

IMPACT OF CONCURRENT SERVICE-LEARNING TRAINING
AND ENGAGEMENT ON PRE-SERVICE TEACHERS

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At the 2006 annual meeting of the International Conference on the Advances in Service-Learning Research, a group of researchers and practitioners interested in service-learning in teacher education formed the International Affinity Group for Service-Learning Research in Teacher Education. At this meeting, attendees “agreed that future research activities in the field [of service-learning] should deepen the understanding of the impacts, implementation, and institutionalization of service-learning in teacher education” (A. Furco, personal communication, May 6, 2007).

The call for a deeper investigation of service-learning in teacher education is well-founded and is demanding the attention of teacher educators, as evidence mounts that teacher education graduates prepared in and committed to implementing service-learning can contribute to K-12 schools (Wade et al., 1999). The skills, knowledge, and creativity of a classroom teacher directly correlate to the ultimate success of a service-learning project (Nathan & Kielsmeier, 1991). Given that it is largely the responsibility of higher education to train K-12 teachers (Myers & Pickeral, 1997), researchers need to understand the role that pre-service teacher education might play in the success of K-12 service-learning. The Council of Chief State Schools Officers (1995) has acknowledged that service-learning can promote “the simultaneous renewal of K-12 education and teacher education” (p. 81).

This article presents the findings from a study that examined the impact of concurrent service-learning pedagogical training and service-learning engagement on pre-service teachers’ perceptions of teaching and inclination toward using service-learning.

Service-Learning in Teacher Education: The Problem

Although service-learning is found in more than 300 teacher education institutions, its penetration is shallow, is concentrated in elective courses, and is typically taught by part-time

faculty (Anderson & Erickson, 2003). Research has identified several reasons for a cursory inclusion of service-learning preparation in pre-service teacher programs. The primary obstacle to including service-learning is time. Time to plan service-learning, assess students' learning, and maintain community collaborative relationships are especially difficult. These constraints are made worse by colleagues' disinterest in and relative lack of acceptance of service-learning, and the challenge of infusing new topics into already overcrowded curricula (Anderson & Pickeral, 2000; Furco & Ammon, 2000; Wade, 1995; Wade, Anderson, & Pickeral, 2000).

Other barriers were framed by teacher educators' lack of knowledge about service-learning (Pothoff et al., 2000). Most notably, some teacher educators argue that (1) teachers can learn by service-learning doing service-learning, (2) service-learning is of no use until challenges faced by new teachers have been navigated successfully, and (3) something would have to be removed from already distended programs in order to add service-learning (Erickson & Anderson, 1997).

These findings are noteworthy because new teachers often mirror pedagogically what was modeled by their college instructors or by K-12 cooperating teachers (Bullough & Baughman, 1993; Root, 1994; Shumer, 1997). However, if such opportunities are absent, the likelihood of a prospective teacher becoming interested in service-learning is greatly diminished, given that training teachers after they have begun teaching presents an additional and more impenetrable set of barriers. A key challenge to providing service-learning professional development to experienced teachers is that they tend to be generally indifferent toward school-reform (Huberman & Miles, 1984; Wade & Eland, 1995), have a set curriculum, and enjoy little free time to reconceptualize learning in their classrooms (Hill & Pope, 1997). If pre-service teachers are not being taught service-learning pedagogy, it is unlikely that they will use the

progressive method later (Root, 1997) and service-learning will remain a marginalized educational reform (Shumer, 1997).

Rationale & Evidence for Service-Learning in Teacher Education

Root (1994) identified three rationales for service-learning in teacher education. First, critics have warned of the compounded constraints in experiential learning in teacher education. Primarily, these constraints arise from the experiences of the students themselves. After all, every student who is studying to become a teacher has spent hours in classrooms, most often as a student, but also at times as a parent, volunteer, or observer. These rich histories lead pre-service teachers to approach field experiences somewhat arrogantly, “believing that they have little to learn” (Lanier & Little, 1986, p. 542) or that good teaching is easily accomplished through basic attempts.

