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Does Service-Learning Influence a Learner's Level of Emotional Intelligence?

by

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ABSTRACT

Objective: In this study, the relationship between service-learning (SL) and emotional intelligence (EI) was investigated among first- and third-year medical school students. The mitigating effects of previous years of formalized service-learning experience were also reviewed. ***Method***: Eighty-four first- and third-year medical students completed a two-part online survey consisting of (a) demographic and background: questions about gender, age range, and years of previous service-learning experience, and (b) The Personal Emotional Competency Scale (PEC), which consists of 50 questions related to how participants deal with emotions in daily life. ***Results***: The study showed a positive and statistically significant relationship between service learning and emotional intelligence and between service-learning and intrapersonal and interpersonal emotional competency. In addition, this study found there to be no significant relationship between previous years of service-learning and emotional intelligence. **Conclusion**: The incorporation of service-learning as a teaching strategy holds great potential in offering transformational learning experiences that increase medical students' emotional intelligence and professional competency, as defined by ACGME.

Keywords: emotional intelligence, service-learning, intrapersonal emotional competency, interpersonal emotional competency, years of service, transformational learning, medical school curriculum

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DEDICATION

All my life, my mother promoted two things above all else: family and education. I believe because of this, at least in part, I was blessed with a family who understood, valued, and supported my educational pursuits. Without their love and support, I would not be writing this dedication at the culmination of my doctoral journey. This study and research project is dedicated to my family, who have inspired and supported me throughout my life.

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CHAPTER I

INTRODUCTION

Health care in the United States and across the globe is changing. What was once a disease and illness-focused system of care is being transformed into one that is more preventative and patient-centered. Medical professionals are expected to work collaboratively using a team-based approach and engage patients in developing their personal care plans (AAFP, n.d.). To be effective, a 21st century medical professional needs to have the technical skills typically taught as part of the medical school curriculum and meet several non-technical competencies. According to the American Medical Association, all medical professionals must meet the following six competencies: (a) practice-based learning and improvement, (b) patient care and procedural skills, (c) systems-based practice, (d) medical knowledge, (e) interpersonal and communication skills and (f) professionalism (Arora et al., 2010; ECFMG, n.d.), which is a blend of technical, cognitive and emotional skill competencies.

As the health care industry makes the shift from disease-centered to patient-centered, the question that arises is whether the current medical school curriculum is truly preparing medical students with the emotional skills, also termed emotional intelligence (EI), needed to be doctors in the 21st century. Most medical schools continue to employ traditional teaching methods, which puts immense focus on the technical knowledge needed to diagnose patients. These teaching methods fail to incorporate the soft-skills training needed to satisfy almost half of the six competencies (patient care, interpersonal and communication skills, and professionalism) shared by the AMA and meet the needs of patients today; therein lies the problem. How can medical schools intentionally incorporate soft-skills training into the curriculum to ensure future doctors are thoroughly prepared to face the challenges and constant changes in health care? The

purpose of this study is to explore service-learning, an active learning approach, as a potential mechanism to increase a medical student's level of emotional intelligence, looking specifically at EI components of interpersonal and communication skills, including empathy, teamwork, and cultural sensitivity.

This quantitative study research proposal has been organized into several chapters. Chapter 1 provides an overview of the study, including its purpose, research questions, and hypotheses. Chapter 2 provides a critical review of the literature related to understanding the possible relationship between emotional intelligence and service learning, and Chapter 3 describes the methodology used in the study, including research design and intended collection strategies.

Research Question(s)

The research question is: What impact does participation in community-based service-learning have on a medical student's level of emotional intelligence?

The sub-questions are:

1. What, if any, is the impact of the number of years participating in service-learning on a medical students' level of emotional intelligence?
2. What, if any, is the impact of the number of years participating in service-learning on a medical students' level of interpersonal emotional competency?
3. What, if any, is the impact of the number of years participating in service-learning on a medical students' levels of intrapersonal emotional competency?

Research Hypotheses

The following hypotheses have been developed for this study:

H_1: Participation in service-learning will increase emotional intelligence among medical students.

H_2: Participation in service-learning will increase interpersonal emotional competency among medical students.

H_3: Participation in service-learning will increase intrapersonal emotional competency among medical students.

H_4: There is a connection between years participating in service-learning and the students' levels of emotional intelligence.

Null Hypotheses

The following are the null hypotheses for this study:

H_1: Participation in service-learning will not increase emotional intelligence among medical students.

H_2: Participation in service-learning will not increase interpersonal emotional competency among medical students.

H_3: Participation in service-learning will not increase intrapersonal emotional competency among medical students.

H_4: There is no connection between years participating in service-learning and the students' level of emotional intelligence.

Identification of Variables

The independent variable for this study is service-learning, as this is the variable being manipulated to determine whether there is any change in dependent variable, emotional

intelligence, in relation to the amount of time students participate in service-learning activities. Emotional intelligence was selected considering the increased need for medical professionals to take on multiple roles beyond clinician or treatment specialist. Medical professionals are required to work as part of a team to identify and prevent illnesses and partner with patients on holistic and preventative care. For them to do so, and fulfill the required competencies outlined by the AMA, medical education administrators need to develop techniques and practices that not only prepare future medical doctors with needed technical skills, but also address the current shortfall among medical professionals in non-technical areas like interpersonal and communications skills, as well as cultural sensitivity and awareness. Each of these skills is a component of emotional intelligence (DV). This study explores one potential mechanism of instructional delivery, service-learning (IV), that can be used to expose medical students to activities to further develop their emotional intelligence (DV).

Significance of the Problem

Within the health care industry, medical professionals have traditionally been encouraged to take a systematic and emotionally distant approach to patient care. The belief was that medical professionals could diagnose illness and offer better and more rational treatment plans when emotions were not clouding their judgment. However, over the years, there has been a shift from this traditional approach to a more holistic approach in which medical professionals are encouraged to offer patient-centered care with a focus on collaborative, compassionate, and informed treatment plans.

To be a successful health care professional requires more than the technical knowledge and hard skills currently being taught in medical and other health professional schools. There is a distinct need for practitioners who are also knowledgeable about a patient's emotional,

psychological, and social well-being, as well as cultural implications and economic situation. Alex Djuricich, associate dean for continuing medical education at Indiana University, added that doctors need to have the "emotional intelligence to understand how patients are really feeling" (as cited in Farr, 2015, para. 17). Practicing high levels of emotional intelligence and holistically approaching patient care allows medical professionals to customize treatment plans that consider what is realistically feasible for the patient and allows the practitioner and patient to create a partnership, potentially resulting in improved communications and patient follow-through.

Researchers have found EI plays an important role in student success as it relates to relationship building (Ackley, 2016; Doherty et al., 2013; Long et al., 2016; Perez-Ecoda & Alegre, 2016; Royr & Chaturvedi, 2011), adaptability (Doherty et al., 2013), empathy (Doherty et al., 2013; Parrish, 2015; Kinman & Grant, 2011; Smollan & Parry, 2017), communication skills (Doherty et al., 2013), coping skills (Kinman & Grant, 2011), resilience (Doherty et al., 2013; Goradel et al., 2016; Kinman & Grant, 2011), and social competence (Shek & Leung, 2016). Not only is EI an important aspect of helping medical students navigate to and prepare for a career in medicine, but this competency can also positively impact patient-practitioner relationships post-graduation and has been connected to the "level of trust and satisfaction felt by patients towards doctors" (Doherty et al., 2013, p. 1).

The problem is, while there is a renewed focus on patient-centered care within the industry, many medical schools still offer the same traditional medical education and pedagogy, neglecting to consider the changes in societal expectations of the industry and patient care. "Medical students go into medicine with the sole intention of pursuing a clinical career: the recognition that leadership and management skills are increasingly integral to good patient care

and organizational excellence comes later" (Levinson et al., 2010, p. ix). The current medical school curriculum reinforces this concept by placing emotional intelligence and other soft skills training on a list of extracurricular options rather than making it an intentional component of a future doctor's overall medical education.

Doherty et al. (2013) explained that within the medical profession, "the management of emotions in the workplace is a skill related to the ability to demonstrate empathic behavior towards patients; to manage emotional reactions in oneself and to lead others as part of a team" (Doherty et al., 2013, p. 1). Emotionally competent people are generally more in control of and skillful in their response to emotionally charged situations (Steers & Porter, 2011, as cited in Royr & Chaturvedi, 2011), which can be a regular occurrence in health care. In addition, demonstrating empathy towards patients is another important skill that falls within the domain of emotional intelligence, which according to many studies, deteriorates over time during a medical student's training (Doherty et al., 2013). This loss of empathy can be extremely problematic in an industry where patient-centered care is the dominant focus.

Shakir et al. (2017) stated that their interactions with others greatly influence a doctors' performance. "Therefore, medical schools, residency programs, and CME programs should enhance existing curricula with EI courses and mindfulness training" (Shakir et al., 2017, p. 509). It is the responsibility of medical educators to prepare future doctors for the realities they will face as medical professionals. Realities such as having to deliver bad news to a patient, helping to calm a hysterical family member, or even coping skills when treatment for a patient is not working as intended, are just a few of the areas medical students need to experience. While medical educators will not be able to prepare students for every possible scenario, it is their responsibility to offer a more balanced, multidisciplinary approach to medical training, which

encompasses both technical and emotional skills training, empowering medical students with the skills needed to be effective doctors in the 21st century.

Some medical schools have begun to explore ways to incorporate more soft-skills education into the curriculum, but the critical issue of how and when to integrate these concepts into the regimented and technical skill-based medical education curriculum remains. Based on previous research, some medical schools are in the process of developing new courses that will cover EI as part of a larger course on professionalism (Levinson et al., 2010), others are attempting to integrate EI activities into the general coursework (Kurtzman, 2016), while others continue to experiment with different delivery methods of EI training, like service-learning.

Within medical education, service-learning is being used as a "teaching method whereby physicians gain competency in preventative practice, public health and social service through the experience of actually delivering care to communities in need" (Smith et al., 2013, p. 1140). Service-learning programs require the translation of classroom learning into the community through service-learning projects and activities. Participation in such programs has been proven to strengthen leadership skills and empathy (Herlihy & Brown, 2015). In addition, a strong and meaningful program requires community engagement, multiple levels of interpersonal interaction, clear communications, and interdisciplinary teamwork: activities that can greatly benefit from the strengthening and development of the various components of emotional intelligence.

Cherry et al. (2014) believed that incorporating an emotional intelligence-based education could enhance the effectiveness of a school's ability to teach professionalism and communication skills and stated that further research is needed to ensure best practices and methods are in place before any recommendation for industry-wide application. Thus, the

question remains, how can medical schools effectively prepare students to practice medicine in the 21st century, ensuring future doctors have the technical and clinical expertise to address patient illness accompanied by the emotional intelligence and other softskills necessary to offer holistic care and increase patient engagement?

Recognizing that there is increased interest in the possibility of adding service-learning to the medical school curriculum and the integral role emotional intelligence plays in all industries, including health care, this study aims to explore the relationship between participation in service-learning and emotional intelligence. The results of this study can be beneficial to several populations, including leadership and curriculum developers within medical education, medical students, and potentially the patients they serve.

Operational Definitions

The following operational definitions have been developed for this study:

Emotional intelligence: the ability to recognize, understand, and manage emotions (Goleman, 1995, as cited in Ackley, 2016) as demonstrated through scoring on the Profile of Emotional Competence (PEC) Scale. The closer the average score is to 5.0, the higher the level of emotional intelligence.

