

PULSE Program for Service Learning
E1A Form for Assessment of the Undergraduate Core

1) Have formal learning outcomes for the department's Core courses been developed? What are they?
(What specific sets of skills and knowledge does the department expect students completing its Core courses to have acquired?)

As a core program within the Philosophy and Theology Departments in the Morrissey College of Arts and Sciences, PULSE's learning outcomes reflect those for the university as well as for the Philosophy and Theology Departments. In June, 2015, the PULSE faculty also developed more specific learning outcomes for the core-level PULSE course, "Person and Social Responsibility."

Philosophy Core Goals

Philosophy has a permanent and central place in Jesuit higher education and is an important part of the Boston College Core Curriculum. By introducing students to the great philosophical questions, philosophy offers a perspective which makes possible an integrated vision of physical, human and spiritual reality; it weighs propositions fundamental to personal identity, dignity, religious belief, and social responsibility; and it examines moral issues that individuals and communities experience. The Philosophy core teaches critical and analytical skills so that students develop an intellectual and moral framework for considering questions of ultimate value and significance, challenging them to translate philosophical principles into guides for life. All Core offerings in philosophy bring students to reflect critically on the kinds of claims made in different disciplines from the natural sciences to theology by considering questions about the nature of reason, evidence, belief, and certainty. The two (2) sequential three-credit courses in the Philosophy core aim to teach students that the philosophical habit of mind is part of a well-lived life, providing the perspective and tools for critical evaluation of and engagement with contemporary problems and questions.

Students completing the Philosophy core will be able to:

1. Understand the historical origins of values and principles that ground and are questioned in contemporary culture;
2. Reflect on their individual, social, and religious identities and relationships;
3. Examine their values in light of their reflection on philosophical views;
4. Develop the ability to analyze arguments in order to create a moral framework for considering questions of ultimate value;
5. Consider the nature of notions like reason, evidence, belief, and certainty such that they are able to think critically about the kinds of claims made in different disciplines from the natural sciences to theology;
6. Critically engage with contemporary problems and questions using the tools of philosophical reflection and argument.

Theology Core Goals

Theology is the disciplined reflection on the mystery of God in the world and on the traditions of belief, worship, and ethics that shape communities of faith. It explicitly reinforces the tradition of Jesuit humanism, which prizes the scholarly investigation of religious faith and its impact on human culture. The study of theology is an essential feature of the Core Curriculum in a Jesuit, Catholic university. This implies an institutional commitment to the Roman Catholic tradition, but also encourages the study and understanding of other theological traditions.

Students completing the Theology core will be able to:

1. Engage the quest for truth and meaning that generate theological insight in Christianity and other religious traditions;
2. Explore the fundamental texts and practices that shape Christian theology;
3. Understand the dynamic relationship between religious truth-claims and their moral implications, both personal and societal;
4. Engage the various disciplinary methods required for theological reflection, including textual, historical, social, and cultural analysis; and
5. Relate theological inquiry to the enduring questions animating the broader liberal arts tradition.

PULSE Core Goals

1. Students will have an understanding of the ways in which service and the study of philosophical and theological traditions inform each other;
2. Students will demonstrate the ability to employ an ongoing praxis methodology in which they *encounter* challenging social realities, critically *reflect* upon them in conversation with philosophical and theological traditions, and *act* with informed and critical agency;
3. Students will develop a critical understanding of intersectionality and interlocking structures of privilege and oppression, especially race, class, gender, sexuality, and ability;
4. Students will demonstrate moral development through a growth in compassion, a sense of responsibility and agency in response to injustice to contribute to the common good and social justice, and engagement in questions about the divine-human relationship.

2. Where are these learning outcomes published? Be specific. (Where are the department's expected learning outcomes for its Core courses accessible: on the web, in the catalog, or in your department handouts?)

The Philosophy and Theology goals are listed on the webpages of the respective departments:

Philosophy: <https://www.bc.edu/bc-web/schools/mcas/departments/philosophy/undergraduate/core-in-philosophy.html>

Theology: <https://www.bc.edu/bc-web/schools/mcas/departments/theology/undergraduate/core-in-theology.html>

The PULSE goals are listed on the program's website:

<https://www.bc.edu/bc-web/schools/mcas/sites/PULSE/about.html>

3. Other than GPA, what data/evidence is used to determine whether students have achieved the stated outcomes for the Core requirement? (What evidence and analytical approaches do you use to assess which of the student learning outcomes have been achieved more or less well?)

INDIRECT EVIDENCE: PULSE gathers indirect evidence through beginning-of-year and end-of-year survey tools about student learning in which students self-report. In addition, PULSE has been studied by outside researchers about its effectiveness as a service-learning program. These outside researchers have compared PULSE student responses to validated national surveys, and have identified statistically significant outcomes. This is very powerful "indirect" evidence (see Appendices 1-3).

DIRECT EVIDENCE:

At its Faculty Days in June, 2016, the PULSE faculty decided to begin doing direct assessment of PULSE core learning goals. We decided that we would assess one PULSE core learning goal each year. AY 2018-2019 was the third year we undertook this process. Here are the steps of AY 2018-2019's process.

- A. At our end-of-year faculty days in spring 2018, the PULSE faculty chose to assess PULSE core learning goal #3 (we assessed goal #1 in AY 2016-2017 and 2017-2018, and skipped #2 in AY 2018-2019).

- B. As a faculty we developed a writing prompt that was given to students by a set date early in September, and the same prompt was given by faculty at the end of the school year.
- C. Faculty were asked to submit to the PULSE office six end-of-year papers -- 2 weak, 2 middling, 2 strong – and the corresponding beginning-of-year papers. These samples were anonymized so that neither the students nor the professors were known to the ad hoc faculty assessment committee.
- D. An ad hoc faculty assessment committee read approximately 50% of the sample end-of-year papers and their corresponding beginning-of-year papers.

RESULT of DIRECT ASSESSMENT IN AY 2018-2019

What follows on these three pages is the memo that was distributed to the PULSE faculty at our annual faculty days in 2019:

Boston College
 PULSE Program for Service Learning
 2018-2019 Core Assessment Process
 May 14, 2019

PULSE Core Learning Goals (established by PULSE faculty in 2015)

Students completing the PULSE core will be able to:

1. Have an understanding of the ways in which service and the study of philosophical and theological traditions inform each other;
2. Demonstrate the ability to employ an ongoing praxis methodology in which they *encounter* challenging social realities, critically *reflect* upon them in conversation with philosophical and theological traditions, and *act* with informed and critical agency;
3. Develop a critical understanding of intersectionality and interlocking structures of privilege and oppression, especially race, class, gender, sexuality, and ability;
4. Demonstrate moral development through a growth in compassion, a sense of responsibility and agency in response to injustice to contribute to the common good and social justice, and engagement in questions about the divine-human relationship.

2018-2019 Prompt for Students to Assess Goal 3 (we decided as a faculty at least year's faculty days to skip assessing Goal 1 for now):

How do structures of privilege and oppression (e.g. race, class, gender, sexuality, or ability, etc.) intersect? In about 750 words address this question using readings and experience.

Instructions for Professors for Administering 2018-2019 Prompt:

The above prompt will be assigned to PULSE core-level students in 2018-2019. The beginning-of-year papers will be due to you from your students on *either* Tuesday, September 4 (for TuTh classes) *or* Wednesday, September 5 (for MWF classes); the end-of-year date is *tbd*. The assignment will come from you directly and not from the PULSE office, so please be sure to include it in your syllabus. After you collect your September papers, please hold onto them; if for some reason the PULSE office needs them before the end-of-year papers have been submitted to you from your students, the office will contact you. **Grading:** Please *do* give credit for the assignment in both semesters so that students take it seriously.

Criteria Established by Ad-hoc Committee (M. Kruger, M. McCoy, M. Sweeney, M. Troxell) for Assessing Goal 3 in 2018-2019:

1. Simplistic and individualistic understanding of privilege and oppression.
2. Coherent understanding of privilege and oppression, and their structural dimensions, but no real mention or understanding of intersectionality.
3. Good understanding of privilege, oppression, and intersectionality, and is able to apply these using examples; good use of course material.
4. A more nuanced, non-additive understanding of intersectionality; student demonstrates a real grasp of the material and is able to use course texts well.