Root’s (1994) second rationale of service-learning in teacher education suggests that pre-service teachers will be better prepared to infuse service-learning into their own curricula if they have been exposed to such practices during their education. Research on service-learning in teacher education supports the claim that pre-service teachers can recognize service-learning as an effective teaching model to enhance student learning when they engage in service-learning themselves and witness K-12 service-learning in action (Erickson & Anderson, 1997). Anderson et al. (1996) found that 83% of prospective teachers who participated in service-learning intended to use it in the future classrooms. In their study of beginning teachers who had graduated from a teacher education program that had infused service-learning, Wade et al. (1999) found that 35% of the teacher respondents that were incorporating service-learning attributed their use of the pedagogy to positive experiences with a service-learning project during a practicum or student teaching. Teachers’ intent to use service-learning later, regardless of their

current use, was also significantly predicted by if they had been responsible for planning a service-learning project while in college. Through such an experiential component, pre-service teachers see first hand how service-learning can help students to learn course content while gaining the knowledge and skills necessary to implement service-learning projects on their own. Including students in the decision-making process regarding their service placement/project will further increase the chance that they use service-learning (Wade et al., 1999).

Experiences in service-learning are not only linked to a greater likelihood to use service-learning itself. Myers and Pickeral (1997) have found that pre-service teachers who have engaged in service-learning develop the skills and perspectives required to implement other instructional strategies known to enhance student learning. In addition, service-learning teachers more often recognize the needed changes in schools and act toward reforming education. Increased contribution to school reform is due in part to teachers' collaboration with myriad stakeholders affected by and impacting education (e.g., parents, community members, students). Whereas educators who approach teaching through a myopic perspective, teachers that use service-learning are able to recognize the unique contributions of diverse groups of individuals. For this reason, and given the symbiotic relationship, service-learning in teacher education offers a means by which to connect K-12 and higher education for a "simultaneous renewal" of education (Goodlad, 1990; Myers & Pickeral, 1997).

Schools and colleges of education have a unique opportunity to be at the cutting edge of school-improvement efforts by preparing their students to effectively facilitate the service-learning process. Teacher educators who incorporate service-learning as a central learning approach for preparing their students to become teachers and who help their students develop the skills needed to effectively implement this instructional strategy in the classroom will find that they have also prepared their students to be major players in the transformation of public education. The skills and perceptions needed to effectively implement the service-learning process are very similar to the skills teachers need to facilitate school change and improvement. (Myers, 1995, 11)

A caveat to understanding the impact here, however, is that teachers are more likely to acquire and enhance the aforementioned skills as more service-learning is integrated into the process of learning how to be an effective teacher. Myers and Pickeral (1997) add that the longer that teachers' orientation to service-learning is delayed, likely it is that they will view service-learning as a central component to teaching.

The third rationale for service-learning in teacher education derives from Noddings' (1988) ethic of care. Teachers guided by an ethic of care are not limited to student development as measured only by intellectual growth. These educators also recognize that the students need education in order to be successful, contributing members of society. For this reason, an ethic of care aims to extend the role of education beyond the cognitive to include the affective, in hopes of educating students to be "acceptable persons" (Noddings, 1988, p. 221).

Research Questions

To determine the impacts from training pre-service teachers in service-learning pedagogy while simultaneously connecting them with K-12 service-learning practitioners through their own service-learning project, the following research questions guided the study:

1. How were pre-service teachers' perceptions of teaching and K-12 students changed through their participation in the K-12 service-learning project?
2. What were pre-service teachers' inclinations toward using service-learning in their future classrooms after engaging in the layered service-learning project? What variables correlate to pre-service teachers' decisions to use/not use service-learning in their future classrooms?
3. How did pre-service teachers feel service-learning contributed to K-12 student content and enthusiasm for learning?
4. How did pre-service teachers find that simultaneous instruction and engagement in service-learning contributed to the learning of teaching methods, especially service-learning?

Methodology

Participants

The participants in this study were 22 junior-level undergraduate education majors enrolled in a single section of a general teaching methods course at a four-year public, metropolitan research university in Florida. The participants included 20 women and 2 men. The majority of students were Caucasian, with only 3 identifying as Latino/Hispanic. Student ages ranged from late-teens to mid-twenties. These demographics are fairly representative of the College of Education at the host institution.

Student majors were more varied: elementary education ($n = 9$), secondary education ($n = 10$), physical education ($n = 2$), and art education ($n = 1$). Although the secondary education majors atypically outnumbered the elementary education majors in this section, the secondary education majors were studying myriad content areas, including foreign language, social science, biology, mathematics, and English.

Setting

Professional Teaching Practices (EDG 4323) is the general teaching methods course required of undergraduate education majors at the host institution. In this course, pre-service teachers are exposed to various planning approaches, instructional strategies, classroom management theories, and assessment techniques. To practice the course methods in an authentic setting, while helping to alleviate pressures from teacher shortages, each student is required to complete a 20-hour service-learning assignment in a K-12 classroom.

