have passer call out a vocabulary word that uses the stem. Extensions down: repeat the same stem for all 5 tosses and then move to the next one on their next turn.	

TRANSITION TO CLOSURE: All students will return to the Warrior on the signal from the teacher for the lesson closure and Survey.

CLOSURE:

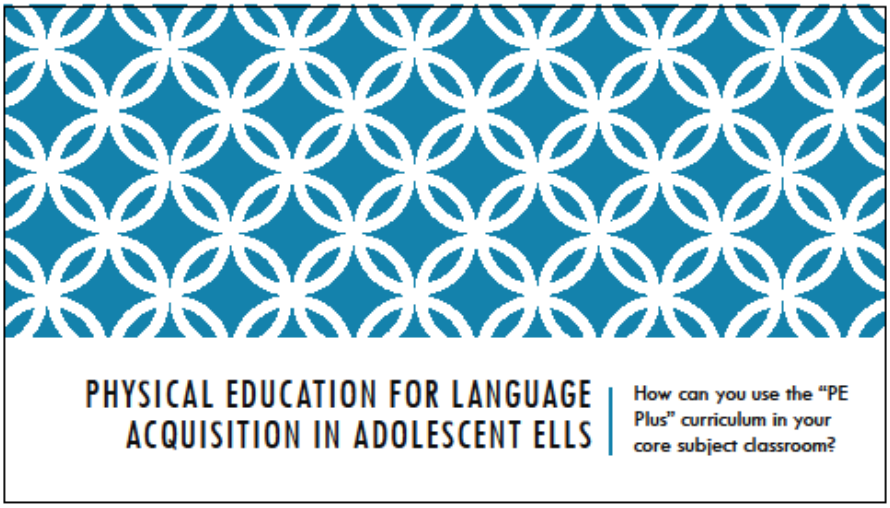
Quick review of stems and meanings. Review of forearm pass and overhead pass cues. Introduction of what we will do in the next lesson. The teacher will then distribute Stem surveys for students to complete at their squad spots.

REFERENCES:

APPENDIX E

PLC PRESENTATION

3/13/2020



THE STUDY

Students participated in the "PE Plus" Warm-ups 3-4 days a week for 4 weeks.

They took a stem test before and after the 4 week intervention.

The analysis of the stem test scores did not show an intervention effect.

After each "PE Plus" warm-up students completed a 5 question survey about their perceptions of enjoyment of the activities and helpfulness in learning their stems.

Overall, students reported enjoying the activities and learning their stems by participating in the activities.

1

ENJOYMENT

"You can have fun with stems."

"stems can be used for fun"

Students made comments on their surveys about enjoying working together as a group to pair up their stems and meanings.

The best part of the stem warm-up was…

"everything"

"all of it"

Students enjoyed the version of charades where all cooperative groups were acting out the stem meanings for me to guess.

Frequencies and Average Ratings For "PE Plus" Warm-up Activities Round 1 Group A

Warm up		1 Not at All	2	3 Somewhat	4	5 Very Much	Averag Rating
	"like"	2	1	9	6	22	4.13
I/Who has	*"help"*	*5*	*4*	*12*	*5*	*14*	*3.48*
Partner	"like"	3	1	13	2	13	3.66
Fitness	*"help"*	*3*	*1*	*13*	*4*	*9*	*3.5*
	"like"	1	0	6	2	11	4.1
Spell/DO	*"help"*	*2*	*0*	*7*	*1*	*10*	*3.85*
Stem	"like"	4	1	11	5	7	3.36
Charades	*"help"*	*5*	*3*	*7*	*5*	*8*	*3.29*
	"like"	3	0	10	2	8	3.52
Stemgrams	*"help"*	*3*	*0*	*10*	*3*	*7*	*3.48*
Stem	"like"	6	2	20	12	30	3.66
Memory	*"help"*	*6*	*5*	*20*	*9*	*31*	*3.76*
	"like"	5	2	32	15	25	3.67
Stem Relay	*"help"*	*13*	*3*	*22*	*12*	*24*	*3.42*
Words with	"like"	1	0	0	0	6	4.43
Stems	*"help"*	*2*	*0*	*1*	*0*	*6*	*3.89*

Row 1 responses to Question 2 "like": How much did you like today's Stem warm-up activity?