Scale Used

- 1 = Does not meet requirement
- 2 = Somewhat meets requirement
- 3 = Meets requirement
- 4 = Exceeds requirement

Method

- M. Sweeney and M. Troxell met in mid-April to discuss how to proceed, especially given the concern raised at the 2018 PULSE faculty days about capturing work that falls in the middle (neither weak nor strong).
- We collected 2 sets of papers from each PULSE core section. Each set included one before-and-after example of a weak, middling, and strong paper based on each section instructor's evaluation of the *second* paper. This yielded a total of 12 papers per section or 168 papers total (papers from two sections were not submitted).
- Papers were anonymized as much as possible so that the identity of neither the student nor the instructor would be known to the committee members. Before-and-after papers were then also mixed so that all papers from a single section would not be stacked next to each other on the paper pile.
- The committee members had a norming session in which each member read the same 2 sets (two weak, two middling, two strong) of before-and-after papers and then discussed them in order to refine our understanding of how to assess them.
- Once we agree on our criteria, each committee member individually read 2 sets (two weak, two middling, two strong) of before-and after papers. The committee members then discussed their findings.
- In total, 8 sets of papers were read (48 papers out of a possible 168).

Findings

Weak Papers

- In 6 out of 10 instances, the committee members agreed with the course instructor that the paper was weak (a score of 1).
- Committee members gave six papers the score of 1, three papers the score of 2, and one paper the score of 3.
- Five papers *went down* in quality from the fall paper, three stayed the same, and only one improved.
- The overall difference between before and after papers was negative six points overall.

Middling Papers

- In 10 out of 10 instances, the committee members agreed with the course instructor that the paper was middling (a score of 2 or 3).
- Committee members gave six papers the score of 2, and four papers the score of 3.
- One paper went down in quality from the fall paper, and two stayed the same, and seven improved.
- The overall difference in improvement between the before and after papers was nine points overall.

Strong Papers

- In 7 out of 10 instances, the committee members agreed with the course instructor that the paper was strong (a score of 3 or 4).
- Committee members gave four papers the score 4, three papers the score of 3, two papers the score of 2, and one paper the score of 1.
- Eight papers improved in quality from the fall paper, and two stayed the same.
- The overall difference in improvement between the before and after papers was eleven points overall.

Weak (as designated by instructor) “Before paper” score → “After paper” score	Middling	Strong
2 → 1	1 → 2	2 → 3
3 → 1	1 → 3	1 → 1
2 → 1	1 → 2	2 → 3
2 → 1	1 → 3	2 → 2
2 → 3	2 → 3	4 → 4 (and showed growth)
1 → 2	1 → 3	1 → 3
1 → 1	3 → 2	1 → 2
2 → 2	2 → 2	3 → 4
2 → 2	2 → 2 (but showed growth)	2 → 4
2 → 1	1 → 2	2 → 4

Some general observations

- Students had some sense of what privilege and oppression are in their fall papers; no paper seemed to show complete ignorance on these.
- Students seemed able to move from beyond it’s “bad that people are prejudiced” to being aware of structural issues.
- Service did seem to help students think beyond (only) race, class, and gender to the many particularities of clients’ lives.
- Students seemed more able to link theory to praxis.
- The second papers were more interesting to read and students exhibited more maturity as writers.
- Students wanted to talk about their service experience and their community partners or use this writing exercise as a reflection paper but did not know how to do so in ways that could get traction with the paper topic.
- Students understood the factors at play but weren’t particularly good at articulating them or at abstractions.

Suggestions for 2019-2020

- As we did for the first learning goal, let’s redo Goal 3 assessment in 2019-2020.
- Continue to standardize submission date for the fall and that it is a credited assignment.
- Make it clear to students in the fall and in the spring that this is an assessment tool.
- In the spring, tweak the fall prompt from “readings and experience” to “course texts and service experience.”

Some ideas/questions for consideration

- What percentage of a section’s papers were in each type (weak, middling, strong)?
- Were there particular texts about intersectionality that were especially helpful for students?
- If students cannot articulate their thoughts, have they actually learned what we want them to learn?

Core Assessment AY 2019-2020

Discussion regarding core assessment for AY 2018-2019 resulted in a decision to re-assess goal #3 again in AY 2019-2020 so as to enable faculty to implement any curricular changes and assess the impact of these right away (rather than having to wait to cycle through all the goals to assess impact). We also decided to change the wording of the spring prompt.

The prompt for AY 2019-2020 in the fall is:

How do structures of privilege and oppression (e.g. race, class, gender, sexuality, or ability, etc.) intersect? In about 750 words address this question using readings and experience.

The prompt for AY 2019-2020 in the spring is:

How do structures of privilege and oppression (e.g. race, class, gender, sexuality, or ability, etc.) intersect? In about 750 words address this question using *course texts and service experience* (emphasis added).

The above fall prompt will be assigned to all PULSE core-level students, and the beginning-of-year papers will be due to faculty on ***either Tuesday, September 3 (for TuTh classes) or Wednesday, September 4 (for MWF classes); the end-of-year date is *ibid*.***

All faculty have been strongly encouraged to grade both the beginning-of-year and end-of-year writing assignments so that students take the writing assignments seriously. And, unlike in previous years when faculty held onto the beginning-of-year papers and submitted them to the PULSE office with the end-of-year papers, in AY 2019-2020 we will ask faculty to give us their beginning-of-year papers as soon as they have been graded.

4. Who interprets the evidence? What is the process? (Who in the department is responsible for interpreting the data and making recommendations for curriculum or assignment changes if appropriate? When does this occur?)

INDIRECT EVIDENCE:

The internally-administered surveys are interpreted by the PULSE Program staff (director and assistant director). The internal survey questions are reviewed at the beginning of each academic year, and the survey results are read by the program staff at the end of each academic year with special attention paid to difficulties students may have encountered, especially with their PULSE service placements.

The external surveys, which are sporadic in their implementation according to the research needs of the researchers, are interpreted by the professional researchers using advanced statistical methodologies and measure students' self-reported impact of PULSE on themselves.

DIRECT EVIDENCE:

Please see the previous PULSE memos [pp. 3-5]

5. What were the assessment results and what changes have been made as a result of using this data/evidence? (What were the major assessment findings? Have there been any recent changes to your curriculum or program? How did the assessment data contribute to those changes?)

Overall the ad hoc committee and the faculty were pleased with student learning. We will be curious to reassess the same goal at the end of next year after faculty have made curricular changes. (For more information, please see the assessment memo, pp. 3-5 above).

6. Do you have evidence that the change has resulted in improvement in learning outcomes?

Yes; we believe that giving students linguistic categories improves their conceptual understanding and learning.

7. Date of the most recent program review. (Your latest comprehensive departmental self-study and external review.)

Uncertain.

APPENDICES:

Appendix 1 (p. 8-9): Michelle Sterk Barrett, *Fostering the Spiritual Development of Undergraduates through Service Learning (dissertation section)*

Appendix 2 (p. 10-37): Michelle Sterk Barrett, *Fostering the Spiritual Development of Undergraduates through Service Learning (article from dissertation)*

Appendix 3 (p. 38-40): PULSE 2018-2019 *Beginning-of-Year* and *End-of-Year* Student Surveys (indirect evidence)

APPENDIX 1

Source: Michelle Sterk Barrett, *Fostering the Spiritual Development of Undergraduates through Service-Learning* (PhD Dissertation, University of Massachusetts Boston, 2015), 119-121.

Descriptive Statistics

Descriptive statistics related to independent variables are reported in this section.

Descriptive statistics related to the spirituality variables will be discussed in the following section analyzing the first research question.

As demonstrated in Table 10, students generally had a very strong PULSE experience. Mean responses to all of the independent variables fell between 3 and 4 indicating overall student agreement with each statement. The highest mean and lowest standard deviation was in response to whether students felt supported by their PULSE professors. It is clear that students had good relationships with their PULSE professors and were able to turn to them for support through the PULSE experience. The lowest mean was in response to whether students observed unfair human suffering at their PULSE placement. This variable also had among the highest standard deviation. In other words, not all students were exposed to the same level of human suffering through PULSE. The greatest standard deviation overall was whether students felt supported by their PULSE supervisor. It is not surprising that this would vary as supporting PULSE students is not a primary job responsibility for any of the PULSE supervisors (unlike the PULSE faculty). The ability to support students likely relates to the amount of time PULSE supervisors have available after attending to their primary job responsibilities—which would be dependent upon the staffing levels of each agency.

