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Abstract

As stated in APA Learning Outcomes 2 and 3, two central goals of higher education instruction are promoting students' critical thinking skills and connecting student learning to real-life applications. To meet these goals, a community-based service learning experience was designed and implemented to motivate and promote students' critical thinking skills in a human development psychology course by utilizing task value, interpersonal accountability, cognitive dissonance, and guided reflection. Students in this course served as home visitors or support-group facilitators to vulnerable families and reflected on their experiences in class assignments designed to promote critical thinking. Qualitative evidence from class discussions and journal entries and quantitative data from the analysis of student essays suggests that the majority of students engaged in critical thinking skills across the semester, particularly in using a broader locus for understanding and addressing issues experienced by their client families.

Keywords: service learning, critical thinking motivation, transfer of learning, home visiting

Critical thinking skills, as outlined in APA Learning Goal 2, are essential to making the sound decisions and judgments necessary in today's society and our students preparing for careers in social services need the abilities and wisdom those skills afford to work effectively with human populations (Samson, 2015). Nonetheless, research has demonstrated that many of our students exit higher education without having adequately developed such skills (Arum & Roksa, 2011). Indeed, Abrami and colleagues (2015) have suggested that some classroom strategies intended to motivate and engage students in thinking critically fail to do so, and may instead simply lead to their learning to craft good arguments (Lyutykh, 2009). Authentic critical thinking is challenging work and students may need stronger motivators to move beyond heuristic strategies and engage in deep and meaningful critical thinking. Furthermore, as stated in APA Learning Goal 3, students not only need to develop advanced critical thinking skills, but also to be able to apply those skills acquired in the classroom when confronted with problems and challenges outside it.

As previous research suggests (Cartwright, 2012; Celio, Durlack, & Dymnicki, 2011; Conway, Amel, & Gerwien, 2009; Johari & Bradshaw, 2008), service learning may be an effective way to promote both the advancement and the transferability of critical thinking skills by connecting classroom learning with real-world applications and providing an opportunity for students to engage in critical thinking in situations that closely mimic those they are likely to encounter in the future. Yet, while previous research has causally linked service learning to advancement in students' critical thinking skills (Astin, Vogelgesang, Ikeda, & Yee, 2000), it has offered less guidance on how to best design and deliver service learning and course content in a way that will advance students' critical thinking and promote their ability to apply it to real-life problems. Despite ample evidence of the benefits of service learning, we could find no research addressing how to design service learning specifically to promote critical thinking. We therefore turned to the existing theoretical literature on critical thinking for insights into how a service learning experience might be structured to train and motivate students to engage in critical thinking.

Theoretical Foundation

Critical thinking has been defined as "reflective and reasonable thinking that is focused on deciding what to believe or do" (Ennis, 1985, p. 45), including the evaluation of evidence relevant to a claim, belief, or position with the purpose of drawing a sound conclusion (Bensley, 1998). As previous scholars have observed, critical thinking involves a

disciplined exertion of mental effort and thus requires a high level of motivation to move past the less demanding heuristic strategies we generally use to make sense of the world (van Gelder, 2005, Klaczynski, 2000). To effectively promote critical thinking through the use of service learning, therefore, it seemed reasonable to assume that the experience should be designed to intentionally incorporate motivational factors that would heighten the need and opportunity for students to engage in critical thinking. Accordingly, the service learning experience described in this study was designed to utilize four factors that previous research has shown to be important in motivating students to think critically.

The first of these motivating factors was *task value*. According to expectancy value theory, students are more likely to be motivated to invest in the learning process when they perceive the learning task or activity as having high value (Eccles & Wigfield, 2002), such as activities they view as relevant to their future careers (Assor, Kaplan, & Roth, 2002). Given that previous research has shown that students are more likely to expend the effort necessary for thinking critically when they are highly invested in the learning process (Stolk & Harari, 2014), we deduced that students may be more motivated to engage in critical thinking if they perceive service learning as a valuable opportunity to advance their future career skills or to gain valuable knowledge and experience.

