

Examining the Influence of Service-Learning Field Placement Structure on Pre-Service Teachers' Perceived Knowledge Development

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Abstract: This study examined the impact of service-learning field placement structure on pre-service teacher literacy knowledge during an elementary literacy assessment course. Grounded in frameworks of experiential learning theory and teacher knowledge, the study compared two cohorts assigned in either one placement site or across two sites. Participants completed a survey aligned to four knowledge constructs. Statistical analysis was conducted to examine group differences. Results indicated a statistically significant multivariate effect of cohort suggesting that structures may differentially support pre-service teacher development. Surveys revealed that participants believed the experiences strengthened teaching practices, improved learning, fostered community engagement, and promoted critical self-reflection.

Keywords: Service-learning, Pre-service Teacher, Field Placements

Introduction

Persistent gaps in elementary students' literacy achievement highlight the need for teacher education programs to seek innovative approaches to cultivate and strengthen pre-service teachers (PSTs) literacy knowledge, while also building meaningful partnerships with local communities. Effective literacy instruction in elementary school is dependent on teachers' readiness to assess and support all learners' literacy development. Thus, one of the main goals of literacy courses in teacher preparation programs is to ensure that PSTs not only understand the subject matter but also know how to effectively teach the subject matter to students.

Field experiences are a vital component of teacher preparation, offering PSTs opportunities to enact instructional practices in authentic classroom settings. Service-learning can enhance these experiences by integrating learning with community engagement. Jacoby (2014) described service-learning as an experiential educational approach in which students engage in activities designed to address recognized needs within a community. Service-learning also supports achievement of course objectives (Griffith & Zhang, 2013). A central goal is to create clear connections between coursework and

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academic service activities. In addition, effective service-learning includes critical reflection that considers and connects field experiences and course content (Ash & Clayton, 2009; Jacoby, 2014; Maynes et al., 2013).

Importantly, service-learning field placements vary in structure which may shape PSTs' interactions and thus learning opportunities and perceptions of their own knowledge. These variations can include the number of placement sites per semester, the demographics of the site, the instructional responsibilities of PSTs, the quality of mentoring and supervision provided, and the connections to coursework. These differences matter because they can influence the learning opportunities of PSTs and how they perceive their developing knowledge.

Although service-learning is widely represented in the literature, few studies have examined different placement structures or their impact on PSTs' beliefs about literacy knowledge. This study examined PST's self-reported knowledge following completion of coursework and engagement in field experiences that included a service-learning component. The goal of this paper is to investigate the impact of placement structure by comparing PSTs who completed a literacy course and field experience in either one placement site or across two placement sites, allowing for examination of how multiple contexts influence perceptions of literacy knowledge. Specifically, the researchers addressed the following research question: Do PSTs' perceptions of content knowledge, pedagogical content knowledge, community and cultural knowledge, and critical self-reflection vary across cohorts experiencing different service-learning field experience structures?

Literature Review

Variety in Field Experiences

Field experiences are important for PSTs but variations in placements have differing outcomes. Hoffman et al. (2019) reviewed 62 studies of PSTs in university programs who were engaged in different field-based literacy activities. Across these studies, they found that PSTs frequently improved literacy knowledge, increased pedagogical abilities, valued relationship building in the school community, and shifted their beliefs and attitudes about teaching. On the other hand, more recent research suggested that variations in field placements may not contribute to measurable differences in outcomes. For example, a study of approximately 1700 students in an undergraduate teaching program determined that, while there is considerable variation in field experience placements, including school population demographics, school test data, and opportunities to teach, variations in field experience placement did not impact PSTs' subsequent clinical teaching observation ratings or future employment in K-12 public schools (Kwok & Bartanen, 2022). These findings raise the possibility that differences in field placements may primarily influence PST's immediate perceptions of their knowledge and understanding about what it means to be a teacher, rather than affecting future outcomes.

Pre-Service Teachers and Service-Learning

One increasingly common addition to field experience is a service-learning component. Research on service-learning in PST education has reported a variety of benefits,

particularly when PSTs were engaged in simultaneous course work and field experiences. For example, a service-learning program in the Philippines engaged PSTs in tutoring young learners who were identified as in need of literacy support. In addition to supporting literacy development, the PSTs reported improvements to their own communication, collaboration, flexibility, socio-emotional, and classroom management skills (Mateo et al., 2024). Similarly, other studies have found that participation in service-learning develops additional teaching skills, such as, increasing confidence, enhancing empathy, and demonstrating resourcefulness (Lavery & Sandri, 2021), while also providing opportunities to develop content knowledge (CK), pedagogical content knowledge (PCK), community and cultural knowledge (CCK), and critical self-reflection (CSR) (Piestrzynski & Williams, 2024).