Table 10

Descriptive Statistics of Independent Variables/PULSE Components (N=272)

Variable	<i>n</i>	M	SD
I felt supported by my PULSE professor.	272	3.81	.481
Class journaling / reflective writing challenged me to think critically about my assumptions, values, and/or beliefs.	270	3.47	.672
There was a diversity of perspectives expressed in my PULSE class and discussion group.	270	3.50	.644

The problems that caused people at my placement to need social services were frequently the result of circumstances beyond their control.	271	3.52	.595
I felt supported by other students at my placement.	270	3.49	.740
This course exposed me to diverse perspectives that did not fit with my prior opinions and assumptions.	270	3.50	.644
I built caring relationships with those served at my placement.	271	3.61	.700
Class assignments challenged me to think critically about my assumptions, values, and/or beliefs.	271	3.57	.604
Social problems are more complex to solve than I used to think.	270	3.65	.621
Those served at my PULSE placement faced unfairness in life.	270	3.55	.594
I felt supported by others students in my class.	272	3.54	.587
Class discussions / reflection groups enabled me to connect what I was observing in my placement with what I was studying in class.	271	3.63	.631
I felt supported by my PULSE supervisor(s).	271	3.49	.838
The class discussions/reflection groups challenged me to think critically about my assumptions, values, and/or beliefs.	269	3.57	.598
PULSE exposed me to diverse viewpoints that challenged me to think differently.	271	3.67	.502
My PULSE Placement should remain a placement in the future.	223	3.68	.666
A supportive community formed among those in my PULSE discussion group.	270	3.44	.664
The class readings helped me to make sense of what I was observing in my placement.	270	3.36	.695
I observed unfair human suffering at my PULSE placement.	271	3.21	.785
The service component of this course was well integrated with the academic coursework.	271	3.57	.640
My PULSE placement experience challenged me to think critically about my assumptions, values, and/or beliefs.	270	3.60	.575
I felt supported by my PULSE Council Member.	271	3.54	.618
I heard perspectives expressed at my PULSE placement that were different from those I typically hear.	270	3.43	.679

Note. Level of agreement with the statement measured on the following scale:

1=Strongly disagree 2=Disagree somewhat 3=Agree somewhat 4=Agree strongly

APPENDIX 2

Fostering the Spiritual Development of Undergraduates through Service Learning

Michelle C. Sterk Barrett

University of Massachusetts, Boston

College of the Holy Cross, Worcester

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Holistic student development, the belief that education should foster the development of the whole person, is a primary mission of higher education (American Council on Education, 1937; Braskamp, Trautvetter, & Ward, 2006; Kiessling, 2010). One component of holistic student development is spiritual development (Kiessling, 2010).

Studies have found that undergraduates and youth have an overwhelming interest in spirituality. Astin, Astin, and Lindholm (2004) discovered that 78% of undergraduates discuss religion/spirituality with their friends and 75% are actively searching for meaning/purpose in life. Roehlkepartain et al. (2008) investigated spiritual beliefs among 12-25 year olds in eight countries and found that 52% of youth in the United States describe themselves as very or pretty spiritual and only 20% describe themselves as not spiritual.

Yet, students have expressed that academic experiences within higher education are not adequately meeting their desire for spiritual development (Astin et al., 2004; Chickering, Dalton, & Stamm, 2006; Kuh & Gonyea, 2006). Fifty-six percent of undergraduates report that their professors never provide opportunities to discuss the meaning/purpose of life and 53% believe the classroom has had no impact on their spiritual beliefs. Only 55% are satisfied with the experience their college has provided for religious/spiritual reflection (Astin et al., 2004).

Higher education scholars have also expressed concern about the lack of emphasis on spirituality in the classroom and have advocated for an increased emphasis on spiritual development of undergraduates (Astin et al., 2011b; Chickering, et al., 2006; Rendon, 2009). Chickering et al. (2006) state that students, faculty, student affairs personnel, and campus leaders “have begun calling for an exploration of ways to better integrate students’ search for meaning and their spiritual quests with their academic preparation in the classroom” (p. 2).

The ability to effectively facilitate spiritual development in the classroom, however, is dependent upon understanding how to foster spiritual growth pedagogically. Service-learning is

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a pedagogy that has shown promise in facilitating the spiritual development of undergraduates as a limited number of prior studies have found a relationship between spiritual growth and service-learning participation (Astin et al., 2011a; Cherry, De Berg, & Porterfield, 2001; Eyler & Giles, 1999; Kuh & Gonyea, 2006; Lovik, 2010; Radecke, 2007; Yeh, 2010). The existing studies do not simultaneously use comprehensive measures of both spiritual growth and service-learning participation and, therefore, offer inadequate analysis of the relationship between the two. This study seeks to fill this gap and offer further understanding of how service-learning may be utilized as a pedagogical tool to foster spiritual growth within an academic context.

Understanding how to better foster spiritual development among undergraduates can provide many benefits to students, society, and higher education institutions. Prior research has established a relationship between spirituality and psychological well-being (Astin, et al., 2011b; Park & Millora, 2010), self-esteem (Astin, et al., 2011b), decreased alcohol/substance abuse (Kuh & Gonyea, 2006; Stewart, 2001; VonDras, Schmitt, & Marx, 2007), and less risky health behaviors (Nelms, Hutchins, Hutchins, & Pursley, 2007). Increased spirituality is also associated with increased participation in community service/helping others (Astin, et al., 2011b; Brandenberger & Bowman, 2013; Kuh & Gonyea, 2006; Seitz, 2009), increased caring/compassion (Astin, et al., 2011b; Brandenberger & Bowman, 2013; Seitz, 2009), increased social justice orientation (Chenot & Kim, 2013), an increased appreciation for diversity (Astin, et al., 2011b; Seitz, 2009), and increased academic success among ethnic minority students (Walker & Dixon, 2002; Lee, Puig & Clark, 2007).

Methods

In order to further understand how and whether service-learning can be utilized as a pedagogical tool to foster spiritual growth, this study addressed the following research questions:

1) Does spiritual growth occur among undergraduates participating in service-learning?

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2) Which aspects of the service-learning experience relate to the occurrence of spiritual growth?

3) What role do “challenge” and “support” play in the process of spiritual growth? These research questions were addressed through an explanatory design mixed methods study (Creswell & Plano Clark, 2011) that incorporated a quantitative and qualitative strand.

The third research question is derived from the theoretical perspective of Nevitt Sanford (1962, 1966, 1967). Sanford proposed that optimal college student development occurs when students face an appropriate balance of challenge and support. If a student does not face enough challenge then there is no impetus for growth. If a student is not adequately supported through significant challenges then the possibility for healthy growth may be hindered. Sanford’s theory of challenge and support aligns with spiritual development theories proposing that spiritual struggle is a necessary precursor to spiritual growth and empirical studies and spiritual development theories suggesting that crisis and disequilibrium are precursors to spiritual struggle (Cartwright, 2001; Daloz Parks, 2000; Fowler 1981, Holcomb and Nonneman, 2004; Ma, 2003; Tisdell, 2003; Welch and Koth, 2013). It also aligns well with research indicating that students may not grow spiritually and get stuck in maladaptive patterns of behavior without enough support (Bryant and Astin, 2008; Faigin, 2013; Holcomb and Nonneman, 2004).

Participant Selection

Study participants were drawn from the Boston College PULSE Program, a service-learning program that requires students to do 10-12 hours of weekly service for the full academic year while taking an interdisciplinary philosophy and theology course entitled, Person and Social Responsibility. Among the 361 total students in the 2012-2013 PULSE Program, 272 students completed both the pre-survey and post-survey for a total response rate of 75%. Eleven survey respondents whose results indicated an extremely high or low level of spiritual growth participated in semi-structured interviews for which they were compensated with a \$50 gift card.

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Interviewees were also selected to ensure variation in academic disciplines, ethnic backgrounds, religious backgrounds, PULSE classes, and PULSE placements.

Characteristics of the Sample

Of the 272 study participants in the quantitative strand, 36% were male and 64% were female. The sample was 69.9% White/Caucasian, 17.0% Asian American/Asian, 12.5% Hispanic/Latino/a, and 5.5% African American/Black. In terms of religious preference, 60.0% of the participants listed Catholic, 24.3% none, and 3.3% Jewish. No other religious denomination was listed by more than 3% of the study sample. Although nearly all (97.8%) of the study participants were previously involved in community service, 84.6% had not previously taken a service-learning course.

Data Collection Procedures Quantitative strand.

The quantitative strand of the study included both a pre-service and post-service survey that was distributed via e-mail to all PULSE students in conjunction with the program's annual assessment process. The pre-service survey was conducted in September through early October of 2012. The post-survey was distributed near the end of the service-learning experience in mid-April through May of 2013.

Independent variables.

