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THE JOURNAL OF SERVICE-LEARNING IN HIGHER EDUCATION IS AN ONLINE, INTERNATIONAL, PEER-REVIEWED JOURNAL FOR THE DISSEMINATION OF ORIGINAL RESEARCH REGARDING EFFECTIVE INSTITUTIONAL-COMMUNITY PARTNERSHIPS. OUR PRIMARY EMPHASIS IS TO PROVIDE AN OUTLET FOR SHARING THE METHODOLOGIES AND PEDAGOGICAL APPROACHES THAT LEAD TO EFFECTIVE COMMUNITY-IDENTIFIED OUTCOMES. THE JOURNAL OF SERVICE-LEARNING IN HIGHER EDUCATION IS A SUBSCRIPTION-FREE JOURNAL WITH A REVIEW BOARD MADE UP OF VARIOUS ACADEMIC DISCIPLINES OF THE MEMBER INSTITUTIONS OF THE UNIVERSITY OF LOUISIANA SYSTEM AS WELL AS OTHER NATIONALLY AND INTERNATIONALLY ACCREDITED COLLEGES AND UNIVERSITIES AND AFFILIATED ORGANIZATIONS

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A Faculty-Friendly Framework for Improving Teaching and Learning through Service-Learning

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Abstract

This manuscript highlights benefits of service-learning (SL) as a promising pedagogical approach to improving teaching and learning in college classrooms. Drawing on the collective experiences of integrating SL projects in university courses, the authors share a framework aimed at assisting faculty in higher education in designing, implementing, and evaluating SL projects across diverse higher education courses. A case example illustrating how SL projects can be infused in a graduate course is offered, and recommendations are provided for faculty who wish to integrate SL projects with the goal of improving teaching and learning in their college courses.

Service-learning (SL) is increasingly being adopted into higher education programs (Deck, Conner, & Cambron, 2017). In the review of the literature regarding SL and its impact on teaching and learning, the authors found both positives and negatives. The authors found that higher education faculty have a good working knowledge of SL and how it can be used to enhance teaching and learning. Indeed, ample resources exist including a clearinghouse on SL (National Service-learning Clearinghouse, 2016); several journals devoted to the dissemination of SL policy, research, and best practice findings; as well as an array of how-to resources that provide guidance to faculty who wish to incorporate SL projects and activities in their higher education courses.

Unfortunately, higher education faculty, for various reasons, do not always take advantage of the resources available to improve teaching and learning through SL. Sivalingam and Yunus (2017) noted that service-learning provides a platform that connects the real-world, community-based experiences necessary for 21st century learners. While faculty may view such learning approaches as effective, they may not employ them in their classrooms.

Service-learning has been defined in various ways by numerous experts in the field. These definitions share important core ingredients, which emphasize the application of what students learn in the classroom to solving critical challenges, issues, or problems in the real-world. One of the most commonly used definitions adopted by faculty in higher education comes from the National Service-Learning Clearinghouse (2016),is a publicly funded resource. Seifer and Connors (2007) define SL as:

> A teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities. Service-learning is a structured learning experience that combines community service with preparation and reflection. Service-learning provides college and university students with a 'community context' to their education, allowing them to connect their academic coursework to their roles as citizens. (p. 5).

For purposes of this manuscript, SL is defined as an approach to teaching that meaningfully integrates classroom instruction with practical community service. This approach to teaching promotes student engagement in learning through critical thinking and reflection while encouraging a heightened sense of civic engagement and personal responsibility.

Benefits of Service-Learning

Research indicates that students who engage in SL projects that allow them to collaborate, work on authentic problems, and engage with the community do better academically than students who participate in conventional lecture-based classrooms (Flinders, 2013; Hart, 2018; Lee, Blackwell, Drake, & Moran, 2014; McWhorter, Delello, & Roberts, 2016). These benefits extend to faculty as well, as it provides them with opportunities for greater collaboration and teamwork with students and community partners. It is important for faculty to frame efforts in service-learning as an opportunity for students to engage in meaningful interactions with those from other cultures and communities (Watson & Reierson, 2017). They further recommend that a culture of inquiry should be fostered to encourage students to think about their own process of thinking while engaged in their work, and to monitor their own understanding and progress toward learning goals.

Loes and Pascarella (2017) reported that student engagement, especially engagement outside of the classroom, significantly affects the development of critical thinking and collaborative learning. In other words, engagement with people and situations that are different are positively associated with critical thinking skills growth. Additionally, in their meta-analyses of research on how higher education affects students, they report that most of the evidence about how to improve critical thinking skills is beyond the scope of what faculty do in the classroom. These findings are supported by researchers who found that the most important motivator for students is when they know they are learning content and skills that will be important in life (Brail, 2016).

Deck, Conner, and Cambron (2017) noted the positive impact of SL on students' understanding of social issues, personal insight, a connection from research to practice, and an understanding of curriculum integration. The students' frame of reference used to guide decision making in complex social issues as well as their individual perception of self were changed in regards caring for a vulnerable population. Students' cognitive abilities were further developed as they had an increase in self-efficacy.

The above findings are consistent with the Boyer Model of Scholarship (1990), which encourages faculty to engage in various forms of scholarship, including the scholarship of discovery, scholarship of integration, scholarship of application, and scholarship of teaching. Boyer maintained that if universities are to continue advancing forward, a new vision of scholarship is required simply because research alone will not secure the future of higher education, nor the country at large. Boyer argued that while discovery research is central to academic life, faculty also need to engage in the scholarship of integration, the process of making connections within and across disciplines; the scholarship of application, which focuses on discovering how the university can assist with societal challenges, issues, or problems; and, the scholarship of teaching, where students are enlightened to comprehend, synthesize, and make sense of information from the classroom and the real-world. Service-learning provides an opportunity to accomplish this.

Development of a Faculty-Friendly Service-Learning Framework

In a review of the literature, various logic models, or frameworks, were available to assist faculty in integrating SL projects across their higher education classrooms (Cone & Harris, 1996; Kolb, 1984). These frameworks differ in various ways depending on the discipline, type of projects, and related matters. For example, Lowery (2006) proposed a logic model to support SL as a community engagement pedagogy. Other logic model examples include a 4-H Citizenship Logic Model-Service by Schillings and Fox (n.d.), that teach about the environment through SL (Jens, 2009), and a model illustrating cooperation between schools and communities using SL (The Rural School and Community Trust, 2004).

For purposes of this manuscript, the authors used insights from existing literature relative to SL to develop a generic framework to assist faculty across the disciplines in designing, implementing, and evaluating SL projects within their programs, curricula, and classrooms. The faculty members proposed a framework also informed by the collective knowledge and experiences with infusing SL projects and activities across various disciplines within diverse courses.

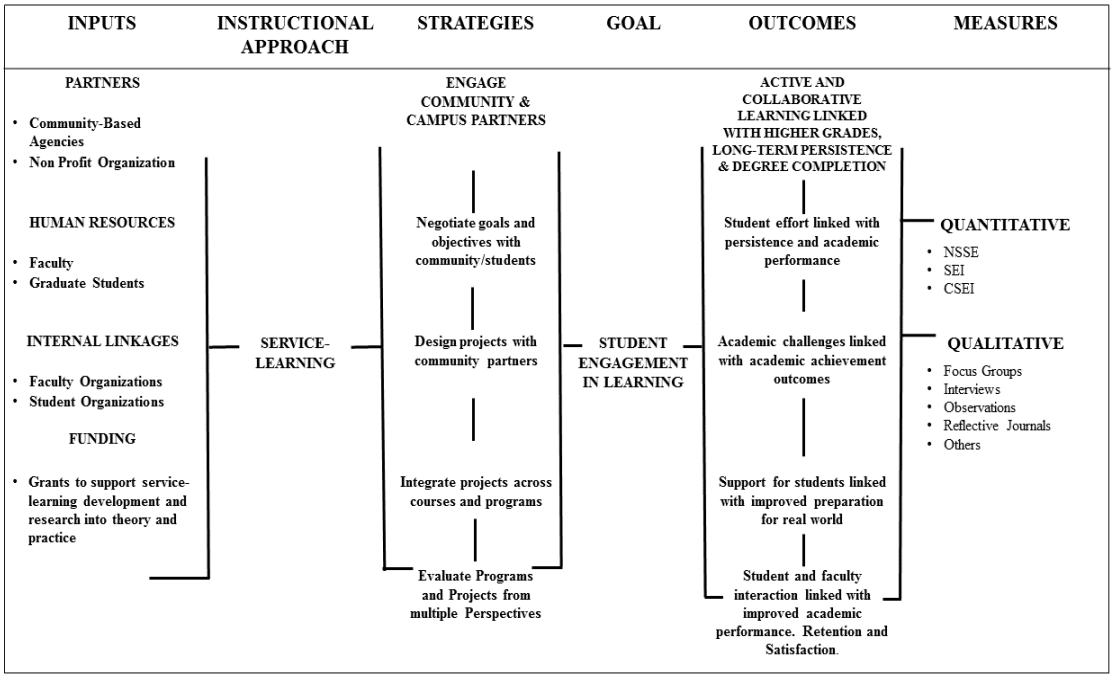
In support of its commitment to SL, the university created a Center for Teaching Excellence and Innovation whose central goal is to advance teaching and learning within the university. Through this SL initiative, the university utilizes a team of Faculty Fellows who provide resources and guidance to foster the development of SL within the university. Faculty members affiliated with different disciplines across the university utilize various SL projects aimed at engaging students, faculty, and members of the community in a mutually beneficial learning experiences.

One example of a SL initiative includes undergraduate students enrolled in a Community Health course. The students engaged in indigent care provided by a non-profit, faith-based organization that provides medical care for clients without health care resources. Family nurse practitioner students take this experience to a more complex level as they practice diagnostic skills with a local health care provider at the clinic. In an on-line survey to nursing programs who were members of the American Association of Colleges of Nursing, Fountain, Toone, and Deal (2016) found that faith-based organizations are a valuable community partner for students to observe and participate in the care of a diverse patient population.

Also, a literacy intervention where trained pre-service teacher students enrolled in a reading assessment course served as literacy tutors in a local area school (Mokhtari, Neel, Kaiser, & Le, 2015), and another SL project included a workforce development project where online graduate students volunteered for nonprofit organizations in their community to apply business course knowledge in real-world settings that benefit both students and organizations served.

The framework, depicted in Figure 1, provides an outline of inputs, instructional approaches, strategies, goals, desired outcomes, and suggested associated measures.

Figure 1. A Framework for Infusing Service-Learning in Higher Education



The proposed framework is designed to be flexible to allow faculty to design service-learning projects that best fit their discipline, instructional approach, and other idiosyncrasies. In the next section of the manuscript, the authors provide an example of the application of the framework in a graduate business course in higher education. This framework could then be used to infuse SL projects across various higher education classrooms.

Case Example

To demonstrate the utility of the SL Framework (see Figure 1), the authors will provide a case example. One graduate business course on workforce development in a regional university in the southwest USA is the context of the case. The students completed a module on SL that included volunteer hours in their community. The purpose was to engage students in an online course using a SL model. This would focus on giving back to the community so students were able to gain knowledge as to how non-profits are volunteer-driven and need appropriately trained volunteers, a parallel application to human resources development, and the focus of the course. A growing number of business schools are turning to SL as an educational pedagogy, and an opportunity to connect business students to the community is highly valued (Snell et al., 2015; Holmlund, Kowalkowski, & Biggemann, 2016). The case study below highlights six components if the SL framework, which help guide the infusion of SL across higher education courses.

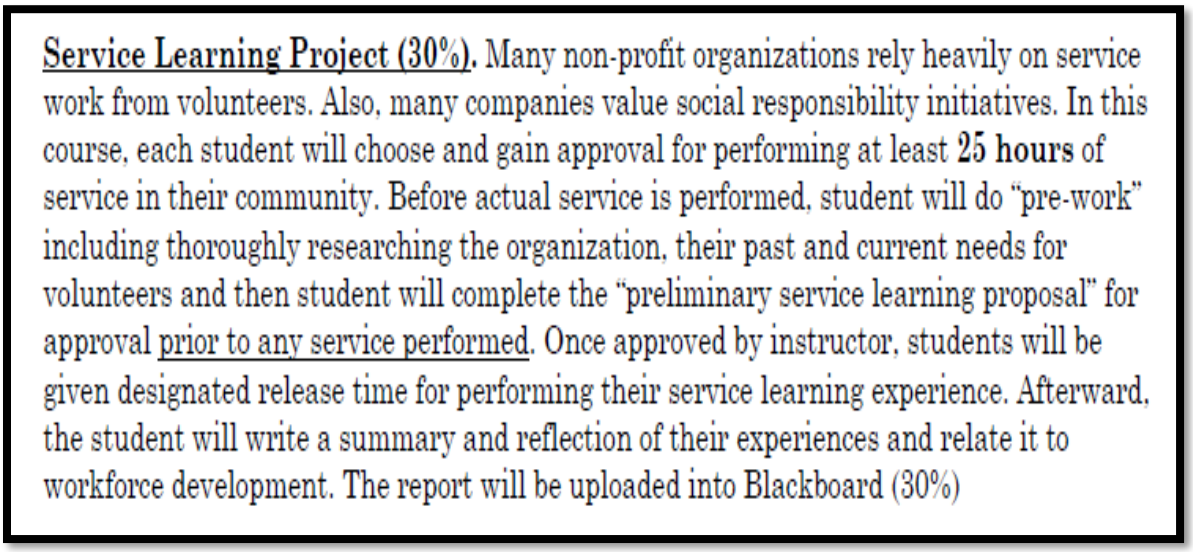
Inputs

This case example involved pairing a total of 31 nonprofit organizations in the community selected by the graduate students. Because the course was taught online, the students' "community" was defined by the geographical community where each of the graduate students resided. Therefore, the primary inputs for this case study are the nonprofit organizations chosen by the graduate students for their SL experience. Each student proposed the organization, conducted background research including meeting with the volunteer coordinator, and kept a log of their activities at the nonprofit organization.

Instructional approaches. For this course, SL was the chosen instructional approach. SL is a form of experiential instruction where students have a sense of belonging, develop competencies, and promote civic responsibility with benefits to the broader social, economic, and political contexts (Sabo et al., 2015).

Strategies. In this case, the graduate students selected a non-profit organization in their community, met with their organization, and together defined the objectives that would be accomplished. The student then completed a three-page proposal template that included the background of the community partner, proof of their nonprofit status, stated the objectives the volunteer coordinator agreed upon, and included a timeline of completing a minimum of 25 hours during a 4-week window of time given by the course instructor. This comprised 30% of the overall grade in the course. Figure 2 depicts the description of the project as outlined in the course syllabus.

Figure 2. Service-Learning Assignment Described in Course Syllabus


Service Learning Project (30%). Many non-profit organizations rely heavily on service work from volunteers. Also, many companies value social responsibility initiatives. In this course, each student will choose and gain approval for performing at least **25 hours** of service in their community. Before actual service is performed, student will do "pre-work" including thoroughly researching the organization, their past and current needs for volunteers and then student will complete the "preliminary service learning proposal" for approval prior to any service performed. Once approved by instructor, students will be given designated release time for performing their service learning experience. Afterward, the student will write a summary and reflection of their experiences and relate it to workforce development. The report will be uploaded into Blackboard (30%)

Goal, Outcomes, and Measures. The instructor defined the primary goal of the SL project to be student engagement and persistence in completing the online graduate course which aligned with the framework (see Figure 1). In addition, the focus on outcomes was centered on (1) student learning for real-world applications such as networking with leaders at the non-profit organization that provided additional support for student learning, (2) developed understanding of training methods for volunteers which are the workforce in a non-profit organization, and (3) overall satisfaction with the course. The primary measure of the identified outcomes of the course were students' SL project reports and reflection logs. See Table 1 depicting the application of the framework to this graduate business course.

Faculty Reflection. The faculty member who designed the SL project related that they were pleased with the overall design and outcomes of the project and were a good fit for the course. One area for improvement that the faculty member planned for the following semester was a personalized email to the volunteer coordinator at the non-profit organization describing the project and providing contact information to them in the event there were questions or concerns about the new initiative sponsored by the regional university. All feedback received from the nonprofit community partners would be assessed to determine if further revisions to the project might be needed.

Table 1. Application of the Service-Learning Framework to Community-Based Projects in Three University Colleges

Inputs	Instructional Approaches	Strategies	Goals	Outcomes	Measures
Nonprofit Organizations	Service Learning	Collaborating with a community organization on improving the quality of life for all citizens.	Student Engagement in Learning	Various mutual benefits for students and community members	Qualitative and quantitative measures
A Local Faith-based organization working in collaboration with the university's College of Nursing & Human Sciences	Community-based health services	Community health undergraduate students observe indigent care provided by a faith-based organization. Family Nurse Practitioner students work alongside healthcare workers to provide care.	Student Engagement in Learning Exposure to health care delivery in different environments	Gaining real-world experience in providing health care services to client's without insurance and resources	Enhanced knowledge and skills re: indigent care for community nursing students. Improved health outcomes for clients without health care resources.
A local area school partnering with the university's School of Education	In-school literacy tutoring	University trained pre-service teachers enrolled in a reading assessment course serve as literacy tutors in local area school.	Student Engagement in Learning	Gaining practical experiences in diagnosing reading problems and designing instruction aimed at addressing these problems.	Enhanced instructional practices for tutors. Improved reading and writing skills for early grade students.
A non-profit community organization working in collaboration with the university's College of Business & Technology	Service-Learning	Volunteering to experience life in a non-profit organization		Gaining real-world applications; networking with non-profit organization leaders.	Enhanced awareness of how non-profit organizations work for graduate students. Free labor for non-profit organization.

Recommendations

Service-learning involves 'learning through doing' and has many benefits. The authors proposed a faculty friendly framework, *A Logic Model for Infusing Service-learning in Higher Education* that can be used in a variety of courses or for projects to accomplish desired outcomes through SL. Based on this experience, the authors identified four recommendations.

Recommendation #1. *Clearly Define and Embrace Service-learning*. Once the institution has established a definition of SL, embrace the opportunity to challenge the traditional pedagogical approach. Do not be afraid to integrate SL into your curriculum. Faculty can find SL opportunities through networking and being aware of what community services are available. Teaching can extend beyond the classroom thus expanding the students' learning opportunities from a conventional didactic delivery to more of a holistic, global approach. Service-learning activities offer students an opportunity to engage in the cultural, social, and economics of the real word, while at the same time, instilling an appreciation and the necessary preparation for entry into the workplace. Service-earning is one tool that can be effectively implemented to bridge the gap between theory and practice.

Recommendation #2. *Develop a Strategy for Implementing Service-learning within your College Classroom or Program*. Include a clear description of the service component in the course syllabi, along with a rationale of short and long-term benefits. Consider including a reflection piece for students to actively engage in self-reflection and critical appraisal of the experience. To aid in this discovery, it is recommended to consider using a SL framework, such as the LEARN faculty-friendly framework, to assist with the implementation of such valuable learning experiences in which students engage in community and or civic projects to enhance critical thinking, reflection, as well as a sense of personal responsibility. In line with Boyer's Model of Scholarship (1990), embracing the scholarship of discovery, integration, application and teaching to provide students with a rich learning experience may better prepare the future generation.

Recommendation #3. *Consider Adapting Rather than Adopting This Service-learning Framework to Best Fit Your Teaching and Learning Needs.* While universities share much in common with respect to their missions and goals, they do differ in various ways with respect to how they operationalize and organize instruction across departments and colleges, whether they have special programs in place to support collaboration with area schools and communities, how they deliver courses, programs, and other student and faculty support services. Therefore, the authors recommend that faculty adapt the LEARN model when infusing SL projects within college classrooms and programs. The sample service-learning projects outlined in Table 1 provide basic guidelines for infusing service-learning projects across courses and programs. The faculty-friendly framework can easily be adapted to any course to develop or institute a holistic approach to SL where students can LEARN, or learn, engage, appreciate, reflect, and network.

Recommendation #4. *Consult Available Service-learning Resources When Infusing Service-Learning Projects Across Courses and Programs*. A rich array of excellent resources and materials exist to assist faculty in initiating service-learning projects across their courses and programs. The authors suggest that faculty start with the National Service-Learning Clearinghouse, which provides an array of policy, research, and best practices relative to SL. As well, a number of universities have excellent service-learning offices, where faculty can find additional resources regarding service and civic engagement on college campuses. These resources will set the stage for a successful beginning when developing SL projects.

Conclusion

SL is a promising educational pedagogy in higher education. It is increasingly being adopted into higher education programs, and a faculty-friendly approach to SL may be a useful tool for faculty members considering the introduction of this pedagogical strategy into their curriculum. Through exploring the literature and completing a Logic Model, the LEARN Model

was developed, a case study provided based on an online business course, and four recommendations were offered. Faculty members are encouraged to explore the LEARN Model and consult available resources as they turn to SL for educating their students in an engaged manner for the 21st century.

References

Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate*. Princeton, N.J.: Carnegie.

Brail, S. (2016). Quantifying the values of service learning: A comparison of grade achievement between service-learning and non-service-learning students. *International Journal of Teaching and Learning in Higher Education, 28*(2), 148-157.

Cone, D., & Harris, S. (1996). Service-learning practice: A theoretical framework. *Michigan Journal of Community Service-learning, 3*(1), 31-43.

Deck, S., Conner, L., & Cambron, S. (2017). Students' perceptions of service-learning in an advanced research course. *Advances in Social Work, 18*, 456. doi: 10.18060/21548

Flinders, B. (2013). Service-learning pedagogy: Benefits of a learning community approach. *Journal of College Teaching & Learning, 10*(3), 159-164.

Fountain, R. P., Toone, A. R., & Deal, B. J. (2016). Nurse educator perceptions of faith-based organizations for service-learning. *Journal of Christian Nursing, 33*(2), 102-107.

Hart, S. D. (2018). Engaging students through service-learning in a professional nursing course. *Journal of Service-Learning in Higher Education, 7*(1). Retrieved from http://journals.sfu.ca/jslhe/index.php/jslhe/article/view/135

Holmlund, M., Kowalkowski, C., & Biggemann, S. (2016). Organizational behavior in innovation, marketing, and purchasing in business service contexts - an agenda for academic inquiry. *Journal of Business Research, 69*(7), 2457-2462. doi: 10.1016/j.jbusres.2016.02.014

Jens, J. (2009). Teaching about the environmental through service-learning activities: Logic Model. *Division of Cooperative Extension of the University of Wisconsin Extension*. Retrieved from https://fyi.extension.wisc.edu/programdevelopment/files/2016/03/LogicmodelEnvironmentalactivitiesJJens.pdf

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development.* Englewood Cliffs, N.J.: Prentice-Hall.

Lee, J. J., Blackwell, S. B., Drake, J. J., & Moran, K .K. (2014). Taking a leap of faith: Redefining teaching and learning in higher education through project-based learning. *Interdisciplinary Journal of Problem-Based Learning, 8*(2), 1-17.doi: 10.7771/1541-5015.1426.

Loes, C., & Pascarella, E. (2017). Collaborative learning and critical thinking: Testing the link. *Journal of Higher Education, 88, 726-753.*

Lowery, D., May, D. L., Duchane, K. A., Coulter-Kern, R., De'Bryant, Morris, P. V., Pomery, J. G., & Bellner. M. (Spring 2006). A logic model of service-learning: Tensions and issues for further consideration. *Michigan Journal of Community Service Learning*, 47-60. Retrieved from http://files.eric.ed.gov/fulltext/EJ843842.pdf

McWhorter, R. R., Delello, J. A., & Roberts, P. B. (2016). Giving back: Exploring service-learning in an online learning environment. *Journal of Interactive Online Learning, 14*(2). Retrieved from http://www.ncolr.org/jiol/issues/pdf/14.2.3.pdf

Mokhtari, K., Neel, N., Kaiser, K., & Le, H. H. (2015). Assessing the promise of a supplemental reading intervention program for at-risk first grade students in a public school setting. *International Electronic Journal of Elementary Education*, 7(3), 281-300.

National Service-learning Clearinghouse. (2016). *Find resources*. Retrieved from https://community-wealth.org/content/national-service-learning-clearinghouse

Sabo, S., de Zapien, J., Teufel-Shone, N., Rosales, C., Bergsma, L., & Taren, D. (2015). Service learning: A vehicle for building health equity and eliminating health disparities. *American Journal of Public Health, 105*(1), S38-S43. doi: 10.2105/AJPH.2014.302364

Schillings, K., & Fox, J. (n.d.). *4-H Citizenship Logic Model-service*. Retrieved from https://extension.purdue.edu/hub/wp-content/uploads/2018/08/CITIZENSHIP-Service.pdf

Seifer, S. D., Connors, K. (2007). *Faculty toolkit for service-learning in higher education*. Scotts Valley, CA: National Service-Learning Clearinghouse.