Service-Learning: an active-learning teaching strategy that intentionally combines academic coursework, community service, and critical reflection, allowing students to apply the academic content to real-work situations.

Assumptions

Since the selected data collection method was a survey, this research study was anchored in the assumption that the medical student participants would be honest in their responses and that the selected measure (PEC) was valid. Since the collection method was online, the surveys

were anonymous, and the questions were not sensitive, it was fair to assume that participants would not feel pressured to answer questions falsely. In addition, the selected measure was previously tested and validated by the developers of the assessment tool, and thus the assumption regarding validity seems logical.

Limitations

As a quantitative study, one limitation was that the results would only determine correlation rather than causation. Additionally, when using an online survey, participants are given the convenience of completing the survey at any time of day or night. This parameter brings its own limitation as participants would not have 24-hour access to the researcher to answer or clarify any questions. An FAQ was developed to address this limitation and provide an accessible resource to participants to answer any questions that might arise when the researcher was unavailable.

CHAPTER 2

LITERATURE REVIEW

The purpose of this study was to investigate the relationship between service-learning and emotional intelligence among first- and third-year medical students. This chapter will begin with an overview of this study's theoretical framework, followed by a literature review. The literature review will encompass a summary of previous research studies on service-learning, noting the definition and conceptualization of service-learning. This will be followed by a review of common misconceptions and an exploration of the educational benefits of service-learning experiences in relation to student learning.

Theoretical Framework

The theoretical framework for this study on the relationship between service-learning and emotional intelligence is the transformational learning theory (TLT). John Mezirow originally developed TLT in 1978 after conducting a qualitative study on women returning to school or work after an extended absence. Mezirow attempted to "identify factors that characteristically impede or facilitate women's progress in the re-entry programs" (as cited in Kitchenham, 2008, p. 105). As a result of his study, Mezirow found that the women had a transformational learning experience, and he identified 10 phases that led to the transformation.

Mezirow spent more than twenty years studying transformational learning and revising his theory, taking into consideration works from other scholars like Kuhn's (1962) conceptions or paradigms, Freire's conscientization (1970) (described as developing critical awareness), and Haberma's (1971) work on domains of learning (Kitchenham, 2008). It was not until 2003 that Mezirow provided a clear definition of his theory, which expanded meaning perspectives to include "epistemic," "sociolinguistic," and "psychological" (Jarvis, 2015). The premise of TLT

is that adults bring with them previous learning and experiences that create individual meaning perspectives or lenses that are used to process and catalog new information and experiences.

Furthermore, TLT posits that adults learn best when their meaning perspectives are challenged. Mezirow (1991) explains perspective transformation as follows:

> . . .the process of becoming critically aware of how and why our assumptions have come to constrain the way we perceive, understand, and feel about our world; changing these structures of habitual expectation to make possible more inclusive, discriminating, and integrating perspective; and finally, making choices or otherwise acting upon these new understandings. (as cited in McGonigal, 2005, p. 1)

This process challenges learners to use higher-level thinking and critical reflection in response to events and experiences that fall beyond their current parameters of thinking, especially those that make them uncomfortable and transform their thoughts, assumptions, and points of view.

Fazio-Griffith and Ballard (2016) explained, "centrality of experience, critical reflections, and rational discourse are three common themes of TLT" (p. 227). In addition, TLT suggests transformational learning occurs when the following five conditions have been met. First, an activating event or disorienting dilemma must occur, which is described as an event that falls outside of the learners' current perspective lenses, causing the individual to acknowledge or expose limitations in his or her knowledge base. Second, the student needs to be provided with the opportunity to identify and express these limitations or assumptions. Third, the student must participate in critical self-reflection, which involves a deeper exploration of where the assumptions or limitations stem from and how they influence the individual's thinking, actions, and understanding. Next, the student must have the opportunity to engage in critical discourse with others and develop alternative ideas and approaches. Lastly, the student must be allowed to

apply these new ideas and approaches (McGonigal, 2005). Furthermore, TLT states, "adults exhibit two kinds of learning: instrumental (e.g., cause/effect) and communicative (e.g., feelings)" (instructionaldesign.org, n.d.). Mezirow (2000) elaborated further by explaining that learning can occur in four ways; by elaborating on existing knowledge, learning new knowledge, transforming mindset, and transforming perspective (as cited in Fazio-Griffith & Ballard, 2016).

In applying Transformational Learning Theory to this study, one first needs to revisit the operational definition of service-learning within the study based on Kolb's four-step Service-Learning (SL) model, which begins with abilities attained from concrete experience. This step is followed by reflective observation, abstract conceptualization, and active experimentation before the cycle begins again. Service-learning is a pedagogy that requires a clear learning agenda that incorporates meaningful service experiences and connection to course content through discourse and reflection (Tanner, 2017). The concrete experience is derived from the community work site, which could also potentially serve as the disorienting dilemma due to the placement in a diverse worksite where many preconceived notions or beliefs will be challenged. Once exposed, students can reflect through journal entries, critical discourse, one-on-one discussions with classmates, community members and the instructor about their experience and beliefs. Based on these discussions and reflective activities, the student then develops new ideas and practices, followed by returning to the site and starting the learning process over again. When TLT is applied to SL, one can see direct correlations of thought and practice.

According to past research, participation in service-learning activities has resulted in increased levels of competency within several branches of emotional intelligence, including interpersonal skills (Hughes, 2002; Toncar et al., 2006), teamwork (Bush-Bacelis, 1998; Hughes, 2002; Smith et al., 2013), and cultural sensitivity/competency (Bush-Bacelis, 1998; Krishnam et

al., 2016; Reynolds, 2005). Therefore, it is reasonable to believe that this study would have similar outcomes. Cognizant of the past research results involving EI competencies, it is likely that if the service-learning experience (a) elaborates on existing EI knowledge through course content and discourse, (b) provides the opportunity to acquire new EI knowledge through site placement and application of course content, and (c) provides the venue or vehicle to transform EI mindset and perspective, then learners' EI levels should increase. In addition, since SL incorporates, within its framework, each of the five conditions required for transformational learning, one can expect that the independent variable, service-learning, would potentially have a positive and transformational influence on the dependent variable emotional intelligence.

Service-Learning

Stemming from experiential learning theory, service-learning (SL) is a teaching strategy that intentionally combines academic course work and community service. Morton and Troppe (1996) explained that service-learning ". . . is informed by a range of intellectual traditions and values systems [that] begins with the assumption that experience is the foundation for learning; and various forms of community service are employed as the experiential basis for learning." (as cited in Tanner, 2017, p. 1). Basically, at its foundation is the belief that students learn best by doing (Chenarani, 2017, p. 1). When allowed to take academic content and apply it to real-world situations, students tend to employ higher levels of thinking that increase the relevance of academic coursework and its translation to life beyond the classroom and campus.

Additionally, service-learning creates a beneficial reciprocal relationship between the SL provider and the community by identifying and serving community needs and then reflecting on the service activity to allow the development of a deeper understanding of the academic coursework. In other words, the relationship is mutually rewarding. The community benefits

from having a problem or deficit addressed, while students benefit from hands-on experience applying course content to address the issue and deepen learning further through reflection.

In an article entitled "Service-Learning: Learning by Doing and Doing What Matters," Tanner (2017) described the experiential learning model at the foundation of most service-learning programs. It was developed over time with contributions by many researchers, most recently David A. Kolb. Kolb's model described the experiential learning experience as a four-step, cyclical process. According to Tanner (2017), "The model's four steps begin with the abilities attained by the student through concrete experience, followed by reflective observation, abstract conceptualization and active experimentation" (p. 1). The work at the community site serves as the concrete experience that elicits the reflective observations. Next, students return to the classroom and work with the instructor on the abstract conceptualization and develop hypotheses or highlight new plausible connections, which then get applied to the student's next concrete experience. This cycle continues throughout the SL experience, allowing the development of deeper connections and understanding of course materials in a real-world context.

Butin (2003) explained four distinct lenses or conceptualizations of SL: technical, cultural, political, and post-structuralist. The technical conceptualization or perspective on service-learning focuses on "the innovation itself, on its characteristics and component parts and its production and introduction as a technology" (Hargreaves et al., 2002, as cited in Butin, 2003, p. 1679). The technical perspective is concerned with things like the quality of placements, the number of contact hours and reflections, and program sustainability rather than the benefits of the act of service itself. This perspective plays an important role in SL overall but generally does not stand alone.

In contrast to the technical perspective, the cultural perspective focuses more on individual meaning gathered from the experience. This perspective sees SL as a means to create a better understanding of who participants are in relation to the community and world outside of the campus or classroom. Butin (2003) added, from a cultural perspective placing students in a diverse placement site "… acts as a crucial mediator between individual self-knowledge and societal responsibility. By engaging with those different from themselves. . . students come to better understand, respect, and engage with the cultural plurality of our diverse society" (p. 1681). This perspective is usually linked with the technical perspective in successful SL programs.

The political perspective sees service as a means of utilizing campus and personal assets to effect social change. It is focused on empowering marginalized groups (NSEE website). This perspective is seen as transformative and repressive. It is transformative in that SL can transform student learning into a collaborative effort between student, faculty, and community, and participants can make meaningful differences in the communities where they serve. It is seen as potentially repressive because there is a question as to the sustainability of the change once the SL project or course is completed and the potential it has to reinforce the power differential between the server and those being served. "A political perspective thus rejects service-learning as an instrumental and amelioristic methodology to instead focus on how service-learning affects power relations among and across diverse individuals, groups, and institutions" (Butin, 2003, p. 1682).

The post-modern or post-structuralist perspective focuses on how service impacts the way one sustains or disrupts how one views oneself. This perspective on SL questions how the

act of service might alter one's perspective about those being served, the service being offered, as well as one's knowledge about the self and the community.

Butin (2003) concluded his article by highlighting the importance of looking at service-learning from multiple perspectives to gain the greatest benefit for all parties involved. He believed that society utilized the technical and cultural lens excessively, which has limited the true impact of a service-learning program in today's constantly changing world and has limited the ability to create real and long-term solutions to growing problems within society.

Myths or Misunderstandings

Often, the term service-learning has been used interchangeably for words like community service, volunteerism, and internships. While each of these terms can represent a form of experiential education, they are not as intentional or encompassing as service-learning whose purpose and theoretical framework are distinctly different. Students involved in service-learning are not simply observers but active participants. "The success of a [service-learning] program is measured not only by what the student learns but also by the usefulness of the students' work to those served" (Harvard Medical School, 2010). The beneficial reciprocal relationship is a major component of service-learning and one of the main differences between service-learning and other forms of experiential education.

In an article on service-learning pedagogy, Chenarani (2017) went into more explicit detail regarding the main differences between community service, volunteerism, internships, and service-learning.

Community Service and Volunteerism vs. Service-Learning

According to Chenarani (2017), community service and volunteerism differ from service-learning (SL) in three specific ways: purpose, focus, and learning agenda. Both community

service and volunteerism share the general purpose of offering help or assistance to those in need. Both forms of service emphasize the benefit to those being served. Community service also emphasizes the benefit of the service being provided. Neither place much emphasis on the service provider. In addition, schools generally do not link actual coursework with community service or volunteerism activities which are seen more as extracurricular rather than educational activities. In their case, there usually is no learning agenda. While both community service and volunteerism provide experiences within the community, these experiences do not necessarily result in academic or measurable learning.

