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Influences of a University-School Partnership Project on Preservice Teachers' Efficacy and Pedagogical Content Knowledge in Literacy

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I. Introduction

As is true with all professions, including medicine, the law, and the clergy, there is no single "cookie cutter" formula for being (a) successful (teacher) (Darling-Hammond & Bransford, 2005, p. 5)

Traditional teacher preparation programs in the United States have been criticized for both their authoritative and decontextualized approaches to pedagogical content knowledge (PCK) development (the so-called factory-model) and the disparity between university-based and field-based curriculum (Daring-Hammond & Bransford, 2005; Zeichner, 2010). Most undergraduate methods courses taught in university classrooms fail to provide preservice teachers (PSTs) with diverse and authentic contexts that develop their PCK (Shulman, 1986; 1987) and improve their overall teaching quality. Since classrooms are "becoming increasingly diverse—linguistically, culturally, and economically" (Gebhard & Willett, 2008, p. 41), teacher education programs must offer PSTs multiple training opportunities to develop critical understandings of effective instruction (Darling-Hammond, 2006).

In this regard, recent research in teacher education shows in-

creasing interest in the role of sociocultural contexts in improving the teaching quality and efficacy of PSTs (e.g., Bernay et al., 2020; Darling-Hammond & Bransford, 2005; Toe et al., 2020; Vagle et al., 2006). University–school partnerships are recommended as opportunities for PSTs to build authentic communities of learners, enabling them to plan, negotiate, practice, and reflect on instruction (e.g., Johnson, 2010; Lefever-Davis et al., 2007; Peel et al., 2002; Smith & Trexler, 2006; Walsh & Backe, 2013). Specifically, the final report of the National Academy of Education's Committee on Teacher Education (Darling-Hammond & Bransford, 2005) recommends partnerships with schools and districts as one of the three core methods to systematically and effectively reform teacher education

However, little is known about how partnerships between universities and schools/districts can help PSTs build their sense of teaching self-efficacy and improve their actual teaching quality, especially in the field of literacy. We believe PSTs' teaching efficacy and teaching quality may be improved if more authentic tasks are provided in a real school setting. The purpose of this study is to test this hypothesis by investigating the influences of a university–school partnership on PSTs' teaching self-efficacy and pedagogical content knowledge. The following research questions are explored in this study:

Do authentic tasks in a literacy methods course taught in a partnership school setting influence PSTs' teaching self-efficacy?
Do authentic tasks in a literacy methods course taught in a partnership school setting influence PSTs' PCK of reading?
What features of a literacy methods course in a partnership school setting potentially contribute to participants' development of teaching self-efficacy and PCK?

II. Background

1. Theoretical perspectives

1) Bandura's socio-cognitive theory

Bandura (1977) explained self-efficacy beliefs are shaped by four major sources: enactive mastery experiences, vicarious experiences, verbal persuasion, and physiological and affective states. Enactive mastery experiences refer to an individual's previous experiences of success with sustained effort. Bandura argues that "enactive mastery experiences are the most influential source of efficacy information because they provide the most authentic evidence of whether one can master whatever it takes to succeed" (p. 80). Vicarious experience refers to learning from behavior modeled by others and comparing one's performance or skill to the modeled behavior. Bandura suggests, "for most activities…there are no absolute measures of adequacy. Therefore, people must appraise their attainments in relation to the attainments of others" (p. 86). Verbal persuasion refers to persuasive feedback from others. Bandura claims "it is easier to sustain a sense of efficacy, especially when struggling with difficulties, if significant others express faith in one's capabilities than if they convey doubts" (p.101). Physiological and affective states refer to physical and emotional reactions or arousals. Bandura suggests inordinate physical or emotional stress may negatively affect one's self-efficacy beliefs. Bandura recommends an effective way to improve self-efficacy beliefs is to "enhance physical status, reduce stress levels and negative emotional proclivities, and correct misinterpretations of bodily states" (p. 106).

For teacher preparation courses in literacy, measures of self-efficacy tend to be based on qualitative data using Bandura's four constructs (Hudson et al., 2009) and the only self-efficacy instrument

validated for literacy teachers was developed by Tschannen-Moran and Johnson (2011). We believe that separately, both quantitative and qualitative approaches are somewhat problematic and, instead, should be viewed as complementary to each other. Bandura's four components may not be entirely applicable to PSTs in that such broad mastery experiences, which are theorized as the most important source of self-efficacy, are difficult to maintain. In addition, Tschannen-Moran and Johnson's (2011) instrument has a clear limitation in that it has a single construct, which contradicts both Bandura's socio-cognitive theory and their own earlier instrument (Tschannen-Moran & Hoy, 2001), which posits self-efficacy as a multidimensional construct. In this regard, there is a need to combine quantitative analysis with psychometrically sound instruments and qualitative analysis with more open-ended coding schemes to extend this research.

2) Pedagogical content knowledge theory

Shulman (1986; 1987) first coined the term PCK and defined it as "that special amalgam of content and pedagogy that is uniquely the province of teachers, their own special form of professional understanding." (Shulman, 1987, p. 8). Shulman explained that pedagogical content knowledge "represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction" (p. 8). Then he specified four major sources for the development of PCK: *scholarship in content disciplines, educational materials and structure, formal educational scholarship, and wisdom of practice*.

Scholarship in content disciplines refers to "content knowledge–the knowledge, understanding, skill, and disposition that are to be learned by school children" (p. 9). This notion of content knowledge includes not only scholarly understanding of a particular subject, but also attitudes toward teaching and learning. Educational materials and structures include

> curricula with their scopes and sequences; tests and testing materials; institutions with their hierarchies, their explicit and implicit systems of rules and roles; professional teachers' organizations with their functions of negotiation, social change, and mutual protection; government agencies from the district through the state and federal levels; and general mechanisms of governance and finance (p. 9).