Sivalingam, P., & Yunus, M. M. (2017). Nurturing 21st century skills through service learning: From isolation to connection. *PEOPLE: International Journal of Social Science, 3*(1), 346-356. doi: 10.20319/pijss.2017.31.346356

Snell, R. S., Chan, M. Y. L., Ma, C. H. K. & Chan, C. K. M. (2015). Developing civic-mindedness in undergraduate business students through service-learning projects for civic engagement and service leadership practices for civic improvement. *Asian Journal of Business Ethics, 4*(1), 73-99. doi: 10.1007/s13520-015-0044-0

The Rural School and Community Trust. (2004). *Learning with a purpose: A logic model.* Retrieved from http://www.ruraledu.org/user_uploads/file/LPP_LOGIC_MODEL.pdf

Watson, B., & Reierson, F. (2017). Best practice in international service learning (ISL): Aspects of risk and impact. *TEACH Journal of Christian Education, 11*(1), 29-36.

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A Storm called Erika: Lessons from a service-learning, community-based psychosocial support post disaster response

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Abstract

This paper examines students' experiences as a post disaster response in the Caribbean. The examination of reports of graduate Psychology and Social Work students, a Social Work Practitioner and programme staff of the Dominica Social Welfare Division who were involved in the University of the West Indies' (UWI) Service-Learning programme, the Caribbean Internship Programme (CIP), provides critical considerations for service-learning as a model to be utilised in the future.

The study revealed the following:

* the experience of severe hazardous events has redefined the types of support needs of the Dominica Social Welfare Division. This will impact the nature of the partnership between the Division and the UWI/CIP

* grassroots community-based agency prompts the propensity for mutual support and regional integration

* pre-disaster preparation dynamics must be understood for there to be effective post disaster recovery responses

* the need for greater collaboration in revising the social work programme curriculum to meet the changing needs of organisations facilitating service-learning

The Caribbean, with an estimated population of 37.5 million people, is prone to natural hazards such as tropical storms, earthquakes and hurricanes all of which have intensified since the destructive effects of Hurricane Ivan in 2004 (Macpherson, Ackpinar-Elci and Ford 2013 p. 1). Consequently, the Caribbean can no longer remain on the periphery of the global warming discourse given the impact of climate change which will be "felt more" by Small Island Development States (SIDS) with their social, economic and geographic susceptibilities (Benjamin 2010, p. 78).

Notably, "natural and human-made disasters" weaken "human capabilities" and jeopardize "human development" particularly for the poor and vulnerable (Caribbean Human Development Report 2016 p. 7). Historically, people prepare every year for "something" to happen yet, according to Benjamin (2010) SIDS are "largely ill-equipped to deal effectively with the problem of climate change" (p.79). The demand will be for policies to address both "domestic growth and development" since climate change is a developmental as well as an environmental concern (Benjamin 2010 p. 88).

The Caribbean Human Development Report (CHDR 2016) indicated that in 2009, of the population in Dominica, 28.8 percent were poor (p. 102). Furthermore, Government's revenue is largely dependent on agriculture, export of services and its promotion of (nature tourism) services (World Bank

Report 2010) which can be significantly affected by natural hazards particularly when they overwhelm the nation's ability to adequately respond to their occurrence. In addition to Dominica's GDP being susceptible to climate change, storms and hurricanes are projected to cause destructive impacts to agriculture, tourism, land, housing and infrastructure (Benjamin 2010 p.81). These impacts were evident in Dominica in 2015 after Tropical Storm (TS) Erika as the country experienced negative growth of - 0.3 percent of its real GDP (IMF 2015 p.1, CHDR 2016, p.140).

It is at this juncture that regional support initiatives like the Caribbean Internship Programme (CIP) become a critical resource for a national response to local risks and challenges. Recent experiences of severe natural hazards, particularly in the Eastern Caribbean have also highlighted the value of regional partnerships as an essential prong in the response to the local effects of disasters.

Apart from the challenges of managing the effects of change in global weather patterns, there are other experiences such as the negative impact of globalization which have affected the growth of economies. Additionally, structural adjustment programmes of the International Monetary Fund (1MF) have encouraged significant cuts to public services to the poor while the emigration of its educated workforce has led to the loss of valuable human capital (Shillingford 2013, pp. 147-148). This is, in part, the rationale which led to the development of the Caribbean Internship Project in 2003 which evolved into a multidisciplinary service-learning model programme. The University of the West Indies' Caribbean Internship Programme (CIP) provides support to various governmental and non-governmental organisations in the region primarily through the assignment of graduate level trained interns from the University with the nature of the assignment of interns determined by the agency in the host country.

Dominica has consistently engaged the CIP for support in the provision of services to families and communities. However, as the impact of climate change became more real, efforts have been directed at recovery and the building of local resilience. While governments' support to disasters have characteristically favoured infrastructural and economic assistance (Dash 2009) the CIP partnership plugs the gap in services addressing individual and community psychosocial needs. This ~~is~~ generally accomplished through the provision of psychological support and enhancing community capacity for self-support.

The advent of Tropical Storm (TS) Erika in 2015, not only resulted in significant infrastructural damage, but also an increase in the number of persons reported as experiencing psychological stress and an increase in demand for the services provided by agencies like the Welfare Division of the Ministry of Social Services, Family and Gender Affairs (O. Wallace, Personal Communication 2018). This underscored the need for the provision of services to enhance both psychological and social well-being which resulted in an invitation for support from the CIP. In response, the CIP facilitated the deployment of a former social work lecturer, who employed a community-based psychosocial support as the main intervention strategy for work with agency staff, other local first responders and communities.

Subsequent to TS Erika, Dominica has experienced severe hazardous events annually which affect efforts to restore normalcy on the island. This paper will examine the application of a community-based psychosocial support and service-learning model through an in-depth interview with key agency personnel as well as, the review of the

reports produced by the CIP supported participants which described the situation, outlined the approach taken and the lessons learnt post Erika. It is hoped that this paper will help relevant stakeholders to appreciate the role of service-learning in advancing personal and professional interest through collaborative efforts for disaster response. Furthermore, it provides an avenue for stimulating the discourse around community-based psychosocial support and its use as both a pre and post disaster response.

Literature Review

University-Community Partnerships through Service-Learning

The (2012) report of the UN Decade of Education for Sustainable Development (DESD) acknowledges the importance of Education for Sustainable Development (ESD) including its emphasis on climate change and disaster risk reduction. The involvement of universities in partnership with communities encourages the "strengthening of people's capacities to bring about change" (UNESCO p. 5). University-community partnerships find expression in service-learning programmes, which provide immense possibilities for "colleges and universities to meet their goals for student learning and development while making unique contributions to addressing, community, national, and global needs" (Jacoby 1996 in Jacoby 2003 p. 1). Williamson et al (2016) also emphasize the benefits of "enhancing scholarship, curriculum, teaching and research" (p. 55).

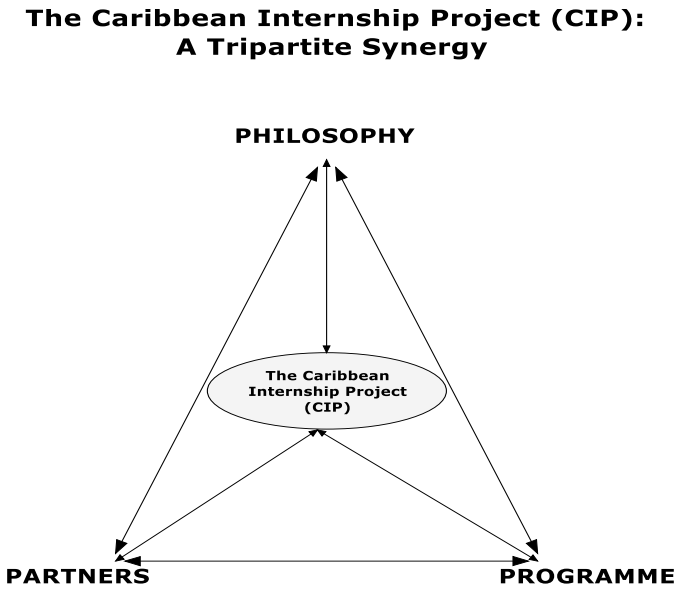
With the increasing occurrence of hazardous events, service-learning programmes which give attention to creating sustainable environments and reduce risks from disasters, are critical, particularly in the Caribbean context where available resources are limited and depleting.

The UWI through its mandate to serve 15 Caribbean countries and the underserved communities recognizes the importance of empowering and transforming Caribbean people as articulated in its mission statement "to advance learning, create knowledge and foster innovation" (https://www.mona.uwi.edu/about-uwi/mission). The CIP, a collaborative effort of three UWI campus sites (the UWI Cave Hill, Barbados, the UWI St. Augustine, Trinidad and Tobago and the UWI Mona, Jamaica) has evolved to fulfil the opportunity for the UWI to carry out its role in improving the lives of the most vulnerable in the region while facilitating hands-on experience for UWI students in the various disciplines.

Shillingford (2013) posits that, the CIP is unique in that it not only emphasises student learning, but importantly, it seeks to meet specific demands faced by agencies in need of critical assistance (p. 165). Therefore, the partnership is driven by the needs of partner agencies rather than pre-determined program objectives determined solely by CIP administrators and/or programme instructors. This is presumed to produce a more mutually beneficial relationship which manifests in the receptiveness of agencies partnering with the UWI to fill gaps and build capacity.

Allen (2008), describes the comprehensive nature of the UWI's then Caribbean Internship Project's (now a Programme) service-learning model as a "tripartite synergistic model" (See Fig.1) which emphasises "a philosophy of human and social development", a diversity of partners and capacity building programmes delivered by interns that are beneficial to social service agencies in the Caribbean" (pp. 69-70).

Figure 1



Shillingford (2013) on the other hand, while highlighting the personal and professional development gained by interns from the experience, recognizes the importance of the CIP service-learning model in providing essential services where there would otherwise be a void in service delivery, while at the same time, facilitating institutional building at the organisational and community levels (pp. 161-163).

Ultimately, the combined economic and social reality of the Caribbean in addition to shortfalls in existing services utilised especially by the poor, provides credence to the assertion that service-learning holds promise as an initiative that is strategic through partnerships which benefit the "common good" and in this case its use as an added approach to disaster mitigation in the Caribbean is appropriate (Jacoby 2003, pp 255-256).

Community-Based Psychosocial Support

While university-community partnership through service learning demonstrates the CIP's "tripartite synergistic model", it must be noted that this model may be layered with various techniques and approaches based on the nature of the engagement with communities. Community-based psychosocial support, now widely accepted as an essential response during times of crises and disasters, was the cross-cutting theme in the CIP's response to the passage of TS Erika. This is critical in a context where Rapid Damage and Needs Assessment gives primacy to the quantifiable impact of the disaster (Government of Dominica Rapid Damage and Impact Assessment Tropical Storm Erika – August 27, 2015 p. 6) with negligible reference to the psychosocial effects on individuals and communities.

The term psychosocial must be understood from a historical perspective and as a central dynamic both within the context of social work practice (Turner, 1996; Goldstein, 2017) and the current approach adopted by most disaster relief agencies since 2004 (Dash, 2009). According to Hayward (2012) the compound word "psychosocial" had its

origins in the 1890's, following an earlier recognition throughout the nineteenth century of the connection between an individual's personal and social life. It was during the interwar years, however, that social workers, psychiatrists and psychologists began to study ways in which the psychosocial field can be understood.

In spite of shifting emphases over the years between the adoption of a "functional" or "diagnostic"/psychosocial approach (Turner 1996, p. 560) credit must be given to the social work profession, beginning with the work of Mary Richmond (1899), and ending with clearly outlined principles of psychosocial casework by Francis Hollis (1964), for demonstrating how best psychosocial interventions can be practicalized (Turner, 1996). The framework outlined and refined by Hollis (1964, 1972, Hollis and Woods, 1981) adopts the unique person-in-environment context of social work practice while also having the ability to integrate any new ideas, theories and methods that enhances the psychosocial approach. It is an approach that incorporates knowledge from psychiatry, psychology, sociology, anthropology and social work in order to "fully understand the intrapsychic, interpersonal and environmental aspects of a client's situation" (Turner 1996, p. 565). In short, psychosocial support is an integrated, holistic concept based on social systems theory that assumes that change in any one system has the potential to influence changes in other related systems.

In the context of crises and disasters, the greater concern for the psychological and mental health of individuals and populations became paramount in the post-war years with emphasis placed on psychological and psychiatric interventions. The focus was on Critical Incident Stress Management (CISM), Critical Incident Stress Debriefing (CISD), Psychological Debriefing (PD) or Trauma (Risk) Management with the intent to prevent or minimise any concomitant Post Traumatic Stress Disorder (PTSD).

With the passing of time and the increase in worldwide disasters, it soon became clear that following a disaster "psychological recovery" was not only essential for persons experiencing psychological stress but that "social recovery" is equally fundamental for both the individual and to aid community-rebuilding (Dash, 2009). The psychosocial approach, already embraced by most members of the major helping professions (Goldstein, 2013; Greenberg and Wessely, 2017; APA Dictionary of Psychology, 2018), was formally adopted by the major humanitarian agencies with the incorporation of minimum standards for psychosocial support by the Sphere Project (Sphere, 2004) and the development of the Interagency Standing Committee Guidelines for Mental Health and Psychosocial Support in Emergency Settings (IASC, 2007). In addition, several organisations, such as the International Federation of Red Cross and Red Crescent Societies (IFRC) began to develop resource material and training manuals for assisting countries in their disaster management cycle response.

Psychosocial support is both a preventive and curative measure. It is defined by the IFRC in its manual, Psychosocial Interventions: A Handbook", as "a process of facilitating resilience within individuals, families and communities. By respecting the independence, dignity and coping mechanisms of individuals and communities, psychosocial support promotes the restoration of social cohesion and infrastructure" (p. 25).

Goldstein (2017) in a brief article in the Oxford Bibliographies states that the goals of the psychosocial framework "were to restore, maintain, and enhance the personal and social functioning of individuals through mobilizing strengths; supporting

coping capacities; building self-esteem; modifying dysfunctional patterns of thinking, feeling, and relating to others; linking people to necessary resources; and alleviating environmental stressors".

Greenberg and Wessely (2017) agree with Goldstein (2013) in their assertion that

> *"Although the results of screening programs are mixed and the use of debriefing is to be avoided, recent decades have provided some positive findings in respect of improving mental health after disasters. There is good evidence that social support both within communities and organizations can be highly protective of mental health…. science has helped confirm that it is better to rely on supporting the bonds between people within communities and trauma-exposed organizations to mitigate the psychological impact of disaster than it is to fly in "experts" who neither properly understand those involved or the situation which people have been exposed to" (p. 250)*

Reifels, L., Pietrantoni, L., Prati, G., Kim, Y., Kilpatrick, D. G., Dyb, G., Halpern, J., Olff, M., Brewin, C. R., O'Donnell, M. (2013) highlight the importance of both international researchers and clinicians coming together as was demonstrated at the 13th meeting of the European Society for Traumatic Stress Studies in 2013. Their online article reported that at that symposium, six disasters that occurred in five developed countries, including the USA, Great Britain and four European countries were examined. Lesson learnt from the research undertaken were outlined in the paper's abstract as "the need to: (1) tailor the psychosocial response to the specific disaster, (2) provide multi-dimensional psychosocial care, (3) target at-risk population groups, (4) proactively address barriers in access to care, (5) recognize the social dimensions and sources of resilience, (6) extend the roles for mental health professionals, (7) efficiently coordinate and integrate disaster response services, and (8) integrate research and evaluation into disaster response planning.

In addition to adopting an immediate post disaster psychosocial response, it was recognized that any rebuilding and redevelopment process must be a long-term one, beginning with goals set within the first five years and with psychosocial support as a crosscutting intervention. The focus of this process should be to work within communities and to use any disaster as an opportunity for putting into place a more resilient, robust set of community development strategies (Dash, 2009). Based on lessons learnt from three South Asian countries - tsunamis in the Maldives and Sri Lanka and a cyclone in Bangladesh – Dash argues for long-term post disaster community-based psychosocial support programming.

In summary, the focus of psychosocial support is not narrowly confined to just mental or psychological health that is dependent on clinical expertise. It is a much broader-based support that can be included in any life skills training at any time. It is a concept embedded in holistic recovery. It is also community-based and should be a cross-cutting theme in all aspects of community development and especially is required during the disaster response and recovery period. Additionally, it should be considered an important developmental concept for national recovery.

Case Description

The Ministry of Social Services, Family and Gender Affairs (now the Ministry of Health and Social Services) engages the assistance of the UWI's CIP annually to identify and assign interns that are capable of successfully contributing to the mandate of the Ministry. The directives for the interns are usually guided by specific agency needs.

On August 27, 2015, TS Erika devastated the Commonwealth of Dominica resulting in 30 direct deaths and destruction to infrastructure and communities. The Ministry of Social Services, Family and Gender Affairs requested assistance from the CIP with recovery efforts in affected communities. The CIP's response was three-pronged:

1) the assignment of two clinical psychology interns to work with the Social Welfare Division's clinical services, one intern who was already assigned in the pre TS Erika period had her internship extended for a further three months;
2) the delivery of training in post disaster community-based psychosocial support for members of staff in the Ministry of Social Services, Family and Gender Affairs and CIP assigned interns by a retired UWI social work lecturer and practitioner and;
3) the deployment of a social work intern who specialized in community practice to work with the employees of the Local Government Division of the Ministry and residents in two of the communities affected by the passage of TS Erika.

Method

While the CIP's programme directives are accomplished through ongoing collaboration with partner agencies, all the interns must produce verbal and written reports which detail their role, the challenges and all timely deliverables submitted while completing the internship. This process generally facilitates appropriate feedback and support for the interns as well as, when necessary, adjustments to assignments interns must complete. This also gives the interns an opportunity to evaluate the programme and make recommendations to the CIP administrator for changes.

In addition at the agency level a semi-structured in-depth interview was conducted with the key liaison personnel from the Ministry of Social Services Family and Gender Affairs. Both the reports from all three interns engaged in the TS Erika post recovery process and the transcript from the semi-structured interviews were reviewed using the process of thematic analysis to code and organise into themes critical to the description and assessment of the case.

The thematic analysis produced four major themes, which, in addition to underscoring the benefits of service learning to interns, agencies and communities, stridently drew attention to some of the major challenges facing Caribbean Small Island Developing States (SIDS). Both interns and agency personnel were able to clearly articulate the challenges as well as possible solutions as they recount their experience with service-learning in the context of a post disaster response.

Theme One: Navigating the demand for increased community-based service and time bound placements.

Disasters invariably expose the limits of any country's resources. This was the experience of staff of the Social Welfare Division in Dominica, after the passage of Tropical Storm (TS) Erika. The demand on social services were significantly amplified by disaster related deaths and the destruction of infrastructures across the island.

Findings noted the limitations of the resources needed to service existing clientele in the pre disaster period while the post Erika period pointed to an increase in clients to be serviced by already strained resources. An increase in reports of trauma that occurred prior to Erika was observed as well as the observation that TS Erika appeared to have eroded the coping mechanisms employed to deal with pre-existing trauma experienced by some client's. The benefits to the wider community could not be adequately realised due to the increase in the demand for limited resources which was compounded by the time constraints levied on the responding agencies (interns are recruited for a period of three months with the possibility of an extension of up to 6 months).

Successfully overcoming this challenge would require opportunities for longer internships that allowed interns to move beyond preliminary assessments, to implementing alternative action plans that will maximise impact for the population being served.

Theme Two: Community engagement and participation

A major tenet of the UWI/CIP service-learning approach is the engagement and active participation of local communities. Furthermore, the forecast of the possibility of experiencing more intense natural hazards in the Caribbean, renders the local community more susceptible to stressors from hazardous events. Therefore, their capacity to respond must be honed through strengthening existing social capital. Consequently, any intervention by external stakeholders at the community level must incorporate strategies and techniques that stimulate the local capacity for community-based psychosocial support. The interns noted that there were underlying issues such as lack of trust, poor communication and weak social relationships resulting in low social capital. The post-disaster climate in Dominica was impacted by pre-existing weak relationships in concert with post-disaster trauma. Additionally, the preliminary assessment conducted by the social work intern of the targeted communities revealed a lack of confidence in the institutions set up for helping those in need and or affected by the disaster.

While the reports from the intern suggest some optimism on the part of the community members for the prospects for honing skills that could aid in the restoration of community life, there was a feeling of deeply entrenched mistrust of the respective Village Councils, the entity that manages the response to communities including the distribution of relief aid. The social work intern reported that "the findings of [sic] the two communities targeted indicate that there is a detachment between Council and community, and this impacts efficiency, trust and communication" (N. Albarus, personal communication, May 20,2016). This mistrust preceded TS Erika but exacerbated the post disaster challenges in the target communities who believe the Councils to be ill-equipped to manage community affairs. This was complicated by a lack of transparency

in the conduct of the Council which caused some community members to perceive the Councils' post disaster relief activities to be unfair. In addition to this, the communities have expressed dissatisfaction with the Councils' ability to lead, advocate and make informed decisions for the community's well-being. They also believe that some of those appointed to serve lack the skills required for the task. Therefore, the communities have recommended training in leadership, advocacy, transparency and accountability and disaster preparedness (N. Albarus, personal communication, May 20, 2016). The intern noted the value of supportive communication as a means of restoring trust and establishing credibility. Consequently, it was concluded that steps should be taken to help members of the Village Councils establish relationships that are transparent and progressive.

While the agency supervisor acknowledged that there are limitations in the capacity to adequately provide services to the communities, he reiterated that this is one of the reasons why the partnership with the UWI/CIP is extremely critical to stimulating the organisation's capacity to respond to its clientele. The partnership provides access to expertise and human capital that may be limited or absent within the organisation. Moreover, the presence of interns who are not of the community could be a vehicle for initiating the process of addressing negative perceptions of entities or institutions tasked with serving vulnerable groups in Dominica and repairing relationships with and within communities.

Theme Three: Community-based education and training in Community-based Psychosocial Support

The training provided through the UWI/CIP in post-disaster community-based psychosocial support was a welcomed intervention for the staff of the Social Welfare Division who participated.

However, the social work intern's report revealed significant challenges in her attempt to fulfil the training objectives for staff in the Local Government Division of the Ministry. The challenge resulted from clashes with the official responsibilities of the agency as well as a perceived lack of recognition of the value of training in the context of more pressing issues such as "advocating for the communities' physical spaces for the impending hurricane season" (N. Albarus, personal communication, May 20,2016). This was a typical example of the competing demands on the ground between relief and welfare mode versus a developmental mode. This tension created a barrier to adopting a more proactive response for future pre-disaster preparation. While the organisation tried to accommodate the planned training in community-based psychosocial support, the potential benefit was undermined by the need to truncate the training to deliver in the limited time provided or in other instances forego training all together.

In the case of the two targeted communities, the intern applied Brager and Specht's (1987) four stages of community organizing in order engage with the community and build their trust. This enabled the conduct of workshops geared at enhancing local organisations' capacity to represent the communities' interest in a way that empowers the community to act while broaching the concept and process of psychosocial support. Participants were eager for further insights for working with communities, including applicability of the model in contexts not limited to pre/post disaster training.

The intern concluded that the communities welcomed the intervention which afforded them an opportunity to explore their capabilities and prospects for honing or developing new skills that could help them restore some semblance of normalcy to community life. The intern utilised the Participatory Learning and Action (PLA) method in facilitating the process of unearthing the communities' perceptions of barriers to self-advocacy and approaches to resolving these barriers to facilitate positive action. These discussions provided a skeletal framework for further assessment of the support needs as articulated by the communities to ensure a fit between service provision and community reality.

In the final analysis the intern determined that the complete training in psychosocial support planned for staff of the Local Government Division should have been provided to local community members, suggesting that "they seem to have a greater and more meaningful understanding of it than the Local Government staff" (N. Albarus, personal communication, May 20,2016). Again, agency personnel acknowledged the need for the training, but noted that in the context of limited personnel, recovery action is priority, thus the timing was not feasible for accommodating the training in its entirety.

On the other hand participants from the Social Welfare Division of the Ministry who participated in community-based psychosocial support training and who were appreciative of the new knowledge, went further in identifying the training areas in psychosocial support for further inclusion or greater emphasis – how to assist persons who had a "pre-existing trauma" and are re-traumatised following a disaster; how to meet the needs of first responders who are themselves experiencing loss; and putting emphasis on the unique application of the model, especially in the context of clarifying the distinction between spirituality and religion.

Theme Four: Outcomes for Interns, the Social Welfare Division, and the UWI/CIP

Despite challenges in completing planned deliverables, the interns reported personal and professional benefits derived from the service-learning experience. All three interns reported an appreciation for the opportunity to work independently, conducting training sessions and assessing priority needs of the population served.

The Social Welfare Division reported significant benefits in the area of clinical assessment and support to counsellors particularly in the provision of services to children. The partnership with the UWI/CIP has evolved into a crucial resource for supplementing limited staff resource, especially in times of crisis. The UWI/CIP was among the first responders post-Erika, facilitating the psychosocial support training to staff that enhanced their ability to reach and adequately respond to clients. The agency continues to use the partnership as a catalyst for enabling the rebuilding efforts. According to the senior staff member. "Post-Erika, two interns were here and right away we could provide quality information and professional intervention. They knew what they were doing, which is one of the reasons I think people kept coming back even after they had left" (O. Wallace Personal Communication). There was an emphasis on the value derived from clinical psychologists and social workers as it was felt that the skills brought by these interns were limited in the Division.

