

Article

Differences in Pre-Service Teacher Attitude Change about Family Involvement across Four Universities

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Abstract: This study explored item-level change in pre-service teachers' attitudes toward teacher- and parent-initiated parent involvement across four diverse universities. Pre-service teacher (N = 1658) attitudes toward parent involvement were measured before and after exposure to the online Parent Teacher Education Connection (PTEC) curriculum which provides information about Epstein's six types of parent involvement. The four universities infused this curriculum differently into their coursework. Results showed that items demonstrated change related to how the four universities infused parent involvement curriculum into coursework. Overall, teacher-initiated involvement items showed more changes than parent-initiated items. Across the whole sample, there was change in items related to all six types of parent involvement. Results highlighted the importance of infusing parent involvement into the curriculum or teaching a full course, including activities placing pre-service teachers in the role of the parent, including service learning, and focusing on cultural diversity.

Keywords: parent involvement; preservice teachers; diversity



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1. Introduction

Family involvement has become an integral part of the job requirements for educators in pre-school through high school classrooms. This expectation developed based on decades of research indicating that students with involved families are more likely to earn higher grades and test scores and be promoted to the next grade level [1–4]. Additionally, students whose families are involved in their education attend school more regularly [5,6], and have better social skills [7,8]. Public policies such as No Child Left Behind [9], the reauthorization of the Elementary and Secondary School Act [10], and the National Parent Teacher Association (PTA) standards [11,12] were developed in response to this growing body of research on family involvement.

Several conditions are needed for parents and students to accrue the benefits of parent involvement. If a school environment is perceived as unwelcoming or uninviting, grade point average decreases [13]. Teacher relationship-building skills [14], including responsiveness to cultural differences [15], are foundational to fostering successful parent involvement. Ref. [16] found that in early childhood, pre-school, and kindergarten, programs that trained parents to work with their children at home produced significant, positive effects on grades and ratings from teachers the longer the children were in the program. For older children, weekly homework assignments that required work with parents were associated with improved grades for elementary and middle school students. Research also found that parent–teacher communication improved the effects of standards-based reform practices on students' test scores [16].

Despite these widely known benefits and the demands of public policy, one of the most frequently voiced barriers to family involvement in schools is the lack of training in family involvement provided to pre-service teachers during teacher preparation programs [17–20].

This lack of preparation during teacher training can lead to less favorable attitudes towards family involvement once teachers are in their own classrooms. These attitudes can be a barrier to increased family involvement—specifically among teachers in low-income schools and teachers of students with lower academic achievement [21]. Pre-service teachers need to be prepared to involve parents from a wide range of culturally diverse backgrounds and multiple types of family configurations, such as single parents.

As a method for addressing the need to better train pre-service teachers to form and sustain partnerships with families, four universities collaborated to develop the Parent Teacher Education Connection (PTEC)—an online curriculum centered on six types of school programming in a comprehensive model for family involvement [2]. An initial study of pre-service teachers who used one or more of six PTEC modules found significant gains in overall knowledge and attitudes related to family involvement [22]. In this study, attitude changes were examined using the *Attitude Towards Parent Involvement Survey (ATPIS)* [23]. Scores were calculated for the instrument as a whole as well as for three factors identified by the study authors. The purpose of the current study was to expand on these initial findings by exploring how pre-service teachers' attitudes regarding the importance of family involvement changed after exposure to the PTEC curriculum on each of the individual items of the survey. To accomplish this goal, the current study examined the following questions:

Across all four universities, what was the effect of PTEC participation on pre-service teacher attitudes towards family involvement when looking at changes in individual item scores on the ATPIS?

How did the differences in implementation of the curriculum at the four universities relate to pre-service teacher attitude change in ways that can inform teacher education practice as suggested by changes in individual item scores on the ATPIS?

2. Background of the Study

Teacher's Role in Family Involvement

Research supports the critical role that teachers play in involving families in children's education. When teachers prioritize family involvement, parents/guardians are more skillful and confident in assisting in learning at home [24]; feel more knowledgeable about the programs and services offered by the school [25]; and are more motivated to engage in their child's learning process [16]. Ref. [26] identified the following practices teachers can utilize to promote family involvement: (1) creating a welcoming school climate; (2) providing families with information related to child development and creating supportive learning environments; (3) establishing effective school-to-home and home-to-school communication; (4) strengthening families' knowledge and skills to support and extend their children's learning at home and in the community; (5) engaging families in school planning, leadership, and meaningful volunteer opportunities; and (6) connecting students and families to community resources that strengthen and support students' learning and well-being.

This framework has shown some limitations in addressing the involvement of culturally diverse families. For example, ref. [27] highlighted the difference between the original approach of parent involvement, which is viewed as a "school-centric approach" (p. 14) that is directed by schools and teachers, and parent engagement, which gives parents roles as equal "stakeholders" who share equal power in decision-making processes regarding the school and their child's education. Ref. [27] stressed that to move beyond traditional parent involvement educators must strive to understand the community and parents being served by the school to determine who is being marginalized by the educational process [27]. Ref. [28] gave an example of a Hispanic father being marginalized from the parent involvement process because his teaching his daughter Spanish was not considered a valid form of parent involvement. Ref. [27] argued for building "relational trust" based on daily exchanges where educators show they value marginalized parents' cultures. This equitable positioning of parents and educators moves beyond traditional parent involvement.