In spring 2007, one section of Professional Teaching Practices (EDG 4323) was modified to infuse service-learning as a pedagogy into the course topics. Previously, EDG 4323 sections

had included a service-learning requirement, but students were not explicitly introduced to service-learning as a possible teaching method and did not necessarily complete ongoing formative reflections about their experiences. The catalyst for the change in the course was a nascent partnership between the College of Education and a neighboring school district, which housed a Service-Learning Academy and had an established service-learning professional development series for its K-12 teachers. The partners received a Learn & Serve Special Initiatives grant to increase and deepen teachers' knowledge and practice of service-learning through experiential, class-based, and professional development approaches.

As part of the grant, service-learning pedagogy was to be covered as its own topic, in the one section of EDG 4323. The K-12 Service-Learning Coordinator visited the class to discuss the District's approach to service-learning and describe for students what they might experience in their service-learning placements. Reciprocally, the EDG 4323 instructor met with participating K-12 service-learning practitioners at the District's annual Service-Learning Conference to answer questions, provide insight into the objectives for the student placements, and to clarify expectations of them as mentor service-learning teachers. Host teachers received a mini-grant to conduct a service-learning project in their classrooms as part of the larger Learn & Serve grant, with the understanding that they would guide a pre-service teacher through the process while s/he simultaneously was learning the pedagogy of service-learning in the EDG 4323 course. Each of the K-12 mentors had been trained in service-learning through the District and served as a Service-Learning Coach in District schools. In short, pre-service teachers were expected to learn about service-learning as a pedagogy, engage in a service-learning project themselves, and see service-learning in action in a K-12 setting. The approach acknowledged that part of the process of learning to do service-learning is experiential in nature, and if new

teachers do, in fact, imitate what they are taught, then reason compels us to include service-learning models in a teacher education methods course (Shumer, 1997).

To increase the potential of pre-service teachers using service-learning in their future classrooms, being able to provide the ultimate contribution to their host classrooms, and enjoying their experiences, the EDG 4323 course instructor attempted to match the grade level or content area interest of his students with K-12 teacher hosts. Students were provided with a list of all participating service-learning projects in the District. The list included the project name, content area connections, teacher name, grade level(s), and school name and address. The logistical limitations (i.e., geographic and transportation) of students were considered in their placements as well. For example, one female student lived on campus, did not have a car, and was a first year transfer student, unknowledgeable of the surrounding campus area and schools. For this reason, the student was placed in a school that was close to campus and serviced by public bus routes.

Service-learning was not a one-class topic in the EDG 4323 curriculum, but infused throughout the semester via four formative reflections. Guided by service-learning best practices and course topics, the reflections focused on: 1) preparation for and expectations of service, 2) experiences with classroom management, 3) roles and types of assessment, and 4) importance of reflection in their learning and feelings about teaching. In lieu of a final exam, to culminate their service-learning experiences, and to demonstrate their learning, students engaged in a meta-reflection poster fair at the end of the course (Stewart, n.d.). Posters were to include an introduction to the site, a description of the cooperating teacher and student demographics, an explication of the activities, in which they engaged, and explicit connections between their field experiences and the three class topics (e.g., teaching methods/service-learning, classroom

management, assessment). K-12 host teachers and the District's Service-Learning Coordinator were invited; five attended the event.

The aforementioned steps were designed around Wade and Eland's (1995) recommendations for increasing teacher use of service-learning: (1) assist teachers with identifying connections to service-learning, (2) emphasize the importance of preparation, (3) support teachers' planning of service-learning projects, and (4) provide ongoing assistance. The process created an opportunity to model for students the procedural steps involved, and complemented their introduction to service-learning pedagogy.

Data Collection & Analyses

Both quantitative and qualitative data were collected. A 10-item post-survey was administered to determine if participating pre-service teachers felt that they would use service-learning in their future classrooms, if their experiences increased their pedagogical knowledge of service-learning, if service-learning enhanced K-12 students' content knowledge, etc (see Table 1). Although not the sole basis from which defensible conclusions can be drawn, the 10-item survey would be useful in exploring researchable problems or further explaining identified themes. As previously noted, EDG 4323 students were also required to complete four formative reflections throughout the semester. Pseudonyms were also assigned to ensure confidentiality.