Formal education scholarship refers to "the processes of schooling, teaching, and learning" (p. 9). More specifically, this scholarship includes "the findings and methods of empirical research in the areas of teaching, learning, and human development, as well as the normative, philosophical, and ethical foundations of education" (p. 9). Wisdom of practice means guidance and support for reflective and effective practice from experienced teachers. Researchers have applied this PCK concept to literacy education and teacher preparation and investigated what types of PCK should be required for both prospective and in-service teachers.

2. Review of literature

1) Teacher's self-efficacy in literacy

Since Bandura (1977) introduced and defined self-efficacy as "the conviction that one can successfully execute the behavior required to produce the outcomes" (p. 79), many researchers have applied this concept to the teacher education field to examine the role of teachers' self-efficacy in improving their instructional practices and students' learning outcomes (e.g., Ross, 1998; Tschannen-Moran et al., 1988).

Previous research reported that teachers with high self-efficacy tended to incorporate newer ideas into their instruction and overcome potential challenges by adapting their instructional strategies (Allinder, 1994; Guskey, 1988; Wertheim & Leyser, 2002). Regarding literacy education, teachers' perceived self-efficacy has been identified as a prerequisite of effective literacy instruction because literacy

teachers are expected to make diverse and complex instructional decisions to meet the multiple needs of their students (Timperley & Phillips, 2003). More specifically, Allinder (1994) reported that literacy teachers with high self-efficacy are likely to differentiate their instructional strategies to improve students' literacy learning. Recently, researchers reported field-based teacher training influences PSTs' development of self-efficacy (Gurvitch & Metzler, 2009; Johnson, 2010). However, these findings should be interpreted cautiously considering both the research contexts and conceptual clarity (Wheatley, 2005). For example, some studies were conducted in urban settings, others were completed in rural contexts. In addition, some studies did not use a clear conceptual framework, instead using related constructs including self-efficacy, attitudes, and beliefs interchangeably. For teacher preparation courses in literacy, measures of self-efficacy have tended to be based on self-report and qualitatively analyzed (Hudson et al., 2009). Teachers' sense of self-efficacy regarding specific instructional practices should be distinguished from other related factors such as pedagogical beliefs, attitudes, and self-concepts. As Conradi et al. (2014) pointed out, literacy researchers tend to use different motivational factors (e.g., attitudes, self-efficacy, self-concept, and value) with clear conceptual distinction. For example, self-efficacy is different from self-concept as self-efficacy is an individual's judgement of their ability to accomplish a specific task, while self-concept refers to an individual's overall self-perception as a learner (Jang et al., 2015).

Additionally, the lack of valid and reliable instruments measuring instructional self-efficacy of literacy make it difficult to capture more detailed aspects of teachers' efficacy in literacy instruction. Szabo and Mokhtari (2004) developed the *Reading Teaching Efficacy Instrument* (RTEI), the first instrument measuring literacy teachers' sense of efficacy. More recently, Tschannen-Moran and Johnson (2011) criticized the misconceptualized construct structure of RTEI and developed a new instrument, *Teachers' Sense of Efficacy for Literacy Instruction* (TSELI) scale.

2) Pedagogical content knowledge in literacy

Recent research has suggested that elementary teachers need appropriate levels of both content and pedagogical knowledge regarding reading to enhance their reading instruction (Anders et al., 2000; Hoffman & Pearson, 2000; Snow et al., 2005). This pedagogical content knowledge (PCK; Shulman, 1986, 1987) includes language structure, reading development, and effective instructional methods. Additionally, Snow et al. (2005) proposed that it is essential for every reading teacher to develop deep professional knowledge of teaching reading situated in diverse and complex classroom contexts.

Based on these findings, Carlisle et al. (2011) developed the *Teacher Knowledge of Reading and Reading Practices* (TKRRP) instrument, where pedagogical content knowledge regarding reading instruction was situated in different teaching contexts. This instrument has been used to measure the effect of different teacher training formats such as a multimedia approach (Ely et al., 2014) and a teacher study group (Cunningham et al., 2015). Our study extends the previous research in that it employs this new instrument to assess participants' development of literacy-related PCK in a field-based English Language Arts (ELA) methods course.

3) Partnerships in teacher education settings

University-school partnerships have a key role in bridging the gap between theory and practice in preservice teacher education. These partnerships "allow for leveraging resources and expertise, achieving outcomes that could not be accomplished by an isolated institution" (Waitoller & Artiles, 2016, p. 361). Literacy teacher educators have also tried to conceptualize how literacy instruction and practices can be developed through partnerships among school, university, and community members. Recently, Zenkov et al. (2016) proposed, "a partnership concept of literacy suggests hybrid teaching, learning, and researcher roles for students, teachers, teacher educators, and the most inclusive set of our schools' constituents" (p. 88). Partnership literacies

are “professional development opportunities with relevance to a wide range of educators—as teacher research options for English teachers and literacy educators and as project-based, co-researching clinical experiences for teacher candidates” (p 88). This partnership literacies framework aligns with a core assumption of this study: that all participants of field-based literacy methods courses, including researchers, teachers, teacher candidates and students, are active consumers and producers of pedagogical knowledge in literacy.

One type of university-school partnership is authentic field-based practicums. Such experiences have been identified as an effective way to promote PSTs’ pedagogical experiences and knowledge (e.g., Guzniczak et al., 2018; Prater & Sileo, 2002; Toe et al., 2020). A second type is service-learning opportunities. For example, Hart and King (2007) showed that prospective student tutors in service-learning settings scored higher on tests of literacy content than teachers tutoring outside the service-learning context. These tests are based on course objectives “(1) administering assessments, (2) interpreting and analyzing assessment results, and (3) utilizing assessment data to design and implement instruction.” (p. 327). Other studies not related to literacy education have also quantitatively shown similar gains in content knowledge (e.g., statistics - Kamuche, 2006; political science – Markus et al., 1993; child development - Strage, 2000). While many students improve their content knowledge through partnership projects and service learning, this is mediated by teachers’ personal and demographic characteristics (Fredericksen, 2000).