Another motivator identified in the existing literature was *social relationship accountability*. According to self-determination theory, which views relatedness as a primary human motivation, social relationships are particularly effective motivators (Deci & Ryan, 1985). Research conducted with student teams has suggested that when students feel personally connected with others, they are more likely to feel a sense of accountability to one another (Hunt, Haidet, Coverdale, & Richards, 2003; Sweet & Pelton-Sweet, 2008), and such a sense of social accountability has been shown to reduce heuristic judgments and personal bias (Tetlock, 1985). We surmised that social relationship accountability was likely to result naturally in a service learning context in which students come to feel accountable for providing their community clients with accurate and useful information and that this would motivate students to engage in critical thinking. A review of research findings on the effect of accountability on cognition (Lerner & Tetlock, 1999) supports our theory that students' interpersonal connections with their clients can lead them to more carefully consider their personal biases, examine their assumptions, and seek additional perspectives, all essential elements of critical thinking.

A third motivating factor, reducing *cognitive dissonance*, occurs when learning activities challenge students' preconceived ideas of the world. According to the literature on this topic, the psychological discomfort that individuals experience when confronted with new information that conflicts with their existing beliefs, ideas, or values typically motivates them to reduce that dissonance, either by avoiding it or by modifying those preconceptions so that they are no longer experienced as discordant with the situation (Festinger, 1957). As others have observed, resolving cognitive dissonance can serve as a powerful motivation for students' learning and critical thinking (Baviskar, Hartle, & Whitney, 2009; Tyler & Guth, 1999), especially if they are provided with support and models of thinking that will help them reduce that dissonance (Pugh, 2014). Because cognitive dissonance is often a result of encounters with people and cultures with different life experiences, circumstances, and expectations, we anticipated that, through serving community clients, these mostly young, single, white, middle-class students were likely to experience some level of dissonance as they worked with individuals and families from backgrounds unlike their own and that this would motivate them to think more critically about their own beliefs and values.

The fourth and perhaps most effective factor known to encourage critical thinking through service learning is *guided reflection* (Eyler & Giles, 1999). According to Ash and Clayton (2004), structuring the process of student reflection in a well-designed service learning experience includes having students analyze their experiences from personal, civic, and academic perspectives and providing feedback or guidance aimed at helping them apply standards of critical thinking to their reflection. Other research has similarly demonstrated the important role that guided reflection can play in supporting students' critical thinking skills (Eyler, 2002; Molee, Henry, Sessa, & McKinney-Prupis, 2010; Sandars, 2009), further supporting our assumption that providing students with safe and structured opportunities to reflect on their service learning experiences may make them more likely to examine their own assumptions, recognize the limits of their knowledge, and seek additional information (Forneis & Peden-McAlpine, 2007).

The Home Visiting Activity

To develop the critical thinking skills of students in this graduate-level lifespan human development course, a service learning activity was designed with the intention of maximizing task value, social relationship accountability, cognitive dissonance, and opportunities for structured reflection. To create high task value, we identified that most of the students enrolled in this course expected to work directly with clients in a counselor-type setting in their future careers and thus selected serving as visitors in a home visiting program as their service learning activity with the expectation that they would perceive this task as highly valuable. As home visitors, the students were assigned to teams of two to provide clients with emotional support, share their relevant knowledge of child development, and serve as a communication conduit between the community agency and its clients. During the first 2 weeks of the course, students would be provided with approximately 6 hours of training by the community agency serving the client families (foster parent families during the first offering of the course and new mother families during the second offering). Student pairs would then be assigned to a specific client family with whom they would visit for about an hour each week. These roles were intended to provide students with an opportunity to practice professional interaction skills, communicate information, identify family needs and goals, build rapport, and learn how to provide professional support.

This service learning activity was also designed to maximize students' sense of social relationship accountability by providing students an opportunity to develop a relationship with their clients and provide them with support and accurate knowledge. It was also assumed that additional social accountability would be created by the expectations of the students' assigned partners and of the community agency for whom the home visiting services were provided.

We further anticipated that serving in this role would create cognitive dissonance for students, given that their client families were likely to be quite different from most of their own families of origin and to face complex challenges that might not fit within the frame of reference the students typically used to make sense of the world. Indeed, the first author had often observed a general lack of understanding and even some degree of negative bias on the part of students in such courses regarding such families' situations. Some of the agency's client families were immigrants or refugees, most were very low income, and some were providing foster homes for developmentally challenged children. All were receiving community support services to assist them with the challenges they were facing. For most of the students in the course, therefore, interacting with these families in a support role would take them outside their typical frames of reference and experience and challenge their previous beliefs about families who receive social services and the agencies that serve them, thereby requiring the students to seek information beyond their own familiar perspectives to better understand these families and their circumstances.