The interns lauded the opportunity to apply their knowledge and skills outside of the context of "academia" with one reporting that "the tasks thus far have capitalized on my Clinical Psychology training and qualifications and in some aspects have diverted from the conventional and comfortable processes" (Personal Communication, 2016). Another highlighted the fact that the setting allowed her to hone her relationship building and management skills as she relied on assistance from the staff and the community to ensure that there was a match with her interpretation of what was communicated, and the interventions delivered. All three interns recognised the value of adjusting in a different cultural setting and relying on their team to know what resources are available as well as to ensure that communication was clear, and plans were correctly developed to serve the clients.

On the part of the host agency, the experience of having interns post disaster, has created an even greater appreciation for the UWI/CIP service-learning programme. Furthermore, the cultural exchange has engendered mutual respect and interest in the development process regardless of nationality. The result has been a breakdown of some myths and generalisations about the behaviours and or attitudes of persons from other Caribbean islands that may undermine efforts towards working together. The supervisor of all three interns noted that while there may be flawed perceptions generally about persons who are university trained or from other Caribbean islands, when the communities work with interns who deliver themselves not only professionally but also in a way that exuded care, they won the respect of all persons in the community. This level of grassroots interaction with the peoples and their communities is a crucial part of the groundwork for breaking down barriers to establishing strong regional ties while simultaneously stimulating locality development.

Discussion

While these themes are often repeated concepts in the dialogue on Caribbean regional integration and development, together they combine to teach an overall important lesson – disasters will always be sober reminders that building strong local and regional partnerships are activities that should never be neglected. Service-learning engaged even prior to the occurrence of any disaster, always aim to foster the empowerment of communities. The process involves motivating interest, identifying local leadership, conducting assessment of the community's cohesion and ability to discuss and gain consensus. Additionally, the process from assessment, to decision-making, to collaboration, calls for establishing widespread community involvement and a good system of communication, the development and strengthening of a local organisation with the capacity to link with internal and external groups/organizations to aid problem solving (Mattessich et al 1997, pp. 20-38). This approach is also supported by research by Ranis, Stewart & Ramires (2000) who concluded that "economic growth itself will not be sustained unless preceded or accompanied by improvements in human development" (p. 213).

Importantly Bowles and Gintis (2002) also highlight vital characteristics of social capital including norms, cooperation and trust which benefit community governance and problem-solving as groups work towards specific goals (pp.F420-421).

The restrictions to participatory problem solving and sustainable development as a result of conflicts between groups, namely the communities and the Councils, led to resentments and lack of trust over the inability of the Councils to represent the interests of communities. The process to change is recognised as giving considerations to the assessment of the conflict and capacity building for stakeholders through training to be able to manage conflicts and improve levels of social capital and community representation. Service-learning interns assigned to the relevant community development agencies are able to provide technical assistance through training of staff and community members. In addition, through personal coaching and modelling, future commitment, competence and confidence which are supportive to the development of the social capital and trust needed to enrich collaboration are assured.

It was interesting to find that the interns, as outsiders, or the neutral third-parties were recommended to facilitate and mediate the community's development. This proposition may give the community greater confidence in the possibility that their concerns will be heard making them more likely to speak out about the challenges. While this speaks to the value of the service-learning partnerships, it is also an indication that overcoming the challenges of conflicts and tensions to community engagement and participation is essential for successful post disaster response by local organisations. Therefore, while the process, at this juncture, may be more successfully initiated by interns it must be fully undertaken by Local Government officers and Village Councils demonstrating evidence of participatory engagement and problem solving, a good system of communication and trustworthiness.

Such a reality could be interpreted as a validation of the UWI/CIP's philosophy that psychosocial support (including applying psychological first aid and supportive communication) should be a cross-cutting theme in all aspects of the community building, rebuilding and development process. The interns' report highlighted that training in this regard, should also include skills in trauma management, self-care for responders and how to cope with spiritual issues.

Opportunities Post Disasters

The occurrence of disasters should be viewed as opportunities for growth and further development. Particularly in the context of the UWI/CIP service-learning initiative which aims to facilitate real time interventions while developing local capacity. Consequently, the continued partnerships under this programme will contribute to addressing the problems of "low social capital, issues of trust, poor communication and weak relationships".

The challenge of limited resources and time constraints reported by interns and supervisor alike, indicates the need for longer internships that provide the latitude for interns working alongside the organisation, to move beyond gap filling and preliminary assessments, to implementing alternative action plans that will maximise impact for the population being served. This may mean re-examining the framework for ensuring sustainability after internships have ended. The focus would then be on citizen agency, capacity building and responsibility-taking.

Ultimately, the report from the interns as well as feedback from the agency supervisor revealed a need for a closer examination of the collaboration in relation to deliverables and measurement of outcome. There appears to be a disparity in the

definition of community development from the local government agencies' perspective as compared to the perspective of the interns and the CIP. Next to assessing for and treating with trauma, the agency appears to focus on welfare provision while UWI-CIP focuses on a developmental approach which enhances social capital and participation and stimulates local responsibility and action. This has revealed that there needs to be a revision of the expectations of the partnership to better integrate the two in a way that is truly sustainable by the agency and in the communities served.

The Way Forward

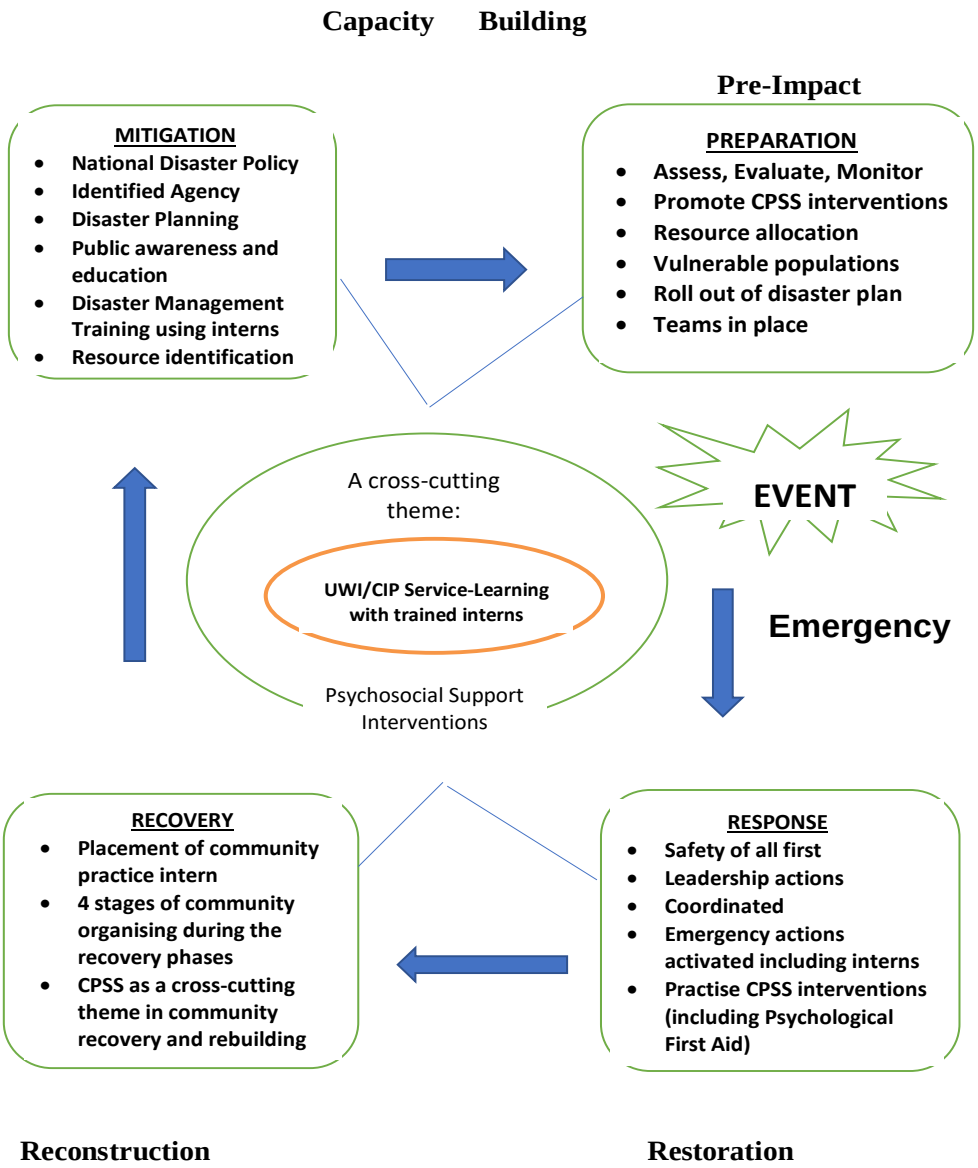
The UWI-CIP, as a service-learning model, is in a unique position to respond to the need for local training in disaster management in the Caribbean while simultaneously informing curricula changes at the UWI. Therefore, steps need to be taken to incorporate a more pro-active approach both in preparing and training interns on how to assist in the process, including advocating for as well as undertaking appropriate leadership actions towards both social capital /human development and economic recovery and growth.

The experience in Dominica reveals a need for a strategy that will stimulate resilience among Caribbean people in order to quickly restore normalcy post disaster. Training in a set of psychosocial life skills as the foundation for building community-based psychosocial support is a crucial aspect of the way forward. Such skills can be taught at any time to anyone and should take place during the pre-disaster period. It will prove indispensable during the post-disaster period when social bonding, unity and team-building are pre-requisites for family, community and national recovery.

Consequently, we are recommending that this post-disaster response to Dominica should be further developed to incorporate implementation of community-based psychosocial support in all phases of the disaster management cycle. This disaster management cycle, adopted by humanitarian agencies since the 1970s, and which describes the four phases of managing a disaster – *mitigation* and *preparation* for capacity building in order to minimise the impact of disaster, *response* on how to react during and immediately after a disaster and *recovery* during the reconstruction period - should become an integral part of the UWI/CIP service-learning tripartite synergistic model.

This model – *The UWI/CIP Service-Learning Disaster Management Model* is described below. Interns should be required to complete training in Disaster Management, including Psychosocial Support training and should be able to assist in all aspects of the disaster management cycle. It is hoped that Caribbean governments will adopt the model depicted below as an integral part of their national disaster management programme. In this model, examples are given on ways in which interns can be utilised at each stage of the cycle with emphasis on implementing Community-based Psychosocial Support (CPSS) at all levels of intervention.

The UWI/CIP Service-Learning Disaster Management Model



Conclusion

The themes that emerged highlighted the fact that

1. The service-learning partnership continues to be a critical resource for facilitating post disaster recovery and strengthening resilience capacity in SIDS
2. The programme's use of strategies which facilitate grassroots engagement is a possible catalyst for mutual support at the regional level
3. The efficacy of governance frameworks and the nature of interactions among members of the community prior to a disaster will permeate the post disaster response within affected communities.

In all of the above, the service-learning model was purported to be a key tenet in establishing assets towards recovery and resilience in SIDS. Training in community-based psychosocial support life skills should be a cross-cutting theme in the implementation of those assets.

Generally, feedback from interns both enables the programme administrator of the UWI/CIP to monitor interns' activities and to make informed decisions about curricula development changes and the future training of students /interns. In the case of Dominica, the interns' post Erika reports highlighted the increase in service demand and its impact on those tasked with providing services particularly those who themselves have experienced some kind of loss or trauma. The interns were able to identify what skills proved beneficial in a post disaster scenario and what additional competences would have been useful to the agency.

References

Allen, L (2008). *The Caribbean Internship Project: A case study of how tertiary level students can advance Caribbean development through integrated child and family focused, multi-disciplinary, community-based initiatives.* Department of Sociology, Psychology and Social Work, University of the West Indies Mona, Kingston, Jamaica & the Caribbean Child Support Initiative, Caribbean Centre for Development Administration, Barbados.

Allen, L. (2015). *Post disaster community-based psychosocial support: Report on Workshop held for Staff of the Welfare Division, Ministry of Social Services, Family and Gender Affairs*. The University of the West Indies, Caribbean Internship Programme, Mona, Jamaica

Benjamin, L. (2010). Climate change and Small Island Development States: The state of play. *International Journal of Bahamian Studies,16.* 78-91 University of the Bahamas. http://journals.sfu.ca/cob/index.php/files/article/view/129/148

Bowles, S., Gintis, H. (2002). Social capital and community governance. *The Economic Journal, 112, 483.* F419-F416. Oxford University Press. https://jstor.org/stable/798455

Dash, S. (2009). Post-Disaster Psychosocial Support: A framework from lessons learnt through programmes in South-Asia. *Australasian Journal of Disaster and Trauma Studies, 2009-1*.
http://trauma.massey.ac.nz/issues/2009-1/dash.htm

Goldstein, E. G. (2017). Psychosocial framework. *Oxford Bibliographies*.
http://www.oxfordbibliographies.com/view/document/obo-9780195389678/obo-9780195389678-0085.xml

Greenberg, N., & Wessely, S. (2017). Mental health interventions for people involved in disasters: what not to do. *World psychiatry: official journal of the World Psychiatric Association* (WPA),*16* (3), 249-250.

Hayward R. (2012). The invention of the psychosocial: An introduction. *History of the Human Sciences, 25* (5), 3-12.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3627511/

Jacoby, B., and Associates. (2003). Building partnerships for service-learning. Jossey-Bass, San Francisco, CA

Macpherson, Cheryl; Ackpinar-Elci, Muge; Ford, James. D. (2013) Impacts of Climate Change on Caribbean Life, *American Journal Public Health,* Washington, Vol. 103 (Iss.1)
doi: 10.2105/AJPH.2012.301095
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3518358/

Mattessich, Paul W. & Monsey, Barbara: (1997) Community Building: What Makes it Work. Fieldstone Alliance, Minnesota.

McLeroy K. R., Norton, B. L., Kegler, M. C., Burdine, J. N., and Sumaya, C. V. (2003). *Community-based interventions.* Am J Public Health. 2003 April; 93 (4): 529–533.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1447783/

Ranis, G., Stewart F. & Ramires, A. (2000). Economic Growth and Human Development. W*orld Development* Vol. 28, No. 2, pp. 197-219.
http://www.econ.yale.edu/~granis/papers/cp0546.pdf

Reifels, L., Pietrantoni, L., Prati, G., Kim, Y., Kilpatrick, D. G., Dyb, G., Halpern, J., Olff, M., Brewin, C. R., … O'Donnell, M. (2013). Lessons learned about psychosocial responses to disaster and mass trauma: an international perspective. *European Journal of Psychotraumatology*, *4*, 10.3402/ejpt.v4i0.22897. doi:10.3402/ejpt.v4i0.22897
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3873118/

Shillingford, A. (2013). Service Learning and Regional Community Institution Building. In *the Caribbean Journal of Social Work*, 10, 147-170. Special issue simultaneously published as a book: *Social Work & Development - Caribbean Insights*. Kingston, Jamaica, Pear Tree Press.

Turner, F. J. ed. (1996). *Social work treatment: Interlocking theoretical approaches.* 4th. ed. The Free Press, New York.

Williamson, H.J. Young, B-R. Murray, N. Burton, D.L. Levin, B.L. Massey, 0.J. Baldwin, J.A. (2016). Community-university partnerships for research and practice: Application of an interactive and contextual model of collaboration. In *the PubMed Central (PMC) Journal. National Institute of Health's National Library of Medicne NIH/NLM, USA, pp. 55-84*
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5295659/

Caribbean Human Development Report (2016). Multidimensional progress: human resilience beyond income. United Nations Development Programme, New York

Government of the Commonwealth of Dominica (2015) Rapid Damage and Impact Assessment Tropical Storm Erika – August 27, 2015. GFDRR

Shaping the Education of Tomorrow: 2012 Report on the UN Sustainable Development Abridged. UNESCO, France
http://unesdoc.unesco.org/images/0021/002166/216606e.pdf

The Sphere Project: Humanitarian Charter and Minimum Standards in Disaster Response (2004) Edition. Published by the Sphere Project, Switzerland

Mission Statement The University of the West Indies at Mona.
https://www.mona.uwi.edu/content/mission-statement

The World Bank Data: IBRD.IDA (2010). Country Profile: Dominica
http://databank.worldbank.org/data/Views/Reports/ReportWidgetCustom.aspx?Report_Name=CountryProfile&Id=b450fd57&tbar=y&dd=y&inf=n&zm=n&country=DMA

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Advancing Human Services Education: Exploratory Study of International Service-learning and Digital Pedagogy

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Abstract

This study focuses on advancing the understanding of human services education in international service-learning focused study abroad programs. There is a gap in the literature pertaining to service-learning education for human services students. This study explores the integration of service-learning, reflection, and technology in human services education. Case study methodology and document review analysis are used to examine the use of ePortfolio as a reflective tool in addition to the skill development of upper-level undergraduate human services students through service learning. Seven themes arose from the findings, which suggest that international service-learning assists students in human services skill development and ePortfolio is effective as a reflective tool in human services education.

Service-learning provides instructional space and hands-on experience outside of the classroom. These experiences engage students in various communities to cultivate learning. This study explores students' experiences of international service-learning within the human services field to fully grasp and apply the helping skills and promote professional growth. The experience of students studying abroad in Jamaica was captured through reflective activities presented in ePortfolio. ePortfolio was analyzed to determine the value such educational tools can produce through reflection and capturing student's skill development. Findings of this study add to the academia overall and the education of future human services students. Specifically, this article will attest to the overall importance of reflection, technology and international service learning in human services education.

A case study was conducted to isolate the lived experiences of students learning to find their professional identity by engaging critically while completing an international service-learning trip. Each student completed coursework which remarked on their experience while in Jamaica. The final determining factors on the success of the experiences emerged from the students.

Literature Review

Human services education embraces the ideology of hands-on experience in developing competent professionals, activities such as field placements, practicum, and internships are commonly used in the formal education of new professionals (Hogan & Bailey, 2010; Craigen & Sparkman, 2014; Woodside, Carruth, Clapp & Robertson,

2006). Dewey (as cited in McAuliffe, 2011) stressed the significance of students having tangible experiences to promote learning. These experiences give students the opportunity to take theory to practice. Students need space to cultivate their helping identity (Desmond & Stahl, 2011; McAuliffe, 2011). Service-learning both locally and abroad provides students with the space to grow into their identity as professionals and gives them the experiences needed to apply what was learned in the classroom to practice in the field.

Service-learning

The National Service-learning Clearinghouse (NSLC) defined service-learning "as a teaching and learning strategy integrating meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities" (NSLC, 2012). Service-learning concepts are integrated into countless colleges and universities' curriculum throughout the United States (Whalen, 2008; Craigen & Sparkman, (2014). Service-learning provides students with opportunities to immerse themselves in community-engaged learning specific to their fields. The key purpose of this form of education is to merge learning and service together so that it may be a seamless process (Pariola & Pariola, 2006; Adams, 2015). There are several theoretical models that guide the development of service-learning focused courses in academia. The most common theoretical model, developed by the University of Maryland, is P.A.R.E. which stands for, preparation, action, reflection and evaluation (Commuter Affairs and Community Service, University of Maryland, 1999).

The main aspect of the theoretical model P.A.R.E. is the focus on ensuring that the service-learning curriculum has a focus on these four components deemed important to an effective service-learning experience. It is assumed that these four components lend way to positive outcomes for both the student and the community. Researchers have supported the use of this theory as well as explored models specific to the field of study. The P.A.R.E. model is the most used structured approach to service learning (Loyola, n.d.; Johns Hopkins, n.d.; Lee, Olszewski-Kubilius, Donahue, & Weimholt, 2008). It involves the preparation of participants for a service-learning experience which, includes providing information on the agency or need to be met. The second tenet of this model focuses on meaningful action which is critical to successful service-learning. Successful service-learning programming takes action that makes all parties involved feel that a measurable difference was made, even if the difference was small.

Reflection is an essential component of service-learning that distinguishes service-learning from traditional volunteerism or community service. Reflection can address skills developed, experiences and challenges. Evaluation is essential to the project's impact on both student participants and the community can be measured (Commuter Affairs and Community Service, University of Maryland, 1999; Loyola, n.d.; Lee, Olszewski-Kubilius, Makel, & Putallaz, 2015; Lee et al., 2008).

In addition, depending on the program and the skills that will be taught, the length and location of service-learning can vary from one week to several months (Craigen & Sparkman, (2014). Within this timeframe, students engage with their teachers, classmates and the community to grow and learn (Craigen & Sparkman, (2014). Overall there are both short-term and long-term experiences that students can embark on to

promote their learning (Craigen & Sparkman, (2014). This study will explore service-learning in terms of international service-learning focused programs.

International Service-learning

In higher education, the use of international service-learning is increasing in use (McKee, 2015) but does not differ from traditional service-learning programs as the goal is to infuse learning with service to promote educational growth (Pariola & Pariola, 2006). Pariola & Pariola (2016) continue by indicating that by conducting international service-learning experiences the benefits only proliferate for the students as and the communities that are visited. However, in contrast to this statement in more recent years, international service-learning has come into question on if students are causing more harm than good and if knowledge could be best attained at the university.

The process of international service-learning has been criticized; as there is a belief that more harm comes to the community receiving the help than anticipated (Wood, Banks, Galliardi, Koehn, & Schroeder, 2012; Stewart, 2018). Despite good intentions communities are left with no resources, limited funding, and potentially more concerns than prior to the arrival of the assistance (Wood et al., 2012; Stewart, 2018). It was determined that outside of the specific individuals assisted or locations served there is greater harm that can come to the community once the group leaves (Wood et al., 2012). Wood et al., (2012) sought out with their study to be deliberate and mindful in planning and execution. It was determined that diligent and purposeful work led to a decrease in negative impact to the communities entered (Wood et al., 2012). Thusly, there is not only a need for these experiences but also the need to better support study abroad experiences for students and communities.

Service-learning and Human Services

The National Organization for Human Services (NOHS) states that it is a profession established from identifying and addressing the needs of humans (NOHS, 2015). NOHS was founded on the concerns that were arising throughout the country during the 1960s by individuals who saw value in honoring and serving diverse populations (NOHS, 2015). According to the ethical standards for human services professionals it is the responsibility of human services professionals, to be effective at working in diverse populations (NOHS, 2015). There are obligations to clients, colleagues, the profession, the public, and students to advocate and engage in the communities with those who are in need (NOHS, 2015). Service- learning, and more specifically international service-learning provides an opportunity to remain aligned with the preamble of the profession to "...respect the dignity and welfare of all people; promoting self-determination; honoring cultural diversity; advocating for social justice; and acting with integrity, honesty, genuineness and objectivity" (NOHS, 2015, p.1).

Hogan and Bailey (2010) align with the NSLC (2012) sentiment in stating that service-learning provides instructional moments to prepare human services students for civic engagement. Despite the known benefits a service-learning experience can have on students and the community this practice is not adequately documented within human services research (Hogan & Bailey, 2010). Service-learning experiences are an asset to students' overall awareness of the community and technical skills (Hogan & Bailey's,2010; Craigen & Sparkman, 2014).

Taking a step into the community, separate from employment, allows students to connect with people more directly (Nicholas, Baker-Sennett, McClanahan, & Harwood, 2011). Skills such as observation, research, planning, presentation, and interpersonal skills are learned during experiences when human services students are engaging in the community (Nicholas et al., 2011). Nicholas et al., (2011) discovered that students reported that they did not gain an understanding of the aforementioned skills in settings outside of the service-learning experience. Desmond and Stahl (2011) found that collaboration, professionalism, problem-solving, critical thinking, effective communication and leadership gained meaning when students practiced them during service-learning. The incorporation of ePortfolios with service-learning sets the framework to evaluate the experience and provide the opportunity to view all of the individual pieces as one entity (Banachowski et al., 2013).

Service-learning can unlock an under-documented territory of learning in human services. Hands-on experiences impact the learner in a way that bridges coursework to practical knowledge. Incorporating both service-learning and ePortfolio (Digital pedagogy) with undergraduate human services students is especially valuable as it provides a more inclusive perspective of the profession. Student's experiences of service-learning were captured for this study to depict the utility of this tool in the education of human services students.

Purpose

The field of human services has a focus on addressing the needs of individuals (NOHS, 2015). The purpose of this study is to address the gap in the literature which does not address the use of digital pedagogy in human services education or the reflective experiences of service-learning focus study abroad in human services education. This study aims to launch human services education into the utilization of purposeful international service-learning experiences and the use of digital pedagogy. This study will identify the value of international service-learning to the education of human services students and whether ePortfolio is an effective tool in capturing reflective experiences.

Method

Qualitative research relies on the emergence of themes through investigation of participant experiences (Hays & Singh, 2012). A case study was chosen as the methodology for this study, as it focuses on the researcher examining in depth a program, event, activity, process, or one or more individuals (Creswell, 2014). The case, the ePortfolio, will be analyzed through a document review which is a "systematic procedure for reviewing or evaluating documents" (Bowen, 2009, p. 27). The findings will provide a basis for future research and reflection on the topic of the value of international study abroad experiences in human services education. Research questions that guide this study are identified as (1) What are the competencies students develop during and international human services service-learning study abroad? (2) How useful is an ePortfolio as a reflection tool for human services service-learning focused study abroad programs? Based on the criteria for a case study, this study is focused on a single study abroad experience aligned with a course that all participants

enrolled in to take part in the study abroad experience. The current qualitative study examines the experiences of human services undergraduate students of a service-learning trip abroad through their reflection of experiences compiled in the development of an ePortfolio. ePortfolios are beneficial for students due to their ease of access and their web-based design, which allows students to save the information and relevant media in one location (Banachowski, Drabik, and Nowacki, 2013). The interface of the ePortfolio is useful in allowing students to use their creativity to present information in a way that expresses their individuality of experience (Banachowski et al., 2013). Additionally, the ePortfolio allows students to share their stories with many individuals simultaneously since they are Internet accessible. This also makes it readily available to faculty members for grading purposes.