3. Current Status of Teacher Training on Parent Involvement

Teacher educators have long recognized the need to prepare pre-service teachers to work with families. Professional organizations and certification guidelines require pre-service teachers to demonstrate competency in working with families [29], refs [30,31] stressed the importance of adequate preparation at the pre-service level, as in-service educators must compensate for this lack of training once teachers begin full-time teaching positions.

4. Deficits in Pre-Service Teacher Training

Research shows that pre-service teachers possess positive attitudes towards family involvement [32–34], and recognize its crucial role in student achievement [35]. However, there is limited training available for teachers on how to work with families [36]. Ref. [32] found that “most educators enter school without an understanding of the family backgrounds, concepts of caring, or the framework of partnerships so, therefore, most teachers are not prepared to understand, design, implement, and evaluate practices of partnerships with the families of their students” (p. 706). This lack of understanding is perhaps why many pre-service teachers indicate that they feel unprepared to partner with parents. Ref. [37] found that pre-service teachers had misconceptions about family involvement and felt they did not receive enough experience working with families during their undergraduate education program. Internationally, Dutch pre-service teachers also felt that they were not well prepared to communicate with parents at the start of their teaching careers [38]. These findings were repeated in a study of pre-service teacher candidates in Belgium, the Netherlands, and the United States [39], in which candidates showed, “restricted understandings, reserved attitudes, and limited preparedness” (p. 795). Candidates felt particularly unprepared to work with diverse families. Due to these deficiencies in pre-service training, a large percentage of pre-service teachers believe that a parent involvement course should be required of undergraduate teacher trainees [34,40] that addresses how to implement successful parent involvement programs and communicate effectively with parents [20,34].

5. Availability of Pre-Service Teacher Training

Alarmingly, such training is often unavailable in pre-service training programs for K-12 teachers [41,42]. In a study of 161 leaders in schools and departments of education, ref. [36] found that although the large majority of those surveyed “strongly agreed” that teachers should be prepared to implement parent involvement programs, there were not enough courses available. These leaders also felt that their graduates were “poorly prepared” (p. 128) to conduct partnerships although over half of the respondents stated that their department or school offered a full course on family involvement and 92% had a course that addressed parent involvement in at least one class session (Epstein and Sanders). In a study in Texas of educator preparation programs, ref. [43] found that Texas teachers endorsed the importance of including family involvement in the teacher education curriculum. However, most programs did not offer a parent involvement course; rather, they addressed family involvement topics through an introductory course or field experiences. Ref. [44] noted limited inclusion of this topic in Australian teacher education programs due to lack of time for coverage in an already packed curriculum, resulting in insufficient coverage of this topic for pre-service teachers. Time limitations also hindered parent involvement topical coverage in England’s teacher education programs [45]. Learning of competencies and attitudes regarding parent involvement was not explicit in teacher education programs in Spain either [46].

Training that is provided often does not address all issues salient to effective family involvement in sufficient depth. For example, ref. [41] found that family involvement courses most often stressed how to conduct a parent–teacher conference, organize and involve volunteers, and work with families on school decision-making teams; however, they did not address how to design interactive family–student homework, create newsletters, or conduct family workshops. In Australian programs, there was a lack of attention paid

to practical aspects of parent involvement, such as how to approach parents [44]. A study of teacher education programs in Belgium, the Netherlands, and the United States found that teachers did not consider it important to seek information from parents, to talk with parents about how they can provide support at home, to involve parents in setting goals, to support parents with homework, or to collaborate with them in decision making after receiving training in parent involvement [39]. Teachers lacked an understanding that interactions based only on teacher-to-parent communication did not sufficiently foster parent involvement. In Spain, pre-service teachers were instructed that teachers should mentor parents, which supports one-way communication and a power structure that limits parents' roles in educating their children. More comprehensive coverage of skills required for pre-service teachers to foster family involvement is needed in teacher training programs.

6. Effectiveness of Training

Research has demonstrated that training pre-service teachers in family engagement techniques can impact family involvement. Pre-service teachers who completed coursework that included observations of family engagement, interactions with families, attendance at parent meetings, or attendance at sessions on the topic felt better prepared to employ such strategies in their classrooms [20,34,47]. Family involvement coursework increased pre-service teachers' knowledge of how to effectively implement multiple forms of family involvement. For example, ref. [48] demonstrated that at least two-thirds of undergraduate pre-service teachers who took a family involvement course felt prepared to implement introductory activities, written and recorded communication, volunteering, parent-teacher conferences, phone calls, home visits, committees, and special needs meetings after course completion. They also recognized the importance of all of these activities in fostering student learning outcomes. Overall, pre-service teachers rated themselves as "very prepared" to implement family involvement strategies more so than students who did not take the course, although, notably, the majority of students still desired more training in family involvement.