Based upon the literature review and the theoretical framework of challenge and support, variables were developed to measure aspects of the service-learning experience. The literature review indicates that the primary challenge associated with service-learning results from disorienting dilemmas or exposure to stimuli that lead to cognitive dissonance (Hatcher, Bringle & Muthiah, 2004; Kiely, 2005). These challenging stimuli can include: exposure to diverse perspectives/perspectives that do not fit with prior perspectives (Astin et al., 2000; Eyler et al.,

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2001; Kiely, 2005); exposure to complex social problems without easy solutions (Eyler & Giles, 1999; Kiely, 2005); exposure to social problems that seem unjust (Kiely, 2005); and written reflection activities and class discussions that ask students to think critically about prior assumptions, values, or beliefs (Astin et al., 2000; Eyler et al., 2001; Eyler & Giles, 1999; Fenzel & Peyrot, 2005; Hatcher et al., 2004; Kiely, 2005). In order to effectively process these challenges and integrate a new way of thinking into one's being, support can exist in the following ways: reflection activities that provide a student the opportunity to process his/her cognitive dissonance by connecting what he/she is observing in the placement with what he/she is studying in class (Astin et al., 2000; Eyler et al., 2001; Fenzel & Peyrot, 2005) or supportive relationships with a faculty member, peers, or placement site supervisor (Astin et al., 2000; Eyler & Giles, 1999; Hatcher, et al., 2004; Kiely, 2005). Specifically, each student responded to his or her level of agreement with the indicators in Table A1.

For data analysis purposes, these variables were categorized in two different ways. First, independent variables were categorized into *Total Challenge* and *Total Support* scales to consider how Sanford's theory of challenge and support might relate to spiritual development. Then, factor analysis was conducted that led independent variables to be categorized into the following service-learning components: *Class Experiences*, *an Eye Opening Experience*, *Witnessing Injustice*, *Relationships at Placements*, and *Support of Peers in Class*.

Dependent variables.

A review of the literature led to a conceptualization of spirituality including the following dimensions: 1) being engaged in a dynamic process of inner reflection to better understand oneself and the meaning and purpose of one's life; 2) living out one's personal philosophy of life with authenticity and integrity; 3) seeking a connection/relationship with a higher power; and 4) belief in the interconnectedness of humanity and a related desire to be of service to others (Astin,

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Astin, & Lindholm, 2011b; Braskamp et al., 2006; Love & Talbot, 1999; Roehlkeptatian et al., 2008). Based upon this conceptualization of spirituality and the instrument developed by Astin, Astin, and Lindholm (2011a; 2011b), spirituality indicators in the quantitative portion of the study were categorized into six scales: *Spiritual Identification*, *Spiritual Quest*, *Interconnectedness of Humanity*, *Living One's Philosophy of Life with Integrity*, *Relationship with God*, and *Religious/Spiritual Struggle*. The *Spiritual Identification (SI) Scale* ($\alpha=.837$) measures whether one identifies as spiritual. The *Spiritual Quest (SQ) Scale* ($\alpha=.834$) refers to whether one is engaged in a dynamic process of inner reflection to better understand oneself and one's meaning and purpose in life. The *Interconnectedness of Humanity (IH) Scale* ($\alpha=.869$) measures one's belief in the interconnectedness of humanity and whether one exhibits a related desire to be of service to others. The *Living One's Philosophy of Life with Integrity (PLI) Scale* ($\alpha=.949$) measures the desire to live out one's philosophy of life with integrity and authenticity. The *Relationship with God (RG) Scale* ($\alpha=.837$) measures the degree to which one is seeking a relationship with a higher power/God. The *Religious/Spiritual Struggle (RS) Scale* ($\alpha=.779$) considers the degree to which one is struggling with and questioning one's religious/spiritual background and beliefs. A *Spiritual Orientation (SO) Scale* ($\alpha=.932$) was also created for this study by including all of the spirituality variables except those in the *Religious/Spiritual Struggle Scale*. The specific variables included in each scale can be found in Tables 1-6.

Qualitative strand.

The quantitative survey was followed by qualitative interviews in the late spring of 2013. Quantitative results were analyzed and students were invited to interview based upon their quantitative scores in combination with their demographic information. Interviews were conducted with six students who experienced a high degree of spiritual growth and five students who experienced a neutral to negative degree of spiritual growth to determine if there were any

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differences in the individual service-learning experiences that may have related to whether spiritual growth occurred.

An interview protocol was utilized that included a list of open-ended questions consistent with the research questions. Interviews explored the role that each of the following may have played in spiritual growth: group reflection discussions, written reflection, relationships, cognitive dissonance, a high quality service experience, and connection between coursework and service experience. Interviewees were also asked about demographic characteristics that might have influenced spiritual growth including: prior community service and service-learning experience, religious background, and family background.

Limitations

The unique aspects of Boston College and the PULSE Program may limit generalizability of findings to other service-learning experiences. Specifically, PULSE is distinct from other service-learning programs in that it is a full academic year, it includes more hours of weekly service (10-12) than is typical and academic content is focused on the disciplines of philosophy and theology. Boston College is unique from other higher education institutions in that it is a highly selective, Catholic higher education institution. Each of these aspects of the PULSE Program and Boston College may have impacted the way in which spiritual growth occurred and could limit the possibilities for results to be replicated in other contexts.

Results

Did Spiritual Growth Occur among PULSE Participants?

The evidence overwhelmingly points towards spiritual growth having occurred during the time students were enrolled in PULSE. In the quantitative survey, 79% of students agreed with the statement, “I grew spiritually as a result of my PULSE experience.” Similarly, a comparison of pre-survey and post-survey responses indicates that 77.6% of students had a positive change

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in *Spiritual Orientation* during this time frame. Analyzing the mean responses for each of the individual spirituality variables similarly demonstrates that spiritual growth occurred as all means changed in the positive direction and 43 of 54 of these changes were statistically significant (See Tables 1-6). Similarly, mean responses for all of the spirituality scales changed in the positive direction and all were statistically significant (see Table 7).

Table 1

Means, Standard Deviations, and Effect Size of Pre-Survey/Post-Survey Responses to Spiritual Identification Variables (N=272)

Variable	Pre-Survey		Post-Survey		<i>p</i>	<i>d</i>
	M	SD	M	SD		
Being on a spiritual quest ^a	1.87	.688	2.1	.712	<.001	.33
Integrating spirituality into my life ^b	2.60	.971	2.92	.971	<.001	.33
Believing in the sacredness of life ^a	2.33	.649	2.51	.583	<.001	.29
People can reach a higher spiritual plane of consciousness through meditation or prayer ^c	2.97	.758	3.15	.714	<.001	.24
Seeking out opportunities to grow spiritually ^b	2.81	.927	3.02	.901	<.001	.23
Having an interest in spirituality ^a	2.19	.606	2.30	.610	.001	.18
Having a spiritual experience while: Engaging in athletics ^d	1.68	.763	1.82	.805	.003	.18
Participating in a musical or artistic performance ^d	1.62	.775	1.73	.801	.038	.14
meditating ^d	1.81	.802	1.89	.773	.077	.10
Viewing a great work of art ^d	1.68	.690	1.75	.697	.127	.10
Listening to beautiful music ^d	2.14	.782	2.21	.732	.133	.09
Witnessing the beauty and harmony of nature ^d	2.35	.713	2.42	.698	.176	.10

^aExtent to which the variable describes the respondent. 1=Not at all 2=To some Extent 3=To a great extent

^bImportance to the respondent. 1=Not important 2=Somewhat important 3=Very important 4=Essential

^cLevel of agreement with the statement. 1=Strongly disagree 2=Disagree somewhat 3=Agree somewhat 4=Agree strongly

^dFrequency of Occurrence. 1=Not at all or Not applicable 2=Occasionally 3=Frequently

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Table 2

Means, Standard Deviations, and Effect Size of Pre-Survey/Post-Survey Responses to Spiritual Quest Variables (N=272)

Variable	Pre-Survey		Post-Survey		<i>p</i>	<i>d</i>
	M	SD	M	SD		
Having discussions about the meaning of life with my friends ^a	2.17	.644	2.35	.600	<.001	.29
Seeking beauty in my life ^b	3.21	.814	3.40	.748	<.001	.24
Attaining wisdom ^b	3.35	.665	3.53	.601	<.001	.28
Developing a meaningful philosophy of life ^b	3.01	.794	3.32	.712	<.001	.41
Becoming a more loving person ^b	3.54	.648	3.75	.476	<.001	.37
Finding answers to the mysteries of life ^b	2.87	.891	3.06	.868	.001	.22
Attaining inner harmony ^b	3.20	.808	3.36	.769	.001	.20
Searching for meaning/purpose in life ^a	2.45	.530	2.50	.550	.168	.09
Close friends are searching for meaning/purpose in life ^c	2.47	.763	2.48	.671	.875	.01

^aExtent to which the respondent engages in the activity. 1=Not at all 2=To some Extent 3=To a great extent

^bImportance to the respondent. 1=Not important 2=Somewhat important 3=Very important 4=Essential