The study's design was drawn from the grounded theory paradigm (Strauss & Corbin, 1994), which derives analytic categories inductively from the data. Other analyses were completed through deductively coding and categorizing data according to constructs previously identified in the relevant literature. Individual responses were coded, and then analytic categories were developed in an effort to synthesize these diverse findings. The formulation of

new theory, as well as the extension and support of existing theory, relies on these cases (Glaser & Strauss, 1967; Strauss & Corbin, 1990).

Analyses varied according to type of data. Post-survey data were analyzed through appropriate statistical tests to find means and correlations. Qualitative responses were analyzed through three sub-processes of analyses: data reduction, data display, and conclusion drawing and verification (Miles & Huberman, 1984). The thematic findings were used to better understand and explain statistical results.

Table 1

Post-survey means and standard deviations

Item		M	SD
1	Based on my experiences with this course and related projects, I would be likely to use service-learning as a pedagogical approach in my own classroom in the future.	3.14	.71
2	Service-learning activities in my K-12 classroom significantly increased the students' learning of course content.	2.73	.88
3	Service-learning activities in my K-12 classroom significantly increased the students' enthusiasm for learning.	2.95	1.0
4	Participation in the K-12 classroom activities during this course helped me to learn about teaching methods.	3.45	.51
5	My work in the K-12 classroom during this course offered meaningful assistance to my mentor teacher.	3.18	.73
6	The outcomes of my K-12 students' service-learning projects this semester contributed to the community.	3.32	.65
7	Based on my experience in this course, I would say that service-learning activities in the K-12 classroom are worth the amount of time and effort they require of the teacher.	3.10	.70
8	The materials available in the K-12 classroom where my class project took place supported service-learning activities. (Including textbooks, supplemental materials, etc.)	2.91	.81
9	I accessed and made use of the resources on the website for this grant during the semester.	2.14	.65
10	I would recommend this type of methods class (i.e., students work with established SL teachers) to other students in the COE.	3.33	.91

NOTE: Scale: from 1 = *strongly disagree* to 4 = *strongly agree*

Findings

Question #1: Changes in perceptions of teaching

Awareness & Self-Efficacy

EDG 4323 is the first class that students take after matriculating into the College of Education. For this reason, the field experiences in this course are often the first time that pre-service teachers work alongside a K-12 teacher and participate in actual teaching duties. The theme that radiated across students' writings was that their service-learning experiences provided a unique opportunity to see authentic teaching. For example, Katherine realized from her service-learning project that teaching is definitely what she wants to do. Before the class, she was swaying between education and another major, and she also now knows what grade she wants to teach, whereas before the class she did not. Another student posited that a service-learning experience is more beneficial and would make education students better teachers than simply earning a degree without such experiences. Although her feeling was linked to her preferred learning styles (i.e., visual and kinesthetic), she claimed to have received "a pretty serious reality check" about teaching while completing her service-learning hours.

The "eyes wide open" theme was investigated further to determine which specific perceptions of teaching had changed through EDG 4323 students' participation in the K-12 service-learning project. Over half of the pre-service teachers responded that they gained new insight into classroom management. Although most students were surprised by the difficulty of classroom management, the ways in which they were ultimately affected by their experiences vis-à-vis teaching were polarized and seemed to be linked to self-efficacy (i.e., self-perception of competence; Bandura, 1977). Students who were concerned about teaching after completing

their service-learning hours, discussed their trepidations in terms of their inability to effectively manage a classroom, deal with problem students, or simply feeling like they would give up.

Dana began her service-learning hours with the hopes of teaching kindergarten. However, after completing her service-learning project in a kindergarten class, she has changed her mind. While she learned that “being a teacher is harder than it looks,” her decision was based predominately on how the kindergarten students behaved. Students put the teacher “through the ringer,” and made her wish “there was a [specific] class in classroom management.”

Katie, another elementary education major, shared Dana’s recognition that teaching was not nearly as easy as she had previously thought. Before entering her diverse K-12 service-learning classroom, she thought that “students would follow directions and behave,” but she was proven wrong. She left her service-learning experience with “doubts about teaching” and thought that her host teacher “was insane for not walking out of her classroom.”

These concerns were not limited to elementary education majors. A foreign language education major expressed her concern about teaching at the secondary level, commenting that every year there seems to be a “bigger need for classroom management and rules than in prior decades.” She explicitly mentioned her concern over violence in schools.