4) Contribution to the literature

This study attempts to understand whether one type of university-school partnerships, field-based practicums tied to content methods instruction, has an impact on preservice teachers’ sense of self-efficacy and/or their PCK. To accomplish this, we explore whether Bandura’s socio-cognitive theory provides a coherent framework for understanding how a university-school partnership program is related

to the development of self-efficacy and PCK, and use measures designed specifically to assess the PCK of the content methods being studied.

III. Methodology

1. Research design

This study was conducted using a convergent mixed methods design (Creswell & Plano Clark, 2018). This required a sequential design for both the quantitative and qualitative data collection and analysis. The quantitative data was analyzed using descriptive and inferential statistics and effect sizes. Simultaneously, procedures for theme development were utilized with the qualitative data. We then compared the findings of both analyses with the aim of using both sets of data to triangulate, or "validate one set of findings with the other" (Creswell & Plano Clark, 2018, p. 65).

2. Program and participants

This study was conducted in two separate sections of an introductory undergraduate literacy methods course for PSTs. The course yielded four-credits, and both sections were taught by the same instructor. The participants included 18 students in the traditional section (16 females and 2 males) and 16 students in the partnership school section (all females), for a total of 34 students (32 females and 2 males). All the participants were juniors enrolled in the elementary education program.

The traditional section was used as the control group, and students in this section took the course at the university. In this section, each class session consisted of 1.5 hours of group discussions based

on the weekly assigned reading, followed by 2 hours of related extended activities such as writing, whole-class discussions, and teaching demonstrations. Students in the traditional section also had the opportunity to perform classroom observations and completed traditional field experiences as assigned within a tri-county region.

The second section held class sessions at the partnership school and was treated as the intervention group. The partnership school was located in a suburban county four miles away from the university. The population included 60% Caucasian, 20% African American, 11% Asian, and 7% Hispanic students. Of the students, 64% were eligible for free or reduced lunch. In addition to the content the traditional section participated in, partnership school section students conducted observations of multiple grade levels, participated as early literacy volunteers (ELV), and engaged in presentations and discussions with inservice teachers called *Teacher Talks*.

During each session in the partnership school section, teacher candidates had the opportunity to observe the literacy practices in one of eighteen classrooms, ranging from kindergarten level through grade five, as well as how literacy instruction was infused within the Art, Music, and Physical education classroom settings. These observations took place for thirty minutes each week. The difference in classroom observations in the university and partnership settings was that the partnership school's field experiences were designed to provide coordinated time for the PSTs to actively interact with the elementary students, individually and in small groups.

The ELV program was a community volunteer-based program that ran within the elementary partnership school. All PSTs in the partnership school setting served as ELVs and were paired with individual or small groups of elementary-aged students and provided additional intervention/enrichment support during the school day in a tutorial setting. Lesson plans were co-created by the classroom teacher, elementary literacy consultant, and the ELV/PST. Throughout the sessions, formative assessment data was collected by the ELV/PST

and was used to inform instructional practices for subsequent tutoring sessions.

Lastly, Teacher Talks were designed to bring the voices of practicing teachers into the university classroom in an authentic context. Classroom teachers and administrative personnel were invited to share their understandings of a variety of literacy-related themes through thirty-minute presentations. The Teacher Talks correlated with the syllabus outline, so as university students were learning the theory behind the practice, they were also gaining a "real-world" perspective of the theory in action. Teacher talks happened in every class session (n=15) and included topics such as read alouds, behavior management, questioning, and assessment.

3. Data collection

A pilot study was conducted in the previous semester using a nonequivalent posttest-only design. Because only six students were enrolled in the partnership school section that semester, while 16 took part in the traditional section, we believed that the imbalance in the section enrollment was not appropriate for conducting a quasi-experimental study. The pilot study data allowed us to modify the course curriculum as well as to check the potential use of both instruments for this study (Guzniczak et al., 2018). This full study was conducted in the following semester. All of the instructional formats were the same in both courses except the three featured components of the partnership school section: classroom observations, participation as an Early Literacy Volunteer, and *Teacher Talks*. The purpose of this was to control for potential threats to internal validity: experimental treatment diffusion, compensatory rivalry by the control group, compensatory equalization of treatments, and resentful demoralization of the control group (Martella et al., 2013).

Table 1. Nonequivalent control-group design for this study

	Pretests	Treatment	Posttests
Partnership school (Experimental condition)	1. TSELI 2. TKRRP	**Authentic tasks** 1. Observation 2. Teacher talk 3. Early learning volunteer (ELV)	1. TSELI 2. TKRRP
University (Control condition)	Same as above	X	Same as above

1) Quantitative data

Quantitatively, authentic task components of the treatment group (the partnership school section) served as independent variables. Two instruments served as data-collection tools and were administered twice to all participants, once in the beginning of the semester, and once at the end of the semester. Posttest scores from the *Teachers' Senses of Efficacy for Literacy Instruction* (TSELI) and the *Teacher Knowledge of Reading and Reading Practices* (TKRRP) served as the dependent variables. (Table 1 depicts the procedures of this study.) It took about 30 minutes for the participants to finish their responses to both instruments.