^c1=None 2=Some 3=Most 4=All

Table 3

Means, Standard Deviations, and Effect Size of Pre-Survey/Post-Survey Responses to Interconnectedness of Humanity Variables (N=272)

Variable	Pre-Survey		Post-Survey		<i>p</i>	<i>d</i>
	M	SD	M	SD		
Influencing the political structure ^a	2.29	.826	2.71	.884	<.001	.49
Becoming a community leader ^a	2.94	.831	3.27	.810	<.001	.40
Love is at the root of all the great religions ^b	3.22	.804	3.43	.761	<.001	.27
Trying to change things that are unfair in the world ^c	2.29	.553	2.46	.521	<.001	.32
Having an interest in different religious traditions ^d	1.97	.616	2.15	.616	<.001	.29
Feeling a strong connection to all humanity ^d	2.33	.648	2.51	.563	<.001	.30
All life is interconnected ^b	3.41	.610	3.57	.591	<.001	.27
Improving the human condition ^a	3.32	.711	3.56	.605	<.001	.36
Believing in the goodness of all people ^d	2.53	.582	2.65	.516	<.001	.22
Influencing social values ^a	2.98	.766	3.29	.739	<.001	.41
Helping to promote racial understanding ^a	3.08	.811	3.35	.744	<.001	.35
Reducing pain and suffering in the	3.24	.741	3.51	.619	<.001	.40

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world ^a						
Helping others who are in difficulty ^a	3.54	.624	3.69	.500	<.001	.27
Improving my understanding of other cultures and countries ^a	3.25	.791	3.47	.659	<.001	.30
Becoming involved in programs to clean up the environment ^a	2.52	.824	2.79	.880	<.001	.32
Most people can grow spiritually without being religious ^b	3.24	.777	3.40	.716	.001	.21
We are all spiritual beings ^b	3.05	.717	3.13	.750	.100	.11
Nonreligious people can lead lives that are just as moral as those of religious believers ^b	3.64	.618	3.68	.541	.230	.07
Accepting others as they are ^c	2.70	.479	2.72	.466	.602	.04

^aImportance to the respondent. 1=Not important 2=Somewhat important 3=Very important 4=Essential
^bLevel of agreement with the statement. 1=Strongly disagree 2=Disagree somewhat 3=Agree somewhat 4=Agree strongly
^cExtent to which the respondent engages in the activity. 1=Not at all 2=To some Extent 3=To a great extent
^dExtent to which the variable describes the respondent. 1=Not at all 2=To some Extent 3=To a great extent

Table 4

Means, Standard Deviations, and Effect Size of Pre-Survey/Post-Survey Response to Living One's Philosophy of Life with Integrity Variables (N=272)

Variable	Pre-Survey		Post-Survey		<i>p</i>	<i>d</i>
	M	SD	M	SD		
My spiritual/religious beliefs: Provide me with strength, support and guidance ^a	2.84	.960	3.04	.942	<.001	.21
Lie behind my whole approach to life ^a	2.55	.958	2.75	.982	<.001	.21
Help to define the goals I set for myself ^a	2.72	.959	2.92	.975	<.001	.21
Have helped me develop my identity ^a	2.75	.950	2.93	.983	<.001	.19

^aLevel of agreement with the statement. 1=Strongly disagree 2=Disagree somewhat 3=Agree somewhat 4=Agree strongly

Table 5

Means, Standard Deviations, and Effect Size of Pre-Survey/Post-Survey Responses to Relationship with God Variables (N=272)

Variable	Pre-Survey		Post-Survey		<i>p</i>	<i>d</i>
	M	SD	M	SD		
I gain spiritual strength by trusting in a Higher Power ^a	2.84	.977	2.97	1.055	.005	.13
Prayed ^b	1.99	.735	2.08	.714	.009	.12
Desiring a sense of connection with God/a Higher Power ^c	2.04	.729	2.10	.747	.100	.08

^aLevel of agreement with the statement. 1=Strongly disagree 2=Disagree somewhat 3=Agree somewhat 4=Agree strongly

^bFrequency of Occurrence. 1=Not at all or Not applicable 2=Occasionally 3=Frequently

^cExtent to which the variable describes the respondent. 1=Not at all 2=To some Extent 3=To a great extent

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Table 6

Means, Standard Deviations, and Effect Size of Pre-Survey/Post-Survey Responses to Religious/Spiritual Struggle Variables (N=272)

Variable	Pre-Survey		Post-Survey		<i>p</i>	<i>d</i>
	M	SD	M	SD		
Struggled to understand evil, suffering, and death ^a	1.99	.637	2.31	.594	<.001	.52
Feeling unsettled about spiritual and religious matters ^a	1.89	.671	2.09	.684	<.001	.30
Feeling disillusioned with my religious upbringing ^b	1.55	.670	1.72	.732	.001	.24
Disagreed with [my] family about religious matters ^a	1.52	.665	1.66	.732	.002	.20
Felt angry with God ^a	1.50	.605	1.61	.633	.010	.18
Questioned [my] religious/spiritual beliefs ^a	1.87	.717	1.97	.733	.024	.14
Felt distant from God ^a	1.83	.665	1.89	.671	.166	.09

^aFrequency of occurrence since entering college 1=Not at all 2=Occasionally 3=Frequently

^bExtent to which the variable describes the respondent. 1=Not at all 2=To some Extent 3=To a great extent

Table 7

Means, Standard Deviations, and Effect Size of Pre-Survey/Post-Survey Responses to all Variables in a Specific Spirituality Scale (N=272)

Variable	Pre-Survey		Post-Survey		<i>p</i>	<i>d</i>
	M	SD	M	SD		
Spiritual Identification	26.05	5.58	27.82	5.44	<.001	.32
Spiritual Quest	26.26	4.20	27.74	3.99	<.001	.36
Interconnectedness of Humanity	55.56	7.17	59.35	6.91	<.001	.54
Living Phil. of Life with Integrity	10.85	3.51	11.64	3.62	<.001	.22
Relationship with God	6.87	2.16	7.15	2.22	<.001	.13
Religious/Spiritual Struggle	12.16	2.88	13.25	3.14	<.001	.36

Interviews also provided abundant evidence that students grew spiritually as a result of their PULSE experience. Interviewees (even those whose survey scores indicated a lack of spiritual growth) consistently described how PULSE caused them to deepen their commitment to service, deepen the connection they feel towards humanity, and consider what they believe and why they believe it. Additionally, the “high spiritual growth” interviewees were also deeply engaged in a process of inner reflection to understand oneself and one’s meaning and purpose in

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life; were engaged with the question of how to live their philosophy of life with integrity and authenticity; and were facing religious/spiritual struggle as a result of their PULSE experience. The one dimension of spirituality that was not consistently evident among interviewees was a desire to build a deeper relationship with God.

The following quotes from interviewees illustrate these aspects of spiritual growth. The first quote depicts being engaged in a dynamic process of inner reflection to better understand oneself and the meaning and purpose of one's life. In the second quote, the student describes an increased desire to live one's philosophy of life with integrity and authenticity. The third quote demonstrates a student seeing the interconnectedness of humanity and having a related desire to be of service. In the final quote, a student describes facing religious and spiritual struggle.

PULSE has definitely started me out on this conquest to find out who I am.

I'm more aware of how each decision I make starts to define who I am...In terms of how I think and how I rationalize certain things, that has definitely changed and it's a more of an active approach

[I feel] so much more connected to the community and the world now...now I know that we're all kind of in this together, and that has kind of changed how I see myself. My decisions are not only about whether or not it's good for me but also whether or not it's good for everybody.

[PULSE] has made me question everything about God and my religion. I like that it's challenging my faith but at the same time it can be bothersome for me because I don't know what to think anymore.

How Might Spiritual Growth Be Occurring?

In an effort to answer the broader question of how spiritual growth might be occurring during the service-learning experience, this study considers what role challenge and support may have played in spiritual growth and which aspects of the service-learning experience were most closely related to the occurrence of spiritual growth.

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Consistent with Sanford's (1962; 1966; 1967) theory of student development, the qualitative and quantitative aspects of this study point towards both challenge and support relating to spiritual growth. In the quantitative study, the *Total Challenge* and *Total Support* scales were statistically significant predictors of change in *Spiritual Orientation* after controlling for demographic variables (See Tables 8 and 9).