In contrast, other students, who were equally surprised/informed about teaching through their service-learning projects, were less concerned. They completed their service-learning hours with increased self-efficacy, and felt that their experiences would actually make them better teachers. From these experiences, they were able to see the connections between instruction and classroom management, and to start building their own philosophy and approach to classroom management. For example, Brianna, an English Education major, learned that “classroom management is A LOT harder than it looks” and requires more observation and attention than

she thought before she began her service-learning project. Brianna had assumed that all students would be engaged in learning if the assignment was interesting. She learned, however, that students easily “zone out” and that she will “have to be extra attentive as a teacher to make sure as many of [her] high school students are engaged in the lesson.”

Lastly, students’ previous experiences framed their reactions to classroom management situations. One student who enjoyed her service-learning project, yet exited the experience with a few worries about classroom management, commented that the high school students with whom she worked, behaved exactly as she remembered her classmates acting when she was in high school. Because she had experienced such behavior as a student, she felt that her worries about classroom management were less distressing, as she acknowledged that dealing with such situations “will become easier with time and experience” (Lizabeth). Anthony, a social science education major, confirmed Lizabeth’s perspective, but attributed his learning about classroom management to his experiential activities in particular: “One of the most important things I learned through the service-learning is the importance of classroom management. Without being in an actual classroom, it is hard to imagine how important it is to keep the classroom in order.”

Student Development & Rapport

EDG 4323 pre-service teachers realized the need for teachers to get to know and have a positive rapport with their students. For example, Lindsay’s host teacher had established a comfortable learning environment, due in part to her relaxed style and approach. She recounted a classroom debate, in which the K-12 teacher created a cooperative classroom by respecting her students’ thoughts and opinions and by treating them like young adults. Her comment also acknowledges the connection among student learning, indirect methods like class discussions, and classroom management.

I loved the way the debate was conducted. Each student was polite and waited for someone to finish speaking. There was no foul language and no shouting. [The teacher] sat back and listened and allowed the students to work out their problems and come to a resolution. When it was nearly over, she went to the front of the class to summarize what they had just discussed and asked questions to clear up any misconceptions. I thought that was awesome. They were allowed to express themselves without being quieted, but there was still a sense of learning going on. She told me that I always have to remember that my students are people too, and that the more I believe in that, the better off I will be.

Other students echoed the importance of connecting with K-12 students. Two prospective teachers recognized how students' active involvement is helpful for learning, and is more likely when lessons are connected to the learners' interests. Valerie completed a hurricane preparedness project with a local elementary school. The service project involved creating emergency kits, while students learned about the science behind and history of natural disasters prevalent to Florida and how their activities would be assisting the prevention of tragedy. She found that when students are provided with a reason and purpose for the lesson, as well as being actively involved, they are more willing to learn. Melissa discussed how she learned through her service-learning project that she needs to find a variety of ways to motivate students, especially when the teenagers' primary focus is more so on each other than the lesson.

Brandy, a biology and science education double major, realized first hand the power that teachers can have in the lives of their students. On her last day of service, the class was upset by her impending departure. Realizing her impact on the class from less than two dozen hours of service excited Brandy, who "can't wait to be part of [teaching]" since she has now had "the opportunity to discover how wonderful [teaching] is going to be."

Lastly, students commented on how directly interacting with K-12 students in their service-learning experiences helped them to dissolve previously held stereotypes. Crystal volunteered in a low-income, urban, struggling, elementary school, with a large African-

American and Latino student population. She admits that she was somewhat intimidated when assigned to serve in this school. As her service-learning progressed, however, she “realized that kids are kids, no matter what the color of their skin is, how much money [their families] make, or what their home life is like.” She found the experience to be rewarding, and her “outlook on becoming a teacher has definitely become more positive.”

Kimberley also volunteered with at-risk students. Prior to these experiences, she admits to having been naïve and “set out to save the world one education system at a time.” Afterwards, she had more clear expectations about reform and working with less privileged students. She felt that she had not necessarily “changed, just evolved” (Kimberley).

Learning What Not to Do & Taking Risks

As discussed above, students became more realistic about classroom management and the importance of student-teacher rapport through their service-learning experiences. EDG 4323 students also learned indirectly, however, by observing institutional culture and teaching practices first hand.