7. Parent Teacher Education Connection Curriculum

PTEC was designed to introduce family engagement into the pre-service teacher education curriculum through the infusion of content and skill development into existing courses. The curriculum was developed with a grant from the Metropolitan Life Foundation to the American Association of Colleges of Teacher Education (AACTE) in 2002 and continued with a grant from the Fund for the Improvement of Postsecondary Education (FIPSE) from 2003 to 2007. An interdisciplinary team of teacher educators developed a resource that includes six web-based modules. Each module was based on one of the National PTA Standards (1998) representing the types of school programming for parent involvement identified by [49]: Parenting, Communicating, Volunteering, Learning at Home, Decision Making, and Collaborating with the Community.

The components of each module included: statements of goals and objectives, presentation of content related to that particular aspect of family involvement, presentation of case studies, activities, and questions suggested to promote discussion and application of content and related skills in real and simulated settings, lists of references and teacher-designed resources, and self and instructor assessments of knowledge and attitudes. The content of each module included research-based knowledge about the topic as well as practical applications for teachers. The modules were developed to be free and easily accessible through a website and can be used online or printed and used offline in classes.

8. Methods

The Four Universities

Four universities were selected to participate based on their diversity of locations (rural vs. urban) and cultures. South-Urban was the largest and located in a diverse metropolitan area. South-Rural was located in a small city serving mainly African American students. North was located in a small community that contained a population of White and Native

American families. Southwest was located on the Mexican border and served primarily Latino students, some of whom were immigrants to the United States.

9. Participants

Over six semesters, 1658 undergraduate teacher candidates were assessed for attitudes toward parent involvement before and after completion of at least one of the six PTEC modules. The candidates were enrolled in 23 courses at one of four demographically diverse universities. Completion of the modules was embedded in different courses that included early childhood, elementary, bilingual, ESL, middle school, and special education at the various universities. Candidates participating in the study were identified by ethnicity as 6.3% African American, 0.3% Asian, 28.8% Latino, 62.3% White, and 2.1% other; candidates were 15.1% male and 84.9% female. A majority of candidates (60.7%) were preparing to teach at grades EC-4; 20.7% intended to teach grades 4–8; 12.5% intended to teach grades 8–12; and 6% planned to teach art, music, or physical education at all levels, EC-12. Most candidates were working toward initial teacher certification at the baccalaureate level, but 7.5% were post-baccalaureate candidates.

10. Instrument

The *ATPIS* was designed by [23] and was initially developed for use with in-service teachers to examine the connections between school parent involvement programs, teachers' attitudes toward parent involvement, and the practices that the teachers used to involve the parents of the children in their classrooms [49].

The current survey used in this study asks teachers to report the importance of various parent involvement activities using a Likert scale with "1" being "not important" and "4" being "very important". The survey questions were divided into two sections. The first section contains 15 items and asks pre-service teachers to rate the importance of parent involvement activities that teachers use with parents. Pre-service teachers responded to a prompt stating, "Teachers choose among many activities to assist their students," after which 15 examples are listed and participants rate the importance of each using the Likert scale described above. Section 1 of the *ATPIS* had good internal consistency with a Cronbach's alpha of 0.92.

The second section also contained 15 items but asked pre-service teachers to respond to a second prompt stating, "This question asks for your professional opinions about activities that you think should be conducted by the parents of the students you teach," after which 15 examples of these activities were listed and participants' responses are rated on the same Likert scale as the first 15 questions. Section 2 of the *ATPIS* had good internal consistency with a Cronbach's alpha of 0.94. Table 1 has a complete list of questions from the *ATPIS* and which module they correspond with.

Table 1. Attitude towards parent involvement items and corresponding PTE Connection modules.

Items	Module
<i>Section 1: Teacher Responsibilities</i>	
1a. Have at least one conference with a parent of each of my students.	Communicating
1b. Include students in conferences with parents.	Communicating
1c. Attend evening meetings and performances of my students at school.	Volunteering
1d. Contact parents when their child has problems or failures.	Communicating
1e. Inform parents when their child does something well or improves.	Communicating
1f. Involve parents as volunteers.	Volunteering
1g. Inform parents of the skills required to pass my class.	Communicating
1h. Inform parents how students earn report card grades in my class.	Communicating
1i. Provide ideas to help parents talk with their child about what they learn in my class.	Learning at Home
1j. Provide specific activities that parents can do to help students improve their grades.	Learning at Home
1k. Assign homework that requires students to talk with someone at home.	Learning at Home
1l. Work with other teachers to develop parent involvement activities and materials.	Collaborating w/the Comm
1m. Work on school policy committees with parents.	Adv & Decision Making
1n. Request information from parents about their child's talents, interests, or needs.	Communicating
<i>Section 2: Parent Responsibilities</i>	
1o. Work with businesses for volunteers, donations, or other resources to improve programs for my students.	Collaborating w/the Comm
2a. Set up a quiet place and time for studying at home.	Parenting
2b. Know what their child is expected to learn each year.	Communicating
2c. Check regularly that homework is done.	Learning at Home
2d. Talk with their child at home about what they are learning in class.	Learning at Home
2e. Encourage child to participate in class.	Parenting
2f. Ask teachers for specific ideas on how to talk with their child about homework.	Learning at Home
2g. Talk to teachers about problems their child is facing at home	Communicating
2h. Attend assemblies and other special events at the school.	Volunteering
2i. Talk to their child about the importance of school.	Parenting
2j. Monitor their child's progress and needs in each subject.	Learning at Home
2k. Help their child balance homework, home chores, and outside activities.	Parenting
2l. Volunteer to help the school.	Volunteering
2m. Join a parent organization or school committee.	Adv & Decision Making
2n. Encourage their child to participate in community activities.	Collaborating w/the Comm
2o. Help their child plan for future work or schooling.	Parenting