Table 2. Sample instrument questions

Instrument	Sample questions
TSELI	• *To what extent can you help your students figure out unknown words when they are reading?* • *To what extent can you adjust writing strategies based on ongoing informal assessments of your students?*
TKRRP	• *Mr. Burnett noticed that some of his second graders are having difficulty reading common irregular words. To address this problem, Mr. Burnett created sets of words for students to practice. Which set is most suitable for this purpose? (Mark (X) one)* *a. when, until, which, after* *b. sweet, sugar, milk, banana* *c. because, does, again, their* *d. light, house, my, they*

Interview	• *What do you know about literacy and literacy instruction that you did not know before entering this class?* • *What have you learned from observing in the classrooms?*

(1) Teachers' Sense of Efficacy for Literacy Instruction (TSELI).

The first instrument (Tschannen-Moran & Johnson, 2011), TSELI, consists of 22 items to measure teachers' sense of self-efficacy for literacy instruction. We used this literary-specific measure instead of a more general one (e. g., Tschannen-Moran & Woolfolk Hoy, 2001), following Bandura's (1997) suggestion that "teaching self-efficacy measures should be tailored to specific content areas so that they are more predictive of outcomes" (Morris et al., 2017, p. 818). See Table 2 for sample questions from the TSELI.

(2) Teachers' Knowledge of Reading and Reading Practices (TKRRP).

TKRRP measures teachers' knowledge that is essential for effective early reading instruction. It includes 13 scenarios and 22 total items that focus on linguistic foundations of early reading (e.g., phonemic awareness and fluency) and reading comprehension. The tool was validated as a unidimensional scale with an internal consistency of alpha = .76 (Carlisl et al., 2011). Sample questions from the TKRRP can be found in Table 2.

2) Qualitative data

Pre- and post-interviews were conducted at the beginning and the end of the semester to examine PSTs' pedagogical experiences in both sections. All students in both sections agreed to be interviewed. Two researchers conducted semi-structured interviews using a set of questions regarding the PSTs' practicum experiences, sources of their self-efficacy and pedagogical content knowledge, and overall satisfaction with the course. Each interview took 30 minutes and the audio-recordings were transcribed by two graduate students. Sample interview questions can be found in Table 2.

4. Data analysis

1) Quantitative data

All data from the TKRPP and the TSELI were analyzed using analysis of covariance (ANCOVA). ANCOVA is appropriate for this study because the main threat to its internal validity is the possibility that differences between the posttest scores of the university section and partnership school section are the result of initial differences among the students rather than the effect of the authentic tasks used in the partnership school section. ANCOVA allows us to equate initial differences between the two conditions by adjusting the posttest means of the groups (Lomax & Hahs-Vaughn, 2012). Group membership served as an independent variable, and posttest scores from the TSELI and TKRRP served as dependent variables. The pretest scores from the two instruments were used as covariates. Considering the relatively small sample size and practical, exploratory nature this study, a significance level of 0.10 was used to test the statistical significance (Leedy & Ormrod, 2013; Sullivan & Feinn, 2012).

2) Qualitative data

The quantitative findings guided the analysis of the qualitative interview data to identify potential sources of self-efficacy and PCK growth in both groups. We utilized Miles et al. (2014) three-step approach including open coding, axial coding, and selective coding. In the open coding phase, three researchers separately coded the interview data focusing on teaching self-efficacy and knowledge development. These researchers then merged the initial codes into higher-level categories. In the final selective coding phase, we applied the four provisional codes from Bandura (1997): *verbal persuasion, vicarious experiences, enactive mastery experiences, and physiological and affective states*. There was agreement on 91% of the coding schemes, with the remainder discussed further and resolved.

IV. Results

1. Quantitative findings

We computed descriptive statistics for all four variables included in the analysis and provided the results in Table 3. Additionally, correlation coefficients among the four resulting subscales were presented in Table 4. The highest correlation was identified between the pretest efficacy and the posttest knowledge scores (r = .52).

Table 3. Descriptive statistics

		N	Minimum	Maximum	Mean	SD
Pretest efficacy	University Partnership school	18 16	71 106	162 183	120.78 145.06	25.04 21.27
Posttest efficacy	University Partnership school	18 16	107 131	178 178	150.17 157.63	19.70 12.24
Pretest knowledge	University Partnership school	18 16	5 6	16 16	10.72 11.06	2.63 3.04
Posttest knowledge	University Partnership school	18 16	4 7	15 17	10.39 12.31	3.13 3.14

Table 4. Correlation coefficients

	1	2	3	4
Pretest efficacy		.343*	.211	.524*
Posttest efficacy			.272	.429*
Pretest knowledge				.339*
Posttest knowledge				

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed)

The results of the ANCOVA suggested that there was no statistically significant effect of the course setting on the posttest self-efficacy scores (F_{course} = .181; df = 1, 31; p = .67), with a small effect size and weak power (partial eta squared = .006, observed power = .07) when controlling for pretest self-efficacy scores. However, separate dependent t-tests showed there was significant growth in teaching self-efficacy in the partnership school group (t = 2.06, df = 14, p =.0578). Furthermore, the results of the second ANCOVA suggested a significant effect of the course setting on the posttest knowledge scores (F_{course} = 3.04; df = 1,31; p = .091), with a small effect size and weak power (partial eta squared = .089, observed power = .39). The effect size suggests that, when controlling for the PCK pretest scores, about 9% of the variance in PCK posttest scores can be accounted for by the course setting.