In contrast, according to Chenarani (2017), SL is intentional in involving students in service activities that are directly related to course content and objectives. It has a clear learning agenda. According to Jacoby et al. (1996), ". . . service-learning, illustrated by student community service integrated into an academic course, utilizes the service experience as a course 'text' for both academic learning and civic learning" (as cited in Chenerani, 2017, p. 2). In addition, SL purposefully attempts to create a mutually beneficial exchange between the service provider (student) and the service recipient (community). Students gain experience and efficacy while building a diverse skill set, and the service recipient has a need met by the students. The emphasis in SL is equally placed on the service and the learning that occurs (BSU, n.d.).

Like community service and volunteerism, SL provides experience within the community, but it takes the experience a step further by providing different venues of reflection, which helps facilitate student learning and deepens understanding. Chenerani (2017) added that "Learning requires more than experience, and so one cannot assume that student involvement in the community automatically yields learning. Harvesting academic and/or civic learning from a community service experience requires purposeful and intentional efforts" (p. 4). Thus, one of

the unique components of a successful service-learning activity is providing time for intentional and guided reflection.

Internships vs. Service-Learning

Internships are a popular mode of getting students some real-world experience in a particular field but recently have begun to be melded together under the umbrella of service-learning. As with community service and volunteerism, this is a misrepresentation of the term service-learning. An internship's purpose is to specifically prepare students for a specific job and enable them to begin networking within their chosen field. It also emphasizes student benefit over community benefits. In contrast, service-learning emphasizes the benefit of both equally. SL incorporates civic engagement and focuses on applying classroom learning to the service project. Both the class learning outcomes and the service project need to be aligned, and the project must meet a community need. Internships and SL also require different types of evaluation and reflection. Generally, an internship will require a summary paper and an evaluation of the service, while service-learning requires frequent in-class reflections connecting the service to the course materials. Understanding these differences can be extremely important when developing an SL project or evaluating its impact.

Benefits of Service-Learning

Many studies have been conducted on the impact service-learning has on students, especially in colleges and universities. In one such study, Bush-Bacelis (1998) explained how he developed and implemented an SL course for students in a business communication course. Bush-Bacelis also explained that the general purpose of the program was to prepare students to be effective managers by developing their flexibility, adaptability, teamwork, and cultural sensitivity, in addition to the general academic learning objectives supplied to him by his district.

The students in the course were required to participate in the experiment, which required them to develop a proposal, select a non-profit organization, develop and implement an SL project, and regularly reflect with their teammates and report back to the class. While some students were initially reluctant to participate, when the projects were concluded, many students reported a desire to continue working with the organizations they selected and identified growth in several areas, including teamwork, commitment, attitude, and perceptions about themselves and the service itself. According to Bush-Bracelis (1998), the students seemed to understand the importance of their roles in helping to effect change and become positive contributing community members. The students also claimed to have gained a deeper understanding of the course materials and content.

Similarly, Toncar et al. (2006) found that students who participated in service-learning also achieved a greater understanding of course materials and built skills in several areas, including practical skills, interpersonal skills, citizenship, and personal responsibility. Toncar et al. (2006) conducted an exploratory study to determine the desired benefits of SL from the student perspective. Once identified, the researchers developed a survey to measure these dimensions and then tested it with two classes, a senior level marketing research class and a junior level basic public relations class. Twenty students in the marketing class and 22 students in the public relations class completed the survey. The survey results indicated that students developed interpersonal skills allowing them to work as a team to accomplish tasks, gained personal satisfaction helping others, learned more about themselves, including strengths and weaknesses, and developed general skills that would benefit them within their selected professional fields.

Similarly, Astin et al. (2000) conducted a mixed-methods exploratory sequential study consisting of two phases. The primary phase of the research consisted of a quantitative analysis of a national sample of students from diverse colleges and universities. Thirty percent of the students participated in a community-based service-learning program, 46% participated in other types of service, and 24% did not participate in any service. The researchers found significant positive effects of SL learning in the areas of academics (writing skills, GPA, and critical thinking), values (commitment to activism and promoting racial understanding), and self-efficacy and leadership skills (leadership activities, self-rated leadership ability, and interpersonal skills). While all areas showed a positive correlation, the relationship between SL and self-efficacy and leadership was borderline, while all other areas were statistically significant. The qualitative phase of the study consisted of interviews with faculty and students who participated in service-learning activities at a subset of the schools previously analyzed. Researchers found an increase in the participant's sense of self-efficacy, increased awareness of the world and one's personal values, and increased engagement in the classroom experience with a heightened sense of civic responsibility and personal effectiveness.

Another qualitative study conducted by Hughes (2002) explored the implementation of service-learning at two community colleges in Virginia. The sample population consisted of 36 college students who were involved in service-learning at their campus. All student participants were Caucasian, 58% female, and 42% male. Ninety-six percent of the students were full-time, 62.5% were single, 22% married, 8.5 % divorced, and 7% did not respond. Forty-six percent of the participants were involved in service-learning for more than a year, and 87.5% said they would participate in service-learning activities again. The researcher found that students believed service-learning was a worthwhile experience that allowed them to increase their self-

knowledge, self-efficacy, ability to work as a team, and appreciation for diversity. The respondents also stated they grew professionally, socially, and cognitively as a result of the SL experience. Hughes (2002) also noted that the community benefited from the students gaining a better understanding of community needs and their service, which helped alleviate one or more needs. Other benefits to the community include developing innovative solutions to community problems and assistance with workload within often understaffed agencies.

Krishnam et al. (2016) also explored the benefits of service-learning in a different population of students, those participating in an international service-learning project as part of their undergraduate and graduate studies in audiology, pathology. The sample consisted of 12 female students: eight were undergraduates (one freshman, one sophomore, five juniors, and one senior) and four post-bacc students (one in the first year of speech language pathology, two in the second year of audiology program, and one PhD in educational engineering). The average age of participants was 21.75. Ten students were Caucasian, one was African American, and one was Filipino American. After conducting a pre- and post-assessment, researchers found that the SL experience resulted in increased community engagement (ability to work collaboratively), cultural competence (ability to have meaningful interactions with diverse populations), and ethical leadership (ability to lead with collaboration, open communication and integrate multiple perspectives). The results also demonstrated the potential for SL to increase academic learning outcomes with higher course grades, enhanced understanding of course materials, and increased critical thinking. Similarly, Cherry et al. (2014) added that an emotional intelligence-focused curriculum could increase professionalism and communication effectiveness within the medical field.

Hébert and Hauf (2015) conducted their survey on service-learning and its effects on academic development, civic responsibility, interpersonal skills, and practical skills. One hundred and thirty students participated in the study. Thirteen of the participants were male, 113 were female, and 13 unspecified. The researchers proctored a pre- and post-test to determine if there were any differences in scores for each of the previously mentioned variables. The researchers found that students who participated in service-learning did not attain higher academic marks in the course than those who did not but did show a higher level of understanding in their ability to provide more detailed responses. The researcher believes this resulted from traditional testing methods being inadequate to test higher-order thinking promoted in service-learning. Respondents also showed improvement in civic responsibility and interpersonal skills, but not in practical skills.

Within Medical and Health Professional Education

While much of past study of service-learning focused on college or K-12 populations, the potential benefits are not limited to these populations and can be expanded to include others, including post-baccalaureate programs. Interest in incorporating SL into the curriculum of professional health programs has increased over the years because of the potential impact SL can have on addressing non-clinical and non-technical skills needed to practice in a society focusing more on patient-centered, holistic, and collaborative preventative care.

Service-learning, according to Harvard Medical School (2010), "addresses two important needs: the education and development of students and the provision of increased resources to serve individuals and communities, primarily in underserved areas" (para. 8). The possible impact of service-learning can be immense and includes the development of leadership skills (Harvard Medical School, 2010; Pelletier, 2016), the promotion of intercultural and international

understanding, the creation of mutually beneficial relationships with community partners (Harvard Medical School, 2010; Pelletier, 2016; Ackley, 2016; Doherty et al., 2013), and to "advance our understanding of societies, cultures and world issues by testing scholarship against immediate practical experience and theory within a cultural context" (Harvard Medical School, 2010, para. 8). Additionally, Pelletier (2016) highlighted several other benefits of service-learning, including increased awareness and understanding of social determinants of health, increased clinical knowledge, development of students' ability to collaborate, communicate and "identify health needs in underserved communities." Participants in service-learning also developed their ability to work interprofessionally, which is an important capability within the medical and health care industry.

Several studies were conducted exploring the idea of integration or inclusion of service-learning activities within medical or health professional school programs. Smith et al. (2013) discussed integrating service-learning into the health care curriculum. They explained that medical education is shaped by two main imperatives: acquisition of biomedical knowledge" and "mastery of technical skills needed to deploy that knowledge" (p. e1139). Students trained under these imperatives are not equipped to address the social and environmental aspects of health and disease. By assessing the effectiveness and outcomes of two service-learning programs, Smith et al. (2013) identified the strengths and weaknesses of incorporating service-learning into the health professional (medical school) curriculum. Researchers found some of the benefits to be an increased understanding of self in relation to community realities and one's own understanding, increased community engagement and recognition of the needs of others, improved interpersonal skills as students are challenged by different cultures and perspectives, and increased learning as students are confronted with issues or topics not generally covered in the usual didactics (such as

advocacy, behavioral change, and prevention). Smith et al. (2013) explained, "service-learning engenders a more sophisticated approach armed at social determinants of health and roots of disparity" (p. e1143). It also helps students learn more about navigating the health systems they will be working within and accessing additional resources and supports. Service-learning also encourages teamwork as many medical treatment plans now require interdisciplinary teams to address long-term health problems. "Teams are imbued with a shared sense of purpose and moral commitment" (p. e1144). They are taught to work together to promote healthier living and collectively address medical concerns.

Stewart and Wubbena (2014) furthered the discussion with their study on the infusion of service-learning into medical education. Stewart and Wubbena (2014) analyzed 18 studies in which service-learning was being utilized within medical education and developed a four-stage model for service-learning, which included (a) planning and preparation, (b) action, (c) reflection and demonstration, and (d) assessment and celebration. Planning and preparation include helping faculty and students understand the difference between service-learning and community service, especially regarding the reciprocity that should accompany the project. "One-sided activities, although beneficial in many respects, may actually detract from the potential educational benefits of service-learning" (Stewart & Wubbena, 2014, p. 148). Deciding when and where service-learning should be incorporated is another important component of planning and preparation, as is the building of community partnerships before the start of the project.

The second stage, action, includes the work completed in the service-learning project itself. Stage three offers students the opportunity to reflect and demonstrate what they have learned. "Reflection is a conduit between volunteer service, academic coursework and civic intentions – the glue holding service and learning together" (Stewart & Wubbena, 2014, p. 152).

Without allowing time for continuous reflection, service-learning reverts to meeting community service requirements and loses its academic purpose and value. The final stage of their model involves program assessment, analyzing student outcomes, and taking the time to "acknowledge the learning, and appreciation of the service-learning activity (Stewart & Wubbena, 2014, p. 153). The assessment process should include the faculty and students, and the community partner to allow a full review of the program/project from all stakeholder perspectives.

In another study, Reynolds (2005) explored how service-learning experience benefits physical therapy students. In her study, Reynolds (2005) reviewed the reflective writings of 85 graduates who received their Master of Physical Therapy degree who participated in a graded SL course as part of their degree requirements. The researcher received permission from each of the students to review their submitted journal assignments for her study. The qualitative analysis demonstrated several beneficial outcomes, including increased cultural sensitivity, understanding, respect for individual differences, communication skills, and professional development. Students stated that the experience positively impacted their ability to understand and apply course materials to real-life situations. The participants also recognized a need to ask for more specific information from patients at preliminary meetings to supply the most appropriate care plan for the individual.