Three sets of class activities and assignments were also developed to maximize students' opportunities to engage in reflection and to provide a structure to support the use of critical thinking during that reflection. The first set of activities included guided class discussions in which students were asked to reflect on and discuss their service learning experiences and the situations and challenges they observed in their interactions with their assigned families. Through these discussions, the students were presented with additional perspectives and encouraged to consider alternative explanations that might move them beyond their established beliefs and experiences. Students were also prompted to identify the underlying assumptions of their frames of reference and to connect their service learning experiences to developmental concepts and other course material.

In a second set of opportunities for reflection, students were assigned written journal reflections following each weekly home visit in response to the following prompts:

- Describe what happened, what interactions you had, your personal thoughts and reactions, and any insights you might have experienced.
- Draw connections with at least one key concept from the course that can be used to help understand the events of your visit or that may guide your future behavior with your client.
- How does this experience apply to your own personal life—such as your goals (including your skill advancement goals), values, attitudes, philosophies, etc.?

Lastly, students were asked to reflect on their service learning experience and apply critical thinking skills in three problem-solving essay assignments based on a problem-solving analysis protocol (P-SAP) developed by Fitch and Steinke (2013). These essays were assigned at the beginning, mid-point, and end of the semester to promote and measure students' critical thinking skills within the context of service learning. The essays were designed to engage students in analyzing a social problem salient to their service learning families, considering possible approaches for addressing the problem, and analyzing the strengths and weaknesses of these various approaches.

Method

Participants

Most of the students in the studied course were enrolled in a family studies program, although a few were enrolled in psychology or health science programs. As an introductory graduate-level course in human development, some advanced undergraduate students were also enrolled with permission. Use of the student data (with identifiers removed) was approved by the IRB following the first offering of the course and prior to a second offering the following semester. Data from the first semester were obtained retrospectively from course assignments, whereas participants from the second course were recruited by the second author who introduced the study, obtained consent, and collected and removed all identifying information from the data.

The first course consisted of 10 students, all of whom participated in the study: eight women (five graduate students, three undergraduate students) and two men (both undergraduates). In the second course, seven students participated: five women (three graduate, two undergraduate) and two men (both graduate). Of the resulting 17 participating students, all but four were of traditional college age and did not have children. Thus, three-quarters of the participants were expected to provide support to parents without any experience raising children of their own, which we expected would result in even greater cognitive dissonance for them.

Most of the student teams visited the same client family for the duration of the course, but during the first semester three of the assigned families terminated their home visiting services. As a result, one student provided home visiting services to three different families over the course of the semester, and four had to be reassigned to work with clients in groups, rather than individual clients, in a support program for teen mothers. During the second semester offering, two male students who were enrolled in the course were assigned by the agency to help facilitate a support group for new fathers rather than serve as home visitors for new mothers. Despite these differences, it was deemed that these alternative experiences were consistent with the stated purposes of this study.

Measures

The class discussions, weekly journals, and problem-solving essays provided three types of evidence for this study. The class discussions and weekly journals provided qualitative evidence in the form of in-person observations and written assignments while students' essay responses to the Problem-Solving Analysis Protocol (P-SAP) (Fitch & Steinke, 2013) provided quantitative evidence of change in students' critical thinking across the semester.

Based on Fascione's (1990) model of critical thinking, which includes both dispositions and cognitive skills, the P-SAP's underlying assumption is that "when students are able to identify, evaluate, and take responsibility for their own cognitive process, they will be more likely to develop the core skills and dispositions that characterize good critical thinkers" (Fitch, Steinke, & Hudson, 2013, p. 73). The P-SAP protocol guides students through an analysis of the consequences, causes, and potential solutions of a problem related to their service learning activity. Following the P-SAP procedure, a problem statement (Appendix A) was created for each of the three essays based on problems applicable to the students' client families. Students were asked to prepare a written response in consideration of the presented problem by responding to the four structured prompts of the P-SAP protocol. For example, students were asked the following questions about the problem statement "Many parents find that having a new child adds considerably to the challenge of meeting the financial needs of their family and some find it necessary to rely on government or charitable assistance.":

1. In what way(s) might this be a problem?
2. What are some possible causes of this problem?
3. What could be done to try to solve this problem?
4. What are the strengths and limitations of these possible solutions to this problem?