Heather was one of two students who did not have a positive service-learning experience. From this negative experience, she found that her confidence to become an effective teacher actually increased because she now understands why a teacher should not engage in certain practices. In essence, she grew in confidence because she felt that she will have prevented pitfalls before they are even allowed to manifest.

Julissa, the second student who reported a negative reaction to her service-learning experience, discussed that her host teacher did not seem as organized as she would have expected, even though she had been a teacher for many years. The K-12 teacher seemed absent-minded, which deterred her from gaining students’ trust to let her guide them through the

learning process. In the end, Julissa would like to be better organized in order to best model for and help students.

Lauren discussed that prior to her service-learning experiences, she incorrectly assumed that faculty worked as one single unit. She quickly learned that this is not the case, and concluded that schools would best operate as a unit, “meaning all staff, including administrators, appreciate and understand one another’s values and opinions.”

All indirect student learning was not from negative instances, however. Rebecca learned, for example, that everything in teaching does not have to be planned perfectly and that deviations from the lesson plan are permissible. Pre-service teachers are required to complete detailed lesson and unit plans, which are not commonly used by professional educators due to time constraints and a strongly internalized sense of lesson plan structure from years of experience. Rebecca’s discussion of her host teacher’s ability to change her “examples, explanations, and materials to better reach her students in a flash” evidences her learning of the importance of an effective teacher’s flexibility, with-it-ness, and willingness to take risk. Prior to this experience, Rebecca admitted that after seeing a successful and appropriate, deviation from the plan, she is “more willing to try it in the future” since she now knows that if done correctly, “you won’t fall flat on your face.”

Table 2

Correlation Matrix between Post-Survey Items

	2	3	4	5	6	7#	8	9#	10#
1	.37	.21	-.31	.23	.21	.76**	.35	.17	.23
2		.63**	-.35	.23	.41	.30	.30	.16	.76**
3			-.15	.40	.10	.14	.23	.23	.33
4				-.10	-.17	-.13	-.01	-.19	-.36
5					-.13	.06	.30	.47*	.20
6						.47*	.42	-.10	-.03
7							.45*	-.01	-.05
8								.04	-.11
9									.39

**p < 0.01, *p < 0.05, n = 22, n = 21#

Question #2: Inclinations toward using service-learning & associated variables

One goal of this section of EDG 4323 was to expose pre-service teachers to service-learning as a teaching method with the hope of their planning to use it in their future classrooms. Analyses of both the post-survey and the students' reflections revealed inconsistent results.

When not directly prompted, only four of the EDG 4323 students mentioned service-learning in their course reflections as a possible addition to their teaching repertoire. One student stated that the experience had opened her eyes to service-learning as a “new form of teaching” (Valerie). One of the male students had previously thought that there was only a certain amount of room for service-learning in a K-12 classroom, especially during this era of accountability and standards. He learned, however, that a teacher can incorporate “service-learning into a curriculum without jeopardizing learning” while simultaneously making “service-learning enjoyable and exciting for a diverse group of students” (Michael).

For this reason, it was interesting to find that when pre-service teachers in EDG 4323 were asked, based on their experiences in the course and related projects, whether they were would be likely to use service-learning as a pedagogical approach in their future K-12 classrooms, the mean score on this item indicated that they were positively inclined to use service-learning later ($M = 3.14$; see Table 1). Although this finding does not mean that students will use service-learning, it does suggest that they might be at least considering the pedagogy. In fact, an examination of individual answers to this question show that students answered positively, with only one student responding that she strongly disagreed or disagreed with the statement. All other respondents answered that they agree (14) or strongly agree (6).

A test for correlations suggests that pre-service teachers' perceptions that service-learning activities in the K-12 classroom are worth the amount of time and effort they require of the teacher may play an important role in whether a pre-service teacher intends to use service-learning in his/her future K-12 classroom (see Table 2). A positive and significant relationship was found between these survey items ($r = .79, p < .001$). Almost every student that answered that s/he intended to use service-learning later, also reported that service-learning was worth the time and effort.

Question #3: Service-learning contributions to student content and enthusiasm for learning

EDG 4323 students were also asked whether they felt that the service-learning projects in which they engaged contributed to the K-12 students' knowledge of content and enthusiasm for learning. Regarding K-12 students' learning of course content, pre-service teachers did not feel strongly that the service-learning activities played a significant role. The class mean to this question was 2.73, with 9 students either disagreeing or strongly disagreeing.