Likewise, Hunt (2007) conducted a phenomenological study on the experiences of nursing students who participated in a service-learning activity working with homeless families. The study consisted of 14 participants. From the participant descriptions, six themes were identified: realization of effects of homelessness on families, intense emotions that are sometimes hard to express, realizing the differences and similarities between families who are homeless and those who are not, challenging and transforming perspectives and assumptions, the

importance of reflection, and discovering new implications for the nursing role. The experience allowed nursing students to see things from a different perspective and empathize with families suffering from homelessness. It expanded their thinking about the nursing role and more clearly defined the need for care beyond an immediate affliction to long-term solutions and preventative education.

Similarly, Samuels-Dennis, Xia, Secord and Raiger (2016) explored the benefits of service-learning to nursing students involved in a community-based mental health promotion project. Samuels-Dennis et al. (2016) found that participants developed greater civic responsibility, improved critical thinking, "reduced stigmatizing attitudes" (p. 105), and employed empathetic rather than sympathetic approaches to patients. Students also identified improved self-efficacy regarding knowing about and utilizing available resources.

Several studies also examined service-learning in relation to specific competencies. Lee et al. (2016), for example, chose to evaluate the impact of service-learning on a group of 41 medical students who participated in a service-learning project with a particular focus on SL and the enhancement of student perspectives of humanism in medicine. Lee et al. (2016) explained humanism as follows:

> In medicine, humanism is demonstrated by a respectful and compassionate relationship between physicians, other members of the healthcare team, and their patients. It reflects attitudes and behaviors that are sensitive to the values and cultural backgrounds of others. Humanistic health care professionals are intuitively motivated to provide health care services with integrity, excellence, compassion, altruism, respect, and empathy. (p. 2)

In other words, humanism refers to the act of treating others with respect and care. The study found themes of resilience, as well as respect and empathy for patients and peers. The experience

also strengthened the student's commitment to service and working within underserved communities. Participants stated they also gained a greater understanding of the patients' experience and their future roles as physicians.

Looking at two other competencies, Seif et al. (2014) chose to study the relationship between service-learning and the development of clinical reasoning and interprofessional behaviors. The researchers used a quasi-experimental pre- and post-test design. Students were assigned to an experimental and control group. The experimental group consisted of 100 students from a variety of specialties who were enrolled in an SL course requiring work at the student-run clinic. The control group consisted of 232 students, a mix of students who volunteered at the clinic but were not a part of the course and students who had never volunteered at the clinic. The researchers found that the experimental group scored higher in team-building/attitudes, clinical reasoning, professional confidence, and independence in making clinical decisions than the students in the control group. The researchers believed this difference was in part due to the required reflection for the experimental group as part of the service-learning course.

Service-Learning and Emotional Intelligence

Service-Learning has the potential to help medical students gain hands-on experience while developing many interpersonal and intrapersonal competencies. Many of these competencies, like empathy, cultural understanding, building relationships, and communication, can be clustered under the umbrella of emotional intelligence (EI), which is defined as the ability to identify, understand and manage emotions. According to Goleman and Boyatzis (2017), emotional intelligence consists of four domains: self-awareness, self-management, social awareness, and relationship management. Within each of these domains, Goleman and Boyatzis

identified one or more competencies or learned capabilities that can assist people in effectively performing at work and relating to the world around them.

The first domain, self-awareness, refers more specifically to the competency of emotional self-awareness and the ability to identify and understand what one is feeling at various moments and the impact these feelings can have on how one responds to different situations and the moods of others. Within health care, the interaction between the doctor and patient "is fundamentally a human connection, and emotions are a de facto part of that" (Ofri. 2013, p. 210). Offri explained the importance of doctors being emotionally self-aware further in the following statement:

> It is critical to be aware of the potent influence of emotion on our rational decision-making. Remaining cognizant of our emotions, being attuned to the fluctuations, understanding how best to integrate them in the moment of connection with a patient will offer the patient the most solid and trusting setting (Ofri, 2013, p. 210).

Being emotionally self-aware allows medical professionals to relate and empathize with their patients, offering a more personal and relevant experience while not being overtaken by their own emotional needs and triggers. This practice is beneficial for both the medical professional and the patient and helps to strengthen the clinician-patient relationship (Johnson, 2015).

The second domain is closely related to the first as it is the practice of self-management. According to Goleman and Boyatzis (2017), the practice of self-management includes the following competencies: emotional self-control, adaptability, achievement orientation, and positive outlook. Emotional self-control works hand-in-hand with emotional self-awareness as it is impossible to control something that one is unaware of. Within medicine, many situations can be extremely emotionally charged. During those times, medical professions must be able to help deescalate the situation and make ethical decisions that are aligned with the best interest of the

patient. Often patients make personal decisions that endanger or magnify their health issues. It is normal to become frustrated or sometimes even angry about the poor decisions being made (Ofri, 2013), especially when it is not the first conversation with the patient about their health needs and damaging decisions. However, as a doctor, those feelings need to be carefully managed so they do not negatively impact the patient's care; this can be achieved through emotional self-control.

Similarly, adaptability, achievement orientation, and positive outlook all play a role in the type of medical treatment offered to patients. Doctors are often placed in quickly changing environments and can find themselves needing to make life or death decisions quickly and effectively. Situations will not always turn out how the medical professional expected, and s/he will need to adapt quickly. "When in the ER or the OR and a patient is coding, you won't have time to think or feel sad… it's vital that you think on your feet and quickly adapt to the situation to save your patients life" (Misra, 2016).

Medical students also need to demonstrate high levels of adaptability in medical school to meet the rigor and demands of medical education. The study habits that may have been successful in college will not necessarily work in medical school. Incoming students are likely familiar with the traditional approach to learning but may find it difficult to adjust to the interactive components that require active participation and working with others. Additionally, the course schedule can change quickly, and expectations vary from year to year.

A study conducted at the University of Alberta determined that graduate students who majored within one of the health sciences had higher stress and depression levels than those who studied in other fields. Johnson (2015) explained that increased levels of competition among students in the health sciences arena add to the pressure and anxiety students feel. "Whereas a

certain degree of anxiety is useful for performance, to an excess it can become debilitating and lead to many other problems" (Johnson, 2015, p. 179). Being able to successfully navigate medical school and prevent burnout requires high levels of adaptability and positive affect, characteristics related to developed emotional intelligence.

The third and fourth domains, social awareness and relationship management, also strengthen an individual's emotional intelligence. Under the umbrella of social awareness lies empathy, organizational awareness, and service orientation. Each of these competencies is an important attribute within medicine, but none more so than empathy. Most hospitals promote compassionate health care as one of their attributes, and many medical schools incorporate the concept into their missions and goals, but compassion cannot exist without empathy, and empathy cannot exist without emotions. "Empathy is one of those odd concepts that is so central to human interaction, so obviously a requirement in medicine" (Ofri, 2013, p. 10); it is the ability to move beyond oneself and see and feel things from another person's vantage point. Within medicine, it is about medical professionals recognizing, acknowledging, and appreciating a patient's feelings and suffering. "Empathy requires being attuned to the patient's perspective and understanding how the illness is woven into this particular patient's life. Last - and this is where doctors often stumble – empathy requires being able to communicate all of this to the patient" (Ofri, 2013, p. 10), which leads us to the fourth domain, relationship management.

Communication plays an integral role in relationship management, consisting of "managing relationships, inspiring others and inducing desired responses from them" (Global Development Commons, 2013). Doctors are required to have open and honest communications with patients remaining sensitive to their needs and in a patient-centered manner (Roskell et al., 2012). Hurley and Linsley (2012) explained that good communication is at the foundation of

clinical practice and essential to being personally effective. According to Hurley and Linsley (2012), communication is more than the exchange of information. It is also "…the process by which we understand others and in turn endeavor to be understood by them" (p. 61). Good communication can help medical professionals forge connections with patients through empathic understanding, self-awareness, trust development, and mutual respect.

Emotional intelligence clearly can have an immense impact on the type of care delivered to patients and the effectiveness of treatment plans. Practitioners who exhibit high levels of emotional intelligence can acknowledge and manage their own emotions during the activities they engage in and can connect and relate to patients offering compassionate and empathic care. However, these skills are not automatically added into a medical students' skill bank once they are handed a medical degree. Emotional intelligence activities and development need to be incorporated into the medical school curriculum in intentional ways to ensure medical students are appropriately prepared for professional practice in the 21st century.

Service-learning is one mechanism that has been explored within higher education as a potential means of impacting emotional intelligence. In their study, Hegarty and Angelidis (2015) utilized service-learning as a teaching method and measured its effect on emotional intelligence. Their sample consisted of 177 students from a large private Catholic university. Hegarty and Angelidis (2015) used a pre- and post-test survey to determine if there were any changes in students' emotional intelligence scores after completing the service-learning project. The researchers found a significant difference in scores among certain item areas, including self-esteem, perseverance, and motivation.

Manring (2012) added to the literature on service-learning by investigating the relationship between service-learning and emotional intelligence in undergraduate management

students. A total of 140 students participated in the study. Participants were randomly assigned to a non-profit agency and asked to volunteer a minimum of 15 hours at that agency and write about their experience. They were also asked to review and analyze data concentrating on group dynamics, individual behaviors, organizational structure, and environment. Manring (2012) found that the different service-learning experiences increased student self-awareness, including preconceived notions, prejudices, and limitations. The reflection component of the course was said to increase the student's ability to make cognitive connections between coursework and experience independently of the instructor. The study also found that students improved in empathy. Manring (2012) added that "what makes service learning so effective as a vehicle for both the expression and development of emotional intelligence is that the context moves students out of their comfort zones" (p. 177). Students are challenged to try something new and open themselves up to new experiences within a new environment.

Service-Learning Challenges

Service-learning, however, does not come without its challenges. To be effective, Butin (2003) stated that educators need to approach service-learning from multiple perspectives. If educators approach the project's development from only one perspective, it limits its impact and ability to create a sustainable difference. Service-learning programs need to be institutionalized to be effective and sustainable, which requires the development of policies, procedures, and a formalized process for integration (Stewart & Wubbena, 2014). Without clear goals and a focused curriculum, the service-learning exercise can lose its potency.

Administrative support is another problematic area as it can be difficult to get buy-in on the academic benefits of service-learning because of its lack of alignment with the traditional pedagogy or lecture-based instruction. SL champions must demonstrate its academic value and

how it contributes to the overall mission of the college and program curriculum. Additionally, administrative support and buy-in are necessary because of the investment of time required to prepare and implement an effective program. Service-learning requires faculty or course developers to find community partners, build relationships, develop reflection activities and assessments relevant to the specified projects, create MOUs (memorandums of understanding) while ensuring all these activities align directly with the coursework and learning objectives. All these activities require dedicated time, which would require faculty or facilitators to be given dedicated time away from regular activities (Stewart & Wubbena, 2014).

Another major concern mentioned earlier in this chapter is that some educational institutions mislabel community service activities as service-learning (Pelletier, 2016; Chenerani, 2017). This blurs the significance of a real service-learning experience, an experience that requires the project to be connected to actual course work, where new knowledge can be applied, and students have an opportunity to reflect on their experiences. Without each of these components, real and transformational learning cannot occur. Service-learning can also be very time-consuming due to the need for faculty to be intentional in all aspects of the implementation and their responsibility to facilitate group discussion and reflection. If implemented incorrectly, the SL experience can be more detrimental than helpful in that the experience, which is meant to challenge an individual's current perspectives and thought processes, can bring up intense feelings or even promote doubts when not properly processed. A medical student exposed to activities or events that negate what they believed to be true can rail against these ideas or become disengaged due to the experience. It is the reflective part of service-learning that enables students to become more comfortable with the idea of being uncomfortable in order to progress personally, professionally, and emotionally. Absent the opportunity to reflect and debrief, some

students may leave the program more confused and unsettled than those with the opportunity to challenge and be challenged.