All participants in this study were human services undergraduate students who participated in a service-learning trip to Jamaica where they worked with teenage mothers. During the trip, they also participated in several cultural immersion experiences aimed to enhance cultural competence. Opportunities to reflect on their experiences with classmates occurred throughout the trip. Learning objectives for the class were the following: 1) To develop an understanding of the culture and people of Jamaica that have had an impact on the development of the human services profession in that country, 2) To develop awareness of the state of development of the human services profession in Jamaica, 3) To interact with other human services professionals in Jamaica and to understand how services are provided to clients in Jamaica, 4) To learn about social and political issues in Jamaica that are having an impact on the development of the human services profession in that country, and 5) To learn about service-learning in Jamaica and the issues that impact populations being served.

The ePortfolio, from which the data for this study was obtained, was a course assignment used as an online technological tool through which students could document and reflect upon their experiences. The ePortfolio functioned as a learning tool, which encouraged reflexivity and creativity of expression on behalf of the student participants. Additionally, the ePortfolio served to not only address student experiences but to hold students accountable for providing accuracy of content learned, practicing organizational skills, convey knowledge attained through coursework, and to practice their writing skills, all useful and necessary skills for professional development as human services students. In accordance with Saldana (2009) guidelines for identifying the best coding method, descriptive coding was implemented first as the researchers began by reviewing and analyzing larger domains of data retrieved from student ePortfolios. Continuing with the guidelines of Saldana (2009) once the first cycle of coding was completed the second cycle utilized pattern coding and continued the analysis by reduction and clustering of the data into “meaningful and parsimonious units of analysis” (Miles & Huberman, 1994, p.69). This study is unique in that it is the first article in human services literature to describe the utility of ePortfolios as an instructional tool aimed to encourage student skill development.

Participants

Researchers implemented a convenience sampling method, a non-probability method that allows the research to utilize participants easily accessible to them (Creswell, 2017). As all participants in the study were obtained from a course,

researchers were able to obtain information-rich cases for in-depth analysis due to the convenient sampling. Eight students were a part of this course and all eight students opted into the study for 100% participation rate. Additionally, researchers intended to explore the utility of an ePortfolio in capturing these experiences and the impact on the development of student cultural competence. Students were informed that the intention of the course was to provide them with an understanding of the role culture plays in human services with a focus on service-learning within the country of Jamaica. Readings, lectures, discussion, and experiential learning were all components of the course. Students enrolled within this course spent nine days in Jamaica and four of those days immersed in the service-learning activity at one local community agency. Besides the classroom activities in Jamaica, students engaged in cultural tours, lectures and student immersion activities. Through the examination of the rich data contained in the ePortfolios, researchers hoped to gain a vital understanding to the essence of what undergraduate students experienced on this international service-learning study abroad trip rather than solely making generalized observations (Patton, 2014).

In total, there were eight participants in this study. Participants included in this study were undergraduate students 18 years of age or older. All participants were upper-level human services majors from a large southern university. All students had completed a service-learning study abroad program, an elective requirement toward a BS in Human Services, during which they compiled an ePortfolio documenting their experiences. All participants identified as female (100%, *n*=8). Of the eight participants 62.5% (*n*=5) identified as African American/Black, 12.5% (*n*=1) identified as Asian, and 25% (*n*=2) identified as Caucasian. To ensure the anonymity of the students; other demographic information was not obtained from the participants, and any identifying information provided in the ePortfolio was removed. Researchers obtained human subjects committee approval through affiliated university and informed students that participation was voluntary. Students were also provided with information detailing the confidential nature of the research.

Data Collection

As a requirement of the service-learning course and experience, students were instructed to create an ePortfolio as their final project based on their personal experiences abroad. Students were given a sample ePortolio that had a specific layout. The home page was titled “About Me” and gave the students a prompt to discuss themselves and add a photo. The next tab was a prompt that encouraged students to include a travel brochure they created prior to traveling abroad. The third tab was labeled skills and experiences. Students were to reflect on their experiences in Jamaica and were prompted to describe their skill development or specific experiences encountered during the trip. Students were encouraged to discuss the impact of these experiences on their personal and professional growth. There were six pages embedded within this tab. Each page was numbered 1-6 and students were prompted to discuss a different skill or experience on each page. Finally, students were encouraged to include their resume listing their study abroad experience and a reflective letter to the instructor which describes course materials that prepared them for their service learning abroad. This ePortfolio was to be created using WordPress ePortfolio template. In addition to writing prompts stated above students were

encouraged to include pictures or artifacts representative of their personal experience and skill development. ePortfolios from human services service-learning study abroad course with trips to Jamaica were included in this study. ePortfolios were only included in this study if the students gave consent and if the ePortfolio was complete.

Data Analysis

Data analysis utilized a document review of the ePortfolios by following these steps as described by Bowmen (2009): 1) skimming, 2) reading, 3) interpretation. In preparation for data analysis, ePortfolios were downloaded as secure files and reviewed one at a time by each researcher to attain a global sense of the data. The collected data was divided into segments corresponding to specific experiences or events that took place during the trip and then scrutinized for commonalities. Each researcher coded the data using textural descriptions. Researchers met after coding individually to ensure uniformity of coding processes. After uniformity was established, researchers individually constructed charts including categories and subcategories, which were identified within the ePortfolios. After thorough collective examination of the preliminary themes and corresponding subcategories, researchers engaged in a consensus coding process to enhance trustworthiness and inter-rater reliability of the data (Hays & Singh, 2012). This involved careful examination of one another's category identification after which inconsistencies in coding as well as the bracketing of biases were discussed. These discussions often led to further analysis of core themes and further analysis of established categories. Researchers then came to a consensus on final categories, which represented the essence of the students' experiences during their study abroad service-learning course.

Findings

Analysis of the data led to the emergence of seven core themes, which were salient among the experiences of participants. These seven themes were identified as 1) respect for self and others, 2) genuineness, 3) listening skills, 4) nonverbal communication, 5) cultural awareness, 6) relationship building, and 7) leadership. These themes, as observed in Table 1, emerged through the descriptive narratives of participants included in their ePortfolios as they described their experiences during various cultural immersion activities as well as their service-learning component of the study abroad course. These core themes also reflect the core values of human services work and key skills important to the development of human services students (Neukrug, 2016).

The first theme, respect for self and others, describes student acknowledgment of the importance of respect in the Jamaican culture specifically as well as the importance of respect in professional work. Adler and Proctor define respect as "esteem" (2016, p.301). Adler and Proctor (2016) continue by differentiating respect from qualities such as admiring or appreciation as respect is a key component of a positive relationship. One of the participants stated, "Respect is by far the most important skill in the helping professions", while another student stated, "Respect is an essential part of the Jamaican identity. To be effective with the teens, I had to establish respect quickly. I did this by making sure to ask appropriate questions and maintain good eye contact". Participant statements may suggest that the students understand the

value of respect and also emphasize student thought processes regarding methods of establishing and conveying mutual respect.

The second theme, genuineness, has been identified as a characteristic of an effective human service professional (Neukrug, 2016). Neukrug (2016) compares this to Rogers (1965) concept of congruence. This is the process of becoming in sync with the whole person ensuring all mental and physical reactions are aligned (Neukrug, 2016). One of the participants stated, “One of the skills that was the most easy to use in my time in Jamaica was being authentic. I was in awe of the culture and the way Jamaicans live. I made sure to express my genuine emotions and take an interest in our speakers”. This statement speaks to an appreciation of culture and novel experiences while also expressing the student’s belief that genuine emotions were elicited from the exposure during cultural immersion experiences. Other participants spoke of being authentic and genuine while working with teenage mothers during the service-learning component of the course. One student stated, “When the girls realized that we are real and authentic, it made it easy for the girls to open up to us when we got into small group sessions”. Similarly, another student stated, “Because I was being genuine about their feelings, thoughts, and taking time to listen, my questions were being answered effectively. I became very successful while helping them during our group chats”. These reflective statements from the students also indicate an active practice of learned skills in human services curriculum and an acknowledgment of the effectiveness of using the skills interpersonally in human services work.

The third theme that was identified was listening skills. Listening skills are often taught as basic, yet vital skills for human services professionals and other helping professionals alike (Neukrug, 2016). Listening skills provide a sense of understanding and construct a trusting relationship to establish a professional relationship (Neukrug, 2016). Student statements supported the utility of listening skills in human services work and also show the importance of the service-learning component in encouraging the use of important skills for human services work, giving students real-life opportunities, rather than solely classroom-based activities. Participant statements indicated that there was a value for listening both relating to the material presented by in-country speakers and also relating to the service-learning component which involved hands-on human services work. Statements that illustrate this thematic concept are the following: “I gave the girls in my group my complete attention by listening to their stories”, “Listening was important because we were able to engage in meaningful conversations with the presenters”, “While I was listening, I was noticing how she was communicating, whether she spoke slow or fast, soft-spoken or loud, and hesitating between words. I gave her time to think about what and how she wanted to respond. I allowed silence and resisted the temptation to talk to keep the conversation going”.

Another theme which emerged from participant ePortfolios was nonverbal communication, defined as any messages expressed that do not involve language which could also include laughing, throat clearing, and other noises that are vocally expressed. Additionally, nonverbal communication encompasses volume, rate, and pitch as well as physical appearance, the environment in which communication occurs, the distance between individuals while communicating, body language, gestures, facial expressions, and eye contact (Adler & Proctor, 2016). In human services curriculum, students are taught that all behavior has communicative value. They are taught the

functions of nonverbal communication as well as types, meanings, and cultural context. Participant statements indicate a careful consideration of nonverbal communication and how knowledge has been put into practice. One participant stated, “Body language was important during the first few days because many of the girls may have wanted to say something, but were too shy”. Similarly, another participant wrote, “Observing the culture of Jamaica helped me to establish a greater sense of the country and the people. I especially observed the girls’ behaviors”. Both statements emphasize student acknowledgment of the importance of nonverbal cues and the role that they would play as they navigated their service-learning experience and simultaneously a new culture. Another participant shared, “During the small conversation it was important for me to be a good observer because I wanted to have a better understanding of what my clients were discussing, and by exercising that skill it allowed me to give the appropriate feedback”. One participant spoke to observing the actions and behaviors to help provide information as to how the teen mother she was working with might be feeling. The participant stated, “During my conversation with the girls, I was observing their reactions and behaviors, such as: Did she seem nervous? Did she seem shy? Was she looking away?”.

Cultural awareness was the fifth theme that was revealed through data analysis. This skill is vital in maintaining respect. Cultural awareness is the sensitivity and knowledge that a human services profession displays with clients (Neukrug, 2016). Human services students are taught in their courses of the importance of forming a working alliance with clients regardless of cultural differences (Neukrug, 2016). The ability to navigate the world and utilizing cultural norms is essential (Antes, English, Baldwin, Dubois, 2018). Students’ ePortfolios conveyed an appreciation of new cultural experiences and growth through these experiences. Students also displayed how they could relate their cultural experiences to the human services profession. Participant statements included: “Traveling abroad to Jamaica was a perfect way to experience a full cultural immersion”, “My time during study abroad helped to develop my professional skills in counseling and helped me enlarge my world through increased cultural competency”, “Today I went to the University of West Indies campus and listened to a powerful, thought provoking lecture on Jamaican culture…Jamaica has so much to offer and they are very proud people. I was amazed at how much they embrace their culture and are eager to share their knowledge with others”, “Our trips to local areas, exploring the food, spirits, and dance enlightened us of another world”, “…understand how we participate in the lives of others and in the world around us, communal behaviors that result in how people of similar beliefs come together to practice those beliefs”.

Relationship building was the sixth theme which was identified in this study. Egan (2013) discusses the guiding principles necessary for building stronger relationships. Among these principles are collaboration, tracking client needs and wants, focusing on resources, openness to differing views, and dealing with client negativity and resistance. Comparably, Rogers (1965) claimed that qualities such as warmth, unconditional positive regard, empathy, and genuineness were necessary and often sufficient for progress in the working alliance between helper and client. Quotes from participants reveal their knowledge of relationship building skills, their knowledge of how to use them, their practice of these skills during the service-learning component, as well as the learning that took place which helped them to develop these skills further in the process.

The following are illustrative examples of relationship building from the participants: “When in groups my basic interpersonal skills were tested because I did not only have one client to pay attention to, but instead four to five girls at times”, “Building a relating background or connection allowed the girls to feel comfortable with me and it helped get my questions answered because they felt they were more of a friend versus me being a stranger who was trying to apply helping skills”, “I did not have any background in psychology or social work and I wouldn’t have gained these valuable skills if I did not participate in this study abroad”, “When working with the girls, we tried to get them to open up and talk to us about their self-concept. During these times I tried to reflect back as much as possible in order to let the girls know I was listening as well as cared”, “During these times I tried to reflect back as much as possible in order to let the girls know I was listening as well as cared”, “When we did the mind reframing activity we were able to see the girls start to understand how to change their thoughts from negative into more positive beliefs about themselves”, “The more time we spent with the girls and the more we taught them about self-compassion, mindfulness, self-concept, etc. the more they understood and wanted to be involved”, “We were able to work through the resistance by initially talking with the girls about what we were there for and receiving their feedback about self-concept and self-compassion, thus letting them feel as though aspects of what we were talking about or working on were their idea”, “During my time in Jamaica, I found that the best way to connect with the teens was to be friendly and express warmth. This was one of the first steps in to establishing a relationship at the Women's Center”. The service-learning component allowed students to practice their relationship building skills in an applicable human services professional setting in addition to being challenged to grow and continue to develop personally and professionally.

The last of the seven themes is leadership. Leadership is a highly regarded professional quality and often sought out regardless of the expense in an employee and staff (Ardichvili, Natt och Dag, & Manderscheid, 2016). When advocating for others, human services professionals will have to stand firm and lead others until they are able to do for themselves. Through innovation and being resourceful students were able to address difficult topics such as stress, self-esteem, and confidence. The following are examples of how students displayed their leadership: “My presentation topic was self-esteem and confidence, I gave a brief presentation on the importance of both and some tips for developing self-esteem and confidence. I also did a vision board activity in which the teens were able to create a board using magazine cut outs and scrapbook materials to showcase what their expectations of their future.”, and “We helped a group of teenage mothers and teenage pregnant mothers to-be with information on nutrition, stress management, education, and informational resources. We engaged in learning activities and provided them with various learning materials.”. As mentioned being a leader is a desired trait for any professional. These students were able to step up and show their leadership skills. Additionally, leadership was sought after and achieved by a diverse population of students, which is still to this day a challenge for minority populations (Roya & Korabik, 2010).

These experiences align with the experiential learning cycle (Kolb & Kolb, 2011) whereby learners have a concrete learning experience, followed by opportunities to reflect on these experiences, and subsequently conceptualize and actively experiment

with new knowledge. The service-learning experience in tandem with intentional didactic and cultural immersion components gave students a multidimensional opportunity for learning and growth especially in regards to their human services education.

Table 1
Service-learning Experience Core themes

Theme	Illustrative Examples
Respect for Self and Others	"Respect is by far the most important skill in the helping professions". "Respect is an essential part of the Jamaican identity. To be effective with the teens, I had to establish respect quickly. I did this by making sure to ask appropriate questions and maintain good eye contact".
Genuineness	"One of the skills that was the most easy to use in my time in Jamaica was being authentic. I was in awe of the culture and the way Jamaicans live. I made sure to express my genuine emotions and take an interest in our speakers". "When the girls realized that we are real and authentic, it made it easy for the girls to open up to us when we got into small group sessions".
Listening Skills	"I gave the girls in my group my complete attention by listening to their stories". "Listening was important because we were able to engage in meaningful conversations with the presenters"
Nonverbal Communication	"Body language was important during the first few days because many of the girls may have wanted to say something, but were too shy". "Observing the culture of Jamaica helped me to establish a greater sense of the country and the people. I especially observed the girls' behaviors".
Cultural Awareness	"My time during study abroad helped to develop my professional skills in counseling and helped me enlarge my world through increased cultural competency". "Our trips to local areas, exploring the food, spirits, and dance enlightened us of another world".

Relationship Building	"Building a relating background or connection allowed the girls to feel comfortable with me and it helped get my questions answered because they felt they were more of a friend versus me being a stranger who was trying to apply helping skills". "I did not have any background in psychology or social work and I wouldn't have gained these valuable skills if I did not participate in this study abroad". "During these times I tried to reflect back as much as possible in order to let the girls know I was listening as well as cared".
Leadership	"My presentation topic was self-esteem and confidence, I gave a brief presentation on the importance of both and some tips for developing self-esteem and confidence. I also did a vision board activity in which the teens were able to create a board using magazine cut outs and scrapbook materials to showcase what their expectations of their future". "We helped a group of teenage mothers and teenage pregnant mothers to-be with information on nutrition, stress management, education, and informational resources. We engaged in learning activities and provided them with various learning materials".

Discussion

The purpose of this study is to showcase the significance of ePortfolio in capturing students' experiences and service-learning as a form of pedagogy to ensure human services students gained practical knowledge. A key aspect of this study is the development of helping skills and how they are actualized throughout the human services service-learning experience. Seven themes emerged through this study: 1) respect for self and others, 2) genuineness, 3) listening skills, 4) nonverbal communication, 5) cultural awareness, 6) relationship building, and 7) leadership. The participants highly regarded their experiences and attributed this opportunity to their increased understanding of working in the profession.

In addition, this study embraced digital pedagogy by utilizing ePortolio as a reflective tool to capture students study experience and skill development. Since technology serves a key role in the lives of traditional college students embracing it provided an opportunity for creative yet rich expressions. It is not only suggested but also necessary to incorporate technology to increase learning within the classroom (Littlefield, Rubinstein, & Pittman, 2015). The ability to retain and learn information is only a portion of creating a well-rounded student. The application of the material and if possible first-hand experiences bring the information to life in a practical manner, which solidifies learning. Nicholas et al. (2011) determined that service-learning trips provided a unique experience, which promoted the understanding of helping skills unlike any other means of learning. Similar to Nicholas et al. (2001) findings, this study found that students gain an increased understanding of key skills through the incorporation of service-learning and ePortfolio reflection. Using the ePortfolio as a tool to encourage reflection on the service-learning trip supports student integration of personal

experience and professional identity while increasing self-awareness and facilitating further development of skills essential to the human services profession, such as empathy (Tracey & Hutchinson, 2018).

This study produced seven themes which participants linked to their own growth and understanding of serving as a human services professional. Each of the themes is an integral component of the human services curriculum. As a result of the study abroad and ePortfolio experience, students were able to not only learn but also apply these skills to become well-rounded human services professionals. It has been determined that incorporating "meaningful and active learning experiences" (Katz, DuBois, & Wigderson, 2014, p.251) leads to higher quality undergraduate education. The results of this study were conclusive with these prior results as students found meaning, value and a deeper understanding through the service-learning experience.

The outcomes of this study create a unique opportunity for human services education. It suggests that human services educators would benefit greatly from utilizing, service-learning to foster advanced skill development. In this instance, service-learning focused study abroad was utilized to develop human services skills while challenging students to utilize critical thinking in order to evolve into culturally competent human services professionals. This study further suggests that the use of ePortfolio was effective in capturing students' critical reflections of experiences. Without the use of digital pedagogy to explore, capture, and assess this development it would be unknown if students truly gained the knowledge that was intended.

Although the information gathered as a part of this study is valuable to the field of human services, there are certain limitations, which must be considered. First, while smaller sample sizes are characteristic of qualitative research, the sample size utilized for the current study was small and is a limitation. Caution should be exercised when generalizing the results to other populations as the sample size was small yet also not diverse in nature, lacking male participants. A second limitation is the lack of information on student experiences using an ePortfolio. It may be helpful to gain specific information regarding student perceptions of the utility of this digital tool in order for educators to improve the manner in which the tool is used for instruction and evaluative purposes. Future research efforts should focus on addressing the gaps identified.

Service-learning and specifically international service-learning is an asset to human services education. This study provides information, which speaks to the necessity of study abroad experiences as a tool to cultivate informed future professionals. Human Services is a profession that requires a variety of professional skills and human services educators have the responsibility to ensure that students are both knowledgeable of their interpersonal communication skills as well as capable of appropriately and effectively applying the skills prior to graduation. This study identified seven themes which are needed for students to effectively work within the field. Respect for self and others, genuineness, listening skills, nonverbal communication, cultural awareness, relationship building, and leadership are the themes identified by this study. Students expressed their ability to comprehend and execute these tasks through this study. Service-learning within human service education is a strong form of pedagogy which is needed to continue to engage our students in meaningful and purposeful ways. Service-learning experiences allow instructors to ensure that the

information has been learned and executed appropriately which enhances the longevity of the profession.

References

Adams, C.(2015). Service-learning projects: What student reflections' reveal. *Journal of Service-learning in Higher Education,4*(1),1-23

Adler, R.B., & Proctor II, R.F.(Eds.).(2016). *Looking out, looking in.*Boston,MA:Cengage Publishing

Antes, A.L., English, T., Baldwin, K.A., & DuBois, J.M. (2018). The role of culture and acculturation in researchers' perceptions of rules in science. *Science and Engineering Ethics, 24*(2), 361-391.

Ardichvili, A., Natt och Dag, K., & Manderscheid, S. (2016). Leadership development: Current and emerging models and practices. *Advances in Developing Human Resources, 18*(3),275-285.

Ayman, R., & Korabik, K. (2010). Leadership: Why gender and culture matter. *American Psychologist, 65*(3), 157-170. doi:10.1037/a0018806

Banachowski, L., Drabik, A., & Nowacki, J. P. (2013). Improving process of teaching students by means of methods and tools of knowledge management and e-learning.*International Journal of Innovation, Management and Technology, 4*(6), 599. doi:http://dx.doi.org.proxy.lib.odu.edu/10.7763/IJIMT.2013.V4.469

Bowen, G. A.(2009). Document analysis as a qualitative research method. *Qualitative Research Journal, 9*(2), 27-40.

Craigen,L.M., & Sparkman, N.M.(2014).The value and importance of international service-learning programs: A model for human service education. *Journal of Human Services,34*(1), 126-130.

Creswell, J.W. & Creswell, J.D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publishing.

Commuter Affairs and Community Service, University of Maryland. (1999). Faculty handbook for service-learning. College Park, MD: Author.

Corporation for National and Community Service, Learn and Serve America, National Service-Learning Clearinghouse, *What is Service-Learning?* www.servicelearning.org/what-service-learning

Desmond, K. & Stahl, S. (2011). Implementing service-learning in human service education. *Journal of Human Services*, *31*(1), 5-16.

Egan, G. R.F.(Eds.).(2013). *The skilled helper: A problem-management approach to helping.* Belmont,CA:Brooks/Cole Publishing

Hays, D. G., & Singh, A. A. (2012). *Qualitative inquiry in clinical and educational settings*. New York, NY: The Guildford Press.

Hogan, S.R., & Bailey, C.E.(2010). Service learning as a mechanism for change in attitudes and perceptions of human services students toward substance-dependent mothers. *Journal of Teaching in Social Work, 30*(4),420-434.

Johns Hopkins University.(n.d.).*Student Outreach Resource Center:Service-learning models*.Retrieved from http://source.jhu.edu/publications-and-resources/service-learning-toolkit/service-learning-models.html

Katz, J., DuBois, M., & Wigderson, S. (2014). Learning by helping? Undergraduate communication outcomes associated with training or service-learning experiences. *Teaching of Psychology,* 41(3), 251-255. doi:10.1177/0098628314537982

Kolb, Alice & Kolb, David. (2011). Experiential learning theory: A dynamic, holistic approach to management learning, education and development. In Armstrong, S. J. & Fukami, C. (Eds.)*Handbook of management learning, education and development*. doi: 10.4135/9780857021038.n3

Lee,S., Olszewski-Kubilius, P., Donahue, R., & Weimholt, K. (2008).The civic leadership institute: A service-learning program for academically gifted youth.*Journal for the Education of the Gifted* Volume *19*,(2),1-8.

Lee,S., Olszewski-Kubilius, P., Makel, M.C., & Putallaz, M.. (2015).Gifted students' perceptions of an accelerated summer program and social support.*Journal for the Education of the Gifted* Volume *59*,(4),265-282.

Littlefield, M. B., Rubinstein, K., & Pittman, M. E. (2015). Beyond PowerPoint™: Using learning objects to enhance social work courses. *Journal of Technology in Human Services*, 33(2), 172-190. doi:10.1080/15228835.2015.1022683

*Loyola University.(n.d.).Service-learning and community-engaged teaching.*Retrieved from https://www.loyola.edu/department/ccsj/get-involved/community-engagement/service-learning

McAuliffe, G. (2011). Handbook of counselor preparation: Constructivist, developmental, and experiential approaches (HCP). Alexandria: VA: Association for Counselor Education and Supervision and Thousand Oaks, CA: Sage Publications.