The construct validity of the P-SAP as a measure of critical thinking has been established in previous research (Steinke & Fitch, 2003; 2007). The P-SAP assesses the locus and the complexity of students' responses to the problem statements provided. Locus scores reflect students' ability to reason, develop explanations that extend beyond surface-level factors, and demonstrate a deeper consideration of the myriad factors that influence social problems, as determined by their use of individual, group, or societal perspectives in their essays. Scores range from 0 to 6, with higher scores indicating a higher level of systemic thinking or greater integration of macro features of the problem, such as societal beliefs and institutional policies, while lower scores indicate a focus primarily on micro features, such as the client's individual personality, beliefs, and behaviors.

Complexity scores are based on the number of relevant factors identified and the degree of elaboration in the analysis and are scored from 0 to 3, with higher scores indicating that more than one factor was analyzed and that a more intricate analysis of the factors was conducted. Previous research utilizing separate rubrics for locus and complexity reported an average inter-rater reliability of .77 (Fitch & Steinke, 2013). In this case, participants' essays were scored by applying the specific rubrics for locus and complexity for each of the four prompts (problem, cause, solution, and analysis), thereby yielding four locus scores and four complexity scores for each essay. The average of these four scores was then calculated as the overall locus and complexity score for each participant's essay. This process of scoring was conducted by both authors independently with an initial inter-rater reliability of .62. To resolve rater differences, we discussed essay passages that had been scored differently until a full consensus was reached. Examples of student essay responses representing each level of complexity and locus are available upon request from the first author.

Results

Students' personal investment in the service learning activity, which was demonstrated by the high level of commitment and responsibility they displayed in fulfilling their service learning duties throughout the semester, evidenced that they were motivated by social relationship accountability. Qualitative evidence from students' weekly journals and comments during class discussions indicated that students perceived the service learning activity as challenging but highly rewarding. We interpreted this as evidence of cognitive dissonance and high task value. Students particularly struggled with assigning meaning to some of the choices made by their client families and wrestled with the challenges and limitations of their clients' situations. As each semester proceeded, students took more active roles in classroom discussions of alternative explanations and additional perspectives regarding their clients' behaviors and from observations of their weekly journals, students' ability to think more deeply about social issues appeared to have grown across the semester.

Quantitative analyses also supported the observation that students' critical thinking skills improved across the semester. Changes in students' P-SAP essay scores indicated that the majority of participants demonstrated gains in their critical thinking skills over the semester, 71% evidenced gains in locus and 65% showed gains in complexity, although some students demonstrated losses. Most of the locus scores at the end of the semester ($M = 3.03$, $SD = 1.25$) were higher than those at the beginning of the semester ($M = 2.41$, $SD = 0.84$) with an average change in locus of 0.62 ($SD = 1.04$). Many of the complexity scores at the end of the semester ($M = 2.09$, $SD = 0.48$) were also higher than those at the beginning of the semester ($M = 1.89$, $SD = 0.53$), reflecting an average change of 0.20 ($SD = 0.70$).

One-sample t-tests were employed to determine whether participant changes across the semester were significantly different from zero. These analyses showed that the average change in locus scores, 0.62 (95% *CI*, 0.09 to 1.15), was statistically significant, $t(16) = 2.46$, $p < 0.05$, $d = 0.60$, aligning with the observation that students had shifted to a broader, more systemic approach in their problem solving. However, the change in complexity scores, 0.20 (95% *CI*, -0.16 to 0.56), was not statistically significant, $t(16) = 1.17$, $p = 0.26$.

Discussion

The students in both offerings of this course embraced the service learning activity and attested to its value to their learning, personal growth, and skill development. Student responses in class and in their weekly journals suggested that they found the service learning activity valuable, felt socially responsible to their clients and the agency, and were challenged by the service experience. They also actively participated in guided reflections on the service learning activity in class discussions, weekly journal reports, and completed P-SAP essays.