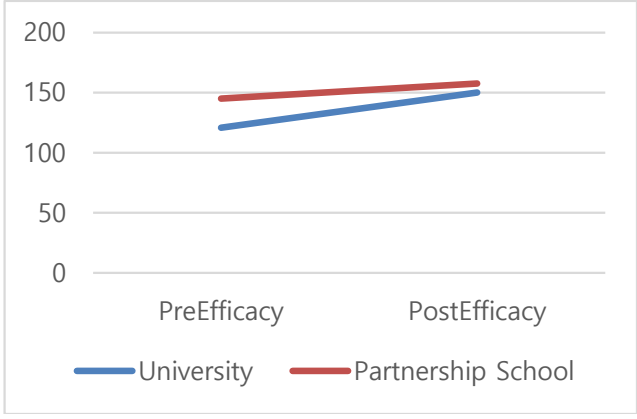

Figure 1. Efficacy change in both groups

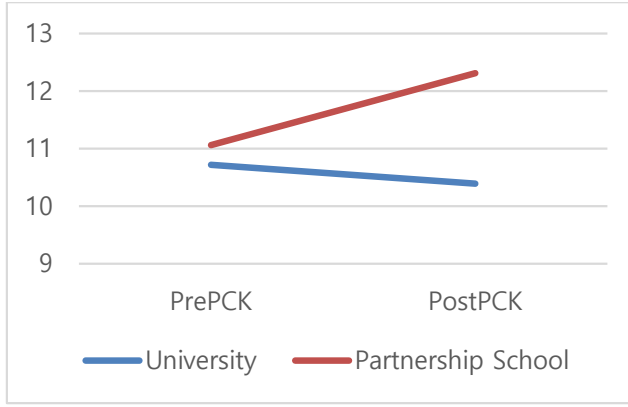

Figure 2. PCK change in both groups

2. Qualitative findings

Analyzing the interview data through the lenses of Bandura's Socio-Cultural Theory, each of the four sources of self-efficacy and PCK--*vicarious experiences, verbal persuasion, enactive mastery experiences*, and *physiological and affective states* were observed. For each of these sources, the data pointed to the instructional activities that PSTs believed impacted their learning.

Source 1: Vicarious experiences. As noted earlier, vicarious experiences refer to opportunities for novices to learn from behavior modeled by others and to compare their own performance to the modeled behavior. Within the context of the literacy methods course, classroom observations were identified as a vicarious experience that acted as a source of developing teachers self-efficacy and PCK.

Sub-source 1a: K-12 classroom observations. Students in both the traditional section and the partnership school section talked about the role classroom observations played in their learning. Students in the traditional section reported they could not connect what they learned in class with what they did in their field placement. Additionally, they reported a desire to learn more about how to apply different instruc-

tional strategies with authentic guidance and examples. This may indicate that the online response forum and in-class discussions were not enough for the PSTs to deepen their procedural knowledge on multiple instructional strategies.

- *I actually would have liked to know what would have been at [the local elementary school], go to the actual classrooms and see it being used. My placement, I actually was at [the preschool housed in the university building], which is downstairs. I didn't get to see as much because they don't do any instruction much.*
- *I think mainly I just want to learn how to teach specifically. Because we've learned a list of strategies and the stuff, but I want to learn, I don't know how to approach it in a real life scenario. We listed it off and read it through powerpoints with different models stuff. But I want to literally know tell me how to go in there and how to do this.*

Conversely, students in the partnership school section students reported that observing real classroom instruction across different content areas and multiple grade levels reinforced and extended what they read and learned.

- *I like how during classroom time we actually got to go observe in classrooms not just classroom management but how the teachers instruct. Nine out of ten times there was actually literacy instruction going on either full group, small group or individual, I got to see all different kinds and all different levels.*

Source 2: Verbal persuasions. Within Bandura's framework, verbal persuasion refers to persuasive feedback one receives from others. Within their interviews, PSTs identified two sources of verbal persuasion during their literacy methods courses that influenced their teaching self-efficacy and PCK: collaborative learning and Teacher Talks.

Sub-source 2a: Collaborative learning. Collaborative learning was experienced by both the traditional section and the partnership

school section. The students in the traditional section reported that the online response forum was helpful to review and reinforce what they read in collaborative ways.

- *I thought the response forums really helped me gain knowledge on the material, not only the knowledge you saw but also what the other students took out of it. And it also provided examples that they thought should have done in their field placement and that you can try to incorporate to your future classrooms.*

The interview below revealed that both the in-class and online discussions encouraged the partnership section's students' collaborative learning.

- *The response forum allowed me to collaborate with my peers about the ideas that we talked [about] in class. And a lot of times my peers introduced me to different ways of thinking that I hadn't considered before in terms of literacy, reading, writing and all those things.*

Sub-source 2b: Teacher talks. Students in the partnership school setting reported that what the classroom teachers shared via the teacher talks regarding instructional strategies and practical skills was helpful in extending their PCK and improving their teaching self-efficacy.

- *Hearing the teacher talks, that was really beneficial because you actually got to hear from actual teachers who is actually doing this type of stuff in classroom, and how they do go about doing them.*
- *I learned a lot just from hearing the teacher talks. Their experiences doing instruction and assessing kids in the beginning of the year, where to put them, putting a mixture of students in different groups.*

Source 3: Enactive mastery experiences As predicted by Bandura's sociocognitive theory, mastery experience opportunities, or an individual's previous experiences of success with sustained effort,

strongly impacted the development of teaching self-efficacy and PCK among study participants. The activities students identified as contributing to their PCK and their self-efficacy that are in line with enactive mastery experiences were learning applicable instruction strategies, authentic vs. redundant assignments, and experience with special populations.

Sub-source 3a: Authentic vs. Redundant assignments. Participants in both sections commented on the authenticity of the experiences they had within the course, with the partnership school section participants identifying authentic instruction/practice as the most significant of their enactive mastery experiences. Being able to practice literacy instruction skills to K-12 students in authentic K-12 settings provided partner school students opportunities to acquire generative content pedagogical knowledge and practice.

- *It's nice to be in a building where you see all the things that we are learning put into practice. So that when we go to observe, we can actually see all these strategies in place where if you were just on campus you wouldn't get the same reiteration.*

For many partner school group participants, learning literacy instruction strategies in an authentic K-12 setting reinforced teaching self-efficacy development and PCK. The knowledge was transformed from abstract concepts to real world practices on a weekly basis. Bandura (1997) argued that "people do not approach tasks devoid of any notion of themselves and the world around them. Through transactional experiences, they evolve a structured self-system with a rich semantic network" (p. 81). Because they developed teaching self-efficacy and PCK in an authentic K-12 educational setting, partner school participants seem to have experienced authentic transactional experiences.