Furthermore, studies suggest that service-learning has added benefits. For instance, PSTs participating in service-learning demonstrated significant improvements in PCK components such as adaptability, lesson structure, and assessment when compared to peers in traditional field placements (Yessimbekova et al., 2025). When supporting K-3rd grade students' literacy development, PSTs have been shown to acquire new instructional practices and improve their ability to identify students' strengths and areas of need (Pittman et al., 2020).

Research has consistently identified the positive impact of service-learning on PSTs' self-efficacy. Bandura (1986) described self-efficacy as a person's belief in their ability to accomplish a task or meet an objective. PSTs have reported increases in self-efficacy when courses in their education program include service-learning experiences (Bernadowski et al., 2013; Griffith & Zhang, 2013). Longitudinal research supports this finding, with participants in a two-year long service-learning program reporting a positive effect on self-efficacy (Gutzweiler et al., 2022). However, a person's reported self-efficacy does not always reflect their actual ability or competence (Bostock & Boon, 2012; Forgie et al., 2022). This tension between beliefs about one's ability and one's actual ability has not been adequately addressed in the field. This discrepancy is illustrated in an Australian study which found that while service-learning placements improved PSTs' confidence, their knowledge of literacy or literacy-focused teaching strategies were not increased (Boston & Johnson, 2024). Notably, the service-learning experience did not include critical self-reflection which may partially explain the limited impact on knowledge acquisition.

While research has recognized both the benefits of service-learning and the variability in field experience structures, few studies have examined how differences in placement structure may influence PSTs' perceptions of knowledge. This is particularly important as variations in placement may shape immediate learning experiences, even if they may not result in long-term differences.

Theoretical Framework

Concepts of Knowledge

Shulman (1986) emphasized the importance of both content knowledge (CK) and pedagogical content knowledge (PCK) in teacher preparation. Shulman argued that teachers must know both their subject area and understand the effective methods for teaching the subject area content. An important component of PCK includes the ability to identify and remedy learners' existing knowledge that includes misunderstandings. According to

Shulman (1986), "If those preconceptions are misconceptions, which they so often are, teachers need knowledge of the strategies most likely to be fruitful in reorganizing the understanding of learners" (pp. 9-10). Those strategies must also be appropriate for the age, background, and experiences of learners.

Building on this foundation, Jacobs (2019) proposed a four-part framework that added community and cultural knowledge (CCK), as well as critical self-reflection (CSR), to Shulman's model. Jacobs emphasized that teacher preparation should include meaningful fieldwork and methods coursework to ensure that PSTs develop both instructional skills and subject knowledge, while experiencing different cultures and communities and engaging in critical reflection. Jacobs highlighted the importance of promoting critical self-reflection on identity, student diversity, and instructional practices. Her four-part framework illustrates the need for field experiences across a range of settings that grow PSTs understandings of how content knowledge, instructional approaches, personal identity, and community perspectives interact. While designing experiences that connect these areas can be a daunting task, Jacobs maintained that these competencies prepare PSTs to effectively support diverse learners across different teaching contexts.

Experiential Learning Theory

According to experiential learning theory (Kolb, 1984), learning is a continuous process in which knowledge is generated through the interpretation and transformation of experience. In this model, a learner actively shapes the environment through their actions, and the environment simultaneously influences the learner's experiences. This ongoing exchange or transaction between the learner and the environment creates knowledge. In other words, knowledge emerges dynamically through a transactional process. In teacher education, field experiences that include a service-learning component further shape the transactions between the learner and the environment by engaging the learner in sustained cycles of action and reflection, while addressing an identified need in a community. Service-learning courses offer different opportunities for engagement, reflection, connection to course materials, and application of instruction in distinct school environments. Thereby, PSTs' self-perception of knowledge is impacted by their interactions during the field experience.

Methods

A quantitative, cross-sectional survey design was employed to examine differences in PSTs' knowledge across cohorts experiencing different field placement contexts. First, a multivariate analysis of variance (MANOVA) was conducted to compare the difference between groups. Then, four separate one-way analysis of variance (ANOVA) were used to identify where the significant differences occurred.