Table 8

Hierarchical Multiple Regression Predicting Increase in Spiritual Orientation by Total Challenge

Variable	Model 1	Model 2
Pre-Test	.644***	.576***
Gender	.085	.029
School	.049	.028
Prior Service-learning	-.004	.013
Baptist	-.081	-.053
Buddhist	.039	.028
Eastern Orthodox	.034	.033
Episcopalian	.001	.026
Jewish	.000	-.004
Lutheran	.018	.037
Methodist	.002	.040
Muslim	.095	.058
Nondenominational	-.046	-.067
Presbyterian	.120*	.136*
Roman Catholic	.203*	.193*
Unitarian/Universalist	.032	.035
United Church of Christ	.040	.039
None	-.024	-.025
African American/Black	.144*	.129*
Asian American/Asian	.109	.098
Native Hawaiian/Pacific Islander	.042	.011
Mexican American/Chicano	-.029	-.042
Puerto Rican	.013	.048
Other Latino	.053	.012
White/Caucasian	-.016	-.037
Middle Eastern	.036	.023
Total Challenge		.272***

Note. Numbers are Betas. *** $p < .001$, two-tailed ** $p < .01$, two-tailed * $p < .05$, two-tailed

Table 9

Hierarchical Multiple Regression Predicting Increase in Spiritual Orientation by Total Support

Variable	Model 1	Model 2
Pre-Test	.641***	.592***
Gender	.080	.055
School	.049	.044
Prior Service-learning	.008	.022
Baptist	-.082	-.029
Buddhist	.039	.038

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Eastern Orthodox	.033	.033
Episcopalian	-.005	.024
Jewish	-.002	-.043
Lutheran	.018	.027
Methodist	.001	.038
Muslim	.093	.061
Nondenominational	-.046	-.057
Presbyterian	.121*	.127*
Roman Catholic	.204*	.169
Unitarian/Universalist	.031	.014
United Church of Christ	.039	.018
None	-.017	-.033
African American/Black	.144*	.107
Asian American/Asian	.100	.084
Native Hawaiian/Pacific Islander	.042	.020
Mexican American/Chicano	-.031	-.053
Puerto Rican	.014	.064
Other Latino	.050	.006
White/Caucasian	-.014	-.055
Middle Eastern	.034	.020
Total Support		.260***

Note. Numbers are Betas. *** p < .001, two-tailed ** p < .01, two-tailed * p < .05, two-tailed

Similarly, the qualitative results point towards the importance of both challenge and support in facilitating spiritual growth. Students with lower levels of spiritual growth simply were not challenged by the placement experience or the classroom experience to the same degree as students that exhibited higher levels of spiritual growth. While supportive relationships seemed to be readily available to all interviewees and were mentioned as important to all, the students with higher levels of spiritual growth also discussed the benefit of finding support through the integration of the classroom experience with the placement experience. In other words, the integration of class and service experiences provided a framework that helped students to make sense of the challenges they were facing and, therefore, played a role in enabling healthy spiritual growth to occur.

Digging further into the results provides additional insights about the specific aspects of the PULSE experience that might relate to spiritual growth. Qualitative results point towards the importance of building relationships at placements that enabled the possibility for students to witness and hear stories about how suffering and injustice impacted individuals they had grown

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to care about. This led students' eyes to be "opened" to the ways in which their prior assumptions/perspectives were inconsistent with what they were observing in the community.

At the same time, class experiences were also exposing students to a new way of viewing the world through: hearing about the placement experiences and diverse perspectives of other students; class readings that presented new perspectives; and professors asking students to consider what they think and why through class discussions and assignments. Being emotionally overwhelmed by the challenge to think about these complex questions and view the world from a new perspective drove students towards inner reflection in an effort to make sense of the experience.

Quantitative results point towards the *Classroom Experience*, an *Eye Opening Experience*, *Witnessing Injustice*, and *Support of Peers in Class* as being statistically significant predictors of increased *Spiritual Orientation* in at least one model when adding in each PULSE component one at a time through hierarchical multiple regression. *Class Experience* and *Witnessing Injustice* were the strongest predictors among these as both remained significant when controlling for these other PULSE components as illustrated in Table 10.

Table 10

Hierarchical Multiple Regression Predicting Increase in Spiritual Orientation by PULSE Components

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Pre-Test	.644***	.610***	.609***	.592***	.578***	.559***
Gender	.085	.060	.057	.040	.025	.027
School	.049	.043	.045	.039	.042	.029
Prior Service-learning	-.004	.000	.007	.014	.015	.011
Baptist	-.082	-.065	-.054	-.037	-.050	-.050
Buddhist	.039	.034	.035	.031	.042	.033
Eastern Orthodox	.034	.045	.041	.042	.035	.034
Episcopalian	.001	.026	.028	.033	.034	.041
Jewish	.000	-.012	-.017	-.013	-.001	-.025
Lutheran	.018	.018	.018	.022	.021	.037
Methodist	.002	.007	.016	.028	.046	.049
Muslim	.095	.079	.072	.064	.054	.049
Nondenominational	-.046	-.054	-.052	-.064	-.053	-.066
Presbyterian	.120*	.113*	.107	.119*	.134*	.139*
Roman Catholic	.203*	.199*	.184*	.193*	.212*	.182*
Unitarian/Universalist	.032	.020	.022	.028	.025	.016

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United Church of Christ	.041	.031	.026	.036	.040	.025
None	-.024	-.056	-.058	-.041	-.037	-.047
African American/Black	.145*	.110	.108	.109	.110	.105
Asian American/Asian	.109	.089	.087	.093	.092	.081
Native Hawaiian/Pacific Islander	.043	.032	.029	.022	.014	.006
Mexican American/Chicano	-.029	-.046	-.046	-.042	-.044	-.059
Puerto Rican	.013	.033	.036	.039	.050	.078
Other Latino	.053	.021	.016	.012	.007	-.009
White/Caucasian	-.016	-.092	-.084	-.078	-.096	-.087
Middle Eastern	.036	.023	.023	.020	.024	.017
Peer Support		.164***	.142**	.123*	.108*	.067
Relationships at Placements			.089	.056	.031	.010
Eye Opening Experience				.124*	.073	.006
Witnessing Injustice					.154**	.135*
Class Experience						.196***

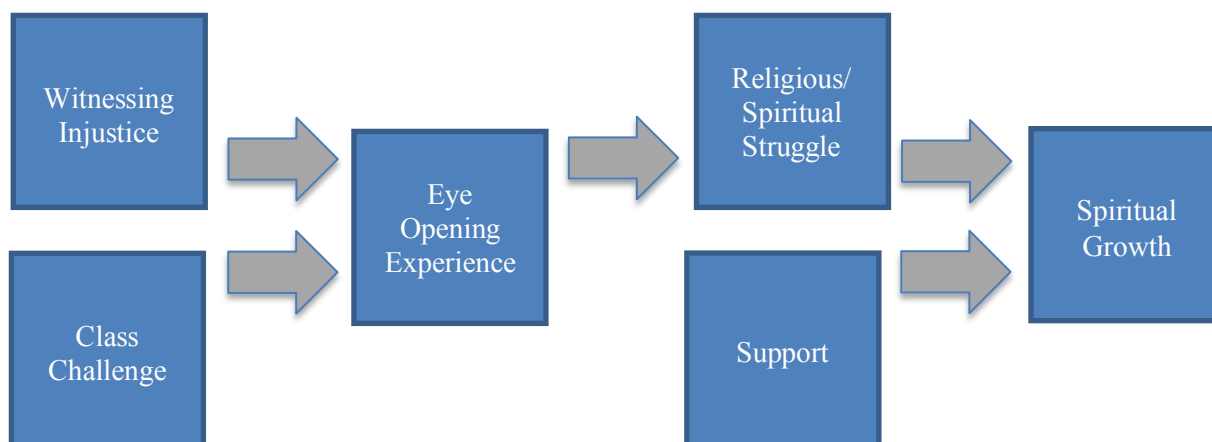
Note. Numbers are Betas. *** p < .001, two-tailed ** p < .01, two-tailed * p < .05, two-tailed

Discussion

Integrating the quantitative and qualitative results of this study with Sanford's (1962; 1966; 1967) theory of challenge and support, theories of spiritual development (Fowler, 1981; Daloz Parks, 2000), the results of empirical studies investigating how spiritual growth occurs, and the results of prior studies investigating how student development occurs through service-learning leads to the development of the following conceptual model (Figure 1) describing how spiritual development might be occurring during the PULSE service-learning experience.