McKee, R.(2016). International service-learning: Common goals and issues among programs across disciplines. *Journal of Service-learningin Higher Education,5*(1),1-13.

Miles, M.B., & Huberman, A.M. (1994). *Qualitative data analysis* (2nd ed.). Thousand Oaks, CA: SAGE Publications.

Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks, CA: Sage Publications.

Neukrug, E. (2016). Theory, practice, and trends in human services: An introduction. Belmont, CA: Brooks Cole.

Nicholas, T. M., Baker-Sennett, J., McClanahan, L. G., & Harwood, A. M. (2011). Building professional understanding through community-based learning. *Journal Of Human Services*, *31*(1), 38-50.

Pariola, J.S., & Pariola, A.G.(2006). Expanding the parameters of Service-learning: A case study. *Journal of Studies in International Education,10*(1),71-86.

Patton, M. Q. (2014). *Qualitative research and evaluation methods.* Thousand Oaks, CA: Sage Publications.

Rogers, C. R. (1965), The therapeutic relationship: Recent theory and research. Australian Journal of Psychology, 17: 95–108. doi:10.1080/00049536508255531

Saldaña, J. (2009). *The coding manual for qualitative researchers.* Thousand Oaks, CA: SAGE Publications.

Stewart, K. (2018).The undergraduate field-research experience in global health: Study abroad, Service-learning, professional training or 'none of the above'?*The International Journal of Higher Education in the Social Sciences,6*(2).53-71.

Tracey, M., & Hutchinson, A. (2018). Reflection and professional identity development in design education. *International Journal of Technology and Design Education, 28*(1), 263-285. doi: 10.1007/s10798-016-9380-1

van Kaam, A.L., (1959). Phenomenal analysis: Exemplified by a study of the experience of “feeling really understood.” *Journal of Individual Psychology, 15*, 66-72.

Whalen, B. (2007). The management and finding of US study abroad. International Higher Education, 50. 15.

Wood, C.A., Banks, S., Galliardi,S., Koehn, J., & Schroeder, K. (2012). Community impacts of international service-learning and study abroad: An analysis of focus groups with program leaders. *Journal of Service-Learning and Civic Engagement. 2*(1), 1-23.

Woodside, M., Carruth, E., Clapp, S. & Robertson, J. (2006). “I could not have been more wrong in my preconceived notions”: The experience of Service-learning. Human Services Education, 26(1), 5-24.

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Engaging Elementary Students in Energy Sustainability: A Service-Learning Project by Pre-Service Elementary Teachers

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Abstract

Forty-one pre-service elementary teachers (PSETs) enrolled in a science methods course participated in a service-learning project on energy and sustainability. The goal was to help PSETs and elementary students to understand concepts regarding energy, energy saving, and sustainability through an on-campus Family Energy Day event for 65 elementary school students. PSETs participating in the service-learning project identified gains in science knowledge, an increased awareness of their own energy saving practices, the relevancy of the activities, and how the project helped shape their professional identity as strengths. Elementary students who participated also showed commitment to practicing a variety of energy saving habits which they were exposed to through the event. Strengths of the service-learning experience for both PSETs and elementary students included the opportunity to learn in an informal environment, the development and use of activities related to both groups' daily lives, and the opportunities the event presented for real-wold application and reciprocal learning

The United States (U.S.) has 4.3% of the world's population but uses 18% of the world's energy (United Nations, 2017; U.S. Energy Information Administration, 2017). Further, in 2016, only 12.8% of the energy used in the U.S. was renewable (solar, wind, or hydropower), highlighting the United States' dependence on non-renewable fossil fuels such as coal and petroleum (U.S. Energy Information Administration, 2018). Hence, it is crucial that we, as a country, consider how to best manage and conserve our limited natural resources to help sustain them for the next generation.

Energy sustainability education involves a two-pronged effort, focusing on both energy efficiency to slow demand, developing and utilizing renewable energy to produce power (Prindle, Eldridge, Eckhardt, & Frederick, 2007). Therefore, sustainability education is an important vehicle to educate both adults and children regarding the practical ways to sustain available resources. By heightening awareness of both group's energy use, alternatives, and practices to conserve they may become more conscious of their behaviour and actions, and even serve as agents of change in their communities (Percy-Smith & Burns, 2013).

Statement of Purpose

The goal of the present study is to examine what both elementary school students and pre-service elementary teachers (PSETs) gain from a community-based service-learning project exploring energy efficiency and renewable energy production. In this study, energy sustainability education was integrated in a science methods class for elementary school educators. PSETs learned energy concepts first and undertook a community-based, service-learning project to

teach elementary students about energy and ways of saving it. The present literature review will provide background on energy sustainability education and how community-based service-learning experiences may help promote a deeper understanding of energy sources, concepts, and the real-world application of conservation practices.

Energy Sustainability Education

Sustainability education efforts are designed to help us understand how to balance the resource needs of humans with the needs and constraints of the natural world so this generation and those that come after us can thrive (Environmental Protection Agency, 2018). Sustainability education can be seen as the intersection between knowledge acquisition and practice (Percy-Smith & Burns, 2013) and integrates multiple disciplines such as science, social science, economics, ethics, culture, and politics (Albe, 2013).

For energy education to be effective it should be meaningful to the context. Hence, place-based educational approaches, which focus on local issues and encourage collaboration between schools and communities to understand and solve problems using a project-based approach (Sobel, 2013; Smith, 2007; Smith & Sobel, 2010) are vital. In poor, rural northeastern areas, such as where this project took place, the average temperature in January is 20ºF. Hence, understanding heating, energy use, insulation, and costs (financial and environmental) are ecologically valid concerns for students and their families in our community.

The timing of energy education developmentally is also important. The *Next Generation Science Standards* (NGSS) (NGSS Lead States, 2013) suggests that 4th grade is the optimal starting point for energy education. At this grade-level, students are expected to understand the transfer of energy, conservation of energy, and insulation. The NGSS also emphasizes the importance of STEM (science, technology, engineering and mathematics). Energy is an excellent exemplar of STEM education as its components are multifaceted and the issues surrounding require higher-order thinking and decision-making, both on a macro-level scale as well as in the context of the small decisions we make every day (National Research Council, 2012). A better understanding of energy, including its transfer, conservation, and insulation requires 4th graders to apply STEM concepts and to use the information to make informed decisions, possibly leading to sustainable energy use, reduced risks, and negative impacts on the environment (Department of Energy, 2012).

As science and society are interdependent, there are challenges in sustainability education for both children and adult learners. It has been suggested that sustainability education "does not define an object of teaching but a goal" (Albe, 2013, p. 188). Crompton and Thogersen (2009) argue if people just learn about sustainability but do not live a sustainable lifestyle, it only leads to simple changes which have little impact on the global issue of sustainability. Rachelson (2014) also suggests that personal attitudes rather than content knowledge are what move sustainability forward. Sterling (2001) points out what is needed is a "transformative" and not "transmissive" process; learning approaches that require a transformed educational paradigm can instill young people with a culture and consciousness for critical learning and action. Hence, sustainability education is difficult to achieve in practice. The traditional school curriculum emphasizes knowledge acquisition rather than practice; sustainability education however requires teachers to attend to socio-educative aims and socio-political actions which can be challenging to address in the current educational and political climate (Percy-Smith & Burns, 2013).

Community-Based Experiential Science Education

While sustainability education has promise, especially during the elementary school years, many pre-service and new teachers struggle with how to approach the topic. Many future educators have their own negative attitudes about science (Raizen & Michelson, 1994), have experienced their own challenges in learning scientific content (Palmer, 2001), and report low self-efficacy and confidence in teaching scientific content (Enochs & Riggs, 1990; Harlow, 2012). Moreover, with the move towards more standardized testing in public schools, some have had more limited exposure to science education as their classroom experiences have focused around literacy and mathematics instruction (Milner, Sondergeld, Demir, Johnson, & Czerniak, 2012; Rivera Maulucci, 2010).

Research on the use of service- and community-based learning indicates it is an effective complement to traditional instructional methods in teacher education (Billig & Freeman, 2010; Castellan, 2012; Chambers & Lavery, 2012). Efforts such as the Serve America Act (2009) have heightened interest in service-learning as a part of teacher preparation efforts (Pritchard & Whitehead, 2004; Stringfellow & Edmonds-Behrend, 2013).

Experimental research does indicate that integrating service-learning and community-based experiences into teacher education can have many benefits including increasing pre-service teachers' personal self-efficacy, content knowledge, and awareness of inquiry-based science teaching methods (Cone, 2009 & 2012). Using everyday science experiences as the basis of science instruction has been shown to improve students' attitudes about science and the relevance of it in their everyday lives (Kim, Yoon, Young & Song, 2012; Percy-Smith & Burns, 2013). Sustainability education research shows that using hands-on activities to promote energy saving and sustainability are effective in helping children to develop conceptual knowledge, positive attitudes, and behaviors (Lee, Lin, Guu, & Chang, 2013). Evans (2012) states that service-learning that "help(s) students make leaps from comprehension to praxis, . . . is an important aspect of the critical pedagogy of sustainability" (p.237).

The Current Project: Family Energy Day, A Service-Learning Project

Family Energy Day was designed as a service-learning, community-based project; a collaboration between a local elementary school and a university's teacher education program in a rural community in northern New England. A field trip was planned, implemented, and facilitated by PSETs enrolled in a science methods course. PSETs learned energy concepts in the course, designed hands-on science activities to teach energy concepts and sustainability practices to fourth grade students from a local elementary school, and planned and implemented the school's field trip to campus. The elementary school, located close to campus, serves as a frequent partner for practicum and student teaching placements. The school, while not racially or ethnically diverse, serves students with other challenges. Fifty-eight percent of students receive free and reduced rate lunch and a 22% receive special education services. Per pupil expenditures for the district are also lower than the state average.

The project was conceived as one which would be mutually beneficial to both the elementary school and the university. The elementary school would receive access to a low-cost field trip and new ideas regarding how to introduce energy and sustainability concepts to their students. For the university, the experience would enable PSETs to obtain more teaching and field experience prior to their student teaching experience. As a result of participating in the Family Energy Day, it was hoped that both PSETs and elementary students would:

1. Understand sources of energy and related energy concepts including the seven fundamental concepts of energy (energy as following laws, underlying physical and biological processes, as a source of power, factors important to energy decisions and choices) (DOE, 2012).
2. Learn the best way to save energy.
3. Apply energy knowledge they learned in their daily lives.

The project was carried out in three phases.

Phase I: College Classroom Work with PSETs

The first phase of the project was centered in the college classroom. PSETs worked to consolidate their energy knowledge, considering topics such as exploring what energy is, how it is transferred, the difference between kinetic and potential energy, and heat and temperature. They also considered the topic of energy as a local and community concern, both now and in the future. Students completed a pre- and post-assessment quiz on energy concepts and hands-on activities to consolidate their knowledge. One of the authors also came to talk to the class to discuss service-learning and working with children through community-based, informal learning experiences.

Phase II: Activity Development and Peer Teaching

The second phase of the project focused on the development of teaching pedagogy and lesson for the event which was called Family Energy Day. The goal of the event was to help elementary students understand what energy is and increase awareness of simple ways of saving energy which could be applied in their home and family contexts to save money and resources. The PSETs had the option of choosing their own activity or an activity from a Family Energy guidebook written by the state science organization. Eight activities were developed, 4 with the goal of teaching energy concepts and 4 focused on sustainability and energy-saving practices (Table 1). Each activity was also tied to a piece of children's literature. In the development of the activities. PSETs demonstrated their activities to their peers for feedback, comments, and refinement prior to the event.

Table 1. Hands-on Activities Offered at the Eight Stations and Expected Learning Outcomes

Type of Activity	Activity Title	Description	Expected Learning Outcomes
Energy Knowledge	Puzzled about Power	Using the *Alternative Energy Conversion Kit*, students experiment with the different form of energy – solar, mechanical, sound, and wind and how energy from one form is converted to the other.	People can harness natural resources, e.g. sun and wind energy to make them into usable energy. Further discussion may lead to understanding renewable and non-renewable energy and the effects on the environment.
	A Centsible Battery	A light bulb is connected to a stack of pennies that have copper on one side and zinc on the other. Cardboard pieces are placed in	The light bulb is lit because of the flow of electricity which is the movement of electrons.

		between which are dampened by salt-vinegar solution.	
	Ice Melting Blocks, So Cool it's Hot	Ice cubes are placed separately on two black blocks – one is made of aluminium and the other is polystyrene. The ice cube that is placed on the aluminium block melts faster than the other that is placed on polystyrene block.	This activity demonstrates conduction of heat and that metal is a good conductor.
	Energy Toy Box	Students are given several toys (energy ball, yo-yo, spinning top, mood ring, pop-up toy etc.) to play with. Afterwards, they are asked why the toys work and what kind of energy each toy illustrated.	Students learn about different form of energy and energy is changed from one form to the other.
Sustainability	Is it Drafty in Here? Making a Draft Finder	Students are instructed to make a draft finder by sticking strips of toilet paper on a pencil. Students then go around the room to hunt for drafts.	Heat energy in the house is lost because of drafts. PSETs will discuss with the students ways of stopping the drafts, such as sealing holes and leaks, and using weather stripping.
	Doing the Job for Less	Three types of 60 Watt of light bulbs – incandescent, compact florescent and LED (light emitting diode) are set up. Students observe the light output using their eyes and heat output using a thermometer. Students then calculate the cost per bulb and bulb life, thus, estimating the cost per year of using each type of light bulb.	A lot of the energy of the incandescent light bulb is wasted as heat. Students are taught to use energy more efficiently by using different types of light bulbs.
	How Much is That, What does it cost	A board game that compares the amount of energy in wood, gasoline, refrigerators, and Big Macs needed to complete activities such as running, travelling, watching TV etc.	The rough comparisons help students to understand the amount of energy needed to do various activities and the sources of energy in our daily life.
	Where do your Energy Dollars Go	Each group is given $2200 of play money. Students need to estimate how much money is spent annually in each household category such as electronics, lighting, electric appliances, water heating, heating, cooling and others.	By understanding the annual household energy costs for families, students are encouraged to think of ways to reduce some of the unnecessary uses of energy.

Phase III: Family Energy Day on Campus

Sixty-five 4th graders visited the university for the day (34 in the morning and 31 in the afternoon morning. PSETs (20 in the morning, 21 in the afternoon) facilitated groups of 4-5 students, teachers, and chaperones as they rotated through the 8 stations, spending approximately 10 minutes at each. At the end of the event students were sent home with a goodie bag containing science items and activities they could try out at school and at home.

Research Questions

1. What benefits do PSETs perceive after participating in Family Energy Day, a service-learning project?
2. How do the self-reported energy saving habits of PSETs change as a result of the Family Energy Day experience?
3. How does elementary students' participation in the event impact their commitment energy saving habits?

Methods

Participants

PSET Participants. Two groups of PSETs in a science methods class participated in the Family Energy Day. The PSETs (40 females and 1 male; 10 seniors and 31 juniors) were enrolled in a Bachelor of Science degree program in education at a liberal arts university.

Elementary School Student Participants. Sixty-five students enrolled in fourth grade classrooms at a local elementary school attended the event with their teachers and parent chaperones.

Data Collection

PSETs Perceptions of the Service-Learning Project. After the completion of the Family Energy Day, PSETs were asked to write a reflection paper and to participate in a focus group discussion. Data on what PSETs learned through their participation in the service-learning project and how their daily energy saving habits changed were obtained by analyzing these data sources. Reflection is a major component of service-learning courses (Sherman & MacDonald, 2009), with open-ended questions allowing PSETs to more fully process and consider their experience, both personally and professionally.

Elementary School Students' Commitment to Saving Energy. To assess what elementary students had learned after participating in the Family Energy Day, an assessment worksheet was given to each student to be completed in school. The worksheet asked students what they had observed and what they had learned from each activity. At the end of the worksheet,

students were asked if they were now committed to a variety of different energy saving practices. Four of the statements (Turn lights off when leaving a room; turn off electronics and appliances completely when not being used; tell my parents to use compact florescent light bulb (CFL) or light emitting diode (LED); and find drafts in my home and tell my parents to seal them) were directly linked to the activities in Family Energy Day and another four (Bring a lunch in a reusable bag; help my parents hang clothes to dry; take 5-10 minute showers; recycle paper, glass, plastic, magazines and yard clippings) were not.

Data Analysis

Phenomenological data analysis, as described by Moustakas (1994), was employed in this study. The two authors found significant statements that were shared by PSETs in their reflection papers and focus group discussions about their experiences participating in the service-learning project (horizontalization methodology). The two authors read through the reflection papers written by PSETs. A total of 473 codable phrases across 8 thematic areas were identified. Frequency counts were calculated for the number of phrases that fit into the themes for each category.

Results

PSETs Perceptions of the Service-Learning Project

Table 2 shows the percentage of responses endorsed by PSETs for each theme noted. The thematic category which PSETs noted most often was the impact that the experience had on their own energy use habits and ideas about sustainability (22.4% of all comments). The thematic category least mentioned was the role the experience had on the PSETs use of science process skills (2.5% of all comments). All PSETs did note at least once how the service-learning project had increased their knowledge of energy concepts (sources of energy, conservation of energy, energy transfer, difference between energy and power, and renewable and non-renewable energy). Some also found that by learning about energy and teaching it to elementary students, their misconceptions, such as the confusion between kinetic energy and potential energy, had been clarified. For example, PSETs had the misconception that electrical appliances did not draw any energy as long as they were not in use. They did not realize that energy (phantom energy) was still used by electrical appliances even in “sleep” mode.

Table 2. Themes in PSETs Reflections

Theme and Percentage of Responses	Description of Theme
Science Knowledge 11.4%	Specific information PSETs learned about science concepts related to energy and energy activities.
Science Process Skills 2.5%	Science process skills acquired, including how to ask questions, plan and carry out investigations, or communicate information.
Students 5.3%	Specific interactions with students and the real life learning process which occurred
Teachers/Parents 11.2%	Specific interactions with teachers or parents and the real-life learning process which occurred.
PSET as Teacher 15.6%	How Family Energy Day impacted PSETs as future teachers or might influence their teaching approach in the future.
PSET Energy Use Habits/Sustainability 22.4%	How the experience of learning and teaching energy affected PSETs own habits in using energy.
Relevancy of Activities 13.3%	The relevancy of the activity for elementary students in learning about sustainability.
Challenges 18.2%	Specific challenges encountered while working as an educator or communicating science knowledge in the field.

Overall, PSETs' reflections tended to focus on how the event had made them more aware of their own energy usage, their views on the relevancy of the activities to students and families, the challenges they experienced, and how the experience shaped their professional identity as teachers.

PSET Energy Use Habits/Sustainability. Most PSETs described how their energy saving habits had changed after learning about energy and doing the activities. They reported becoming more mindful about their habits in using energy. Some of their commitments included turning off lights and unplugging electrical appliances when not in use, being more aware of the power used by various electrical appliances and not using them for an unnecessary prolonged period of time, preventing drafts at home by sealing off crevices in windows or doors, and using

energy saving light bulbs such as florescent or LED light bulbs instead of incandescent light bulbs.

An interesting comment of one PSET was *"My parents have told me countless times to turn things off when I leave the room but I never really understand why. When I was old enough to understand why, I did not understand the amount of money we could be saving by just turning off light, so I continued to not care. It was not until these activities that I understood why it is important to and how much money we could be saving!"*

*Relevancy of Activities***.** The topic of energy is part of the NGSS at the fourth grade elementary level. It includes definitions of energy, conservation of energy and energy transfer, the relationship between energy and forces, energy in chemical processes and everyday life, natural resources, and engineering problems. PSETs were able to see the relevance of the activities which served as the basis of Family Energy Day and their alignment with these concepts and ideas. They could see how the activities allowed students to engage and explore the concepts of energy in a hands-on way. Feedback from elementary school teachers received during the event suggested that Family Energy Day activities also reinforced the energy concepts that they and their students had been learning in the classroom.

Comments from parents at the event also demonstrated the relevancy of the activities to the families and the community where the intervention took place. One PSET *noted "I found one parent in particular, when he began asking questions about energy expenditures the students followed his lead and began asking more in-depth questions. This leads me to think that the interaction between the parents, students and I at the station is what led to success."* Another PSET wrote that many adults (parents or teachers) pulled her aside to ask questions about which light bulb they should be using at home and why. Thus, the activities not only interested the students, but the parents and teachers as they thought about how they could save energy in their workplace and home.

Challenges. All PSETs admitted the fast pace of the event made it challenging for them to do the activity and explain the concepts within 10 minutes. Another aspect which they found challenging was teaching a group of students with diverse learning abilities. A few PSETs admitted that they were not able to answer questions raised by students, teachers or parents that were related with the activity. Thus, they politely told the students, teachers, and parents that they didn't know the answer and had to look it up which is a valid and genuine response for PSETs.

*PSETs as Teachers***.** Several PSETs were excited to have the teaching opportunity and many stated that they had more confidence in teaching science after the event; that the event contributed positively to their professional identity as a teacher. One PSET described the change in her attitudes toward the learning about energy as follows:

> "*When first hearing that we were going to be teaching students about the different kinds of energy, what energy is and how to save energy, I was a little hesitant and nervous. I*

have never been taught much about energy, nor have I had the self-motivation to research or learn about energy on my own. However, after the presentations in class and having our peers teach us about the materials, I learned a great deal about energy and was very confident teaching the materials when Family Energy Day arrived."

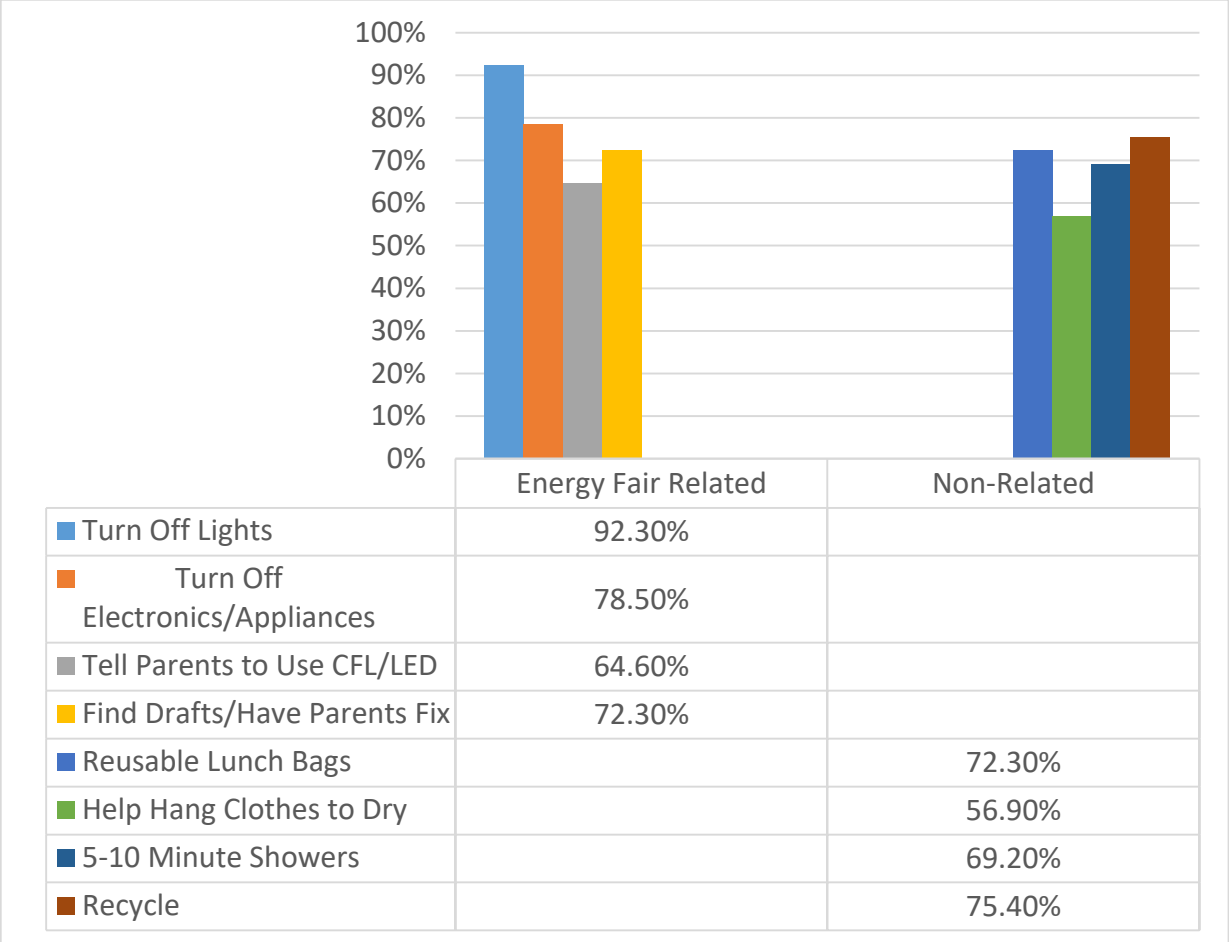
Through the authentic teaching experience, PSETs learned that in a real classroom setting, one has to think on one's feet. No matter how well one plans the lesson, one has to be flexible and make some adjustments. This is what one PSET wrote about her teaching experience of working with children of various levels of academic ability:

"We never know how many students were going to be in our group at a time . . . the groups varied a great deal when it came to their background knowledge on our activity. Some students already had an understanding on why some light bulbs were better to use than others. Some students understood that in order to save energy, you did not want the light bulb to give off external heat; while other students thought the more heat the light bulb gave off the better because it would light the house up and keep it warm."