11. Treatment

Each university integrated PTEC modules into their teacher education programs differently based on the needs of their program. Instructors of courses with embedded PTEC modules were provided sample lesson plans that included discussion of case studies and cooperative group design of products of learning. Instructors then chose how to embed the PTEC modules into their course. For example, North used a graduate student to present the PTEC modules within all of the courses with embedded PTEC modules to ensure consistent methods of presentation. South-Urban embedded all six modules into one online course, which assured consistency in presentation. At Southwest and South-Rural, faculty using the curriculum in one of their courses attended meetings where the sample lesson plans were discussed with project leaders and decisions about how to present the content were determined by the group. Table 2 has a list of how each university embedded the PTEC curriculum into their course of study.

Table 2. PTEC implementation at each university.

	Courses in Which PTEC Was Used	Methods of Instruction	Providers of Instruction	Field Experience Components	Basis for Evaluation of Field Learning
South-Urban	Families, Schools, and Communities.	Modular content was presented and discussed online by cohorts of four PSTs who then responded online to multiple related case studies and expert reactions.	Faculty course author and graduate student instructors of the online course.	Fifteen hours of fieldwork at a family-serving social service agency accompanied the course. Simulated school-wide one-year action plan for partnerships completed online by groups of four PSTs.	Weekly journals about learnings from the field work. Criteria included inclusion of the six types of parent involvement.
North	Multicultural Education, Introduction to Early Childhood Education, Mathematics in the Elementary School offered in a block; Middle School seminar.	Modular content followed lesson plans provided by project staff. Plans included introduction to module and its purposes, discussion of case study, completion of related activity, and discussion of expert reactions.	Project graduate assistant taught PTEC portions of the courses to provide consistency.	PSTs in several programs/courses designed and carried out in field settings family nights such as Math is Fun, Turkey Bingo, and Family Math/Science Night. These activities were often part of a 15 h per week methods block.	Evidence of success considered by faculty included responses to surveys completed by parents who attended the PST-led events.
South-Rural	Classroom Management (for all programs); Fall and Spring Elementary seminars taken prior to and during student teaching.	The Classroom Management course exposed PSTs to one case study from each module. In the two seminars, PSTs studied Parenting, Learning at Home, and Communicating, applying this content in the field.	Regular instructors of the courses with strong support from the clinical instructors in the seminars.	In the seminars, PSTs learned about school practices of parent involvement by visiting Head Start, the Parent Center, and others. The PSTs developed newsletters, and a summer reading calendar.	At Parent Forum at the end of spring semester, PSTs shared their reading calendars and other materials with real parents, who evaluated the forum and made recommendations for next year.
Southwest	Courses offered each semester to PSTs in one of the cohorts. Courses included seminar, Social Foundations, Math in the Elementary School, and Literacy.	PSTs read modular content independently prior to in-class discussion of related case studies selected by faculty.	Faculty responsible for instruction of the cohort each semester chose the courses, modules, and case studies most related to their course content.	PSTs worked with parents to plan and carry out parent nights held at regular intervals throughout the year; home visits including immigrant and migrant families.	Faculty evaluation was based, in part, on PST and parent assessment of contributions of each to parent night plans and events; reports on home visits.

12. Data Collection and Analysis

The *ATPIS* was given to pre-service teachers at all four universities at the beginning of the semester before they received instruction on parent involvement through the PTEC modules. It was given again at the end of the semester to measure attitude change. Paired *t*-tests were conducted with the whole sample and within each university to determine changes in the individual items on the survey.

13. Results and Discussion

Changes across All Four Universities

Results across the full sample demonstrated more item change for the “Teacher Responsibilities” subscale than the “Parent Responsibilities” subscale of the *ATPIS* (see Table 3).

Table 3. t-Scores from paired-samples *t*-test results for pre and post mean attitude scores.