Summary

As a mechanism to assist educators in preparing students to meet the needs of an ever-changing society, service-learning's value has been demonstrated by reviewing the literature, which highlights several competencies and benefits of a well-planned and balanced service-learning experience. Service-learning is said to improve cognitive skills (Hughes, 2002; Krishnam et al., 2016), community engagement (Krishnam et al., 2016; Smith et al., 2013), cultural competence (Bush-Bacelis, 1998; Krishnam et al., 2016; Reynolds, 2005), ethical leadership (Krishnam et al., 2016), Interpersonal skills (Hughes, 2002; Toncar et al., 2006) and teamwork (Bush-Bacelis, 1998; Hughes, 2002; Smith et al., 2013). It has been used with several different population samples yielding similar results.

Manring (2012) connected service learning directly with emotional intelligence in her study and found a "natural interplay" between the two variables. The literature review clearly demonstrates this potential relationship, especially as it pertains to medical education, which highlights some noticeable trends across specialties, including improved teamwork, cultural sensitivity/competence, and interpersonal skills. Aspects of each of these focus areas fall within the different branches of emotional intelligence (understanding, managing, using, and perceiving emotions), prompting the need for a greater understanding of the relationship between the variables. While there is some literature on the relationship between emotional intelligence and service-learning, the majority of work is limited to K-12 and college students. It has not been extended to explore how service-learning interacts with emotional intelligence in medical

students and whether SL can be used as a mechanism to improve emotional intelligence in future physicians, which is the purpose of this study.

CHAPTER 3

METHODOLOGY

The purpose of this chapter is to describe the research methodology used in this quantitative study exploring the relationship between emotional intelligence and service-learning. This chapter provides details of the implemented research plan, including the target population, method of sampling, measurements, data collection methods, and the research design and procedure.

Target Population

The study participants were self-selected and consisted of adults enrolled in medical school in Bronx, NY and have or intend to participate in community-based service-learning activities. Participants consisted of a minimum of 80 medical students of both biological genders (male and female) and varying ages. The target populations were first- and third-year medical students (approximately 125 students per class year). The first years provided a baseline measurement of emotional intelligence upon entry into the medical college. The third years provided a baseline measurement for students having completed two full years of medical education and preparing to enter community practice through clinical rotations.

Method of Sampling

For this quantitative research study, a nonrandom convenience sample was used. Participants were recruited using a pre-survey announcement that was sent via e-mail to their medical school e-mail address. Announcements were also posted on electronic signboards and made after student events. Participants were asked to self-select or volunteer to participate in the study. There were no restrictions for participation based on gender, ethnicity, age, or race, and no compensation was offered in exchange for participation.

Measurement Devices

A two-section survey (appendix A) incorporating self-reporting measures on demographics, other descriptive data, and emotional intelligence was administered to medical students who engaged in service-learning activities and self-selected to participate in this study.

Demographics/Biographical Survey

Participants were asked to respond to demographic questions such as biological gender, age range, as well as non-demographic questions related to past or current involvement in service-learning.

Profile of Emotional Competence

The Profile of Emotional Competence (PEC), developed by Sophie Brasseur and Moira Mikolajczak, separately measures interpersonal and intrapersonal emotional competency within five core emotional competencies (identifying, expressing, understanding, regulating, and using emotions). Without this knowledge, the authors believe that researchers are unable to truly "understand the processes at stake" and "cannot develop customized interventions" (Brasseur et al., 2013). The PEC does not measure ability as in what one can do but rather focuses on what one consistently does. While some people can call upon higher competency levels when directed to specifically do so (as during an exercise on acceptance), many do not carry these ideas further into daily life and interactions. The PEC attempts to measure a person's behaviors beyond those isolated cases and exercises. For that reason, the PEC was selected as this study's measure of the relationship between service-learning and emotional intelligence among first- and third-year medical students.

Service-learning is utilized as an experiential learning strategy that is said to provide transformational learning experiences for students. A transformational experience does not

appear solely in planned or guided exercises but rather translates into everyday life and activities. Thus, it seemed best to attempt to measure student development and application of EI in everyday activities and scenarios.

The PEC operationally defines emotional intelligence using 50 items that ask survey participants about their emotional understanding, behavior, and application in daily life. "It has been validated in several studies on a total of nearly 22,000 subjects" (EIC, n.d.). The PEC has been used in cross-cultural studies to demonstrate different levels of emotional competencies based on the region of Asia (Min et al., 2018) and to determine the impact of emotional competence on supportive care needs among cancer patients (Baudry et al., 2018). It also received cross-cultural validation in a Japanese study testing the applicability of the measure in Eastern cultures (Nozaki & Koyasu, 2015) and another study on the implications of emotional competency for sports psychology among young Tunisian athletes and non-athletes (Aouani et al., 2019).

The PEC asks respondents to read a statement and rate how well the statement describes them using a 5-point Likert scale (1 meaning not at all and 5 meaning very well). There is one global scale and two subscales (interpersonal and intrapersonal EC). The responses were totaled and then averaged, resulting in a maximum score of 5.0 on both the Global and sub-scales (Brasseur et al., 2013). The PEC does not require permission when used for research and or clinical purposes. No modifications to the wording of the PEC were made.

Data Collection Methods

Two separate e-mails were sent to all first- and third-year students enrolled at the medical college, explaining the purpose of the study and inviting them to participate. The e-mail stated that the study's focus was on investigating the relationship between service-learning and

emotional intelligence within medical education. The preliminary e-mail also explained that participants must be at least 18 years of age and provide consent to participate in the study. Furthermore, participation was completely voluntary and anonymous. The preliminary e-mails included a link to the survey, housed in Qualtrics' survey software on a password-protected computer. It also contained FAQs and contact information for the researcher in the event of any questions or concerns regarding participation. Once volunteers clicked on the link, they were brought to a cover letter, which repeated some of the information found in the invitation letter and explained in more detail what was required of participants and the approximate time commitment.

A minimum of 40 participants from each target population (first- and third-year students) was required, which was approximately one-third of the number of students in each group's overall population. Had the minimum goal not been reached, the timeline would have been extended, and additional invitations and reminders sent.

Statistical Methods

The purpose of this study was to determine what impact participation in a service-learning project has on a medical students' level of emotional intelligence. The dependent variable was emotional intelligence, and the independent variable was service-learning. EI scores were measured using the Profile of Emotional Competence, which provides emotional intelligence scores in three categories: interpersonal competence, intrapersonal competency, and a global score which incorporates both scores. The closer to 5.0 individuals score, the higher their level of emotional intelligence. This study also explored whether there was any difference in EI scores based on years of participation in service-learning.

To this end, the following hypotheses were developed, which will be followed by a brief description of the corresponding statistical tests to be used:

Hypotheses and Null Hypotheses

H_1: Participation in service-learning will increase emotional intelligence among medical students.

H_{1n}: Participation in service-learning will not increase emotional intelligence among medical students.

H_2: Participation in service-learning will increase interpersonal emotional competency among medical students.

H_{2n}: Participation in service-learning will not increase interpersonal emotional competency among medical students.

H_3: Participation in service-learning will increase intrapersonal emotional competency among medical students.

H_{3n}: Participation in service-learning will not increase intrapersonal emotional competency among medical students.

H_4: There is a connection between years participating in service-learning and the students' level of emotional intelligence.

H_{4n}: There is no connection between years participating in service-learning and the students' level of emotional intelligence.

Statistical Tests

The Profile of Emotional Competence provides two-factor scores (interpersonal and intrapersonal EC) and one global EI score. To determine any changes in scoring, those of incoming first-year students were compared to third-year medical students using a T-test. The T-

test results determined whether the H_1, H_2, and H_3 hypotheses were rejected or retained. The ANOVA statistical test was used to determine if years of involvement had a relationship with the level of emotional intelligence. Each hypothesis was tested at the .05 level of significance, and the R square was used to determine effect size. In addition to the T-test and ANOVA results, a descriptive analysis will be provided.

Research Design and Procedures

Utilizing a single-stage convenience sample and quantitative research approach and survey design determined whether there was a positive relationship between service-learning and emotional intelligence. Both descriptive and inferential statistics were also used. To measure emotional intelligence, the PEC was implemented at the onset of the academic year (August 2020) to test the emotional intelligence levels of entering first-year and third-year medical students. The results of both tests were compared to determine if there was a change in the dependent variable (emotional intelligence) in relation to the independent variable (service-learning).

Time Schedule

After approval from the IRB at both Saint Peter's University and Albert Einstein College of Medicine, a preliminary e-mail introducing the study was sent to all students enrolled in the Community Based Service-Learning Program at the Medical College. The anticipated start date of the study was August 17, 2020, at which time the survey would be disseminated to all potential volunteer participants. The survey was open for two weeks and closed on August 31, 2020, but it could have been extended depending on the response level.

Below is an approximate timeline for communications:

Date	Contact Type	Purpose
August 10	Pre-study E-mail	To introduce the study to the community and garner interest
August 17	Invitation letter – e-mail	To recruit participants
August 24	Reminder E-mail	To remind participants to complete the survey
August 31	Close survey and thank you e-mail	A brief e-mail of appreciation for participation (or extension of the survey if needed with a follow-up e-mail)
September 7	Close survey and thank you e-mail (if an extension was needed)	A brief e-mail of appreciation for participation

CHAPTER 4

RESULTS AND ANALYSIS

Purpose

The purpose of this chapter is to report the data from the results of the survey that examined the relationship between the IV, service-learning (SL), and the DV, emotional Intelligence (EI) among medical students.

The instrument used for this study was an electronic survey which included self-reporting measures on biological gender, service-learning experience, and completion of the Profile on Emotional Competency (PEC), which was developed by Sophie Brasseur and Moira Mikolajczak (Brasseur et al., 2013). A random sampling method was used to collect survey responses from first- and third-year medical students enrolled at a medical college located in Bronx, NY.

Sample Characteristics

A total of 135 students enrolled in their first or third year at the medical school responded to the electronic survey request. Fifty-one of the 135 respondents failed to complete the PEC portion of the survey, resulting in 84 valid responses. Forty-one of the 84 respondents were first-year students, while 43 were in their third year (Table 1). As shown in Table 1b, there was an equal number of responses from females (N = 42) and males (N = 42).

Table 1

Biological Gender Per Class Year

	Female	Male	Total
First Years	21	20	41
Third Years	21	22	43
Total	42	42	84

Table 1a

Overall Biological Gender Frequency

	Frequency	Percent	Cumulative Percent
Female	42	50	50
Male	42	50	100
Total	84	100	

Table 2 and 2a show the largest number of respondents were in the 18 to 25 age group with 52.4% (N=44), followed by the 26 –35 age group with 44% (N=37). The smallest response group was the 36 –45 age group, with only 3.6% (N=3).

Table 2

Age Range Per Class Year

	18 –25	26 –35	36 –45
First Years	31	7	3
Third Years	13	30	0
Total	44	37	3

Table 2a

Overall Age Range Frequency

	Frequency	Percent	Cumulative Percent
18–25	44	52.4	52.4
26–35	37	44.	96.4
36–45	3	3.6	100
Total	84	100	

Tables 3 and 3a show the years of experience with service-learning among respondents for each respective class year. Most respondents (58.3%; N=49) reported having 0 to less than a years' previous experience in a service-learning program. The second and third largest responses were in the 1–2 year and 3–4 year groups with 22.6% (N=19) and 15.5% (N=13), respectively. The lowest number of responses were received for the 5+ group, with only 3.6% reporting having this amount of previous experience.