Meanwhile the participants in the traditional section sought more hands-on opportunities:

- *I feel like if [the class] had been more interactive, as we were learning, if we had been actually doing the [strategies]. I'm the type of person that learns like that. I can't just listen and take it in and be like "OK, I can do this". I'm the type of person that has to do it, and I then actually have it, and I can remember it. If the format had been more like that, I would have been like a sponge and would have absorbed it a l*ot more.

When asked if learning in a partner school K-12 environment would have been more beneficial to developing teaching efficacy, one traditional section participant responded:

- *I think being in the [K-12] classroom and actually doing more things with [the strategies]. Rather than just learning about [strategies] and thinking "Oh, I can do that." I think actually applying the knowledge [in a K-12 classroom] is a lot better.*

The environment of the traditional college lecture rarely gave students opportunities to practice their future roles as professional educators. Instead of practicing literacy strategies with K-12 students, traditional participants were college students who attended a traditional college class that afforded few opportunities to practice, and almost no authentic context to hone their skills. In sum, traditional section students often suggested that obtaining mastery experience within an authentic context was crucial to the development of teaching self-efficacy and PCK.

Additionally, some traditional section participants indicated the redundancy of certain activities may have limited potential opportunities to develop teaching self-efficacy and PCK. All students were required to conduct field observations and to answer a set of field observations questions. This activity became redundant for some campus group participants because they could only observe during certain days and times, leading to redundancy in their responses to assigned reflection questions and journal entries. In other words, the

observations did not necessarily enhance their teaching self-efficacy and PCK. Although this campus group participant liked the reflective aspects of the field log, the participant commented that the activity became repetitive:

- *The field logs---I always feel that they help because I can summarize and rethink back to what I could have done differently and what would I like to do more? I like that aspect. But I don't like the same questions every week. Because it does get repetitive, especially like in Kindergarten and in first-grade, they literally do the same thing every single day because they are trying to get [students] to practice, practice, practice [students'] motor development skills. So they are always coloring. They are always writing. It's hard to keep answering those questions in different ways.*

Bandura (1997) argued that self-efficacy development "is best achieved by organizing mastery experiences in ways that are especially conducive to the acquisition of generative skills" (p. 80). For this and other campus group students, answering the same set of questions every week may appear antithetical to Bandura's claim. When asked to rate post-course literacy teaching confidence on a scale of 1 (lowest) to 5 (highest), the participant responded:

- *I say about a 3 to a 4, depending on what strategy I was using. Yeah, like right now I could sit here talking to you and say that I feel confident. But like as soon as I got in a classroom and I have to do it, I'll be like [laughter] out the window. That's why it's between a 3 and a 4. I feel like I know everything, but I haven't done it yet. So I don't have that confidence yet.*

Variations of this participant's comments were common for the traditional section students, which may be because the campus class emphasized weekly 3-hour traditional lectures with little mastery experience opportunities. These responses support Bandura's (1997)

claim that mastery experience was the most important source of self-efficacy. The participant has to practice a literacy teaching strategy in order to learn it and to possibly incorporate the strategy in the K-12 classroom. While the participant knows the material without mastery experience opportunities to reinforce learning, the participant may not be able to transfer that knowledge to real world K-12 classroom practices. As such, mastery experience appears strongly connected with the development of teaching self-efficacy and PCK.

Sub-source 3b: Learning applicable instruction strategies. Learning applicable instructional strategies was another source of teaching self-efficacy and PCK development for partner school participants. One participant explained the impact of an authentic K-12 educational environment on theoretical and practical knowledge:

- *I never realized that literacy encompassed oral and listening skills, as well as reading and writing ...I also learned that literacy strategies must be explicitly taught to students, especially to younger students. So we learned how to show an example and have them do it on their own. You kind of go back to the experiences in [the authentic K-12 setting] and you actually see [teachers] doing the approaches. I was in a Kindergarten classroom. So I saw [the teacher] doing Read-Alouds and showing [her students] what they should be thinking about when they are reading. It is nice to see that.*

This connection between theory and practice was a common thread among partnership school section participants. Because they were immersed in an authentic K-12 setting and because they had opportunities to work directly with students in that setting, they had genuine enactive mastery opportunities. Unlike their traditional section peers, they extensively observed and worked with K-12 students and teachers in both their field experience placement and in the classroom environments. Although they did not have many mastery experience opportunities in their traditional section classroom, many

traditional section participants noted that applicable instructional strategies, in conjunction with field experiences, helped them develop teaching self-efficacy and PCK:

- *I think that the observations and doing [strategies] like Running Records in our fields that definitely helped to be able to apply them in real life situations. Being able to actually use it, instead of just sitting there and talking about it.*

Sub-source 3c: Experience with special populations. Opportunities to work with special populations varied between the two sections. Some traditional section participants commented on the need for mastery experience opportunities with special populations (e.g. English-language learners and students from low socioeconomic backgrounds). One campus group participant expressed concerns about working with struggling students:

- *The only thing I don't feel super confident in is what to do with the kids…like the one kid who still cannot sound out basic sight words.*

Another campus group participant expressed a similar concern. The participant wanted to learn more literacy teaching strategies for reluctant readers and English language learners.