Although evidence of gains in students' critical thinking were evident during in-class discussions and observed in other interactions with students, their P-SAP scores suggest that some, but not all, of the students participating in the service learning experience engaged in more advanced critical thinking skills at the end of the semester than at the beginning. This may be due in part to the fact that capturing the changes in students' critical thinking skills is challenging. The P-SAP essays may be limited in this regard in that they were essay assignments that students completed outside of class and in the context of competing academic demands, the latter of which may have particularly affected their end-of-semester scores. For pedagogical reasons, we also used different problem statements for each of the three P-SAP essays to train students to think more deeply about social issues using a problem-cause-solution-analysis framework, but this may have introduced confounds in that the statements may have varied in the degree to which they elicited critical thinking. Although using the same problem statement at subsequent measurement points by having students rewrite their initial essays or review them and report on how their thinking had changed may have resulted in a more viable test-retest design, we rejected these options on the assumption that students would find it less engaging and meaningful, which would be antithetical to the purposes of the assignment and study.

It should be noted that service learning activities in which students are likely to experience cognitive dissonance may require an appropriate level of personalized scaffolding to help them cope with working beyond their level of comfort and advance their thinking about the situation rather than withdraw from the experience with reinforced negative stereotypes (Tyler & Guth, 1999). For this reason, we recommend that such activities be used only with smaller classes to ensure that every student receives the attention and connection they need to scaffold their critical thinking and support them through the challenges they face as they interact with their clients.

Nonetheless, we found that the connection to client families, particularly when that connection is developed and maintained over a meaningful period of time (at least several weeks), can produce a powerful and even transformative experience for students. The social accountability and task value of this activity seemed very high and students appeared to be motivated to engage deeply and work through the challenges they faced. Indeed, it may be the challenges of the high-stakes activity of working with real and vulnerable families that created the climate in which meaningful change could occur in how students thought about and evaluated their clients and the wider context.

While bringing together students and families in the community can have powerful positive effects, one of the limitations faced by instructors wanting to adopt such activities is the logistical challenge created by academic courses that last only a semester – limiting the services that can be provided to clients and requiring flexibility on the part of the service agency to replace the students' services when the semester ends. Students must also contend with the demands of their other classes and part-time jobs, which can place constraints on scheduling meetings with the clients and completing thoughtful coursework. Although students' participation may be motivated by such academic demands as grades and assignment deadlines, clients tend not to share these investments and may cancel their visits or want to reschedule at the last minute. These types of issues can add to the challenges that students face in this type of service learning experience and require additional flexibility and support from the instructor. As we discovered in this case, instructors should also be prepared to provide alternative meaningful activities for students if external factors do not align with the intentions of the service learning experience.

Based on our experience, despite these challenges and limitations, we would encourage other instructors to design and implement service learning experiences for students in which they are challenged and experience some cognitive dissonance but are also motivated by social relationship accountability and supported in critically thinking about their experiences to develop a deeper understanding of social and professional issues. Service learning activities such as this can be powerful tools in advancing APA learning goals for students, especially if we attend to the features of those activities that are likely to motivate students to engage deeply and employ the effort required for authentic critical thinking.

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Appendix A
Problem Statements for P-SAP Essays

Assessment Time	First Semester	Second Semester
Beginning of service learning	Foster families are asked to provide care for children who were taken out of the home of their biological parents due to eminent risk to their health and/or well-being. Meanwhile biological parents are expected to maintain relationships with their children while they are in foster care and improve their situations so as to be able to take back the care of their children. Given this, there is a natural tension between foster families and biological parents.	Social norms prescribe the transition to parenthood as a joyful event culminating in euphoria at the birth of the new baby. Yet many new parents feel anxious and depressed and experience a lack of support in their families and communities.
Mid-semester	The responsibilities that a foster family is asked to accept often go well beyond their initial expectations of providing a safe, healthy environment for the foster child(ren).	For many vulnerable parents who have experienced a lack of positive parenting models and education, responding sensitively to the needs of their children can be challenging at times, especially given the myriad of other stressful life demands.
End of service learning	Case workers, foster parents, and other professionals who work with children who have experienced trauma often feel their pain, helplessness, and loss of hope. While sensitive, empathic engagement with the child is necessary in understanding and meeting their needs, it can also lead to secondary trauma (significant stress experienced as a result of wanting to help a suffering person).	Many parents find that having a new child adds considerably to the challenge of meeting the financial needs of their family and some find it necessary to rely on government or charitable assistance.