Table 3

Years of Previous Service-Learning Experience Per Class Year

	<1	1 –2	3 –4	5+	Total
First Years	31	5	5	0	41
Third Years	18	14	8	3	43
Total	49	19	13	3	84

Table 3a

Overall Years of Previous Service-Learning Experience Frequency

	Frequency	Percent	Cumulative Percent
<1	49	58.3	58.3
1–2	19	22.6	80.9
3–4	13	15.5	96.4
5+	3	3.6	100
Total	84	100	

Hypotheses Results

The narrative and corresponding statistical tables are organized by hypothesis.

H_1: Participation in Service-Learning will increase emotional intelligence among medical students.

A T-test was conducted to compare Global EI scores among first- and third-year medical students, with third year students having participated in service-learning activities at the medical college. The results indicate there was a statistically significant difference in scores (M=3.44, SD=.317) and (M=3.64, SD=.348); t (82) =2.76, p=.004 for first- and third-year students, respectively (Table 4). The mean global score (3.64) for third year students was higher than the mean global score (3.44) for first year students indicating that the third-year students in this study demonstrated a higher level of emotional intelligence than their first-year counterparts. Therefore, the null hypothesis was not retained, and the research hypothesis supported.

Table 4

Global Score t-Test: Two Sample Assuming Unequal Variances

	Third Year Global Score Average	First Year Global Score Average
Mean	3.64	3.44
Variance	0.12	0.1
Observations	43	41
Hypothesized Mean Difference	0	
df	82	
tstat	2.76	
P(T<=t) one-tail	0.004	
T Critical one-tail	1.66	
P(T<=t) two-tail	0.007	
T Critical two-tail	1.99	

H_2: Participation in service-learning will increase interpersonal emotional competency among medical students.

A t-Test was utilized to determine whether there was an increase in interpersonal emotional competency scores among the medical students. The results demonstrated a statistically significant difference in scores (M=3.39, SD=.322) and (M=3.62, SD=.359), t (82) =3.13, p=.004 between first and third-year medical students, respectively (Table 5). Similar to the results on the global scale, third year students, on average, scored higher on the interpersonal scale of emotional competency than first year students supporting the research hypothesis, and thus, the null hypothesis was not retained.

Table 5

Interpersonal Score t-Test: Two Sample Assuming Unequal Variances

	Third Year Interpersonal Score Average	First Year Interpersonal Score Average
Mean	3.62	3.39
Variance	0.12	0.1
Observations	43	41
Hypothesized Mean Difference	0	
df	82	
tstat	3.13	
P(T<=t) one-tail	0.001	
T Critical one-tail	1.66	
P(T<=t) two-tail	0.002	
T Critical two-tail	1.99	

H_3: Participation in service-learning will increase intrapersonal emotional competency among medical students.

Results of a T-test indicated a significant difference in intrapersonal emotional competency (M=3.48, SD=.389) and (M=3.65, SD=.415), t (82) =1.96, p=.027 between first and third-year medical students, respectively (table 6). Consistent with scoring on both the global and

interpersonal scales, third year students scored higher than first year students, though the difference in mean scores was lowest in this comparison with only a .16 difference between means. The results indicate that third year students demonstrate higher intrapersonal emotional competency than the incoming first-year students supporting the research hypothesis, and therefore the null hypothesis was not retained.

Table 6

Intrapersonal Score t-Test: Two Sample Assuming Unequal Variances

	Third Year Intrapersonal Score Average	First Year Intrapersonal Score Average
Mean	3.65	3.48
Variance	0.17	0.15
Observations	43	41
Hypothesized Mean Difference	0	
df	82	
tstat	1.96	
P(T<=t) one-tail	0.027	
T Critical one-tail	1.66	
P(T<=t) two-tail	0.05	
T Critical two-tail	1.99	

H_4: There is a connection between years participating in service-learning and the students' level of emotional intelligence.

An analysis of variance was computed to determine any statistical differences between years of service-learning experience and emotional intelligence. As shown in table 7, there was no statistically significant difference between years of experience and emotional intelligence for the four conditions (0–>1 year, 1–2 years, 3–4 years, and 5 or more years) F (3, 80) = .81, p=.49. The F value shows the variability between groups compared to the variability within groups, and the p value represents the probability of the null hypothesis being true. Since the p value of .49 is

greater than the significance level (.05), the null hypothesis is retained, and the research hypothesis is rejected. According to the results of this study, the amount of time a person participates in service-learning has little to no impact on the individuals' level of emotional intelligence.

Table 7

Years of Service-Learning Experience and Emotional Intelligence ANOVA

Source of Variation	Sum of Squares	df	Mean Square	F	P-value	F crit
Between Groups	0.295	3	0.098	0.8106	0.491	2.718
Within Groups	9.727	80	0.121			
Total	10.023	83				

Table 7a presents descriptive statistics for years of experience and emotional intelligence. Respondents in the group with 5 or more years of experience attained the highest mean EI score of m=3.81 (N=3). The 3–4 years group had the lowest mean score (M=3.49, N=13), closely followed by the 0 to less than 1–year group (M=3.52, N= 49). Of the 84 respondents, the majority had 0 to less than a year of previous service-learning experience.

Table 7a

Years of SL Experience and Emotional Intelligence Descriptive

Groups	Count	Sum	Average	Variance
0>1	49	172.65	3.52	0.129
1–2	19	68	3.58	0.138
3–4	13	45.4	3.49	0.081
5+	3	11.44	3.81	0.042

Summary

Demonstrated by the statistical analysis results (Table 4), this study found a positive, statistically significant relationship between service-learning and emotional intelligence at the .05 level (one-tailed). Additionally, a significant relationship between both interpersonal (Table 5) and intrapersonal (Table 6) emotional competency and service-learning was also identified at the .05 significance level (one-tailed), indicating the likelihood that a persons' service-learning experience can positively impact one's emotional intelligence, as well as one's interpersonal and intrapersonal emotional competency.

In contrast to the statistically significant results found regarding the relationship between emotional intelligence and service-learning, this study found no statistical significance between years of previous SL experience (Table 7, 7a) and a person's level of emotional intelligence. It is worth noting, however, that the group with the highest mean score was the group with the largest amount of previous experience (M=3.81), but this group also had the lowest number of responses (N=3) in comparison to the other groups with zero to less than a year of experience having both the second-lowest mean score (M=3.52) and the highest number of responses (N=49). In summary, three of the four hypotheses (H_1, H_2, and H_3) were found to have statistical significance, while one (H_7) did not, for which the null hypothesis was retained.

CHAPTER 5

DISCUSSION AND CONCLUSION

Purpose

The purpose of Chapter 5 is to discuss the results and implications of the findings for each hypothesis. The narrative provides a qualitative interpretation based on the statistical results in Chapter 4 and integrates the discussion with the literature in Chapter 2. The final section describes limitations and implications for future research.

Hypotheses Discussion

H_1: Participation in service-learning will increase emotional intelligence among medical students.

This study found there to be a positive, statistically significant relationship (Table 4) between emotional intelligence (EI) and service-learning, which supports Mezirow's Transformational Learning Theory (TLT) and is consistent with the findings of several previous studies (Smith et al., 2013; Stewart & Wubbena, 2014; Reynolds, 2005). According to TLT, adult learners bring past learning and experiences with them, which creates unique perspectives or lenses by which new information is processed and cataloged. It is the challenging of these pre-developed lenses, through exposure to new and different perspectives, that creates an opportunity for students to evaluate if their assumptions are constricting their perceptions, understanding, and feelings, which according to Mezirow (1991), results in more "inclusive, discriminating, and integrating perspectives" (as cited in McGonigal, 2005, p. 1). Students are required to utilize higher levels of critical thinking and reflection through exposure to events and experiences that generally fall outside their current parameters of thinking.

Fazio-Griffith and Ballard (2016) add that experience, critical reflection, and rational discourse are the central elements of transformational learning. Similarly, these three elements are central focal points of Kolb's four-step service-learning model. Kolb's model begins with abilities attained from concrete experiences or active learning activities followed by reflective observation.

These first two steps rely heavily on students being placed in environments where they can be actively engaged, challenged, and critically reflect on their experiences and responses to those experiences. Abstract conceptualization is the third step in the model and refers to using new experiences as evidence to form new ideas and perspectives. At this point in the cycle, students start to challenge their assumptions and beliefs and begin to integrate the new information acquired through their service-learning experience. The final step, active experimentation, allows students to apply what they learned from their first experience and test its validity, which begins the cycle again. The learning itself is perpetual if students continue to engage in concrete experiences, test new perspectives, reflect and reassess.

The concrete experiences within service-learning are derived from the work the students do within and for the community and can be disorienting at first, especially without having previous exposure to similar environments and circumstances. As part of the SL experience, students need to foster positive relationships and interactions with those they work with and service and simultaneously analyze their own beliefs and values in these interactions and experiences. This combination of processes (relationship building, practice, and critical reflection) required as part of service-learning directly connects with the development, practice, and utilization of the skills and competencies that make up one's emotional intelligence. Thus,

the finding of a statistically significant, positive relationship between service-learning and emotional intelligence within this study was expected.

H_2: Participation in service-learning will increase interpersonal emotional competency among medical students.

The relationship between interpersonal emotional competency and service-learning was also found to be positive and statistically significant (Table 5). Interpersonal emotional competency is one of the two overarching branches of emotional intelligence, the other being intrapersonal emotional competence, which will be discussed further when discussing the results of H_3. Interpersonal emotional competency refers directly to one's ability to recognize, use, manage, and understand others' emotions. This competency can also be classified as the formation of social awareness and relationship management, which is a useful skill set for developing and nurturing positive relationships and interactions.

According to Goleman and Bouatzis (2017), social awareness and relationship management are two of four domains within emotional intelligence. Each domain houses specific competencies or skills that can be developed to assist individuals in effectively performing within and relating to the world around them. Within the medical profession and more particularly for this study's population, medical students, empathy, cultural sensitivity, professionalism, and relationship building are among the most important competencies needed to effectively practice medicine.

Service-learning itself has been identified as a catalyst for the development of empathy (Doherty et al., 2013; Parrish, 2015; Kinman & Grant, 2011; Smollan & Parry, 2017; Herlihy & Brown, 2015), leadership (Astin et al., 2000; Herlihy & Brown, 2015; Krishnam et al., 2016) and increasing one's ability to motivate and inspire others (Lee et al., 2016; Manring, 2012).

Empathy, or the ability to understand and share the feelings of others, assists in the development of trust and support (Arslan & Yigit 2016; Smollan & Parry, 2015), which are two important skills needed within the medical field. By involving students directly in the community through service-learning, educators expose students to new experiences that can challenge their thought paradigms and strengthen their ability to learn and apply new approaches for more effective results, thus strengthening their interpersonal skills.

Past research studies on service-learning and skills outcomes also found increased competency among participants in several interpersonal EI skill sets associated with relationship building, including communication skills (Doherty et al., 2013), cultural sensitivity (Bush-Bacelis, 1998; Krishnam et al., 2016; Reynolds, 2005), professionalism (Cherry et al., 2014) social competence (Shek & Leung, 2016) and teamwork (Bush-Bacelis, 1998; Hughes, 2002; Smith et al., 2013). Being cognizant of the research findings regarding skill development and service-learning, the results of this study were as expected and supported by past research, which clearly identified a direct correlation between service-learning and the development of interpersonal skills (Hughes, 2002; Toncar et al., 2006; Hébert & Hauf, 2015; Astin et al., 2000; Smith et al., 2013).