Similarly, pre-service teachers did not agree strongly that service-learning activities significantly increased the K-12 students' enthusiasm for learning. The class mean was 2.95, showing a general, but weak, agreement with this statement.

Further analyses showed that these two questions were positively and significantly correlated ($r = .63, p < .001$). Students' perceptions of whether service-learning K-12 students' content knowledge were also positively and significantly correlated ($r = .76, p < .001$) to whether they would recommend this type of general teaching methods class, over one without an explicit service-learning focus.

Question #4: Service-learning contribution to the learning of teaching methods

One of the primary goals of EDG 4323 is to introduce pre-service teachers to various teaching methodologies. For this reason, students were asked if they thought that their engagement in the K-12 service-learning project contributed to that learning. Out of the 10 survey items, students answered most strongly and positively to this question with 10 students strongly agreeing, and 12 students agreeing. The class average was 3.45 on a four point scale.

What is interesting about this finding is that students' feelings about service-learning helping them to learn teaching methods was negatively (although not significantly) correlated to every other variable, evidencing that students generally felt more strongly about this statement, but it did not correlate explicitly to their answers on other statements.

Discussion

Findings from the combined data sets indicate that pre-service teachers' training in service-learning pedagogy and field experiences resulted in numerous beneficial outcomes, and support Root's (1994) three rationales for service-learning infusion in teacher education.

First, prospective teachers often feel that they have sufficient knowledge about K-12 classrooms from their varied past experiences in schools, or can easily acquire the necessary information along the way. Conversely, we see from this study that pre-service teachers who have engaged in service-learning acknowledge that they still have much to learn about being a teacher and schools, and attribute this awareness to their service-learning experiences. This recognition is most evident in students' realizations about classroom management and is valuable given that, whether real or perceived, classroom management issues are consistently provided by novice teachers as one of the top reasons for leaving the teaching profession.

A second notable piece to the classroom management outcome is the potential of service-learning to enhance in-class learning through contextualization. EDG 4323 teacher education students seemed to enjoy the class, found it useful in their training to become a K-12 teacher, and would recommend this type of class over one that did not have a structured service-learning component. Students found that the experiential portion was helpful for learning about schools, teaching methods, and teaching and students in general. However, they did not explicitly note the use of service-learning to help learn the pedagogy of service-learning itself.

A concern for service-learning practitioners and proponents also is that students who have negative experiences in their service-learning placements might correlate these feelings with the pedagogy itself and might abandon service-learning as a possible method in their own classrooms for this reason. For example, novice teachers might be more likely to avoid methods

that increase discipline issues as well, sticking to direct, teacher-centered approaches that provide them with greater control of activities and time. Although these realizations are notable, teacher educators should challenge students to remain open-minded about their experiences and not to base their decisions on one classroom experience or one teacher's practices.

Second, Root (1994) argues that pre-service teachers that have been exposed to service-learning will be better prepared to infuse service-learning in their future curricula. Pre-service teachers in this study had a favorable response to using service-learning in their future classrooms. However, a positive response does not mean that they will actually use the pedagogy later. Regardless, it is imperative that an educator be introduced to service-learning at some point in order to plant the seed of curiosity and possibility. Although service-learning training could be offered in professional development workshops, there are compounded factors that dissuade teachers from attending and lessen the possible impact. Pre-service teacher education appears to remain a promising venue in which to introduce service-learning as a viable teaching methodology. To increase service-learning's consideration, teacher educators should try to provide multiple service-learning opportunities for pre-service teachers. In addition, designing service-learning requirements as a layered model allows pre-service teachers to experience how service-learning is organized, implemented, and assessed. For example, students can learn about service-learning, be service-learners themselves, and engage in a K-12 classroom service-learning project together.

Teachers' potential use of service-learning is not contingent simple on their introduction to the method. Teachers consider time, energy, and their own sense of adequacy before attempting an educational innovation (Doyle & Ponder, 1977-78; Fullan, 1991). One's sense of adequacy may change with additional experiences with service-learning; time and energy are less

likely. In fact, participants in this study responded favorably in their inclination to use service-learning in their future classrooms, but are more inclined to use service-learning if they find it to be worth their time and effort.

Teachers recognize that time and energy must be spent on those tasks, activities, and lessons that contribute to student learning and about which students are excited. Findings in this study evidence that even if teachers have been introduced to service-learning correctly, they may not use the pedagogy themselves if student content learning or enthusiasm for learning are not enhanced. As teachers are charged with additional duties and continuously pressured by high-stakes tests for accountability, this theme become more noteworthy.