Item	Item Description	All	South-Urban	North	Southwest	South-Rural
<i>Section 1: Teacher Responsibilities</i>						
Q1a	Parent–teacher conference	−0.81	−1.51	−0.50	0.59	−0.50
Q1b	Include students in conferences	−3.01 *	−1.11	−2.68 *	−1.97 t	−0.31
Q1c	Attendance at evening events	−2.24 *	−0.56	−3.64 **	−2.38 *	0.38
Q1d	Contact parents with problems	1.63	0.00	0.16	1.58	1.29
Q1e	Inform parents of child progress	−0.37	0.65	−1.53	0.63	−0.12
Q1f	Involve parents as volunteers	−2.95 *	−2.44 *	−0.13	−0.13	−1.87 t
Q1g	Inform parents of required skills	−3.55 **	−3.71 **	−1.85 t	−1.80 t	−0.44
Q1h	Inform parents of grading procedures	2.97 *	−0.85	−0.14	−2.50 *	2.53 *
Q1i	Teach parents how to discuss learning with child	−9.69 **	−3.85 **	−4.71 **	−2.53 *	−6.94 **
Q1j	Specific activities for parents to raise grades	−1.32	−1.71 t	−1.10	0.32	0.00
Q1k	Homework involving family at home	−5.05 **	−2.15 *	−3.56 **	−2.65 *	−1.62
Q1l	Collaborating with other teachers	−4.44 **	−2.91 *	−2.47 *	−4.12 **	−0.162
Q1m	School policy committees with parents	−5.66 **	−1.68 t	−3.16 *	−3.13 *	−2.85 *
Q1n	Request info from parents about child skills	−2.43 *	−0.50	−0.71	−1.47	−1.33
Q1o	Work with community to improve student programs	−5.72 **	−3.50 **	−3.04 *	−2.07 *	−2.49 *
<i>Section 2: Parent Responsibilities</i>						
Q2a	Set quiet place for home studying	−2.17 *	−1.55	−0.85	−0.26	−1.71 t
Q2b	Know what child expected to learn	−1.12	−1.63	−1.58	−0.46	0.88
Q2c	Regularly check homework	1.03	−1.53	0.97	1.22	0.74
Q2d	Talk at home about class with student	−1.43	−0.28	0.14	−1.82 t	−0.25
Q2e	Encourage class participation	−2.64 *	−0.81	−1.35	−1.26	−1.03
Q2f	Ask teachers about how to discuss homework	−3.27 **	−1.00	−3.15 *	−0.72	−0.74
Q2g	Talk to teachers about home problems	−1.15	−0.82	−1.58	0.337	0.10
Q2h	Attend assemblies and other school events	−1.03	−0.70	−1.02	0.30	−0.31
Q2i	Talk to child about importance of school	1.79 t	−0.70	0.82	2.83 *	0.65
Q2j	Monitor progress in each subject	−1.88 t	−1.34	−0.33	−0.47	−1.03
Q2k	Help child balance homework with other activities	0.28	−0.22	0.00	0.098	−1.90 t
Q2l	Volunteer at school	−14.95 **	−5.30 **	−7.52 **	−9.03 **	−7.77 **
Q2m	Join parent organization/committee	−4.12 **	−1.21	−2.77 *	−1.70	−1.86 t
Q2n	Encourage child participation in community	−4.83 **	−0.59	−3.77 **	−1.04	−3.55 **
Q2o	Help child plan for future	−2.59 *	−0.89	0.16	−0.51	−1.78 t

t $p < 0.10$; * $p < 0.05$; ** $p < 0.001$.

14. Subscale Changes across Full Sample

A large number of items showed change across all universities on the “Teacher Responsibilities” subscale at least at a trend level. Most items on the “Parent Responsibilities” subscale did not show change across all four universities, suggesting that the pre-service teachers understood their own role in building partnerships with parents better than the parents’ role. A notable exception for the “Parent Responsibilities” subscale was change on the item, “Volunteer to help the school,” which showed change across all four universities. This finding demonstrates that pre-service teachers viewed parents as playing traditional roles in schools.

Results for several items showed universal change across all four universities. The item, “Provide ideas to help parents talk with their child about what they learn in my class,” showed improvement across all four universities, suggesting the effectiveness of the Learning at Home module that demonstrated to parents how to engage their child around academic subjects. The item, “Work on school policy committees with parents,” also showed improvement across all four universities. This reflected the effectiveness of the Advocacy and Decision-Making module, as well as efforts at three out of four universities to provide culturally diverse populations with a voice in school matters. The item, “Work with businesses for volunteers, donations, or other resources to improve programs for my students,” showed improvement across the full sample and all four universities. This result suggested the effectiveness of the Collaborating with the Community module.

15. Item-Level Changes across Full Sample

Item-level change was found on items addressing Volunteering (“Involve parents as volunteers,” “Volunteer to help the school”), Learning at Home (“Assign homework that requires students to talk with someone at home”), Communicating (“Inform parents of skills required to pass my class,” “Ask teachers for specific ideas on how to talk with their child about homework”), Decision Making and Advocacy (“Work on school committees with parents,” “Join a parent organization or school committee”), Collaborating with

the Community (“Work with businesses for volunteers, donations, or other resources to improve programs for my students”), and Parenting (“Set up a quiet place and time for studying at home”). Therefore, it appeared that the modules were successful in teaching pre-service teachers the importance of parent involvement across all six of Epstein’s six types of parent involvement.

Several Communicating-related items that are important to building relationships with parents did not show change, including, “Have at least one conference with a parent of each of my students,” “Inform parents when their child does something well or improves,” and “Contact parents when their child has problems or failures”. An item addressing the need for parents to communicate with the teacher also did not demonstrate change (“Talk to teachers about problems their child is facing at home”). These findings highlighted a weakness in the Communicating module.