H_3: Participation in service-learning will increase intrapersonal emotional competency among medical students.

Similar to the findings of H_2, and as expected, this study found a positive and statistically significant relationship between service-learning and intrapersonal emotional competency (Table 6). Intrapersonal emotional competency refers specifically to one's ability to recognize, understand, use and manage one's own emotions and is the second subcategory of emotional intelligence skills. A person with high levels of intrapersonal emotional competency tends to

have a good grasp of their feelings and how these feelings impact their interactions and ability to perform (Applebaum & Hare, 1996); in other words, being self-aware and skilled in self-management. To be self-aware means to have an innate understanding of one's person, including character, emotions, biases, and emotional trigger points, coupled with the ability to apply that knowledge in decision making, reactions, and emotional responses; all of which can inherently impact relationship building and interpersonal interactions.

Several studies support the findings of this study, highlighting a positive relationship between service-learning and the development of intrapersonal skills, specifically noting increased self-awareness (Manring, 2012; Valizadeh, 2016; Long, 2016; Hughes, 2002; Smith et al., 2013), self-efficacy (Astin et al., 2000; Hughes, 2002; Samuels et al., 2016; Seif et al., 2014) and emotional awareness (Royr & Chaturvedi, 2011; Long, 2016). Within the medical field, the importance of being both self- and emotionally aware is paramount in strengthening clinician-patient relationships (Ofri, 2013) and taking a more humanistic approach (Lee et al., 2016; Roskell et al., 2012) to patient care providing personalized, compassionate, empathic, and interdisciplinary treatment plans.

H_4: There is a connection between years of participating in service-learning and the students' emotional intelligence.

The ANOVA results determined there was no relationship between years of previous involvement in service-learning activities and level of emotional intelligence (Table 7). According to Arora et al. (2010), there are conflicting results within the literature on emotional intelligence and years of work experience. However, there seems to be a lack of research that correlates the years of service-learning experience directly with emotional intelligence scoring. Nonetheless, the results were surprising and did not support this study's research hypothesis.

Service-learning is described as a reoccurring, four-step process that results in the creation of new knowledge and transformative learning (Tanner, 2017) for the duration of time the student is actively engaged in the service-learning project. If during each cycle, students are adding to their respective knowledge banks, testing new perspectives, and applying these perspectives to the next concrete experience, one could logically assume that the longer the duration of involvement, the greater the results. Conversely, it is important to keep in mind that the experience alone does not equate to transformational learning. The type of experience, the level of involvement and reflection, and the level of "purposeful and intentional efforts" (Chenerani, 2017, p. 4) can greatly impact the level and depth of learning and personal growth. Similarly, emotional intelligence is described as a skill competency that improves over time and through experience and practice. It is reasonable to assume that the more exposure a learner has to situations in which application of specific skills is required, the more likely it is that the learner's skill level would increase, which does not support this study's findings.

An additional and important consideration regarding the ANOVA results is the disproportionate number of responses received within each of the four conditions (0–>1 year, 1–2 years, 3–4 years, and 5 or more years). The total number of respondents with zero to less than a years' previous service-learning experience totaled 58% of the total number of responses (N=49), with only 4% of respondents having 5 or more years (N=3) which likely influenced the ANOVA results.

Implications

The main findings of this research, the positive and significant relationship between service-learning and emotional intelligence among medical students (Table 4), supports several past studies (Smith et al., 2013; Stewart & Wubbena, 2014; Reynolds, 2005; Manring, 2012; Hegarty & Angelidis, 2015) and adds to the existing body of knowledge. The specific study population, medical students, is an underrepresented population within research into the combination of emotional intelligence and service-learning. As such, this study has the potential to add to the generalizability of the results across disciplines.

This study has several implications as it relates to medical education and the study population, medical students. Medical education's main purpose is to educate and prepare medical professionals with a combination of skills that will enable them to provide holistic and effective patient care. As such, the curriculum should focus on the technical skills needed to identify and treat illness and include the development of a broad range of soft skills to enhance effectiveness.

As a model for professional competence within the field, the Accreditation Council for Graduate Medical Education (ACGME) identified six core competencies (patient care; professionalism; systems-based practice; interpersonal and communication skills; medical knowledge; and practice-based learning and improvement) that should be addressed as part of a medical student's education and before residency. Of the six competencies, four (patient care, interpersonal and communication skills, professionalism have a direct correlation with the development of EI skills, while service-learning has been shown to influence development in all six competencies.

Service-learning itself is grounded in experiential education and highly effective as "a vehicle for both expression and development of emotional intelligence" (Manring, 2012, p. 177). It is an active learning approach that has been highly successful among adult learners, who learn best by doing, and is used across disciplines to enhance in-class learning through real-life application and practice. In past studies, service-learning has been shown to strengthen leadership skills, academic learning, and critical thinking and further develop many of the same skill sets as those outlined by the ACGME and the AMA.

Service-Learning and Core Competencies

Over the past few decades, health care in the United States has been shifting from being disease-centered to more patient-centered. This shift puts a greater focus on a holistic and preventative approach to patient care which requires a deeper understanding and recognition of the individuality and humanity of patients (Roskell et al., 2012). Patient-centered care is a partnership between practitioner and patient requiring strong communication and interpersonal and relationship-building skills. It means treating patients as individuals and not just an illness or disease, which can be difficult for professionals who may have different backgrounds or life experiences than the patients they treat, causing a disconnect that can negatively impact the patient-doctor relationship, and thus patient care.

Research suggests that exposing medical students to situations that actively challenge their suppositions, paired with critical reflection (service-learning), can develop knowledge and attitudes that enhance patient-centered behaviors (Roskell et al., 2012), increasing empathy and strengthening relationship building. Empathy, which has been shown to decrease among medical students as they advance through their years of study (Doherty et al., 2013), requires medical professionals to connect with patients at a level beyond the diagnosis and treatment of an illness.

It requires the recognition, acknowledgment, and appreciation for a patients' experiences, feelings, and suffering and plays an integral role in delivering compassionate and patient-centered care.

Service-learning also has the propensity to greatly impact a learner's intrapersonal skills, increasing their self-awareness in relation to community realties (Smith et al., 2013) and how their own emotions, values, and beliefs can impact decision making. Self-awareness allows medical professionals to relate and empathize with patients, offering a more personal and relevant experience while not being overtaken by their own emotional needs and triggers (Johnson, 2015), which benefits both parties and strengthens the doctor-patient relationship.

Emotions, themselves, are a de facto part of the doctor-patient relationship (Ofri, 2013), and as such, being aware of and managing one's emotions becomes an important skill set to develop and maintain. Emotional self-management, a component of the intrapersonal skill domain, works in unison with self-awareness and includes such competencies as emotional self-control, adaptability, achievement orientation, and a positive outlook (Goleman & Boyatzis, 2017). Emotional control and adaptability are two important skillsets for medical professionals to own, especially during emergency and sometimes emotionally charged situations. Arora et al. (2010) added, "accurately regulating one's emotional response may be important in mitigating the impact of stress and burnout" (p. 760).

The current global pandemic provides a prime example of an emergency and emotionally charged situation that calls upon medical professionals to respond and serve while managing emotions, stress levels, and adapting to ever-changing circumstances. When the Covid-19 pandemic began, little was known about the disease or its treatment and prevention. Medical professionals were expected to continue care, putting themselves and, in some cases, their

families at risk of contracting the virus with little understanding of the nature of the disease and the long-term effects. The news was filled with stories of doctors and nurses unable to return home for fear of infecting families, images of families saying goodbye over smart devices to loved ones surrounded by nurses and doctors, and freezer trucks being filled with bodies because the morgues were full. This sudden onslaught of emotionally charged moments would likely lead the average person to pause, but medical professionals needed to remain vigilant and respond while keeping their emotions and feelings in check to best serve during this time. Not only did they need to manage their own emotions and feelings, but they also needed to be able to recognize, acknowledge and manage those of their colleagues, patients and families, and other stakeholders during this time of unexpected hardship and disruption. Covid-19 and the medical response to it is just one extreme example that demonstrates the importance and relevance of preparing medical students with the emotional competency and adaptability to lead and serve in turbulent times.

By incorporating service-learning into the medical school curriculum, medical schools can offer early career exposure to medical students through immersive community-based service-learning projects that impact health and social justice issues with the communities they serve. Professionalism, interpersonal and communication skills are developed through direct interactions with community members and partner site teams. According to ACGME standards, professionalism requires a commitment to execute all duties of the profession in ethical and respectful ways. Physicians are expected to maintain high levels of respect and integrity while treating diverse patient populations with compassion, dignity, and empathy. Strong interpersonal and communication skills are necessary to do this effectively, specifically in the development of trust and even more so in exchanging information with patients, their families, and colleagues.

As previously mentioned, communication should never be one-sided since it is an exchange of information between two or more people. Medical professions must create an open environment conducive to honest and free flowing conversations, actively listen and practice motivational interviewing to provide the best patient care. They must also offer clear and timely communications, maximizing patient and family understanding of diagnoses, tests, and treatment plans, and communication as part of an interdisciplinary health care team.

Teamwork and communication are also essential in systems-based practice. Doctors do not operate in a vacuum, and medical care today has moved beyond the concept of isolated diagnosis from a solitary practitioner. It has evolved to the development of teams of professionals working together to provide holistic services and care. An interdisciplinary health care team consists of doctors and health care workers and may include social workers, community and social service agencies, and the patients themselves.

Through service-learning activities and community site work, medical students are exposed to and incorporated into interdisciplinary teams. They can observe the various working relationships and understand the intricacies and intersectional roles beyond their future role as a doctor. Depending on the specific project and assigned role, students may serve and gain understanding from the perspective of an advocate, a health educator, or a patient liaison, to name a few. They become aware of and learn to navigate system resources, a component of systems-based practice, while working through the health care macro- (hospital, state, et cetera) and micro-systems (medical school, local clinic, community agency) where they serve.

Similarly, by challenging student thought paradigms, service-learning provides a unique opportunity for students to impartially and critically investigate and evaluate patient care practices and make recommendations for improved practice. As a part of practice-based learning

and improvement, doctors are expected to become life-long learners through research and completing continuing education credits, and also as educators who share learning with patients, patients' families, and others in the field through publications, individual educational sessions, and community education and awareness events. Many service-learning projects are also focused on educational campaigns with community members, patients, and local youth, providing additional early career exposure and preparation for this component of their future role.

Overall, the results of this study show great potential for the use of service-learning as a teaching mechanism within the medical school curriculum as a means of enhancing students' emotional intelligence and further developing the desired skills for professional competence as outlined by ACGME. The range of skills developed, including communication, empathy, interpersonal skills, self-awareness, and teamwork, and the experiences offered through service-learning directly correlate to a medical professional's proficiency in preventative and interdisciplinary practice, holistic patient care, and addressing public health concerns.

Limitations

Although the focus of this study was to determine if service-learning could be used as a teaching mechanism for increasing medical student emotional intelligence, the data collection included only one medical school, thus limiting the generalizability of these results across medical students and schools. However, similar results were found in other disciplines, and the inclusion of this study population does increase the generalizability of service-learning positively increasing emotional intelligence across disciplines. Additional research incorporating other medical schools or national medical student organizations would be beneficial to increase generalizability.