Elementary Students' Commitment to Saving Energy and Sustainability Practices

A learning goal for students was to make them more conscious about energy – what it is and how it can be used efficiently. Figure 1 shows the frequency count of "My Commitment" section of the assessment completed by elementary students. Data show that students were more likely to commit to energy saving practices addressed during the Family Energy Day (76.9% on average) than those practices not directly addressed (68.5% on average). The practice which most students were aware of was turning lights off when leaving a room (92.3%). Habits that related to their family such as "tell my parents to use compact florescent light bulb (CFL) or light emitting diode (LED)", and "help my parents hang clothes to dry" were least frequently committed to, with 64.6% and 56.9% endorsing these items respectively.

Figure 1. Students' Commitment to Different Types of Energy Saving Habits (*N*=65)



	Energy Fair Related	Non-Related
Turn Off Lights	92.30%	
Turn Off Electronics/Appliances	78.50%	
Tell Parents to Use CFL/LED	64.60%	
Find Drafts/Have Parents Fix	72.30%	
Reusable Lunch Bags		72.30%
Help Hang Clothes to Dry		56.90%
5-10 Minute Showers		69.20%
Recycle		75.40%

Discussion

High quality sustainability education efforts not only help students understand energy use, alternatives, and practices but consider their behavior, attitudes, and practices (Percy-Smith & Burns, 2013; Rachelson, 2014). While there are no easy or simple solution to the complex problems of energy sustainability (Compton & Thogerson, 2009; Sterling, 2001; Vazquez, 2013), this community-based service-learning project did provide many benefits to the PSETs and 4th graders. Benefits included gains in scientific knowledge about energy, an increased awareness of the relevance of the activities to energy education, and a commitment to some energy saving practices. For PSETs, the service-learning experience also helped develop and shape their professional identity as educators.

PSETs as Energy Consumers and Educators

For PSETs, this community-based service-learning experience served as a major catalyst to consider their own energy habits and critically reflect on their own practices and

lifestyle (Evans, 2012). Many of the PSETs themselves are from families with limited means (98% receive financial aid). Hence, the relevancy of the activities used to not only science education (such as the NGSS) and place-based community concerns but to personal issues may have helped to facilitate this awareness (Sobel, 2013; Smith, 2007; Smith & Sobel, 2010).

While all PSETs reported gains in their knowledge about energy, far fewer saw the experience as one which assisted them in developing science process or inquiry skills. The context of the service-learning event may have limited gains in this area. Each Family Energy Day session was 100 minutes for each group of elementary students, with approximately 10 minutes for students to work on each station. With such a short time period to implement each activity it was challenging for PSETs to go in-depth in utilizing an inquiry-based approach to teaching science. At least one student did mention how they could change a direct instructional activity (Censible battery) into more an inquiry-based activity incorporating higher order thinking by adding more opportunities for analyzing, explaining, communicating, and recording information. However, more extended time working with students at the event or in an additional classroom experiences outside of the event may have assisted PSETs in developing these skills.

The event also helped to build the professional identity of the PSETs as teachers, as other such efforts have noted (Cone, 2009, 2012). By teaching science in an informal, science fair type setting using hand-on activities PSETs had the opportunity to build their confidence. Repeating the same activity multiple types allowed for lesson study, modification, and refinement, potentially building their feelings of personal self-efficacy. In discussing their interaction with students, many discussed the personal satisfaction they felt when elementary students learned ideas and concepts from their stations. As one PSET wrote, "*When students were asked what they have learned in the end, some elementary students were bringing up things they learned at my station, and that was really rewarding to me.*"

As PSETs worked in teaching teams and planned the entire event, they also learned about the value of teamwork and collaboration, not only with one another, but with the local school, parents/caregivers, and community, important aspects of the service-learning experience (Cress, 2005; Eyler & Giles, 1999).

The Elementary School and Students

To the elementary school and its students, Family Energy Day served as a cost-effective field trip and an opportunity for students to learn not only about energy and sustainability practices but the higher education institution, students, and faculty that reside in their own community. While it is difficult to ascertain how much energy knowledge students gained during the fast-paced event or what information was reinforced by teachers afterward, children did seem to comprehend the value of undertaking a commitment to many of the energy-saving practices addressed (turning off lights, appliances/electronics, fixing drafts).

However, students were less likely to endorse practices which required altering their parents' behavior (telling them which type of light bulb to buy or to hang clothes to dry). One hypothesis that could be drawn was that most students did not want to impede their parents when completing household chores or did not feel it appropriate to question/comment on their actions. It is important to consider that children are sometimes dependent on others to make

energy saving changes within the family context. Given differences in power differentials within the family, they may feel less comfortable endorsing practices which would require them educate their parents. This is an important consideration in developing and implementing sustainability education efforts with children.

Energy concepts and energy saving habits are more likely to be reinforced when the various ecological systems which surround children, such as parents, teachers, and administrators are included (Bronfenbrenner, 1979). Efforts which empower students as direct agents of change within their schools, using a whole school approach (Evans, 2012; Percy-Smith & Burns, 2013; Sobel, 2013; Smith, 2007; Vazquez, 2013) to save energy rather than a one-time event may be valuable, thus allowing us to examine the transformative effects of learning about energy and sustainability on children's behavior at schools, at home, with their families, and in the future.

Limitations and Future Work

A major limitation of this study is that the initial energy saving habits of the PSETs and elementary students were not directly and quantitatively assessed. Percy-Smith and Burns (2013) caution that while sustainability education efforts in schools have been developed with the best intentions, it is hard to know whether children are developing a tendency toward sustainable practices through these experiences. Integrating energy saving habits in one's life is a lifelong process that needs practice and continuous reinforcement.

While Family Energy Day introduced and reinforced to students the importance of sustainability, more intensive and continuous efforts are needed to build from the momentum of this one event. Among the efforts currently underway include using different modes of service-learning and comparing the effectiveness of the different models. Modes include doing only classroom visits to implement the lessons and using a combination of the classroom visits and the Family Energy Day event with a more extended visit to campus using a trip to the campus biomass plant and community reuse-it center.

Expanding the length and scope of the interchanges between PSETs and the school is also a goal as the project moves forward. Enriching lessons to include more STEM and interdisciplinary focus to address topic of sustainability more broadly and comprehensively would allow for more comprehensive use of the NGSS and open the door to more school-wide initiatives to link knowledge and practice.

It is also crucial to enrich the depth of the data collected for the project. Future efforts need to incorporate lesson observations to see how PSETs are applying their learning and teaching in the classroom. Further analysis of data collected from elementary students to assess their understanding of the science concept of energy is also planned.

Conclusions

Sustainability practices and daily habits around energy consumption take time to change. Through their participation in Family Energy Day, PSETs and children were more likely to endorse the use of sustainability practices for which they have had direct, hands-on experiences which heighten their awareness and facilitate conceptual development.

Sustainability education is important to all of us because we need to learn how to manage and share the limited natural resources available in the world in which we live.

References

Albe, V. (2013). On the road to science education for sustainability? *Cultural Studies of Science Education, 8*(1), 185-192.

Billig, S., & Freeman, F. (2010). *Teacher education and service-learning.* Denver, CO: RMC Research Corporation.

Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.

Castellan, C. M. (2012). Service-learning in teacher education: Reflection as a catalyst for learning. *Reflective Practice, 13*(6), 843-855.

Chambers, D. J., & Lavery, S. (2012). Service-learning: A valuable component of pre-service teacher education. *Australian Journal of Teacher Education, 37*(4), 128-137.

Cone, N. (2009). Community-based service-learning as a source of personal self-efficacy: Preparing preservice elementary teachers to teach science for diversity. *Social Science and Mathematics*, *109*(1), 20-30.

Cone, N. (2012). The effects of community-based service-learning on pre-service teachers' beliefs about the characteristics of effective science teachers of diverse students. *Journal of Science Teacher Education*, *23*(8), 889-907.

Cress, C. M. (2005). What is service-learning? In C. M. Cress, M. C., Collier P. J., Reitenauer, V. L., & Associates (Eds). *Learning through serving: A student guidebook for service-learning across the disciplines* (pp. 7-16)*.* Sterling, VA: Stylus.

Crompton, T., & Thogersen, J. (2009). *Simple and painless? The limitations of spillover in environmental campaigning.* Godalming: WWF.

Department of Energy (DOE). (2012). *Energy literacy: Essential principles and fundamental concepts for energy education*. Washington, DC: U.S. Department of Energy.

Enochs, L. G., & Riggs, I. M. (1990). Further development of an elementary science teaching efficacy belief instrument: A pre-service elementary scale. *School Science and Mathematics, 90*(8), *694-706.*

Evans, T. L. (2012). *Occupy education: Living and learning sustainability*. New York, NY: Peter Lang Publishing, Inc.

Eyler, J., & Giles, D. E. (1999). *Where's the learning in service-learning?* San Francisco, CA: Jossey-Bass.

Environmental Protection Agency (EPA) (2018). *What is sustainability?* Washington, DC: EPA. Retrieve from https://www.epa.gov/sustainability/learn-about-sustainability#what

Harlow, D. B. (2012). The excitement and wonder of teaching science: What pre-service teachers learn from facilitating family science night centers. *Journal of Science Teacher Education, 23,* 199-220.

Kim, M., Yoon, H., Young, R. J., & Song, J. (2012). The dynamics of learning science in everyday contexts: A case study of everyday science class in Korea. *International Journal of Science and Mathematics Education, 10*(1), 71-97.

Lee, L., Lin, K., Guu, Y., & Chang, L. (2013). The effect of hands-on 'energy-saving house' learning activities on elementary school students' knowledge, attitudes, and behaviors regarding energy saving and carbon-emissions reduction. *Environmental Education Research*, *19*(5), 620-638. doi: 10.1080/13504622.2012.727781

Milner, A. R., Sondergeld, T. A., Demir, A., Johnson, C. C., & Czerniak, C. M. (2012). Elementary teachers' beliefs about teaching science and classroom practice: An examination of pre/post NCLB testing in science. *Journal of Science Teacher Education, 23*(2), 111-132.

Moustakas, C. (1994). *Phenomenological research methods.* Thousand Oaks, CA: Sage.

National Research Council (NRC) (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core Ideas.* Washington, DC: The National Academies Press.

NGSS Lead States. (2013). *Next Generation Science Standards (NGSS) – For states, by states*. Washington, DC: National Academic Press.

Palmer, D. H. (2001). Factors contributing to attitude exchange amongst preservice elementary teachers. *Science Education, 86*(1), 122-138.

Percy-Smith, B., & Burns, D. (2013). Exploring the role of children and young people as agents of change in sustainable community development. *Local Environment: The International Journal of Justice and Sustainability*, *18*(3), 323-339. doi: 10.1080/13549839.2012.729565

Prindle, B., Eldridge, M., Eckhardt, & Frederick, A. (2007). *The twin pillars of sustainable energy: Synergies between energy efficiency and renewable energy technology and policy (ACEEE Report Number E074)*. Washington, DC: American Council for an Energy-Efficient Economy.

Pritchard, F. F., & Whitehead, G. I. (2004). *Serve and learn: Implementing and evaluating service-learning in middle and high schools.* Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Rachelson, A. (2014). Sustainability education: The community college perspective. *Journal of Sustainability Education, 6*(1). Retrieved from http://www.jsedimensions.org/wordpress/content/sustainability-education-the-community-college-perspective_2014_06/

Raizen, S. A., & Michelson, A. M. (1994). *The future of science in elementary schools*. San Francisco, CA: Jossey-Bass.

Rivera Maulucci, M.S. (2010). Resisting the marginalization of science in an urban school: Coactivating social, cultural, material, and strategic resources. *Journal of Research in Science Teaching, 47*(7), 840-860.

Serve America Act of 2009, Pub. L. No. 111-13, Stat. 1460 (2009).

Sherman, A., & MacDonald, L. (2009). Service-learning experiences in university science degree courses. *Innovative Higher Education, 34*(4), 235-244.

Smith, G. A. (2007). Place-based Education: Breaking through the constraining regularities of public school. *Environmental Education Research*, *13*(2), 189-207.

Smith, G., & Sobel, D. (2010). Bring it on home. *Educational Leadership*, *68*(1), 38-43.

Sobel, D. (2013). *Placed-Based Education: Connecting classrooms and communities*. Great Barrington, MA: The Orion Society.

Sterling, S. (2001). *Sustainable education: Re-visioning learning and change.* Totnes, UK: Green Books.

Stringfellow, J. L., & Edmonds-Behrend, C. R. (2013). Service-learning: Extending the classroom into the community. *The Delta Kappa Gamma Bulletin, 79*(3), 42-45.

United Nations (UN), Department of Economics and Social Affairs (2017). *World population prospects: The 2017 revision.* New York, NY: UN. Retrieved from http://esa.un.org/unpd/wpp/index.htm

U. S. Energy Information Administration (2018). *Monthly energy review: January 2018*. Author: Washington, D.C.

U. S. Energy Information Administration (2017). *Frequently asked question: What is the United States' share of world energy consumption?* Author: Washington, D.C.

Vazquez, R. (2013). Fostering sustainability through watershed-based education. *Journal of Sustainability Education, 5*(1). Retrieved from http://www.jsedimensions.org/wordpress/?s=Vazquez

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Service-Learning: A Vehicle for Inquiry Teaching and Learning

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Abstract

A service learning model was used in a science methods course for elementary teachers as the context for integrating key pedagogical strategies necessary to attain current national and state standards. This innovation provided a real-world problem-solving experience and introduced learners to service-learning through personally relevant environmental issues. Designed as an inquiry, this experiential course, engaged learners in "doing science" and constructing knowledge of science, technology, and societal interaction content on a need to know basis. The intervention taught future teachers to engage their communities in addressing local issues. It also mitigated preservice teachers' science anxiety and enabled preservice teachers to understand and appreciate current national and state standards. Included are the methods course structure, the model used for service-learning, an extensive scenario illustrating classroom interactive inquiry strategies, and excerpts from students' journals revealing attitudinal changes during the course.

This is an innovation in action report derived from an evaluation focusing on how prospective teachers learned to enact service-learning in their future classrooms. A partner created a format for a service-learning project requiring learners research local environmental issues that was implemented in a science methods course for preservice elementary teachers. The instructor integrated key pedagogical strategies within this context to illustrate open-ended extended inquiry fundamental to authentic learning.

Literature Review

Engaged Scholarship and Service-Learning

In 1990, Ernest Boyer, president of the Carnegie Academy for the Advancement of Teaching and Learning, began publishing his perceptions of the need to broaden the definition of scholarship in higher education (the academy). He introduced the concept of engaged scholarship and Barker (2004) described it this way:

> The scholarship of engagement, … consists of (1) research, teaching, integration, and application scholarship that (2) incorporate reciprocal practices of civic engagement into the production of knowledge. It tends to be used inclusively to describe a host of practices cutting across disciplinary boundaries and teaching, research, and outreach functions in which scholars communicate to and work both for and with communities. … The scholarship of engagement suggests a set of practices that cuts across all aspects of the traditional functions of higher education (p. 124).

Service-learning is a dominant form of engaged scholarship in K-16. There are many descriptions and definitions of service-learning in the literature. All have in common the idea that service-learning is a teaching strategy that addresses core curriculum objectives while meeting real community needs (Alliance for Service-learning and Educational Reform, 1995). Further, The National Youth Leadership Council (2008) published standards for high quality service-learning. Among their key standards are the focus on youth voice (student-centered learning), meaningful service, extended duration and intensity, and progress monitoring.

Universities now recognize the benefits of service learning as a response to cries for increased educational accountability to show the community in which they reside they are place based institutions cognizant of their role in and responsibility toward their immediate communities. Some universities are striving for AAU standing. This designation requires engaged scholarship as a criterium for membership.

In addition, it is recognized that "service learning considers the needs of adult learners and uses the appropriate method and resources to facilitate meaningful learning and discovery" (Kleinhesselink, et al. 2015 pg. 2) through the following practices:

- Reforming the role of the teacher or instructor as a facilitator of knowledge rather than a controller of knowledge.
- Ensuring that learning by doing is at the center of discovery.
- Engaging the learner in ongoing critical reflection on what is being experienced for effective learning.
- Ensuring that learners help to direct and shape the learning experiences.
- Ensuring that new knowledge, concepts, and skills are linked in meaningful ways to the learner's personal experiences. (Kleinhesselink, et al. 2015, p.2)

These engaged scholarship practices are also inherent in the current reform movement in science education, which engenders a paradigm shift. The shift is from a didactic, mechanistic, reductionist approach to learning and teaching to a holistic, constructivist, inquiry and practice- based approach, referred to as the STS, STEM, or STEAM movement. Thus, service learning provides a vehicle for the desired state of science teaching through a holistic approach that includes inquiry.

Inquiry in Science Education

The holistic paradigm's roots are in the science, technology and society (STS) reform movement that began as grass roots initiatives for school science change in varied parts of the country simultaneously during 1979 and the1980s and continue to influence current science education reform initiatives (Spector, et. al., 2003). STS defined as "The teaching and learning of science and technology in the context of human experience" (NSTA, 2008-2009) fits perfectly with service learning and its

objectives. Attachment A contrasts aspects of traditional science education in the didactic paradigm with science education in the holistic paradigm.

Inquiry has been and still is central to science education reform. The National Research Council's 2000 publication, Inquiry and the National Science Education Standards: A Guide for Teaching and Learning, identified five essential features of inquiry:

"1. Learners engage in scientifically oriented questions. 2. Learners give priority to evidence in responding to questions. 3. Learners formulate explanations from evidence. 4. Learners connect explanations to scientific knowledge. 5. Learners communicate and justify explanations" (p. 29).

> These essential features cannot be brought about simply by students reading textbooks or watching or listening, respectively, to teachers' demonstrations and lectures. … Science is a way of thinking, a culturally derived method for systematically and efficiently exercising genetically based curiosity of human beings (Spector & Strong, 2001). Science in schools is, however, rarely based on students' curiosities and interests, even though they are central to the actual practice of scientists (Spector & Yager, 2010 p. 279).

The innovation described herein engaged students in inquiry based on preservice teachers' curiosities and interests. It required preservice teachers to change from a didactic paradigm to the holistic paradigm.

> Change … involves threats to an individual's sense of competence (as new techniques are unfamiliar and untested); sense of control (as the outcomes and reactions of the students are uncertain); sense of confidence (as there is no base of previous experience on which to rely; and sense of comfort (as the emotions associated with these prior concepts are unsettling) (Osborne, 2011 p. 23).

In spite of these perils of change, once preservice teachers of science in elementary school experience features of STS for science learning in a methods course, there is potential to mitigate the science anxiety derived from their past learning experiences. The holistic paradigm empowers learners as citizens to realize they have the power to make changes in society and the responsibility to do so.

Science Anxiety

A perennial problem in methods courses for teachers in elementary schools is the science anxiety common to these students (Blosser,1984; Epstein & Miller, 2011; Finson, 2001; Gunning & Mensah, 2011; Koch,1993; Mallow,1986; Orlich,1980; Westerbeck, 2006; Yeotis,1998) and these students' perceptions that science is inaccessible and unattainable. They usually perceive science as a collection of rote facts to be memorized that they do not understand and that have no relevance to what matters to them. This is related to them having been taught science "starting with basic science concepts and process skills used by science

professionals with the promise they will be useful to the learners in the future" (Spector & Yager, p. 305), never having been taught science, or having been taught science as a "reading about" subject. A variety of approaches have been tested over the years to alter these perceptions. However, with changes in society and new pressures on universities, the need to invent new approaches continues.

The Innovation

For this innovation, we used the definition and process for service-learning developed by a national service-learning organization titled, Earth Force. This is a 501(C) (3) organization begun in 1994 and is based in Denver, Colorado. Its mission is teaching educators across the U.S. to engage "young people as active citizens who improve the environment and their communities now and in the future." (Earth Force, 2018). Their vision statement is, "We envision a nation where young people from all walks of life are actively making positive change to the environment at their schools, in their neighborhoods, and in partnership with their communities" (Earth Force, 2010) (see Appendix B for a snapshot of Earth Force).

This organization developed a six-step process labeled, A Community Action and Problem Solving (CAPS) service-learning process (refer to earthforcresources.org for details). Although the steps have distinguishable characteristics, they are overlapping and iterative. The process is student-centered. Youth voice is emphasized throughout. The "launch" starts the process, followed by the six steps labeled this way: Step 1-Checking it out-community environmental inventory; Step 2-Choosing one-issue selection; Step 3-Discovery-policy and community practice research; Step 4-Deciding what to do-goal and strategy selection; Step 5-Getting it done-planning and taking civic action; Step 6-Wrapping up-reflecting, going public and planning for the future. A teacher's approach to these steps determines where this experience lies on a continuum from a teacher-centered experience to a student-centered experience. Student-centered implementation of these steps in our methods course illustrated the features of inquiry described by the NRC in 2000.

Since we believe experiential learning is essential for students to construct meaning, our preservice students were guided through the CAPS process. They went from developing interest in the launch to planning systematic reflection and assessment strategies. Learners also designed how they would integrate service-learning in their future classes while being accountable to national or state standards. This was followed by small group projects that were designed and developed, but not implemented, because of time limitations. Instead, the groups posted their detailed plans on the class website and did creative presentations to their classmates illustrating their projects. The class audience asked questions to ensure each person in the audience had enough information to develop confidence to enact the plan presented. Class members also evaluated each other's presentations using the Earth Force evaluation rubric (see earthforceresources.org).

Students thus designed action plans, including details of how they would construct an Earth Force project from beginning to end, as a culminating activity for the methods course. Students left the course with six fully detailed plans for environmental service-learning, one from each working group. These plans serve as a frame of reference that encourages them to think creatively as they facilitate their own students through the CAPS process.

The Science Methods Course

*The audience***.** The class consisted of twenty-six students, twenty-five females and one male. Their ages ranged from nineteen to twenty-six, with the majority around 20. The propensities of students in this class were typical of those found in other sections of this course in the past. They were accustomed to being explicitly told what they had to know by the textbook and the instructor, memorizing it, and dutifully regurgitating it on a test. They were not accustomed to having to generate questions, explore ideas, or engage in reflection and metacognition. They anticipated class time would be spent doing typical individual cook-book laboratory activities with known outcomes, such as magic powders, oobleck, making volcanoes, etc. Their expectations did not include connecting science to the real world or experiencing a learning opportunity in the formal setting of a college class that required them to gather data from an experience, analyze it, and construct their own meaning (do inquiry).

*Course description***.** The course was described in the syllabus as an inquiry into the question, "What is science teaching in the elementary school consistent with national and state standards?" Students were expected to gather data to construct answers to that focus question from three complimentary strands of activities running simultaneously throughout the first nine weeks of the course: The strands were (a) the textbook (at home), (b) assessment and evaluation experiences (in class), and (c) the Earth Force CAPS Process (in class). Students were assigned to complete the hands-on activities in the textbook, write about those at-home experiences, and integrate them with in-class experiences in weekly journals. Our intent was to facilitate students' experience with the CAPS service-learning process during class meetings, and students would analyze the CAPS experience using the instructional strategies described in their assigned readings in the textbook as their frame for analysis. The class met fifteen times, once per week for three hours. Field experiences were a separate part of the elementary teacher education program.

*Earth Force process implementation***.**
The service-learning portion of the class was taught by an Earth Force staff member who was completing a Ph.D. in science education. This portion of the class used 24 out of the 45 contact hours during which he deliberately modeled inquiry strategies. This modeling provided opportunities for learners to experience student-centered open-ended inquiry while using the CAPS format. This portion of the class began during the second class session. The first session consisted of housekeeping, such as reviewing the course syllabus, textbook, grading and grading procedures through traditional means, followed by an introduction to the paradigm shift using a video.

During the second session students engaged in teambuilding activities followed by an introduction to service-learning through a video illustrating middle school students completing a project using the six steps of the Earth Force process (CAPS). The written description of CAPS on the course website was assigned for reading as an advanced organizer, even though our expectations based on past courses were that students would not read it carefully, or not at all.

The CAPS launch session began in the week three class meeting, with the instructor using various questioning strategies to elicit learners' prior knowledge about the concepts of community, environment, issue, service-learning, and youth-voice. The instructor used a Socratic style to engage students. He tended to answer a question with a question as a way to guide students. He usually began with a broad question followed by focused questions. The discussion pattern he would use throughout the project became evident: ask a broad question, listen to responses and thinking illustrated, ask for evidence or explanations, and ask for alternative opinions or ideas.

Student generated definitions for community reflected a variety of parameters apparent in the social sciences: Community may be delineated by a geographic area, similar attitudes or interests of participants, religious identification, a place, an institution, or other shared characteristics.