The item, “Attend assemblies and other special events at the school,” did not show change because it was not addressed in the PTEC curriculum. Finally, two items reflecting teachers’ views of parents’ competence regarding their abilities to fully engage in the child’s learning process did not show change (“Know what their child is expected to learn each year,” “Check regularly that homework is done”). Three out of the four universities (Southwest, North, and South-Rural) worked with culturally diverse populations that were generally low-income. Therefore, the teachers may have possessed negative views or beliefs that the parents were unable to complete these tasks.

16. Change by University

Differences in attitude change across the four universities were associated with different ways the PTEC curriculum was embedded into coursework.

16.1. South-Urban

South-Urban required a semester-long online course centered around the PTEC modules, which culminated in students’ working in a group to create a one-year action plan for partnerships that involved the development of activities for all six types of parent involvement for a hypothetical school. Item-level change occurred mostly for items in the teacher-initiated parent involvement section of the ATPIS.

On the teacher-initiated section, items that addressed facilitation of parent–child communication at home regarding school (“Provide ideas to help parents talk with their child about what they learn in my class,” “Assign homework that requires students to talk with someone at home”) showed improvement, suggesting the effectiveness of the Learning at Home module. The item change on, “Work with other teachers to develop parent involvement activities and materials,” could be explained by the experiences that pre-service teachers had while working in groups to create the action plan for partnerships. Item change on, “Work with businesses for volunteers, donations, or other resources to improve programs for my students,” showed that pre-service teachers acquired knowledge from the Collaborating with the Community module and related action plan for partnerships activities. There was no change on items that focused on the importance of keeping parents informed of their child’s progress in school, such as, “Have at least one conference with a parent of each of my students” and “Inform parents when their child does something well or improves”. This result demonstrated that the pre-service teachers did not understand the importance of sharing the child’s academic progress with parents, which highlighted a weakness in the Communicating module. The Parenting module-related item, “Set up a quiet place and time for studying at home,” did not show change.

On the parent-initiated section, only one item showed improvement in teachers’ attitudes regarding parent-initiated involvement (“Volunteer to help the school”). This finding demonstrated a lack of comprehension of PTEC material stressing non-traditional methods of parent-initiated involvement, such as content discussed in the Learning at Home module related to parent-initiated involvement (i.e., “Talk with their child at home about what they are learning in class”).

Overall, it appeared that pre-service teachers' exposure to all six modules through an online course and the requirement to create activities for each of the six types of parent involvement facilitated learning across almost all six types of parent involvement. The action plan activity placed pre-service teachers in the role of an educator rather than a parent. South-Urban was the only university that did not require pre-service teachers to participate in parent nights during which the pre-service teachers hosted activities for the parents to learn about such topics as math and science. Thus, the parents' role may not have been as apparent to South-Urban pre-service teachers.

16.2. North

North university was located within a community with a population of Native Americans. Pre-service teachers wrote case studies for the modules that had culturally based themes. They learned to understand and advocate for Native Americans in the local community as part of their exposure to the PTEC curriculum. Pre-service teachers also held a family math night during which they showed parents how to engage their children in math activities both during the event and at home.

The item that reflected teacher activism in finding resources for families in the community showed improvement: "Work with businesses for volunteers, donations, or other resources to improve programs for my students". This finding suggests both the effectiveness of the presentation of the Collaborating with the Community module and attempts to meet local Native Americans' needs. Both items that tapped teacher activism in the form of advocacy ("Work on school policy committees with parents," "Join a parent organization or school committee") may have shown improvement because of class discussions and activities focused on how to give Native Americans a voice in school decisions, as well as the presentation of the content of the Advocacy and Decision-Making module. Similar to South-Urban, the items that reflected teacher involvement in supporting parent-child academic-related communication at home showed an improvement, such as, "Provide ideas to help parents talk with their child about what they learn in my class," "Inform parents of skills required to pass my class," "Assign homework that requires students to talk with someone at home," and "Ask teachers for specific ideas on how to talk to their child about homework". These results occurred because family math nights involved pre-service teachers in engaging parents in learning with their children at the math night and provided activities for parents to do with their children at home. Additionally, these ideas were emphasized in the Learning at Home module. The item, "Attend evening meetings and performances of my students at school," may have shown improvement because of pre-service teachers' participation in the family math night in the evening. The item, "Work with other teachers to develop parent involvement activities and materials," may have shown positive change because pre-service teachers learned the importance of working with each other to develop and participate in family math nights. The item, "Include students in conferences with parents," showed attitude change, which likely reflects the students' needs to communicate largely White teachers' cultural values and ways of speaking to Native American parents by participating in parent-teacher conferences.