Another limitation of this study was the sample size itself. Although 135 students agreed to participate in the study, only 84 students successfully completed all sections of the survey. In quantitative studies, a larger number of valid respondents tends to strengthen the power of tests.

One major factor that potentially attributed to the limited follow-through and response from the medical student population was the Covid-19 pandemic, which increased remote work and electronic communications. Data collection for this study occurred as schools, including the study site, that were transitioning from onsite to remote learning, resulting in a saturation of electronic communications.

The third limitation of this study specifically applies to Hypothesis #4, the relationship between years of service-learning experience and emotional intelligence. When evaluating the results, it was clear that there was a wide disparity in the sample population as it relates to years of experience, with 58% of respondents reporting zero to less than a year of previous service-learning experience in comparison to the 4% reporting 5 or more years of previous experience. Further research is required to determine the true impact years of experience can have on the development of emotional intelligence.

Notwithstanding these limitations, this study shows a strong relationship between service-learning and emotional intelligence, which is quite promising as medical schools continue to explore different teaching methods and educational strategies that complement technical skills development with the necessary soft skills needed as outlined by the ACGME and AMA.

Recommendations for Future Research

This study investigated the relationship between service-learning and emotional intelligence development in medical students and provided a strong baseline for future research.

Building from this study's findings, additional research incorporating more medical schools and a larger sample population is recommended. Additional results could build up an evidence base for the benefits of incorporating service-learning into medical education to better achieve required competencies and EI-related skillsets and potentially increase generalizability across the discipline.

Exploring additional methods and measures, including a longitudinal study, utilizing a pre- and post-survey response following the same population of students from the start of their service-learning participation to completion (usually about 18 months), is also recommended as there is a noticeable gap within the literature. Longitudinal studies can be beneficial in helping educators determine the long-term impact of service-learning and potentially identify effective programs and interventions that can be used as a model within medical education.

Additionally, further research on the relationship between years of service-learning and a students' level of emotional intelligence (H4) is also recommended, as the results of the ANOVA within this study was likely influenced by the disproportionate number of responses within each condition. Increasing the number of respondents could help to minimize the large disparity between conditions and provide stronger results. There also appears to be a gap in the literature as it relates to the impact years of service learning has on an individuals' level of emotional intelligence.

Conclusion

Emotional intelligence has been "widely acknowledged as a core element of professional values, attitudes, beliefs, as well as of humanistic approaches to professional activities – counseling, patient management, and communication. It is also recognized as an essential aspect of professional well-being and patient satisfaction" (Naughton & LeBlanc, 2012). As such, it is

clearly evidenced in the literature that emotional intelligence is a necessary skill to be an effective health care practitioner (Arora et al., 2010; Farr, 2015; Levinson et al., 2010) in the 21st century. What is not equally apparent is the intentional incorporation of effective educational strategies focused on developing emotional intelligence rather than its being tangential to the technical skills training offered in medical schools. The results of this study support the idea that the intentional incorporation of service-learning into the medical school curriculum is one teaching strategy that has the potential to enhance medical student emotional intelligence, which longitudinally can have a profound impact on the health care industry, particularly on the patient-doctor relationship, interdisciplinary practice (teamwork) and patient care.

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APPENDIX 1A

BIOGRAPHICAL AND DEMOGRAPHIC SURVEY FOR 1ST YEAR STUDENTS

1. I am currently enrolled as a student at Albert Einstein College of Medicine in the following program:

- o MD
- o PhD
- o MD/PhD
- o Post Bacc

2. Biological Gender:

- o Male
- o Female

3. Age Range

- o 18–25
- o 26–35
- o 36–45
- o 46–55
- o 56 and above

4. I am interested in being involved in Community Base Service Learning projects while at Einstein:

- o Yes
- o No

5. Have you been involved in Community Based Service Learning programs prior to your enrollment at Albert Einstein College of Medicine? (For the purpose of this study community based service learning is defined as a service activity correlated to a formalized academic program or assignment).

- o Yes
- o No

6. If you have been involved in service learning before, what was the duration of your involvement? If you have not, please mark not applicable.

- o Less than a year
- o 1–2 years
- o 3–4 years
- o 5 or more years

APPENDIX 1B

BIOGRAPHICAL AND DEMOGRAPHIC SURVEY FOR 3RD YEAR STUDENTS

1. I am currently enrolled as a student at Albert Einstein College of Medicine in the following program:

- o MD
- o PhD
- o MD/PhD
- o Post Bacc

2. Biological Gender:

- o Male
- o Female

3. Age Range

- o 18–25
- o 26–35
- o 36–45
- o 46–55
- o 56 and above

4. I am/was involved in one or more of the following Community Based Service Learning projects while at Einstein: AIRE, BODY, BOLD, Buddies, Ei-Sci, Echo After School, Echo Clinic, E-FAM, Hoops4 Health, SMART, START, HEART, TEACH.

- o Yes
- o No

5. Have you been involved in Community Based Service Learning programs prior to your enrollment at Albert Einstein College of Medicine? (For the purpose of this study community based service learning is defined as a service activity correlated to a formalized academic program or assignment).

- o Yes
- o No

6. If you have been involved in service learning before, what was the duration of your involvement? If you have not, please mark not applicable.

- o Less than a year
- o 1–2 years
- o 3–4 years
- o 5 or more years

APPENDIX 2

THE PROFILE OF EMOTIONAL COMPETENCE (PEC)

Note for the readers: items are presented in a random order

The questions below are designed to provide a better understanding of how you deal with your emotions in daily life. Please answer each question spontaneously, taking into account the way you would normally respond. There are no right or wrong answers.
For each statement, you are asked to give a score on a scale from 1 to 5 reflecting on how true this statement represents you.

STATEMENTS:	1 never true for me	2 rarely true for me	3 sometimes true for me	4 mostly true for me	5 Always true for me
1. As my emotions arise, I don't understand where they come from.					
2. I don't always understand why I respond in the way I do.					
3. If I wanted, I could easily influence other people's emotions to achieve what I want.					
4. I know what to do to win people over to my cause.					
5. I am often at a loss to understand other people's emotional responses.					
6. When I feel good, I can easily tell whether it is due to being proud of myself, happy or relaxed.					
7. I can tell whether a person is angry, sad or happy even if they don't talk to me.					
8. I am good at describing my feelings.					
9. I never base my personal life choices on my emotions.					
10. When I am feeling low, I easily make a link between my feelings and a situation that affected me.					
11. I can easily get what I want from others.					
12. I easily manage to calm myself down after a difficult experience.					

13. I can easily explain the emotional responses of the people around me.					
	1 never true for me	2 rarely true for me	3 sometimes true for me	4 mostly true for me	5 Always true for me
14. Most of the time I understand why people feel the way they do.					
15. When I am sad, I find it easy to cheer myself up.					
16. When I am touched by something, I immediately know what I feel.					
17. If I dislike something, I manage to say so in a calm manner.					
18. I do not understand why the people around me respond the way they do.					
19. When I see someone who is stressed or anxious, I can easily calm them down.					
20. During an argument I do not know whether I am angry or sad.					
21. I use my feelings to improve my choices in life.					
22. I try to learn from difficult situations or emotions.					
23. Other people tend to confide in me about personal issues.					
24. My emotions inform me about changes I should make in my life.					
25. I find it difficult to explain my feelings to others even if I want to.					
26. I don't always understand why I am stressed.					
27. If someone came to me in tears, I would not know what to do.					
28. I find it difficult to listen to people who are complaining.					
29. I often take the wrong attitude to people because I was not aware of their emotional state.					
30. I am good at sensing what others are feeling.					
31. I feel uncomfortable if people tell me about their problems, so I try to avoid it.					

32. I know what to do to motivate people.					
33. I am good at lifting other people's spirits.					
34. I find it difficult to establish a link between a person's response and their personal circumstances.					
	1 never true for me	2 rarely true for me	3 sometimes true for me	4 mostly true for me	5 Always true for me
35. I am usually able to influence the way other people feel.					
36. If I wanted, I could easily make someone feel uneasy.					
37. I find it difficult to handle my emotions.					
38. The people around me tell me I don't express my feelings openly.					
39. When I am angry, I find it easy to calm myself down.					
40. I am often surprised by people's responses because I was not aware they were in a bad mood.					
41. My feelings help me to focus on what is important to me.					
42. Others don't accept the way I express my emotions.					
43. When I am sad, I often don't know why.					
44. Quite often I am not aware of people's emotional state.					
45. Other people tell me I make a good confidant.					
46. I feel uneasy when other people tell me about something that is difficult for them.					
47. When I am confronted with an angry person, I can easily calm them down.					
48. I am aware of my emotions as soon as they arise.					
49. When I am feeling low, I find it difficult to know exactly what kind of emotion it is I am feeling.					

50. In a stressful situation I usually think in a way that helps me stay calm.					

Brasseur S, Grégoire J, Bourdu R, Mikolajczak M (2013) The Profile of Emotional Competence (PEC): Development and Validation of a Self-Reported Measure that Fits Dimensions of Emotional Competence Theory. PLoS ONE 8(5): e62635. doi:10.1371/journal.pone.0062635

APPENDIX 3

INVITATION TO PARTICIPATE E-MAIL

Dear Prospective Research Participant:

My name is Alicia Martinez and I am a student in the Educational Doctorate in Higher Education program at Saint Peter's University, located in Jersey City, NJ. I am asking for your participation in a research study investigating the relationship between Emotional Intelligence and Service Learning within Medical Education. The research is important in understanding the potential impact service learning has on emotional intelligence among the medical student population.

The study will be available for completion beginning August 15, 2020 and will close on August 30, 2020. Participation in this study involves completion of an online survey and will take between 20–30 minutes to complete. There are no right or wrong answers, just your opinion. Completion of the survey is completely voluntary and anonymous. You are free to withdraw your participation at any time. No names or other personal identifiers will be requested on the survey. You must however, be 18 years or older and able to provide consent.

In this study, there are no known economic, legal, physical, or social risks to participants in either immediate or long-range outcomes. Due to the length of the survey (17–25) minutes, there is the possibility of boredom. To alleviate this risk, participants can complete the survey in multiple sittings within the stated window of completion. If you have any questions about your participation in this research, I can be reached via email at Aliciav.Martinez@gmail.com.

Thank you for your time and consideration regarding participation in this study.

APPENDIX 4

SURVEY COVER LETTER

Dear Research Participant,

Thank you for taking the first steps in participating in this research project on the relationship between Service Learning and Emotional Intelligence in medical education. Your time and assistance is greatly appreciated. As was shared in the invitation email, this study is completely voluntary and participation is anonymous. No personally identifiable information will be requested of you and you can withdraw your consent to participate at any time.

Before proceeding, please confirm the following:

1. You are 18 years old or older and able to provide consent.
2. You are currently enrolled as a student at Albert Einstein College of Medicine.

The study is divided into two parts. First, you are asked to read this cover letter, which if you made it this far is almost complete (2–5 minutes). At the bottom of this letter you will be asked to confirm or deny participation in the study, which represents your informed consent. The second part of the study requires the completion of a two-part survey.

Part One: You will be asked some basic, non-identifiable, biographical information like gender, age range etc. This portion of the survey will take approximately 2–5 minutes.

Part Two: Requires that you read a series of statements related to Emotional Intelligence and rate veracity of these statements in relation to you. This part will take approximately 15–20 minutes. In total, all three parts should take between 17 and 25 minutes to complete.

Remember, there are no right or wrong answers, just your opinion.

Please read the statement below and check the appropriate box.

I have read and understand the purpose of this survey.

[ ] I agree to participate. [ ] I do not agree to participate.