It is important to note that EDG 4323 students were not necessarily able to determine if content learning increased, as they did not measure pre-/post content knowledge being addressed by the K-12 service-learning project, and were not necessarily privy to host teachers' assessment tools and student grades. Also, pre-service teachers who are visiting a classroom for the first time do not know the students with whom they are working, and who are not seasoned in the culture of teaching itself, might easily draw incorrect conclusions based on a misreading of the environment. For example, students in this study were greatly affected by classroom management issues and might have concluded that student behavior demonstrated an unenthusiastic feeling toward learning and/or service-learning. However, pre-service teachers were noting students during one project, one particular content area, and on certain days. Pre-service teachers that spend more time in their host classroom will have better insight into these issues, or at least be able to provide more substantive evidence as to why they felt this way.

Root's (1994) third rationale is that service-learning can help prospective teachers to develop a greater ethic of care by acknowledging K-12 students' needs as more than just

intellectual growth. Effective teaching requires educators to be knowledgeable about the developmental levels of their students, since lessons should be tailored as much as possible to these specific developmental needs. In addition to understanding student development for cognitive ends, there is a more humanistic need to understand students and is in which the service component of service-learning is connected, albeit more so for community. Being able to connect with students demonstrates that an educator cares and is concerned with their success.

Although EDG 4323 students in this study did not comment specifically about the much discussed civic or social justice potential of service-learning, the pre-service teachers did understand that teaching is connected to students beyond achievement on a test, and that learning is more likely to happen when the identities, voices, and interests of the learners drive curricula. After all, educators who are aware of their students can more effectively engage them in the learning process (Lieberman, 1992; Root, 1994). Future research on this matter could examine the relationship between pre-service teachers' recognition of the role of "learner-centered" (Darling-Hammond & Snyder, 1990, p. 11) instruction and whether they were connected to, or allowed to choose, service-learning projects based on personal and/or professional interests.

Conclusion

This investigatory study on service-learning in teacher education aimed to answer several questions regarding pre-service teachers' inclination toward using service-learning in their future classrooms, how service-learning could enhance their knowledge of teaching methods, and whether they thought that service-learning was beneficial to K-12 student learning and enthusiasm. Overall, the positive effects of field-based experiential education were supported. In this case, gaining exposure to K-12 student populations, linking theory to actual classroom practices, and learning about service-learning as a teaching methodology is made easier by

contextualizing learning. Experiential activities in which pre-service teachers can engage in real classrooms in real capacities can open their eyes to realities of teaching, bolster their confidence, inform them about good/bad practices, and remind them that students are key to a conducive learning environment. However, and excluding learning about service-learning itself, the study's findings can not be attributed explicitly to prospective teachers' participation in service-learning. A primary factor that appears to be necessary for such outcomes, however, is purposive time in a K-12 environment.

Implications for Teacher Education

There are several implications for teacher education based on this study's findings.

1. Teacher education programs should include field-based hours as these experiences not only enhance course concepts, but also more pragmatic professional know-how.
2. Inclusion of service-learning in teacher education may increase prospective teachers' inclination to use service-learning as a methodology in their future classrooms.
3. Teacher education program might consider requiring longer service-learning projects in the same classroom so that students can see students, content, and teaching in various situations.

Plans for Future Research

This study is longitudinal in that the pre-service teacher participants will be tracked after graduation to determine the impact of this layered model on their use of service-learning, and the subsequent impacts that their pedagogical choice might have on K-12 learners. Furthermore, longitudinal research will be needed to determine how EDG 4323 students' early recognition of classroom management, student development, and service-learning are acted upon during their first years as a classroom teacher. Specific research questions follow.

1. How do the outcomes from service-learning, observation, and other field-based experiences in pre-service teacher education compare?
2. What are the long-term effects of service-learning training and participation on pre-service teachers? On their students?
3. What factors contribute to pre-service teachers using service-learning in their classrooms if they had received concurrent training in service-learning pedagogy and experienced service-learning in a K-12 classroom?
4. What is the relationship between pre-service teachers' recognition of the role of learner-center instruction and whether they were connected to, or allowed to choose, service-learning projects based on personal and/or professional interests?
5. What is the relationship between novice teachers' number/type of duties and their use of service-learning?
6. How are pre-service teachers' levels of self-efficacy regarding classroom management connected to their decision to use/not use service-learning?

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