16.3. Southwest

Southwest university, located on the Mexico border, required pre-service teachers to participate in a series of family nights and home visits, in preparation to work with a large local Hispanic population, many of whom were immigrants. Students wrote case studies on overcoming educational barriers with Hispanic immigrants. The focus on activism for culturally diverse families was found in this teacher education program. Therefore, teacher activism-related items showed attitude change. For example, items that reflected giving immigrant parents an increased voice in school, such as joining committees ("Work on school policy committees with parents"), showed attitude change. This finding suggests the effectiveness of the Advocacy and Decision Making module and class discussions on how to engage Hispanic immigrant parents in their child's education. Additionally,

change for the item, “Work with businesses for volunteers, donations, or other resources to improve programs for my students,” suggested the effectiveness of the Collaborating with the Community module and class discussions addressing obtaining resources for Hispanic immigrant parents. Pre-service teachers’ planning and working with families at family nights and through other project activities likely accounted for the change on several items. The item addressing attendance at evening events (“Attend evening meetings and performances of my students at school”) may have shown change because pre-service teachers worked with families in the evening during family nights. Pre-service teachers also taught families how to discuss learning with their child and gave ideas for doing school-related work at home with the child during home visits and family nights. These activities could account for attitude change for the items, “Provide ideas to help parents talk with their child about what they learn in my class,” “Assign homework that requires students to talk with someone at home,” “Talking to their child about what they are learning in class,” and “Talk to their child about the importance of school”. This finding also suggested the effectiveness of the Learning at Home module. PTEC-related activities may have resulted in a change in the item, “Volunteer to help the school,” because pre-service teachers learned the importance of showing Hispanic families that it is beneficial for them to be directly involved in their child’s school. The item that focused on parental monitoring of homework (“Monitor their child’s progress and needs in each subject”) did not show attitude change.

16.4. South-Rural

The South-Rural university showed changes in more parent-initiated activities than teacher-initiated activities at least at a trend level. Pre-service teachers used the PTEC modules in a senior seminar focused on the Parenting module and students planned an evening event for families that focused on parenting skills. Pre-service teachers also wrote case studies for the modules that largely focused on parenting. Therefore, it was logical that more parent-initiated events would show change for the South-Rural university than any other university. The parent items that showed change include items helping the child to have balance in their life (“Help their child balance homework, home chores, and outside activities,” “Encourage their child to participate in community activities”), which related to information in the Parenting module regarding how to effectively foster the child’s social and emotional growth. The Parenting module also contained information regarding structuring the home environment so the child can complete schoolwork, which could account for change for the item, “Set up a quiet place and time for studying at home”. The item addressing helping parents to have ideas regarding how to discuss information learned in class (“Provide ideas to help parents talk with their child about what they learn in my class”) may have shown change because teacher educators also focused on the Learning at Home module at this university. The two items that measured participation in school committees (“Work on school policy committees with parents,” “Join a parent organization or school committee”), as well as the item tapping working with business to obtain student resources (“Work with businesses for volunteers, donations, or other resources to improve programs for my students”), may have shown improvement because ways to advocate for African American students in poverty were discussed in class as parts of discussion of the Advocacy and Decision Making and Collaborating with the Community modules. South-Rural was the only university that did not show change in the items, “Inform parents of skills required to pass my class,” and “Assign homework that requires students to talk with someone at home”.

17. Conclusions

Overall, these results demonstrated that how universities infused PTEC into teacher education coursework affected the changes pre-service teachers showed in their attitudes toward parent involvement. Changes in scores across multiple items at all universities demonstrated that exposure to PTEC causes attitude change. These results supported those of [22], who found attitude change for teacher- and parent-initiated activities overall for the

participants in this study. They extend these results by pinpointing which items making up the factors used in [22] were responsible for broader results.

A notable result of the study was that many more teacher- than parent-related items showed attitude change. This finding suggested that, despite the PTEC focus on parents' roles in education, pre-service teachers found it easier to envision their role in facilitating parent involvement than the parents' role. More activities placed the pre-service teacher in the role of the teacher, rather than the role of the parent. The teacher's role was stressed in such activities as the one-year action plan for partnerships in South-Urban and the case study writing at all four universities. More parent-focused activities were potentially needed in the PTEC curriculum itself. The fact that when South-Rural focused on Parenting, more parenting-related items showed change, suggests that such changes could be effective.

Results suggested that pre-service teachers learned ways to advocate for students from culturally diverse backgrounds at North, Southwest, and South-Rural universities. They demonstrate that pre-service teachers can learn to overcome the lack of cultural awareness many teachers displayed [50]. Similar to findings from a study of a course relating to low-income and ethnic minority families [51], pre-service teachers learned to overcome stereotypes and became more confident in being able to serve as a voice for families from different cultures, such as Native Americans and Hispanic immigrants. Pre-service teachers also recognized a voice for children in parent-teacher conferences for Native American and Hispanic parents, suggesting pre-service teachers viewed students as potential "cultural brokers". Cultural brokers are individuals who act as bridges between schools and diverse families [52]. Families of children from non-dominant communities have long been marginalized by the policies and practices of institutions such as schools [53]. According to [54], racial, cultural, and other boundaries between schools and families can be a barrier to a parent's engagement. The recognition of the potential for students to help their parents or other family members feel comfortable at school during a conference indicated that pre-service teachers were developing an awareness of the existence of these barriers.

Through the case studies, pre-service teachers in this study were exposed to scenarios in which they were required to acknowledge the different knowledge and strengths of the families of the students who were the focus of the case studies. Pre-service teachers demonstrated that they were beginning to grasp the importance of these family strengths in their students' school success. This recognition of the diverse knowledge and experiences found in families was a positive step towards pre-service teachers' ability to recognize the "funds of knowledge" that families possessed and how to then be able to incorporate those into parent engagement activities [55].