Students worked together as a large group in order to learn to do the CAPS process. For convenience, the class agreed to use the geographic delineator of the University campus and its immediate surrounding as its sample community to illustrate the CAPS process. Four major roads border the campus. If an area to be explored did not touch at least one of the four identified roads creating the campus perimeter, that area was out of bounds.

Additionally, students generated these definitions: Environment included features of the natural or built surroundings as well as the humans affecting each other and the setting. An issue encompassed a situation requiring resolution of conflicting multiple perspectives with potential to effect humans. It could include mitigating a weakness or enhancing a strength. The instructor noted a few issues typically identified by youngsters in local schools: removal of strewn trash, recycling, global warming, availability of water resources, and protection of wildlife. Service-learning was defined as the CAPS six-step process. Youth voice was defined as student-centered or directed learning in contrast to teacher-centered or directed learning.

Step 1. Community environmental inventory. A question was raised about limitations on the nature of issues students should include in their community inventory. The professor shared the following observations about issues relative to teaching science:

> An inventory of environmental issues in any community is going to require understanding science concepts and technological principles engendered in the issues, because we live in a science and technology driven society. This knowledge is required to understand multiple dimensions of a problem and to design a solution to mitigate the problem. As learners engage in CAPS, they will identify science and technology needed to understand the problem, how it came to be, and how one might resolve it. They will learn science and technology content on a need to know basis in a context of real-world events and issues.

At this point in the CAPS process, an outside expert, such as a scientist or engineer, would be invited to class to lead the inventory process. Logistics and time constraints made bringing in outside experts not a viable option. Instead, the Earth Force instructor, a marine and environmental scientist by training, put on the hat from his former job as a researcher and fulfilled the role of the outside expert. He served as a catalyst for learner identification of issues. He asked students, "What do you see?" and

pointed to things they might have missed. For example, what is the problem with that big tree growing up through the storm drain? What was the drain originally designed to do? Is it being used properly or not? Does it distribute water to other points?

The community inventory process began with a brainstorming session ascertaining students' prior knowledge of issues around the campus. Use of a map as a tool for a community inventory was introduced by viewing the campus projected via Google Earth. Students explored the campus structures and natural areas nearby to identify strengths and weaknesses visible on the screen. The view encompassed about a ten-mile radius from the classroom building. The place where a cougar was killed by a car was identified. This led to a discussion of endangered species and their use of green corridors as travel pathways near campus, as well as the ecological roles of other visible green spaces. Learners discussed additional animals using the green corridors and the biodiversity, or lack thereof, because of human encroachment with a large planned residential community beginning less than a mile from campus.

The significance of the wetland community in this green space encompassed discussion of flooding issues in this hydrologic area and the need to preserve several Native American burial mounds on the site. Another green space discussed was the University's golf course, a monoculture of grass which serves as a wildlife preserve but could negatively impact the pristine wetlands to the east of it, because of the considerable chemicals and fertilizer required to maintain the golf course. The sports fields visible on Google Earth revealed the lack of biological diversity around them and the absence of plants or trees for shelter, shade, or habitat for animals. Further, there was discussion about the disparity between the women's and men's sports fields.

The concept of green engineering emerged while counting the number of buildings with flat, black roofs showing mold growth. Discussions ensued about energy, permeability of surfaces, and surfaces that hold heat and or water, and serve as a substrate for molds. The black roofs were compared to the sports arena, with its white, reflective, rounded roof, no mold, and tendency to be cooler than the others. A spontaneous solution to the flat roofs surfaced with the potential to create a roof top garden using native plants. The problems caused by the exotic plants on campus and in the residential community stimulated a spirited discussion. Waste water and storm water became topics of interest as students learned the history of a lake near the chemistry department. The drains from this old building used to dump toxic waste into the lake. Storm water run-off from the multitude of parking areas with black-top surfaces was noted and led to discussion of roadway traffic patterns used by people to get on and off campus. The subsequent congestion added another dimension to the energy discussion. The extensiveness of the medical research complex on campus was vivid on the map and prompted conversations about potential projects on cancer.

For the next part of the community inventory, the class took a mini-field trip walking around campus together for an hour to ground truth ideas noted through Google Earth. Everyone looked for evidence of environmental problems and gathered related information. As the issues were identified, related science and technology were noted.

Energy issues loomed up quickly as learners examined the large expanse of glass enclosing a stairwell on the outside of the building. It was not sealed properly, and cold air was escaping from the building. The glass served as a heat sink, raising temperature in the stairwell. An air conditioner was prominent on the upper floor of the

stairwell. This was essential for safety to ensure no one passed out from the heat during the warmer months. A cost-benefit analysis ensued balancing the benefit of having natural lighting in the large stairwell, which reduced energy costs, with the need for the air conditioner to moderate the temperature. The building's large open space design and high ceiling prompted another cost-benefit discussion about the amount of energy consumed to cool or heat the space compared to a more classic room design. Further, the concept of noise pollution was introduced, because the sound traveled easily from one floor to another.

Students noticed the drink machines dispensed only plastic containers while the only recycling bins available were for aluminum cans. They also noted the concrete walkway was eroding from water draining out of the gutter coming off the building. It could have been draining onto the grass along the side of the walkway to be absorbed by the soil. Metal lamps with sections for cigarette disposal lined the walks around the building, including the front door. A smoldering cigarette in one lamp was blowing smoke into the building when the automatic doors opened. The branches at the crown of the laurel oak trees along the side of the building were at the height of windows in the classrooms. Students raised questions about the potential for these trees to break the windows during one of the many normal Florida storms. They learned this tree species has a short life span, about 40 years. In a decade or so these trees will die and represent a significant hazard to those classrooms.

Back in the classroom for debriefing, the science and technology present in each area of concern listed were further explored. We started with discussion of students' prior knowledge. The "visiting expert" was asked to expand on specific topics about which students expressed a need to know in order to generate potential solutions.

The professor explained: In a class with more time allocated to service-learning initiatives, students would invite several experts to come to speak to them about more science concepts inherent in various issues identified, thus elaborating on many of the problems students identified as potentials for their service-learning projects.

Step 2. Issue selection. Class week four began with students reflecting on the list of issues generated in the previous session. The obvious question surfaced, "How should we reduce the large number of issues to one for the class to further address in the service-learning process?"

The instructor used this opportunity to introduce criteria-based decision-making. Students asked, "What should we use for criteria?" Rather than providing students with a list of criteria, the instructor, still wearing his scientist expert hat, engaged students in an activity to help them experience generating meaningful criteria to make an informed decision.

For this activity, he introduced the concepts of climate change and global warming. These issues had not surfaced in class but were part of pop culture from public media discussions. They provided a context to approach these students' prior knowledge for this experience in criteria-based decision-making.

The students were asked if they were familiar with the concept of global climate change. Very few responded affirmatively. They were then asked if they were familiar with global warming. All hands went up. Students were asked if they knew about or had seen the movie, An

Inconvenient Truth. Most had. From this platform, a discussion was launched on what the students perceived global warming to be and the negatives that would occur from it. As anticipated, the students described their expectations of the world with global warming through the narrow doomsday lens of the movie. They described the extinction of "cute and cuddly" polar bears left floating on ever-shrinking ice floes with no food or place to go, and images of ocean (sea level) rise depicting destruction of Florida and most of the Eastern Seaboard.

Students were then asked how they formed their opinions about global warming and what evidence they used. The response for many was the information gleaned from An Inconvenient Truth and Al Gore. The class viewed him as an expert on global warming. One student pointed out, "You can't help but watch the news and hear how humanity had created global warming, and we are now doomed to fix it or perish". The discussion continued, and the students were charged up about the need to do something.

At this point, the "expert" began playing devil's advocate. He asked questions to disequilibriate the students and their understanding of what global warming was and who genuinely were the experts. A collection of information was presented to make students question the validity of their preconceptions. This included popular myths about Al Gore, misspoken statements credited to him, and other information garnered from the internet: It was pointed out that Al Gore himself had significant investments in the oil industry and had made a large amount of money producing the product he was stating was the root of the global warming crisis. A news article was referenced from the Tennessee Policy Research Center (2007) that was run in print by the Associated Press stating the Gore household in Tennessee consumed twenty times the amount of energy as that of the average American home. The students were then asked if they knew that Al Gore was the "Father of the Internet?" With these "news" sources as new evidence competing for the students' mental frameworks, they became confused and irritated. They believed they had been giving priority to evidence in responding to the questions about global warming and thought they had been formulating reasoned explanations from the evidence. The contradictory evidence was difficult for them to process.

The "expert" then talked about the controversy of global climate change in the scientific community and its ongoing debate. He pointed to a "leak" of emails painting a lot of the proponents of climate change as having doubts to the validity of their own data. They themselves weren't sure about the thing they were promoting. Again, the students did not know what to believe.

This cognitive dissonance provided opportunity to focus learners' attention on criteria-based decision-making. What criteria were students going to use to make decisions to accept or reject global warming and, or global climate change? They established a need to determine whether there was adequate evidence, was it valid, and did the "news" network give it a particular slant. Most importantly, they discussed what they could do to vet the available evidence and obtain more scientific knowledge to fill in visible gaps. Criteria used as a base for decision-making to determine whether they believed in global warming and, or, global climate change were thus identified as (a) availability of data to use as evidence, (b) whether available data had a particular political slant, (c) accuracy of data, and (d) credibility of data sources.

Returning to the list of issues on the board the class had generated, the instructor asked what criteria learners wanted to use to select a single issue for investigation. Students suggested the following: Time needed, monetary cost involved, personnel availability, ease of acquiring data, resources available, whether it would really make a difference to the community, and whether it would be fun to do. Based on these criteria, each student made a private decision about the placement of issues on the whiteboard in his/her prioritized list.

A variety of strategies were used to assist the preservice teachers in building consensus within the class for the final issue to address. Many of the strategies were designed to enable individuals to express their opinions without feeling intimidated by opinions of other class participants. For example, the “Heads down, thumbs up” strategy had all students close their eyes and put their heads down on the tables while the instructor stated each option. Students were asked to raise their thumbs up for options they wanted. The instructor tallied the votes. Other strategies involving physical movement and changes in group composition and size were also used: dot voting method, ballot voting, and the human line continuum. Eventually, a group list of prioritized issues emerged based on the numbers generated by these processes.

A process to ensure each student would buy into the final group topic and provide opportunity to address state or national standards involved students identifying relationships they saw among the topics on the class prioritized list. In some cases, broad topics could be used as umbrellas for several specific topics, such as consolidating invasive species, monocultures, green corridors, and habitats for species under biodiversity. Other relationships involved one task supporting another. For example, money obtained from collecting recycling could be used to support planting roof top gardens and increasing biodiversity on campus.

Step 3. Policy and community practice research. Class week 5 required students to bring their laptop computers. This session built on Earth Force handout titled, “What do we want to know?” This called students’ attention to who, what, when, where, why, and how of the issue. A discussion ensued in which the instructor and students elaborated on these questions. Working in groups of four or five, students responded to the emergent guiding questions. Sample questions follow: “What do you want to know about the issue?” “What stakeholders are involved in the issue?” A stakeholder Earth Force handout was used to diagram groups of people involved. “What is currently being done to address the issue and by whom?” “What factors relate to the issue?” “What science and technology ideas need to be known to understand the complexity of the issue? “Who is affected by the issue? “How has it impacted the community to date?” “How did the issue begin and when? “Why hasn’t it been fixed already?” “Do stakeholders agree about the policies and practices and why?” Essentially, in this session students began to investigate procedures and policies setting the parameters in which the issue existed, and the impact occurred.

Students explored the Internet to answer the questions and followed up with telephone calls to individuals and agencies. They identified organizations in the community outside the school with potential to assist. This key question was raised: How do we get community resources into the classroom? It became obvious phone calls were needed in addition to the web exploration and speakers needed to be engaged. They learned resources could be obtained from organizations. For example, the water management district provides literature describing the correct way to create a garden and can also provide funding for materials. A company specializing in retrofitting buildings could provide materials and expertise.

Toward the end of session 5, students organized themselves in new groups of four or five to begin working on the syllabus task to “practice planning a service-learning project for their future students” by building on their experiences as a full group with the Earth Force process. Students in each group would determine what issue to address

and how to acquire necessary resources. They needed to actively seek information to apply to solving their real-world problem. This would take them beyond the time and resources available in a school as they looked for professionals in careers related to the science and technology of the problem with whom to engage in person or electronically.

Step 4. Strategy building. To answer the question, “What are we going to do?” students had to ascertain whether to plan to impact policy and law related to the issue or impact changes in individual behavior related to the issue. Then specific activities in which to engage were identified and organized into a plan of action for the group.

The sixth week of class was devoted to students working in small groups to complete the group’s identified project. At various points, groups volunteered progress reports to the class. This provided input from others beyond their work group. The instructor and professor consulted with groups on an as needed basis by invitation.

Step 5. Implementation. As noted earlier, course time restrictions did not allow for implementation of the plan.

Step 6. Reflection. The instructor-initiated reflection each week through a review of the previous session. He asked students what was done and why it is was done. Often lists were generated on the board to review activities. This led a few students to exasperation, because they perceived everyone should have already known what was done and why. Journals required individual students to reflect each week. Multiple literacies were explicitly encouraged for journal entries and responses. Debriefings of pop quizzes and a midterm exam also required reflection. At the close of each class, the ticket out of the room was an exit memo describing an open-ended short reflection on the class session. In one exit memo, students were asked to list two things they liked about the course and one thing they wanted to change. In these ways, reflection was not treated as only the last step in the Earth Force process.

The need to explicitly teach some students to be reflective became painfully visible during one of the consensus building activities: The instructor asked a student, “What are you thinking?” The response was, “What do you mean what am I thinking?” The instructor said, “How are you making sense of what we are doing? The student was at a loss. Rather than embarrass her, the instructor moved on. After class the student made it clear she was trying to find the answer to the metacognitive question by searching for something to repeat back that she had been told. Regurgitating information was all she seemed to know to do when asked a question.

During the seventh week of class, each group of students presented the service-learning project their small group had selected to develop. (These were not part of the same topic explored by the full class.) A variety of novel formats were used to focus each group’s description of its project. Included were role play, puppet show, diorama, video, and PowerPoint slide show. After each presentation, the audience asked questions and filled out the Earth Force evaluation sheet to share with the presenters.

The eighth week of class was used for a midterm exam composed of questions selected by the professor from a collection of student generated questions related primarily to the textbook information. It was graded in class by students and debriefed.

The ninth week of class began with a reflection activity, part of step six in CAPS. Students conducted two consecutive brainstorming sessions to reflect on the work they had completed. First, they listed things they had done and learned about service-learning. Second, they listed key ideas from their textbook reading. As the second list was being generated, side comments could be heard such as “ooh - look at that”, referring to the first list and recognizing the similarity of what they were generating. They began to use the first list as prompts for reminders of what they had learned in the textbook. Next, they were asked to discuss any relationships they saw between the two lists. They became excited as they identified where in the CAPS process they had actually been doing, experiencing, each of the items in their textbook list. There were “Ah Ha!” moments when they realized they had been engaging in sustained inquiry through the CAPS process. With body language, side comments in class, and in journals, students reported this experience of sustained inquiry was comfortable and logical, thus contributing to mitigating science anxiety.

Students’ Responses

A progression of attitudinal changes is visible in excerpts from students’ journals. The names are fictitious. It was not a surprise to find many students responding negatively to the changing paradigm during the early class sessions, because when people’s expectations for a situation are not met, they become disequilibrated and uncomfortable. For example, “This is fun, but when are we going to learn to teach science?” (Belinda). Many did not recognize science and technology content when it was presented in the context of real-world events. For example, “When I look back upon my science education, I find that I never seemed to put science and life together, which could be why I struggled with science for so long. I didn’t understand how science affected my life.” (Betty)

Some students indicated they were relating the textbook to class experiences by week five and recognized they were using themselves as a learning laboratory (Burkett, Leard & Spector, 2003). Most did not.

> My favorite part in the textbook is titled, “Extending Curriculum: Taking Advantage of Emerging Relevance.” I really enjoyed this section because it relates back to what we have learned in previous weeks about service-learning projects and letting the students have a voice. Emerging Relevance is the perception by students that questions or ideas arising from investigation have personal significance to them. The key part of this concept is certain matters become relevant to students as they engage in learning activities. By helping them to explore these emerging questions and ideas, teachers can help students construct their own meaning. Because the idea is significant to them, the students are excited about the curriculum and eager to expand upon what they are learning. This week’s reading was very helpful for me … because it helped me to relate the ideas that we have been learning in class with the required reading.” (Paul).

Some students had no appreciation for process in science and in teaching and learning. They assumed the extensive discussions of science and technology inherent in an issue and the lengthy decision-making steps experienced during class were solely to determine the environmental issue on which the class would work.

> Yet again in class today, we talked more about the service-learning project. I wish at some point if we were going to start this project, that we just start it already. It is really frustrating that we are just wasting time talking about the same things over and over again. We already know what our topic is, Recycling and Biodiversity, so why can't we just start the project already. This whole thing seems like a waste of time. … This is in no way teaching me the concepts of how to teach children science. (Athena)

> We spent a significant amount of time in class talking about global warming and brainstorming its effects and making an argument for both sides. I'm not sure why, it falls under the environmental science umbrella, but other than that I don't understand how the global warming exercise connects. We spent a lot of time on it, only to do nothing with it, was there a purpose? Was something being modeled?" (Kelly)

Some students' journal entries revealed a contrasting perspective. There was recognition of in-class experiences as multifaceted integration of many concepts about which they were reading in the textbook:

> I have realized that the activities we learn in class are to not only teach us but teach us different scenarios of what could happen in our classroom when we are teaching. I kind of feel like we get tricked because we think we are doing an activity, but it is really many activities in one and we have to think about the problem in a few different aspects. We have to answer the question to our classmate's problems they gave us from the readings as students. We also have to think about the teachers view. Did our classmates read the chapter?" (Regina)

This student pointed to the learning resulting from instructors' modeling:

> So, in this class we are not only learning science activities and things about science for elementary students, but I think we are secretly given ideas of how to handle situations. Also, I feel we are put into scenarios ourselves in our classroom that we will one day have to face as teachers. (Abbey)

A shy student, reluctant to speak during class meetings, demonstrated the way she was using inductive reasoning to synthesize varied sources of data to show relationships among scaffolded course experiences after a consensus building session.

> Today we did kind of a free flow of thoughts and opinions with the whole class. But what I loved about this is that it was anonymous. I felt that this really would provide the students with an opportunity to show that they do have a chance to get their true feelings out and say or ask what they would otherwise be nervous to. I also felt that for a teacher this could be very beneficial. It allows the teacher

> to gage where the students are at on more than one level. Like I mentioned before I was one of those shy students and I wish that every now and then my teachers would have done something like this. It's amazing to see what students are thinking. It really provides a chance for them to become actively involved with their learning when they are otherwise not.
>
> When I mentioned in one of my other journals about how I didn't understand why the choosing process could take such a long time for a service-learning project, well after this class I started to understand the importance to it. What I took from (the instructor's) lesson today was that you want the WHOLE ENTIRE class to agree upon a subject. And getting the students to ALL agree on one subject can turn out to be extremely time consuming. I also liked that I was allowed the opportunity to learn that majority voting is not always the best answer. In this case for the service-learning project we want every person in our classroom community to agree on our decision, because if not they could possible cause the rest of the group a living hell, because they feel they weren't given a fair chance and they didn't choose this topic, so they don't care about it. Typically for time saving purposes we go for the majority vote, but what I am making note … that this is not always the best route to take when wanting to come to a whole class decision. We want every student to feel important and involved in this so the best possible solution or product can come out of our service-learning project. Today also showed me many ways we can kind of lead the whole class to one decision. We can always add pieces into what the majority vote was to connect the few other students to the project. I really appreciate this class when it comes to teaching ways and strategies that we really will be able to use in the future. And these journals are providing me a way to save all of my ideas! (Teresa)

The next student echoed an awareness of the discussion and questioning strategies used to merge the different issues students wanted to investigate mentioned above. She also attributed value to networking as a vehicle to obtain human and material resources for teaching and learning.

> This week we worked more on the service-learning project. First, we reiterated the problems that we agreed on. The service-learning project is going to be on recycling, and the money that we earn will go towards creating biodiversity on the campus. Second, we started to think of questions that needed to be answered about the problems. These were when, where, why, how, and why questions. By answering these questions, we were able to think of things that needed to be looked into. We also thought of the resources that we will need, and who we need to contact. This was a very important step because we were able to understand a little bit more about what goes into a service-learning project. One of the big questions that were asked in class was: how do you get community resources in the classroom? This was a great question because I have never really thought about it. I would love to have speakers come into my classroom, to speak to my future students. The entire class thought of great answers, and we as future teachers need to make these connections now because we will need

> them in the future. I need to start creating a list of the connections that I have made. I also thought it was great that (…the instructor) is a resource for teachers. I really enjoyed class today. (Elsa)

Another student recognized the importance of the way the textbook presented multiple perspectives.

Critical Incident

The brainstorming episode during week nine was a critical incident for most students. Prior to that many students were still discomforted, because the structure of the course did not meet their expectations and they continued to be worried they had not learned how to teach science. Paradoxically, even though the students had anxiety about science teaching and learning in a traditional didactic reductionist way, they exhibited significant resistance to the different paradigm enacted, because their expectations for the traditional approach were not met.

It took many of them until the ninth week (after mid-semester) with the brainstorm activity for them to understand they were actually learning how to teach science by doing it within the service-learning context. The quotes below are each from a different student's journal after the week nine session:

"The biggest meaning I've gotten from this class is that science is a process, a set of ideas, and a set of attitudes. By doing the service-learning project, we were learning all of this." (Greer)

> As we progressed through our education on service-learning projects, it is interesting to notice how many connections exist between these projects and the ideas presented in our text that are beneficial to a science classroom. As I list these connections it seems that just about any concept taught in the text can somehow be related to a service-learning project. (Rene)

"…nice thing about the Earth Force guidelines is that it covers the learning cycle that we learned in class." (Danyell)

Many students had not understood the instructors were modeling ways to answer the course's overarching question, "What is science teaching in the elementary school consistent with national and state standards?" until week nine.

> I didn't realize that the entire class was based on the national standards. Going through the standards, I realized that the class was teaching and modeling ways to follow the standards successfully I, as the teacher, can incorporate all of the subjects that I have to teach into my service-learning project. (Anita)

After the week nine session, students expressed their intent to implement service-learning when they have their own classes to teach:

"I will definitely use a service-learning project in the future and I am more cognizant of the standards and how to incorporate them into a lesson plan". (Teresa)

"Now I feel more comfortable doing a service-learning project, however not my first year of teaching." (Xena)

'I will use (service-learning) in a classroom someday". (Margaret)

In the end this service-learning project has taught me so much about creating a community, collaboration, and other methods presented in the book. (Athena)

> At the beginning of the semester I thought spending so much time on service-learning was a waste of time. But now I see how important it is… Teaching science and service-learning go hand in hand. I can have a service-learning project in my classroom and the students will be learning and doing science too. I thought the service-learning project would take too much time out of the school day, but it actually does not. I am teaching my core subjects while I am teaching the project. I, as the teacher, can incorporate all of the subjects that I have (Angie).

> From the beginning of class service-learning projects were sort of unclear to me as to how they pertained to teaching science in the classroom setting. After creating our group project and watching the others present, I really can see how much they can benefit students learning and promote sustained inquiry. I believe it is a great method for any teacher, but I still worry how practical it would be or even if it would be allowed in the classroom at a public school, especially in Florida. I wish it were as feasible as our projects make it look, because it really is a great method for incorporating other subjects and having children learn for themselves rather than having us as their teachers or a book spit out facts at them. (Frieda)

> It is important as the teacher to act as the facilitator. I would support students as they faced difficulties in the project and ask them questions in order to promote problem-solving in themselves rather than just solve it for them. Service-learning is very student-centered. The teachers simply guide the students as they make the important decisions and take the steps to move them forward toward a

> common classroom goal. Service-learning promotes teamwork within a class, forming a special cohesiveness among students. Students learn to take initiative in solving problems and learn that children do have the power to make a difference in society. If students learn this at an early age, they will possess the confidence and problem-solving skills as adults to tackle even bigger issues in society that need the attention of an educated and courageous individual. Service-learning projects create these types of individuals in today's youth, who are tomorrow's leaders. My hope is to create role models of good citizens in my classroom. I want my students to find passion in something and make a difference in the world around them. I want them to be empowered by learning and doing, and I want to assist them in becoming well rounded, scientific thinkers. This class has obviously changed my view on service-learning in only a few short weeks, now imagine what I could do in a year with a classroom full of elementary students. (Belinda)

By the end of the fifteen-week semester, most students indicated their thoughts of teaching science had changed from science being boring or formidable to being comfortable with the idea of teaching science. The quotes below typify those from the last journal of the semester.