Figure 1

Conceptualization of How Spiritual Growth May Be Occurring through PULSE



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In this proposed model, the process of spiritual growth begins when a student witnesses how injustice impacts the lives of individuals he or she has gotten to know at his or her service site. At the same time a student is being challenged by observing social justice issues at the service site, he or she is simultaneously having his or her assumptions about the world challenged in class. The combination of these challenges leads a student's eyes to be "opened" to the idea that the world is not exactly what he or she believed it to be in a very fundamental way. People living in poverty may have been previously known only through stereotypes—stereotypes that blame the poor for their problems and perpetuate the belief that the poor are fundamentally inferior to those who have been successful in traditional terms. During their PULSE experience, however, students can no longer hold onto these stereotypes and are humbled to see how much they have to learn from those they may have previously believed to be inferior or deficient. As a result, students and community members have the potential to form reciprocal relationships that are mutually beneficial. The PULSE student is no longer the one who serves, but is the one being served. This eye opening experience is emotionally overwhelming and can lead to religious/spiritual struggle as a student questions the certainty of his or her beliefs around suffering, spirituality, religion, and God. Throughout this struggle, the class framework and supportive relationships help a struggling student to make sense of what he or she is experiencing in a manner that enables healthy spiritual growth to occur.

Multiple regression analyses demonstrate that each component of this conceptual model is a statistically significant predictor of the following component in the model (see Tables A2-A4) and that mediation is occurring in the proposed manner (See Tables A5-A7). In other words, *Witnessing Injustice* and *Class Challenge* (a sub-set of the *Class Experience Scale*) are having an indirect effect on *Religious/Spiritual Struggle* that is mediated through an *Eye*

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Opening Experience. An *Eye Opening Experience* is having an indirect effect on spiritual growth (as measured by change in *Spiritual Orientation*) through *Religious/Spiritual Struggle*.

The following quotes from study participants illustrate the concepts in this model. The first quote demonstrates a students' experience of witnessing injustice. The second quote illustrates how an interviewee was challenged in class. In the third quote, a student describes how PULSE was eye opening. The fourth quote demonstrates a student receiving support from peers while undergoing spiritual struggle. In the final quote, a student describes the dynamic interplay between all aspects of the service-learning experience that led to spiritual growth.

She had glaucoma and lost all vision in one of her eyes. When the other one started to go as well, she came to the United States to get better medical care...now she's dealing with 5% total vision. She wasn't able to work, so she became homeless with her daughter. She's struggling to make ends meet and to find a job that she can actually do. If she had her vision she probably wouldn't be homeless. Something that's totally out of her control is completely affecting not only her life but her child's life as well.

A lot of the reflections we did, like our written reflections and even discussions would bring up things I had never really thought about before.

I was able to see the different ways that kids grow up in this country compared to my own town and childhood and that really just took me back. It was really interesting and very eye opening.

Our weekly discussions really allowed me to open up and question a lot of things that relate to my spirituality. I also feel as though becoming so close as a class and with [my professor] has created a bond that I cannot help but feel as somewhat spiritual and good.

The placement itself, with class in the background, helped me grow [spiritually] the most. I do not think that I would have learned as much if I did one without the other, and I have grown a great amount because of my interactions which were made meaningful due to my coursework and discussions.

Implications

Overall, this study provides additional evidence that service-learning is a pedagogical tool through which spiritual development can be fostered among undergraduates. This is especially important given the disparity between student desire for spiritual growth and the

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opportunity for spiritual growth to occur in the classroom context (Astin et al., 2004).

Furthermore, integrating opportunities for spiritual growth in the classroom has the potential to lead to other personal and societal benefits found to be associated with spirituality in prior studies. (Astin, et al., 2011b; Brandenberger & Bowman, 2013; Kuh & Gonyea, 2006; Lee, et al., 2007; Nelms, et al., 2007; Park & Millora, 2010; Seitz, 2009; Stewart, 2001; VonDras, et al., 2007; Walker & Dixon, 2002).

From the practitioner's perspective, study findings point towards important aspects of the service-learning experience that should be incorporated to maximize the potential for spiritual development to occur. First, it is crucial to develop community partnerships that will enable students to interact with and build caring, reciprocal relationships with individuals facing injustice so that the possibility to hear stories about or witness suffering and injustice exists. It is through these stories and observations that students' preconceived notions and assumptions about the world are challenged. In this eye opening experience students realize that stereotypes and preconceived notions of people living in poverty are not entirely accurate and, therefore, their prior worldview is no longer sustainable. The resulting disequilibrium opens up the possibility for growth.

At the same time that students' assumptions are being challenged through their service experience, class experiences should also challenge students to think critically about their assumptions and beliefs. This can be facilitated by hearing diverse perspectives in class discussions or class readings and asking students to consider what they believe and why in class discussions and assignments.

As students face the disequilibrium associated with having their eyes opened to the fact that their prior perspectives and assumptions may not have been accurate, it is important that students are given opportunities for support through integration and support through

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relationships. The effective integration of classroom material and service can help students to make sense of their challenging experiences and process the disequilibrium they are feeling. As demonstrated in previous research, this important integration can occur in class discussions, small group reflection sessions, journaling, and class reading and writing assignments (Astin et al., 2000; Eyler & Giles, 1999; Hatcher et al., 2004). Students also need the opportunity to receive support through relationships. Relationships with peers and faculty members were found to be especially pertinent in this study as they have been in prior studies (Astin et al., 2000; Eyler & Giles, 1999; Kiely, 2005; Radecke, 2007).

Table A1

Descriptive Statistics of Independent Variables/PULSE Components (N=272)

Variable	n	M	SD
I felt supported by my PULSE professor.	272	3.81	.481
Class journaling / reflective writing challenged me to think critically about my assumptions, values, and/or beliefs.	270	3.47	.672
There was a diversity of perspectives expressed in my PULSE class and discussion group.	270	3.50	.644
The problems that caused people at my placement to need social services were frequently the result of circumstances beyond their control.	271	3.52	.595
I felt supported by other students at my placement.	270	3.49	.740
This course exposed me to diverse perspectives that did not fit with my prior opinions and assumptions.	270	3.50	.644
I built caring relationships with those served at my placement.	271	3.61	.700
Class assignments challenged me to think critically about my assumptions, values, and/or beliefs.	271	3.57	.604
Social problems are more complex to solve than I used to think.	270	3.65	.621
Those served at my PULSE placement faced unfairness in life.	270	3.55	.594
I felt supported by others students in my class.	272	3.54	.587
Class discussions / reflection groups enabled me to connect what I was observing in my placement with what I was studying in class.	271	3.63	.631
I felt supported by my PULSE supervisor(s).	271	3.49	.838
The class discussions/reflection groups challenged me to think critically about my assumptions, values, and/or beliefs.	269	3.57	.598
PULSE exposed me to diverse viewpoints that challenged me to think differently.	271	3.67	.502
My PULSE Placement should remain a placement in the future.	223	3.68	.666
A supportive community formed among those in my PULSE discussion group.	270	3.44	.664
The class readings helped me to make sense of what I was observing in my placement.	270	3.36	.695
I observed unfair human suffering at my PULSE placement.	271	3.21	.785
The service component of this course was well integrated with the academic coursework.	271	3.57	.640
My PULSE placement experience challenged me to think critically about my assumptions, values, and/or beliefs.	270	3.60	.575
I felt supported by my PULSE Council Member.	271	3.54	.618
I heard perspectives expressed at my PULSE placement that were different from those I typically hear.	270	3.43	.679

Note. Level of agreement with the statement measured on the following scale:
 1=Strongly disagree 2=Disagree somewhat 3=Agree somewhat 4=Agree strongly

SERVICE LEARNING & SPIRITUAL DEVELOPMENT

Table A2

Regression Analysis Summary for Class Challenge and Witnessing Injustice Predicting an Eye Opening Experience

Predictors	Unstandardized		Standardized		
	Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	6.491	.863		7.523	.000
Class Challenge	.668	.069	.487	9.742	.000
Witnessing Injustice Scale	.416	.072	.291	5.811	.000

Table A3

Regression Analysis Summary for an Eye Opening Experience Predicting Change in the Religious/Spiritual Struggle Scale

Predictors	Unstandardized		Standardized		
	Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	-5.934	1.389		-4.272	.000
Eye Opening Experience Scale	.394	.077	.298	5.094	.000

Table A4

Regression Analysis Summary for Change in Religious/Spiritual Struggle and Total Support Predicting Change in Spiritual Orientation

Predictors	Unstandardized		Standardized		
	Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	-14.885	6.427		-2.316	.021
Change in Religious/Spiritual Struggle Scale	1.267	.261	.282	4.863	.000
Total Support Scale	.685	.202	.196	3.381	.001

Table A5

Regression Analysis Summary for Class Challenge and Witnessing Injustice Predicting Change in Religious/Spiritual Struggle

Predictors	Unstandardized		Standardized		
	Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	-3.892	1.467		-2.653	.008
Class Challenge	.195	.116	.107	1.688	.093
Witnessing Injustice Scale	.283	.121	.148	2.342	.020