Pre-service teachers at North and Southwest learned strategies for building partnerships with culturally diverse families through working with them during family nights and engagement with the Learning at Home, Advocacy and Decision-Making, and Collaborating with the Community modules. These findings were consistent with previous work demonstrating that family math nights could foster growth in pre-service teachers' abilities to understand and engage with culturally diverse families [56–58]. Participation in family nights appeared to be responsible for changes in attitudes for North, Southwest, and South-Rural. Pre-service teachers learned how to encourage parents to involve their children in learning activities and discussions at home and the importance of collaboration with other teachers in creating family night activities. These findings suggested that teacher preparation programs should include family-focused activities in their courses and integrate field experiences and internships to enhance pre-service teachers' knowledge, attitudes, and skills regarding school-family-community partnerships [59,60].

Infusion of parent involvement content into coursework resulted in attitude change specific to the focus and priority of each university. However, there was some consistency in attitude change. All universities addressed multiple types of parent involvement. All four universities used the Learning at Home module to emphasize the use of at-home learning activities for families. All four universities used the Advocacy and Decision-Making module with focus given to giving culturally diverse parents a voice in their

schools. All four universities recognized the importance of collaborating with businesses in their communities to obtain needed resources for families who may lack the resources or time to obtain them themselves. Skills regarding communicating with parents, such as participation in parent–teacher conferences and contacting parents with problems, did not show change consistently across universities. This finding suggested that PTEC material addressing these topics in the Communicating module needs to be revised.

18. Implications and Future Directions

The findings from this study supported providing pre-service teachers with either a full course on parent involvement or infusion of a parent involvement curriculum into coursework. They suggested that service-learning is an important complement to in-class learning. They highlighted the value of discussion of cultural diversity and demonstrate the importance of activities that place pre-service teachers in the role of the parent. Findings revealed the need to cover all six types of parent involvement in coursework to facilitate attitude change across all types.

This study also had implications for systemic and structural issues regarding higher education. This study showed how pre-service teachers became more confident in being able to serve as a voice for culturally diverse families. This finding supported the fact that pre-service teachers learned to take the perspective of marginalized parents that [27] suggested to understand how to support them. As noted, this shift was accomplished through having pre-service teachers conduct fieldwork at sites reflective of the diversity inherent in their local communities so that they could learn relationship-building skills and competencies regarding how to work with culturally diverse populations. Previous work has noted success with this approach for family math and science nights with Hispanic populations [61]. Additionally, case studies were utilized in class curricula with dilemmas regarding how to address challenges related to cultural diversity to sensitize pre-service teachers to issues that might arise in their classrooms. Systemic change can be made in teacher training programs at institutions of higher education to use fieldwork and case study components that incorporate diversity in their programs to prepare pre-service teachers to work with culturally diverse populations.

The way in which this study was conducted serves as a model of interinstitutional collaboration that incorporated diversity. The main faculty member who directed the program at Southwest university was Hispanic and the main faculty who directed the program at South-Rural university was African American, while all other faculty members were White. Thus, the faculty members who collaborated to develop the PTEC Consortium were representative of the cultural diversity of their geographic areas. They integrated their ideas into a national, interinstitutional collaboration to reform higher education teacher preparation in areas relevant to cultural sensitivity of pre-service teachers. This collaboration could serve as a model for other academic collaborations.

Ishimaru's work shed light on both strengths and weaknesses of this study. Her work presented several case studies [62,63], of collaborations between parents who organized collectively to improve their schools either through such groups as a coalition or the PTA and the broader school district as well as community organizations. She stressed the need for "nondominant" culturally diverse groups such as Hispanics and African Americans to reject the dominant forms of parent involvement in which the teacher/school sets the agenda and engage in an equal partnership through which the families' unique culture and related strengths are recognized and built upon. These studies showed parents taking a more active role in their school to recruit other parents as parent organizers and advocates. This current research was effective in training teachers to recognize the strengths inherent in culturally diverse families as suggested by Ishimaru. The PTEC curriculum incorporated Collaborating with the Community as its sixth module but did not specifically discuss the role of the school district. As noted, it also failed at stressing the role of the parent in the results shown and focused on the teacher. Future programming with PTEC should serve to empower the parent in such roles as an organizer, as suggested by Ishimaru.

Future studies should explore if the attitude change found upon completion of PTEC-related coursework is maintained when pre-service teachers begin their first teaching jobs. Additionally, teacher observations of pre-service teachers once they become in-service teachers and classroom assignments completed during pre-service education related to parent involvement should be analyzed to determine if the pre-service teachers' attitude change is reflected in practice.

This study demonstrated the possibility of changing pre-service teachers' attitudes regarding the importance of teacher- and parent-initiated parent involvement activities. It appeared that pre-service teachers responded to how parent involvement content was presented to them in courses and through service learning by changing their attitudes in ways specific to what they were exposed to. The findings serve as a guide for the types of activities that can foster attitude change in pre-service teachers regarding parent involvement.

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