Data Source

In the fall semester of their junior year, PSTs were partnered with elementary classroom teachers. PSTs were in classrooms for five hours on two days, for a total of ten service-learning hours weekly. Two hours were part of a literacy assessment course, and the

remaining hours were assigned to other courses. As part of the literacy assessment course, PSTs practiced various aspects of literacy assessment and instruction, particularly ways to assess students and use assessment results to screen students, monitor students' progress, and provide effective instruction. In addition, PSTs completed structured reflections based on their experiences. The field experiences occurred prior to teacher residency.

Two cohorts of PSTs completed the literacy assessment course in two different semesters. Instructional variations were minimized by maintaining identical course content and field experience components across both semesters. The course instructor and field supervisor were the same for both cohorts. Cohort 1 (n=18) was placed at two elementary school sites for their field experience. One day they were at a university laboratory school and the second day they were at an elementary school in a large urban school district. In the following year, Cohort 2 (n=19) was placed in the urban elementary school for both field days. All students were placed in grades 1-5.

Consented participants completed a 24-item Likert scale survey that was broken into four categories: CK, PCK, CCK, CSR (Jacobs, 2019). Each category contained six items for participants to answer according to the following scale: strongly disagree, disagree, neutral, agree, strongly agree, see Table 1.

Table 1. Service-Learning Questionnaire.

Category	Statement
Content Knowledge (CK)	1. Participation in this service-learning course helped me understand how students' literacy skills develop.
	2. This service-learning experience increased my understanding of literacy assessment and instruction.
	3. This experience helped me to see how information that I learned in this literacy course can be used in classrooms.
	4. Participation in service-learning helped me to better understand the material from my lectures and readings.
	5. I have gained valuable information from my service-learning experience.
	6. This experience better prepared me for lesson planning for diverse groups of students.
Pedagogical Content Knowledge (PCK)	7. This service-learning helped me to apply course content to classroom situations.
	8. I discussed teaching practices with my placement teacher(s) during my service-learning experience.
	9. My service-learning experience was directly linked to building my teacher practices.
	10. I have learned how to assess students' literacy abilities.
	11. My experience has helped me understand how to analyze literacy assessments.
	12. Service-learning provided an opportunity to plan differentiated literacy instruction based on assessment.
Community & Cultural	13. The field placement showed me how I can be more involved in my community.

Knowledge (CCK)	14. Service-learning at the field placement helped me become more aware of the needs in my community. 15. I have a responsibility to serve the community. 16. I had an opportunity to increase my sense of community and engagement. 17. This placement enhanced my understanding of students' experiences and cultural backgrounds. 18. This experience increased my knowledge about diverse populations across multiple school settings.
Critical Self-Reflection (CSR)	19. This service-learning experience helped me to identify my personal strengths and areas for growth. 20. I made a contribution during my service-learning experience. 21. Service-learning made me more aware of some of my own biases and prejudices. 22. This experience increased my understanding of my role as a future literacy educator. 23. I have increased my literacy knowledge and teacher practices as a result of this experience. 24. I have gained additional methods and approaches to using literacy assessment and instruction.

Analysis

First, the researchers assigned numerical values (1-strongly disagree to 5-strongly agree) to each Likert scale response and then obtained descriptive statistics, including the means and standard deviations for the four sections in the survey. Next, the researchers performed a multivariate analysis of variance (MANOVA) in SPSS to compare group differences across the four categories and four separate one-way analysis of variance (ANOVA) to compare group differences in each of the four categories.

Results

A one-way MANOVA was performed to investigate cohort differences in knowledge, see Table 2. Four dependent variables were used: CK, PCK, CCK, and CSR. The independent variable was cohort membership. Preliminary assumption testing was conducted with no serious violations noted. There was a statistically significant multivariate effect of cohort, Wilks' $\Lambda = .732$, $F(4, 32) = 2.923$, $p = .036$. Follow-up ANOVAs revealed significant differences between groups on CK, $F(1, 35) = 11.363$, $p = .002$ and PCK, $F(1, 35) = 5.574$, $p = .024$. No statistically significant difference between groups was found on CCK, $F(1, 35) = 0.427$, $p = .518$ and CSR $F(1, 35) = 1.431$, $p = .240$. These findings suggest that group differences may be concentrated in specific knowledge areas rather than across the four constructs and should be interpreted with caution. An inspection of the mean scores indicated that Cohort 1 had higher self-reported levels of CK ($M = 4.74$, $SD = 0.35$) than Cohort 2 ($M = 4.21$, $SD = 0.57$). Cohort 1 also had higher levels of PCK ($M = 4.56$, $SD = 0.39$) than Cohort 2 ($M = 4.17$, $SD = 0.59$).