Row 2 responses to Question 4 "help": How much did today's Stem warm-up activity help you learn your stems?

LEARNING STEMS

"remember and help for the test"

"to always know your stems"

Students stated learning

"a lot", "some", and "stuff"

These responses suggest that they felt that the activities helped them learn something related to their stems.

Frequencies and Average Ratings For "PE Plus" Warm-up Activities Round 2 Group B

Warm up		1 Not at All	2	3 Somewhat	4	5 Very Much	Average Rating
Partner	"like"	1	0	3	3	1	3.38
Fitness	*"help"*	*1*	*2*	*2*	*3*	*0*	*2.88*
	"like"	1	1	15	5	9	3.65
Spell/DO	*"help"*	*3*	*6*	*10*	*4*	*11*	3.41
Stem	"like"	0	1	5	4	10	4.15
Charades	*"help"*	*0*	*2*	*3*	*4*	*10*	*4.16*
Stem	"like"	1	3	7	7	4	3.45
Memory	*"help"*	*2*	*4*	*5*	*6*	*6*	*3.43*
	"like"	3	4	19	5	16	3.57
Stem Relay	*"help"*	*6*	*5*	*14*	*5*	*16*	*3.43*

Row 1 responses to Question 2 "like": How much did you like today's Stem warm-up activity?

Row 2 responses to Question 4 "help": How much did today's Stem warm-up activity help you learn your stems?

ACTIVITY 1

Form a group with your grade level team.

Read your Warm-up activity and practice it with your group. Be prepared to teach your activity to the rest of your grade level.

ACTIVITY 2

Create a group with the other teachers on your grade level that teach the same subject you teach.

Brainstorm ways that you could use the warm-up activities with your students to support the learning of content vocabulary for your ELL students.

ACTIVITY 3

Form groups with teachers of your same subject area but a different grade level.

Read your Warm-up activity and practice it with your group. Be prepared to teach your activity to the rest of your grade level team.

ACTIVITY 4

Go back to your same grade level same subject group.

Brainstorm ways that you could use the warm-up activities with your students to support the learning of content vocabulary for your ELL students.

WE DID IT!

You should leave today with some activities that you can use in your classroom to help you ELL students acquire academic language for your subject area.

Presentation Resources

This article has some great strategies for teaching English Language Learners.

https://www.edutopia.org/article/6-essential-strategies-teaching-english-language-learners

Kaplan, E. (2019). 6 Essential Strategies for Teaching English Language Learners. Retrieved from https://www.edutopia.org/article/6-essential-strategies-teaching-english-language-learners

¡Colorín colorado! is a fantastic website full of resources for teaching ELL students.

https://www.colorincolorado.org/ell-strategies-best-practices

ELL Strategies & Best Practices. (n.d.). Retrieved from https://www.colorincolorado.org/ell-strategies-best-practices

This article has some great suggestions for working with ELL students.

https://www.sadlier.com/school/ela-blog/8-strategies-for-teaching-ell-students-vocabulary-words-instructional-strategies-for-ell-students

8 Strategies for Teaching ELL Students Vocabulary Words. (2020). Retrieved from https://www.sadlier.com/school/ela-blog/8-strategies-for-teaching-ell-students-vocabulary-words-instructional-strategies-for-ell-students

I have a copy of this book if you would like to borrow it.

Ferlazzo, L. & Sypnieski, K.H. (2018). *The ELL teacher's toolbox: Hundreds of practical ideas to support your students.* San Francisco: Wiley.