Table A6

Regression Analysis Summary for Witnessing Injustice, Class Challenge, and an Eye Opening Experience Predicting Change in Religious/Spiritual Struggle

Predictors	Unstandardized		Standardized		
	Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	-6.354	1.573		-4.041	.000
Witnessing Injustice Scale	.101	.126	.053	.800	.424
Class Challenge	-.066	.132	-.036	-.502	.616
Eye Opening Scale	.399	.102	.300	3.900	.000

Table A7

Regression Analysis Summary for Total Support, Change in Religious/Spiritual Struggle, an Eye Opening Experience, Witnessing Injustice, and Class Challenge Predicting Change in Spiritual Orientation

Predictors	Unstandardized		Standardized		
	Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	-14.284	7.591		-1.882	.061
Total Support Scale	.589	.299	.170	1.972	.050
Change in Religious/Spiritual Struggle Scale	1.261	.275	.279	4.583	.000
Eye Opening Experience Scale	-.416	.475	-.069	-.877	.382
Witnessing Injustice Scale	.432	.581	.050	.743	.458
Class Challenge	.510	.698	.062	.730	.466

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APPENDIX 3: 2018-2019 STUDENT SURVEY MATERIAL (Indirect Evidence)

Beginning-of-Year Survey

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	TOTAL	WEIGHTED AVERAGE
Community service is something very important to me.	0.58% 2	0.58% 2	4.91% 17	43.35% 150	50.58% 175	346	4.43
I have had experience in social service settings.	1.45% 5	3.76% 13	5.78% 20	42.77% 148	46.24% 160	346	4.29
I have an interest in philosophy.	3.26% 11	14.24% 48	36.20% 122	37.69% 127	8.61% 29	337	3.34
I intend to take more philosophy classes after PULSE.	10.72% 37	37.39% 129	36.81% 127	11.01% 38	4.06% 14	345	2.60
I have an interest in theology.	8.96% 31	23.99% 83	35.55% 123	25.43% 88	6.07% 21	346	2.96
I intend to take more theology classes after PULSE.	16.52% 57	40.29% 139	33.91% 117	6.67% 23	2.61% 9	345	2.39
I probably would not take philosophy or theology if it was not required by Boston College.	6.67% 23	21.45% 74	24.35% 84	36.23% 125	11.30% 39	345	3.24
I feel integrated into the Boston College community.	0.58% 2	4.06% 14	16.81% 58	56.23% 194	22.32% 77	345	3.96
I have an understanding of social justice.	0.00% 0	2.60% 9	13.29% 46	63.87% 221	20.23% 70	346	4.02
I am knowledgeable about the complexities of urban problems in the U.S.	0.29% 1	9.28% 32	26.96% 93	51.01% 176	12.46% 43	345	3.66
I have an idea of how to work for social change.	0.00% 0	8.96% 31	28.90% 100	52.31% 181	9.83% 34	346	3.63
I am comfortable with people from diverse backgrounds.	0.00% 0	1.45% 5	6.65% 23	48.84% 169	43.06% 149	346	4.34
I am quite certain about my career goals.	5.80% 20	23.77% 82	25.80% 89	31.59% 109	13.04% 45	345	3.22
I have considered changing my major.	10.40% 36	23.99% 83	19.94% 69	35.26% 122	10.40% 36	346	3.11
I have first-hand experience in urban areas.	2.60% 9	18.79% 65	18.50% 64	36.99% 128	23.12% 80	346	3.59
I have an awareness of stereotypes.	0.00% 0	0.58% 2	2.89% 10	62.14% 215	34.39% 119	346	4.30
I think favorably of my overall B.C. experience.	0.00% 0	2.89% 10	10.40% 36	51.73% 179	34.97% 121	346	4.19

End-of-Year Survey

Question 3

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	TOTAL	WEIGHTED AVERAGE
The weekly discussion group was a valuable component of my PULSE learning experience.	2.66% 5	7.45% 14	14.36% 27	37.23% 70	38.30% 72	188	4.01
I interacted more with my PULSE professor than I typically interact with faculty members.	2.13% 4	9.57% 18	14.36% 27	34.04% 64	39.89% 75	188	4.00
I experienced a strong sense of community in the classroom.	0.00% 0	4.79% 9	12.77% 24	40.43% 76	42.02% 79	188	4.20
The material I was learning in the classroom was helpful to my understanding of the service component of PULSE.	2.13% 4	2.66% 5	8.51% 16	43.09% 81	43.62% 82	188	4.23
The service component of PULSE was helpful to my understanding of the classroom material I was learning.	2.66% 5	3.72% 7	8.51% 16	38.30% 72	46.81% 88	188	4.23

Question 6

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	TOTAL	WEIGHTED AVERAGE
I am less likely to make quick judgments about people.	0.00% 0	2.70% 5	6.49% 12	45.95% 85	44.86% 83	185	4.33
My awareness of societal inequities has been unchanged.	22.16% 41	41.08% 76	12.97% 24	10.81% 20	12.97% 24	185	2.51
I have a better understanding of the value of diversity.	1.08% 2	1.08% 2	5.41% 10	47.57% 88	44.86% 83	185	4.34
My commitment to my spiritual life has been strengthened.	8.65% 16	11.35% 21	24.32% 45	33.51% 62	22.16% 41	185	3.49
My relationship with God has strengthened.	9.73% 18	13.51% 25	32.43% 60	23.78% 44	20.54% 38	185	3.32
My overall philosophy of life has been impacted.	3.24% 6	5.95% 11	11.35% 21	47.57% 88	31.89% 59	185	3.99
I have been able to clarify my values and beliefs.	2.70% 5	5.41% 10	12.43% 23	50.27% 93	29.19% 54	185	3.98
I have considered changing my major.	27.03% 50	33.51% 62	16.76% 31	14.59% 27	8.11% 15	185	2.43
I have a better understanding of Jesuit Higher Education.	2.16% 4	4.32% 8	20.54% 38	48.11% 89	24.86% 46	185	3.89

End-of-Year Survey, cont.

Question 5

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	TOTAL	WEIGHTED AVERAGE
Community service is something very important to me.	0.53% 1	1.07% 2	3.74% 7	27.27% 51	67.38% 126	187	4.60
Prior to PULSE, I had experience in social service settings.	0.00% 0	8.02% 15	6.95% 13	41.18% 77	43.85% 82	187	4.21
Prior to PULSE, I had little experience in urban areas.	19.79% 37	26.20% 49	16.04% 30	27.81% 52	10.16% 19	187	2.82
I am knowledgeable about the complexities of urban problems in the U.S.	0.00% 0	2.14% 4	14.97% 28	56.68% 106	26.20% 49	187	4.07
I have an idea of how to work for social change.	1.07% 2	1.60% 3	8.56% 16	59.89% 112	28.88% 54	187	4.14
I am comfortable with people from diverse backgrounds.	0.00% 0	0.00% 0	1.60% 3	41.18% 77	57.22% 107	187	4.56
I have an interest in philosophy.	5.35% 10	14.44% 27	27.27% 51	34.76% 65	18.18% 34	187	3.46
I intend to take more philosophy classes.	13.90% 26	31.55% 59	31.02% 58	15.51% 29	8.02% 15	187	2.72
I have an interest in theology.	9.09% 17	18.18% 34	27.81% 52	33.16% 62	11.76% 22	187	3.20
I intend to take more theology classes.	19.79% 37	34.76% 65	28.88% 54	10.16% 19	6.42% 12	187	2.49
I have an understanding of social justice.	0.00% 0	0.00% 0	5.35% 10	52.94% 99	41.71% 78	187	4.36
I am quite certain about my career goals.	5.35% 10	16.04% 30	24.06% 45	35.83% 67	18.72% 35	187	3.47
I have an awareness of stereotypes.	0.00% 0	0.00% 0	2.14% 4	54.01% 101	43.85% 82	187	4.42
I feel integrated into the Boston College community.	1.60% 3	2.14% 4	18.18% 34	44.92% 84	33.16% 62	187	4.06
I think favorably of my overall B.C. experience.	0.00% 0	3.21% 6	12.30% 23	44.39% 83	40.11% 75	187	4.21
I plan to recommend PULSE to other B.C. students.	1.60% 3	2.67% 5	6.42% 12	23.53% 44	65.78% 123	187	4.49

Question 9: How would you rate PULSE in your overall Boston College academic experience?

ANSWER CHOICES	RESPONSES
Most influential course I have taken.	40.11% 73
One of the most influential courses I have taken.	50.00% 91
Similar in influence to many other courses I have taken.	6.59% 12
Less influential than other courses I have taken.	2.75% 5
The least influential course I have taken.	0.55% 1
Uncertain	0.00% 0
TOTAL	182