Table 2. Means and Standard Deviations for Category by Cohort.

Category	Cohort	M	SD
Content	1	4.74	0.35
Knowledge (CK)	2	4.21	0.57
	Total	4.47	0.54
Pedagogical	1	4.56	0.39
Content	2	4.17	0.59
Knowledge (PCK)	Total	4.36	0.53
Cultural &	1	4.56	0.50
Community	2	4.46	0.49
Knowledge (CCK)	Total	4.51	0.49
Critical Self-	1	4.64	0.36
Reflection (CSR)	2	4.49	0.39
	Total	4.56	0.38

Note: M = mean; SD = standard deviation. Values are rounded to two decimal places.

Discussion

The purpose of this study was to investigate whether PSTs' perceptions of CK, PCK, CCK, and CSR vary across cohorts experiencing different service-learning field placement structures (i.e., field placement in one site or across two placement sites). Overall, the findings suggest that different field experience structures may support aspects of PSTs' knowledge development to varying degrees. Cohort 1 demonstrated higher mean scores across all four categories, with statistically significant differences observed in CK and PCK, indicating stronger development in understanding subject matter and how to effectively teach literacy compared to Cohort 2. In contrast, no significant differences were found in CCK or CSR, suggesting that both cohorts may have had comparable opportunities to develop awareness of diverse communities and reflective practices. Taken together, these results imply that while service-learning across two field experience sites can meaningfully enhance perceptions about key instructional competencies compared to placement in one site, the impact on community and cultural, and reflective knowledge may be more consistent across structures or require additional intentional supports.

The existing literature suggests that service-learning field experiences are beneficial for PSTs' development of knowledge and self-efficacy (e.g., Bernadowski et al., 2013; Griffith & Zhang, 2013; Piestrzynski & Williams, 2024; Yessimbekova et al., 2025). The findings from this study extend this literature by demonstrating that the structure of field experiences may influence PSTs' perception of knowledge development. This aligns with previous research indicating that varied field experiences increased pedagogical abilities (Hoffman et al., 2019; Yessimbekova et al., 2025). The relatively high mean scores observed in CK and PCK across both cohorts align with previous studies that demonstrated that service-learning experiences strengthened instructional competencies, including lesson design, adaptability, and assessment practices (Yessimbekova et al., 2025), and their ability to identify students' strengths and areas of need (Pittman et al., 2020). The higher mean scores for Cohort 1 further suggest that placement at more than one school site may provide PSTs with

additional opportunities to deepen beliefs about literacy knowledge and effective teaching practices.

When considering these findings through the lens of experiential learning theory (Kolb, 1984), the placement of Cohort 1 at two distinct field placement sites may have increased opportunities for comparing instructional contexts, engaging in reflection across settings, and refining understandings about CK and PCK. The observed difference across cohorts may be explained by the variety of transactions between learners in two environments versus learners in one environment, as multiple teaching practices and curricula were observed. In contrast, the similar findings for CCK and CSR suggest that all aspects of PSTs' development are not equally impacted by variations in environment. Instead, these aspects may depend on more structured activities and opportunities for reflecting on community engagement and coursework.

Conclusion and Future Research

This study highlighted the value of service-learning experiences in strengthening practices, improving student learning, fostering community engagement, and promoting critical self-reflection. Service-learning effectively bridges course content with field experiences, creating more meaningful and integrated learning opportunities. Teacher preparation program design matters and field experiences may be enhanced by placing PSTs in multiple sites to increase opportunities for developing beliefs about knowledge and teaching practices.

Future research should consider whether the significant differences in CK and PCK across cohorts have long term implications. In addition, work that considers ways to impact CCK and CSR would be beneficial to teacher education programs. Finally, research should compare PSTs' self-identified knowledge and measures of actual knowledge across different field placement structures.

Limitations

As the survey was administered at the end of the field placement, this study does not capture perceived changes in knowledge over time. A key limitation of this study is the cross-sectional design using distinct cohorts. Observed differences across groups cannot be attributed solely to placement configuration because the two cohorts were enrolled in two different semesters. Additionally, all measures relied on self-reported survey data, which may be subject to response bias and may not fully capture enacted knowledge in practice. Finally, the study was conducted within a single teacher education program, which may limit the generalizability of findings to other programs.

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