- *How do you get kids that refuse to read—to read? You can always force them to do it, but they are actually not going to do it on their own. And we still have to make them achieve certain standards. And how to help ESL students more. There are some students with a Spanish language background, and I don't speak Spanish. I can't help them because I don't know what they are saying and they don't know what I am saying.*

This feedback also correlates with the experiences of the PSTs in the partnership school section, who said that access to differentiated

instruction was a major source of teaching self-efficacy and pedagogical context development. Unlike their traditional section peers, partner school participants were able to see literacy instruction modelled at several different grade levels per week. Moreover, they were able to choose which class and grade level to observe and, possibly, to interact with students. This option was not available for field observations.

- *I loved having to go into the different grade levels and not having to just one level, like in our field experiences. With my field experiences, I've only seen a selected number of grade levels. So to be able to witness all of it [in the partnership school], even if it is only for a short period of time is still beneficial. Every week we got to go to a different classroom that we chose. I liked being able to choose where I would go instead of being placed somewhere.*

Bandura (1997) claimed that the extent to which people will alter their perceived self-efficacy through performance experiences depends upon, among other factors "...the amount of external aid they receive, [and] the circumstances under which they perform" (p. 81). Being able to freely choose which class to observe may have facilitated optimal circumstances under which partner school participants could perform. Instead of being directed to a pre-selected field site, which participants may or may not have perceived as beneficial, partner school participants choose options they deemed important to their teaching self-efficacy and PCK development. In sum, some partner school participants indicated that having choice of grade levels and host teachers enhanced the development of teaching self-efficacy and PCK.

Source 4: Physiological and affective states

Physiological and affective states refer to the physical and emotional reactions and were identified as another strong source of the participants' development of both teaching self-efficacy and PCK.

Overload, literacy novice instruction, and improved self-confidence were identified by students as contributing to their physiological and affective states.

Sub-source 4a: Overload. Many of the students in the tradition section conveyed that they felt overwhelmed by the length of the class and the abundance of information provided in lectures. This indicates that information overload may contribute to participants' negative feelings and lead them into a state of inaction. The feelings of anxiety and uncertainty may increase participants' stress levels, thereby negatively affecting their acquisition of PCK.

- *It was a kind of long class, so it was hard to stay focused. I am not a big lecture person. I'd rather be involved, but it wasn't too bad. It wasn't the whole time it was a lecture.*

Many students similarly described that they felt overwhelmed about the course content, and indicated that perceived overload also contributed to their selection of their methods course section. They reported that the convenient location was a major reason for them choosing this class rather than the class held in the partnership school. Having the class on campus was considered convenient because of its close proximity. However, some of the participants did state that they wondered how the class in the partnership school worked.

- *I liked being on campus. It's convenient because I live on campus.*
- *I am kind of curious that I wish I could have seen the [partnership school] class, 'cause I don't know how theirs was, how they liked it, but [I mean] I was happy to have it here. [I mean] my field placement isn't that separate. It's down at the [university daily care center, so it worked.*

Partnership school group participants pointed out that they would like to have shorter lecture times and more observations and teacher talks. This may be because real-world experiences provided

them with a sense of belonging to the school community, resulting in an improvement of their teaching self-efficacy and PCK.

- *[If I were the instructor of this class,] I would have probably cut down the lecture time and spent more time with observations, teacher talks, and more kind of real world experiences. It was so nice to go to the observation and to see how the teachers worked in their classrooms.*
- *I think that the biggest component of this is that it is a very authentic experience. It has you actually at an elementary school with real students, and seeing real classrooms and it was also helpful to have a field placement here. Before you are at a school more than one day a week and you feel more like a member of the school…so that was definitely two important things to me.*

Sub-source 4b: Literacy instruction novice. PSTs' feelings of inexperience regarding teaching impacted their physiological and affective states. The interviews below revealed that participants in both sections viewed themselves as novices:

- *I learned strategies, but I guess I just only got to practice a couple, so I think if I would have gotten to practice a lot more or even just seen some being implemented more, I think I would have a lot better understanding.*
- *I feel like I know the content, I know the strategies, and I have seen the strategies, but I have never … I've done certain ones with small groups, but I have never gone in front of a whole class… so I think I need more practice.*

Sub-source 4c: Improved self-confidence. Despite the lack of practice, the experiences of learning in a more authentic local school setting did provide the partnership group participants with more positive effects on the development of their teaching self-efficacy. Most partnership school participants reported they could see a great difference regarding confidence in their ability to teach literacy after taking

this class. This emerged only from the partnership school, highlighting the unique experiences of PSTs in the partnership school setting.

- *The classes I had as far as literacy before this are just about picking quality literature for the students. This is like actually using that literature to teach students and how to incorporate reading, writing, listening, and speaking, stuff like that. Before I had no idea, so now I know the strategies I just need to do it by myself.*
- *I feel I can implement these strategies into an actual classroom, teach a lesson, and be confident. I feel a great growth [of confidence in teaching literacy between the beginning of the class and now].*

V. Discussion

The results of this study highlight how a field-based ELA methods course contributed to PSTs' development of self-efficacy and pedagogical content knowledge in literacy instruction. Our quantitative findings indicated that the course format taught in a partnership school and a campus setting produced significant differences in the teacher candidates' PCK in literacy instruction, but not their self-efficacy. However, the follow-up dependent t-test showed that the PSTs in the partnership school setting showed a significant increase between the pretest and post self-efficacy test. In addition, our qualitative analyses identified detailed sources of their self-efficacy development or underdevelopment, especially in the partnership school setting.

The correlation analysis revealed an interesting finding that the highest correlation was between the pretest self-efficacy and the post-test pedagogical knowledge. Although it is still not clear whether knowledge is a source or an outcome of teachers' sense of self-efficacy (Morris et al., 2017), our findings may indicate that PSTs with

higher initial self-efficacy were likely to develop more PCK in literacy compared with those with lower initial self-efficacy. Based on this finding, we would like to echo Cochran-Smith and Fries's (2005) suggestion that subject methods courses for PSTs should aim not only to teach instructional strategies but also to improve PSTs self-efficacy and beliefs regarding teaching. The most important finding from this study is that the teacher candidates who took the field-based ELA methods course developed a significantly higher PCK in literacy instruction than those in the university setting. Previous research reported that different teacher training formats such as a multimedia approach (Ely et al., 2014) and a teacher study group (Cunningham et al., 2015) contributed to developing PSTs' development of PCK. The findings from our study extends this by reporting that a field-based teacher training model in a partnership school has a more significant effect on PCK development than a traditional university-based training. Further research may delineate what types of literacy-related PCK can be improved in the partnership setting in more detail.

Contrary to our hypothesis, this study did not find a significant difference in self-efficacy growth between the university and partnership school settings. This finding is somewhat related with Gurvitch and Metzler (2009), which reported that preservice physical education teachers in a field-based experience setting showed significantly higher self-efficacy than those in a laboratory-based course setting in the middle of the course. However, it is noteworthy that the teacher candidates in both settings showed equally high self-efficacy at the end of the semester, which is similar with our findings. As Cohen et al. (2013) suggested, PSTs' self-efficacy is influenced by multiple factors in their practicum context such as school environment, their relationship with host teachers, and university supervisors' coaching. Therefore, it is not easy to infer which contextual factors intervene with the development of self-efficacy in this study. However, we would like to emphasize that affective aspects of teaching like self-efficacy are shaped gradually compared with a cognitive aspect like PCK. In addition, those

PSTs enrolled in the field-based course reported already significantly higher self-efficacy than those enrolled in the university-based course. A further study with more focus on the relationship between the field placement and self-efficacy of PSTs is suggested.

Our qualitative findings revealed some of those contextual factors that contributed to either development or underdevelopment of PST's self-efficacy in both the campus and partnership school settings. In terms of vicarious experiences, regardless of the setting, PSTs mentioned the collaborative nature of their learning contributed to improving their sense of self-efficacy in literacy instruction. This finding is similar to findings from McDonnough and Matkins (2010) that PSTs improved their self-efficacy in science instruction when they actively collaborated with each other, course professors, and practicum supervisors. The PSTs in the campus group frequently mentioned that lack of authentic guidance and disconnection between classroom learning and field experience decreased their self-efficacy. However, the PSTs in the partnership school setting stated that both structured classroom observation and Teacher Talks were helpful for improving their self-efficacy. These findings are consistent with those from Martins et al. (2015) who reported PE PSTs' vicarious experiences such as authentic classroom observation and participation were the sources of high self-efficacy in PE instruction.

Regarding mastery experiences, PSTs in both settings mentioned applicable instructional strategies as sources of their self-efficacy in literacy instruction. However, clear differences were identified as well. The PSTs in the partnership school setting were provided multiple opportunities to study, practice, and adapt those strategies in the same school, but PSTs in the campus setting could not experience that cohesive connection between their strategy learning and actual application of them into classroom instruction. This finding supports evidence from previous observations (e.g., Johnson, 2010; Leader-Janssen & Rankin-Erickson, 2013; McDonnough & Matkins, 2010; Wang et al., 2017) that field-based practicum experiences can

provide PSTs with multiple unique mastery experiences that would lead to enhancing their teaching self-efficacy.

In terms of physiological and emotional arousal, PSTs in both settings stated that both large amounts of work and their self-perception as a novice classroom teacher decreased their teaching self-efficacy. As Martins et al. (2015) reported, PSTs' practicum experiences may increase or decrease their teaching self-efficacy depending on how they are organized and offered. To develop a more nuanced picture of effective partnership-based field placement, additional studies will be needed that examine different models of field placement.

This study also have implications for teacher education in the Korean context. Recently, teacher candidates in South Korea are required to complete their student teaching practicum over a semester, rather than the traditional one-month duration (Ministry of Education, 2021). Considering the changes in terms of duration, formats, and resources in student teaching, further research is needed to empirically compare the outcomes of the traditional four-week field experience with those of the semester-long format.

Finally, I acknowledge that there are several limitations of this study. These include the relatively small sample size, which may limit the generalizability of the findings. Additionally, the study's quasi-experimental design, while practical for the research context, may be less robust in controlling for potential confounding variables compared to a randomized controlled trial. Furthermore, the study focused exclusively on preservice teachers enrolled in an elementary education program, limiting the applicability of the findings to other teaching contexts or subject areas. The reliance on self-reported data and structured interviews for qualitative insights, while valuable, may also introduce social desirability bias or participant interpretation. Future research with a larger sample size and more diverse contexts is recommended to validate and expand upon these findings.

VI. Conclusion

Given the importance of providing PSTs with authentic practicum experiences, this study contributed to a better understanding of the role of university partnership schools in developing their sense of teaching self-efficacy and PCK in literacy. In addition, these results may suggest new types of authentic field experiences that will help PSTs build their professional identities, self-efficacy, and enhance their future instructional practices. Finally, this study may serve as a model for other universities seeking to create partnerships with local schools that "build stronger connections between research and practice" (Tseng, 2012, p. 2), thus providing a win-win situation for both the schools and universities.

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ABSTRACT

Influences of a University-School Partnership Project on Preservice Teachers' Efficacy and Pedagogical Content Knowledge in Literacy

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This study employed a convergent mixed methods design to examine the influences of a university–school partnership on preservice teachers' teaching self-efficacy and pedagogical content knowledge (PCK) in literacy. The results indicated that the course format taught in a partnership school and a campus setting produced significant differences in the teacher candidates' PCK in literacy instruction, but not their self-efficacy. Further qualitative analyses identified sources of self-efficacy and PCK growth in both groups.

KEYWORDS Teaching self-efficacy, Pedagogical content knowledge, University-school partnership, Teacher education, Preservice teachers