"I can say that I am way more comfortable teaching science now." (Angie)

> My concepts of Science are genuinely shifting. I'm beginning to see that Science is all around me; it's thinking, analyzing, questioning, exploring, making observations, collecting data, and so much more! Science isn't boring to me anymore, it's actually fascinating to think of how the things of this world work from the clouds to the soil on the ground it's all so incredibly detailed. (Sybil)

"Some of my students may dread science, like I did as a child, but I now have more tools to help them discover, investigate, and overall learn." (Kelly)

"My perspective on Science has definitely changed and my goal is to give my students a positive foundation to their science education." (Frieda)

> I have realized that the ideas and concepts modeled in this class can be applied not only to my life as a student and professional, but to the lives I influence as a teacher. I hope to implement these important ideas in my classroom and pass along the skills and confidence my students will need to be successful students and successful adults in the future." (Paul)

Some changes could be made in the implementation of the service-learning process in the future to accelerate the time students come to recognize the relationships among the course's various data sources and synthesize these into their own construction of teaching and learning.

Future of This Innovative Intervention

Changes being considered are the following: Explicitly discuss during the first class session (a) experiential learning and its benefits, (b) what it means for instructors to model inquiry, (c) the way modeling illustrates the integration of teaching and learning concepts, and (d) using yourself as a learning laboratory for reflection. In addition, we could explicitly point out the features the students are studying in the textbook as they are being modeled throughout each class meeting. As the Earth Force person models a particular characteristic of appropriate science teaching, the professor could overtly state, "He is now modeling cooperative learning" or "You have just experienced what your textbook in chapter x, labels, cooperative learning. An unresolved concern is the degree to which such changes might interfere with students moving toward autonomous learning, one of our goals for open-ended inquiry.

Summary

Using the environmental service-learning process from Earth Force as a vehicle for inquiry within a preservice elementary science methods course was effective in shifting students' paradigms. They recognized the complexities of teaching and learning science and increased their skill level and confidence in being able to teach science. The intervention succeeded in mitigating anxiety. Learners reported more positive feelings about teaching science. They said they look forward to partnering with their communities to address real-world issues that give their young students meaningful opportunities to have their voices heard and contribute to their communities' well-being in the future. In addition, these preservice teachers expressed desire to incorporate resources from the community in their teaching using additional strategies they developed during this methods course. Learners also indicated they felt comfortable and confident modeling the inquiry strategies they had experienced and would incorporate service-learning as a teaching/learning strategy in their future classes. They further noted this service-learning instructional strategy simultaneously contributes to helping them attain standards in other disciplines they will be required to teach in an elementary classroom.

References

Alliance for Service-Learning in Education Reform. (1995). *Standards of quality for school based and community-based service-learning*. Alexandria, VA: Close-Up Foundation.

Barker, D. (2004). The Scholarship of Engagement: A Taxonomy of Five Emerging Practices. *Journal of Higher Education Outreach and Engagement*, 9 (2),123.

Blosser, P. E. (1984). *Attitude research is science education* (Information Bulletin No. 1). Columbus: Ohio State University, SMEAC Information Reference Center. (ERIC Document Reproduction Service No. ED259941).

Burkett, R. S., Leard, C., & Spector, B. S. (2003). *Using yourself as a learning laboratory: A strategy to mitigate preservice elementary teachers' resistance to teaching through inquiry*. Paper presented at the Association for the Education of Science Teachers, St. Louis, MO. Jan. 29 – Feb. 2.

Earth Force (2018). *Community action and problem-solving curriculum*. Denver. Earth Force. http://www.earthforce.org/index.php?pid=7

Epstein, D. & Miller, R. T. (2011). *Slow off the mark: Elementary school teachers and the crisis in science, technology, engineering and math education*. Washington, D. C., Center for American Progress.

Finson, K. D. (2001). Investigating preservice elementary teachers' self-efficacy relative to self-image as a science teacher. *Journal of Elementary Science Education*, 13(1), 31–42.

Gunning, A.M, & Mensah. (2011). *Preservice elementary teachers' development of self-efficacy and confidence to teach science: A case study*. 22(2), 171-186.

Kleinhesselink K, Schooley S, Cashman S, Richmond A, Ikeda E, McGinley P, Editors. *Engaged faculty institute curriculum.* Seattle, WA: Community-Campus Partnerships for Health; Elaine Ikeda & Piper McGinley, California Campus Compact. http://ccph.info.

Koch, J. (1993). Elementary science education: Looking through the lens of gender. *Initiatives*, 55(3), 67-71.

Mallow, J. V. (1986). *Science anxiety: Fear of science and how to overcome it.* Clearwater, FL: H & H Publishing.

National Research Council. (2000). *Inquiry and the national science education standards: A guide for teaching and learning*. Washington, DC: National Academy Press.

National Science Teachers Association. (2008-2009). Science/technology/society: Providing appropriate science for all. NSTA position statement. *NSTA Handbook*. Arlington, VA.

National Youth Leadership Council (2008). *K-12 Service–learning standards for quality practice.* St. Paul, MN.

Orlich, D. C. (1980). *Science anxiety and the classroom teacher*. Washington, DC: National Education Association.

Osborne, J. (2011). Multiple influences on policy development and enactment, in DeBoer, G. E. (d.) *The role of public policy in K-12 science education*. Charlotte, NC. Information Age Publishing, Inc.

Spector, B. S. (2016). Constructing meaning in a science methods course for prospective elementary teachers: A case study. Rotterdam, Sense Publishers.

Spector, B. S., Dass, P.M., Koch, J., Eick, C., McGinnis, P., Varella, G., & Hargis, J. (2003). *Science teacher education in the 21st century: Perspectives on the potential of the Science-Technology-Society Approaches*. Paper presented at the Association for the Education of Teachers in Science. St. Louis, MO. Jan. 29-Feb. 2.

Spector, B., & Strong, P. (2001). The culture of traditional preservice elementary science methods students compared to the culture of science: A dilemma for teacher educators. *Journal of Elementary Science Education*,13(1), 1–20.

Spector, B. S., & Yager, R. (2010). The many faces of STS: Social issues in science education. In Totten, S., & Pedersen, J. E. (EDs) *Teaching and studying social issues: Major programs and approaches.* 277-312.

Tennessee Center for Policy Research (2007). Al Gore's Personal energy use is his own "Inconvenient Truth". https://www.beacontn.org/al-gores-personal-energy-use-is-his-own-inconvenient-truth/

Westerbeck, M. (Published Online in 2006). Studies on Attitudes –Teaching Science and Anxiety About Teaching Science in Preservice Elementary Teachers. *Journal of Research in Science Teaching,* 19 (7), 603-616.

Yeotis, C., Bolick, M., French, D., Keig, P., Nason, P., Shroyer, G., et al. (1998, January). *Preconference workshop: An exemplary elementary science methods course*. Paper presented at the annual international meeting of the Association for the Education of Teachers in Science, Minneapolis, MN.

Attachment A

Question	***Mechanistic (didactic)***	***Holistic (inquiry) paradigm (NGSS)***
What does I teach mean?	An Spector,ity (instructor or textbook) transmits-(tells-learners) ideas-(thoughts)-they must be able to reproduce	An Spector,ity facilitates learners to ask questions systematically, to seek input, gather and organize data, analyze and synthesize data (process data) to construct answers to their questions
What does I learn mean?	Guess what is in the teacher's head and give the teacher what he/she wants to hear: and, or, I give back precisely what the Spector,ity told me	Learner makes sense of input (data) from his/her experiences by constructing meaning and is able and empowered to act based on that meaning
What is the job of a student?	Commit to memory what was transmitted	Process input: Select and process data to construct answers to their questions Integrate thinking, feeling, and acting (thus empowering meaning making). Engage in reflection (about input processed) and metacognition (thinking about thinking processes)
What is the job of the teacher?	Transmit information	Facilitate students' construction of meaning
What is the function of assignments?	Assignments are tests of students' ability to replicate information from an Spector,ity into a product	Assignments are experiences that provide sources of input for data and opportunities to process data to construct meaning and test meaning made with peers
How is instruction organized?	Around basics first	Around sensitive and intellectually complex phenomena
Who evaluates what?	Spector,ity evaluates students' performance with grade indicating the extent to which the learner's assignment product matches a list – rubric-developed by the teacher	Learner evaluates sense being made, identifies where there are gaps in the sense being made, asks questions about the gaps, and seeks more data until gaps are filled
Who primarily directs the learning process?	Teacher	Student
What kind of learning occurs?	Passive	Active
What kind of learner emerges?	Dependent	Autonomous

(adapted from Spector,, 2016 Pg.22-23)

Attachment B

The Earth Force "Map"

This drawing is a visual representation of the vision and mission of Earth Force. The middle of the drawing represents the active engagement we envision of young people. The "path" depicts the cornerstones of our work: service-learning, youth leadership, civic engagement and environmental action. Along that path, we have young people doing Earth Force in their community; each call out bubble along the way represents a step in the Earth Force process. What supports the work of these young people? The bottom of the map depicts the critical role of adults and partners in achieving this vision. In order for young people to have success engaging as civic actors in their communities, we want to enlist the collective involvement of community- based organizations, schools - teachers, administrators, and parents, businesses, universities, government agencies, and faith-based organizations.

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Short-term Study Abroad Including Service-Learning with Critical Reflection Provides Transformative Experience for Students: Case Study from Kenya

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Abstract

As the world has become more accessible to everyone through modern technology such as airplanes and the internet, the need to educate students to function in a global society has received increasing attention. Short-term study abroad opportunities (1-3 weeks) have evolved as a viable option for contemporary students to give them exposure to life outside of their daily experiences. These short-term programs have been criticized for providing only "tourism" and not any real depth of experience with local people and culture. This paper provides an overview of a short-term study abroad (10 day) paired with a service-learning project that lasted an entire semester and was embedded within a for-credit university course. The structure of the project is described as well as observed impact on student learning. Conclusions provide an argument that short-term study abroad, when paired with service-learning and critical reflection, can provide the type of transformative student experience desired by universities and enable a broader section of

The lens through which social work and other social science students view the world impacts their understanding of the type and scope of interventions necessary to affect change in an increasingly global world. Social work educators are charged to educate future social workers to be competent professionals in a complex and changing social environment. Without an understanding of cultural competence, interventions fall short of the desired impact whether those interventions occur at the micro, mezzo, or macro level. Changing that lens for students, or at least giving them tools to understand it, is a vital part of their education. Opportunities for students to experience international practice also encourage the development of contextual knowledge (Payne and Askeland, 2008) and reinforce the profession's commitment to responsible global citizenship (Cox and Pawar, 2006). To meet this obligation, social work programs should be vigilant about increasing opportunities for all students to have transformative experiences. Recognizing that only 10% of US students study abroad, and those who do primarily go to Europe (Deruy, 2016) highlight the challenge. Although these experiences are beneficial, different issues exist in the developing world, and exposure to these issues can be important in student development. Programs are challenged to develop meaningful experiences that are tailored to the realities of contemporary students, many of whom are working, are parents, and do not have the extra financial resources to consider study abroad. Short-term study abroad, by itself, has been criticized as providing a sort of academic voyeurism where students have no real emersion in the culture. Service-learning, however, provides a high impact learning experience that engages students in both community development and problem solving. When service-learning is combined with an international experience, student learning is broadened and critical reflection enables them to make connections that they can bring to their practice at any level.

Because these experiences are shorter in duration, they enable a broader cross-section of students to participate, drawing in students who have historically not been able to travel abroad.

Literature Review

As part of their response to the American Association of Social Work and Social Welfare's Grand Challenges for Social Work Initiative (GCSWI), Nuruis et al. (2017) suggest that social work educators offer transformational educational experiences that prepare students to work with clients from diverse backgrounds, with interprofessional teams, and with local and global communities and constituents (see also Estes, 1992; Healy, 1992; Midgley, 1994). Further, research identifies the need for social work educational programs to include more international and cross-cultural content. As early as the 1960s, Healy (1986: 135) stressed the professional responsibility of social work educators, "we neglect our responsibility in social work education when we do not provide a world view to our students and we neglect our responsibility to our profession and our government when we do not contribute to international service". Social workers must be able to handle a rapidly changing and increasingly complicated landscape. Accordingly, their skill sets must include global consciousness, cultural competency, and knowledge of diversity and human rights. They must be prepared to work in a multicultural environment that recognizes the ways in which global events affect local people and concerns. Some social workers need to be prepared to work internationally, and others need to understand international issues when working at home.

Although international social work does not have one clear definition throughout the discipline, generally the field includes some reference to social work action at local or global levels to redress inequalities in a global context (IFSW, 2005; Cox and Pawar, 2006; Payne and Askeland, 2008). Educators generally accept that students require a background understanding of international social work to be fully prepared to work in any country (Roholt and Fisher, 2013). Scholars argue that social work in the twenty-first century should reflect its global responsibilities with specific emphasis on the need for the profession to respond to global challenges at all levels of practice from local to global (Cox and Pawar, 2006). Further, Payne and Askland (2008) advocate for greater efforts to globalize the social work profession so that 'economic, political and cultural relationships between people across the world are enhanced' and 'contextual knowledge' creation is encouraged. Western social work must maintain the effort to enact the core values of empowerment, social justice and human rights and to fulfil the mission of social work and its emancipatory aims at the global level (Cox and Pawar, 2006).

Equally important, however, is that Western social work traditions and standards are not imposed on non-Western social work traditions and that indigenous social work knowledge is validated. An understanding of indigenous social work knowledge is best understood from first hand observation and interaction with those practices in the culture in which they were developed. Indeed, social work as a global profession stands to benefit from the conceptual richness of a critical, post-colonial approach to diverse social work tradition (Payne and Askeland, 2008; Wehbi, 2009; Staniforth et al, 2011; Bell, 2012; Dominelli and Hackett, 2012). Social work educators, have a key role to play in internationalizing social work curricula and specifically to ensure that social justice and human rights principles are central in social work education as they are reflected in a global context (O'Brien, 2011). Lough (2009) encourages social work educators to focus not only on the development of students' professional competencies, but also to engage students in mutually beneficial relationships with host

countries to foster transformative educational experiences focused on social change and social justice; the types of exchanges promoted through service-learning principles.

The incorporation of international experiential learning opportunities is well-supported in the literature (Cox and Pawar, 2006). For example, many social work schools in Canada, the US, Australia and New Zealand place students abroad. The identified gaps in learning, however, are that little is done to effectively integrate international learning into the curriculum (Cox and Pawar, 2006). Based on that identified gap, the argument was posed that experiential learning be imbedded into international educational opportunities to enhance social work students' commitment to informed action toward social justice and human rights in a contextual sense.

Short-term study abroad service-learning experiences are rooted in the works of Paolo Freiro (1970:9). Freire articulates an educational theory that emphasizes the need to critique oppressive structures throughout society and focus on the action reflection dialectic of praxis. Gaining popularity as a vehicle for such experience are short-term international courses, defined as educational trips outside the US lasting 1 to 3 weeks, meant to offer alternatives to traditional semester long or year-long abroad experiences (Fisher and Grettenberg, 2015). The university study body in the US has changed; many students already have families and jobs or are working to pay for their educations. These students do not have the time or ability to be away from home for such large lengths of time. Whether attributed to non-traditional student body, economic disparities, or lack of interest, problems of limited participation in study abroad courses is substantially more pronounced in the southeast region. For example, only .99% of students in Alabama study abroad (nafsa.org). In fact, the southeastern United States has very few students who participate in study abroad options (MS, .79%; GA 1.98%; FL 1.01%; and TN 1.75%). In addition to educational benefits, research indicates that study abroad opportunities help students develop soft skills such as flexibility, initiative, and collaboration (Deruy, 2016). As such, study abroad is considered a high-impact learning tool in higher education; however, many students, particularly students in the south, have not traditionally taken advantage of these program.

Study abroad programs offer students a transformative experience that goes beyond social work education based on instrumental competencies (Lough, 2009). International service-learning must go beyond taking students abroad for academic voyeurism, or to merely examine an international context. They should be active learners and leave the community with some benefit them having been there. In other words, students should not just take, they should also give to the international communities thus providing reciprocity of benefit (Roholt and Fisher, 2013). These are the goals of service-learning.

A central focus of service-learning is reciprocal benefit: both the community partner and the students should learn and benefit from the project. Desired outcomes for co-curricular service-learning include identity and leadership development, multicultural awareness, clarifying career and life goals, understanding of local and global social issues (Jacoby, 2015). Service-learning opportunities create leadership for social change among participants. Further, community-based research defined as a collaborative research partnership that engages community agents together with higher educational partners in research projects that address community-identified questions or issues, are required for successful service-learning engagement (Paul, 2009).

Multicultural education within service-learning can help students expand their emotional comfort zones in dealing with difference, gain an increasing ability to view the world from multiple perspectives, and reflect on their own social position in relation to others (Wade, Boyle-

Baise and O'Grady, 2001). Critical service-learning experiences work to dismantle structures of injustice and inequality by helping to redistribute power and eliminate social inequalities by helping students identify systems of oppression and power. Further, these experiences transform students' understanding of human difference and commonality and help them identify systems of oppression and power and privilege (Jacoby, 2015). Through critical reflection, students learn to confront their own stereotypes, power, and privilege as well as their role as a global citizen.

Purpose of Study

Not much research has been conducted on the combination of service-learning and study abroad experiences. However, the importance of imbedding service-learning in international experiences is expressed in the recognition that service-learning without thoughtfully integrated multicultural education and reflection can validate assumptions, perpetuate stereotypes, and create a mentality of separateness and superiority (Jacoby, 2015). Likewise, multicultural education without engagement with communities of difference isolates students from the individuals who are different from them and from the larger community of which they are a part (O'Grady 2000). That type of learning does not provide authentic context in which service provision needs to occur. By combining service-learning with education abroad, students interact directly with community and observe first hand effects of racism, sexism, poverty, and oppression in the context in which it occurs. Benefits to student learning include personal growth and development, academic learning, interpersonal outcomes and outcomes related to college experience, as well as empathy, a sense of social responsibility. Previous studies indicate that service-learning promotes an increase retention and understanding of course content, the ability to apply theory to practice, critical thinking and cognitive development. In addition to student benefits, service-learning should benefit the community through infusion of new energy, ideas, and manpower. Additional manpower allows assistance to broaden delivery of existing services or to begin new ones: fresh approaches, enhanced capacity to conduct and use research

The social justice orientation focuses on the redistribution of power among all participants in service-learning. Students develop authentic relationships in the classroom and in the community where they work and use critical reflection to deconstruct and understand the systems of power and privilege that sustain inequalities (Mitchell, 2008). While service-learning is common in social work education, there is a need for more research investigating students' perceptions of benefits of and challenges to participation in service-learning, especially with international programs (Lough, 2009). By assessing the effectiveness of teamwork with service-learning, we hope to better understand best practices for social work education in an international setting. In this article, we describe our short-term international study abroad course with a service-learning element that was imbedded in a full semester university supported course. Additionally, we examine the specific learning objectives of service-learning and evaluate those by using student reflections, discussions, and presentation findings to better understand whether the combined experience of being out of the US and engaging in service-learning provided transformative student learning. The results are presented in a qualitative context analysis. The course provided 3 hours of credit for either graduate or undergraduate students.

The Class

Although the course was housed in social work, it was open to all students across campus. The course was designed with our community partner With My Own Two Hands (WMO2H) based in Laguna Beach, California.[1] WMO2H provided all in-country contacts and accommodations that made the course viable. On the classroom side, students worked in teams to develop content, design interventions, and deliver that intervention to a rural school in Namanga, Kenya. As part of their time in Kenya, students worked in teams to complete service-learning projects that provide a service to the Maasai community, primarily working at Tumaini Academy, while also informing their own learning. This approach helps students gain a deeper and practical understanding of the international social work practices, as well as, a broader appreciation of how social workers engage with groups, communities and organizations in Kenya.

The class: Women's Rights and Health in Kenya, met every Tuesday night during the spring semester of 2018. Twelve students enrolled in the course, all female, but representing a diverse racial and ethnic mix. Students were also diverse in age and educational level. The class was structured around three components: pre-travel readings, reflections, and discussions; in-country journals and reflections; and post-travel reflections, discussions, and presentations. Student reflections and presentation materials comprise the data for this paper. One of the advantages of this short-term study abroad experience was that it was embedded in a semester-long for-credit course. We believe this is a critical component to the success of such short-term experiences. Students had preparation before traveling as well as debriefing after traveling.

Students began a series of readings, lectures, and guest speakers related to laws, culture, and practices in Kenya and of the Maasai ethnic community. Additionally, students were asked to research issues on their own related to women's health in Kenya. A critical issue that continued to surface in class discussions was the subject of menstrual health and women's loss of educational opportunities because of it. We also talked to our community partners to determine their knowledge about menstrual health in the projects where they work. WMO2H identified access to proper feminine hygiene items as a barrier that they had been told about from all of their projects. Specifically, they were asked to bring underwear for girls at every project. Some people donate sanitary supplies but fail to realize that the girls do not have underwear. Without underwear, the supplies are useless to the girls. Research revealed that menstrual hygiene management for school girls in places like Kenya have been neglected and have been associated with girls' absenteeism from school because they do not have absorbent materials, they lack facilities for changing and washing appropriately, they fear leakage, and they suffer discomfort (Sommer and Sahin, 2013). Absences from school lead to poor academic performance (McMahon et al., 2011; Mason et al., 2013).

Two issues related to the discussion of reusable pads have been raised. The first is, why reusable pads instead of disposable pads. The answer to that question relates to waste management issues in this area of Kenya, as well as sustainability of the interventions. Most latrines in the intervention area of Kenya are not connected to sewage systems and amount to a hole born into the ground. Thus, the disposal of sanitary napkins in school poses significant issues of sanitation, odor, and flies. While disposable sanitary pads are an immediate fix, and probably a viable alternative for emergency situations, they do not provide an environmentally

[1] For more information see www.withmyown2hands.org.

friendly long-term solution. Similarly, with a focus on sustainable solutions, disposable pads are just that; disposable. They are only good for one use and then they are trash. The cost of purchasing these supplies presents a tremendous burden for poor girls and this would be an expense necessary every month. Alternatively, the reusable pads are good for up to 5 years depending upon the care taken to clean and preserve them.

After consultation with our community partners in the US and abroad, students decided to build an intervention to address this need. Although other organizations have done some of this work, through communication with our community partner, this type of project had not been delivered in the sites that we would visit. These discussions in class lead students to talk about a project they knew about that originated in the nursing department through their community health project. That project made reusable pads for women in a different country. Discussions lead to questions about whether we could make pads to take to Kenya and design a lesson plan around female adolescent health that would include proper menstrual health management.

The first premise of service-learning is that there should be reciprocal benefit to the community partner and to the students. Working in an international context required assessment of the cultural acceptance of the topic, and the ability to successfully deliver the topic. We did not want to develop a project that was not needed, not wanted, or not possible. Thus, after students had conducted several weeks of reading and discussing issues in the Maasai community, we forwarded areas of interest to WMO2H who reached out to the project in Kenya to determine the viability of the lesson plans. The literature informed us that menstrual health management was an issue, but we needed the community where we would visit to tell us that this was an issue and that they would be receptive to lesson plans surrounding this issue.

Before we settled on this project, we contacted the local school in Kenya, through our community partner WMO2H to make sure that the girls had access to water and a private place in their living quarters to address their needs. We also asked if they had access to soap and how they do their laundry to ensure that each girl would have ownership of her supplies. If such local investigation does not occur ahead of time, projects will be useless. If the girls do not have access to soap and water, they will not be able to clean their pads and they will not be reusable. Additionally, if they do not have a private space to address their needs, they are not likely to use these products. We also sought support and permission to address this topic with the girls, recognizing that different cultures handle issues differently. Fortunately, this topic well received by the project director, so much so that he invited neighboring schools to bring their girls over to partake in the lesson

Further investigation led us to find a pattern to make the reusable pads (Etsy). We got donations from some interested parties to purchase supplies, which were not very expensive, and we all cut out different pieces of the pads that we planned to assemble. Another social work colleague referred us to a sewing co-operative in our community that is a non-profit that conducts many different sewing initiatives in our community. We contacted them and they offered to provide a sewing lesson and access to 10 sewing machines at one time. The cost to rent the space was $300. Luckily, as part of the service-learning initiative at our institution, professors who have participated in the faculty fellows in service-learning course are eligible to receive a $300 mini grant once each semester to support projects directly related to a service-learning project. That mini grant paid for 12 students to learn to use a sewing machine and sew re-usable feminine pads. These pads are environmentally friendly, as disposal of waste is a huge problem in Kenya. They are also economically advantageous because they can be washed and reused.

Learning to sew the pads proved to be a challenge. Many of the students had never used a sewing machine. They did not know how to thread the machine or how to use it. Each machine is a little different. The first lesson was all about how to thread the machine, wind the bobbin, load the bobbin, and make the machine work. Then we set about sewing the pads from all of the pieces that we already had cut out. We had to throw away a few of the early products, but for the most part, they were usable. However, in 3 hours, we only completed 10 usable pads. Some students took the pads home (if they had access to a sewing machine) and two faculty members worked on sewing pads. The sewing teacher also took some home with her and we planned to meet once more at the sew-op to finish up the pads. Finally, students had to learn how to sew on snaps that are used to fasten the pads into the panties. Students and faculty also collected panties so that each girl would receive 2 pads and a pair of panties.

We worked with Tumaini Academy to deliver the lesson in the girls' dorm – but it was too small and too hot, so we had the lesson behind the girls' dorm. The Director, and the Head Teacher, wanted it to be away from the boys so the girls would be free to ask questions and not be embarrassed or shy. The Director's daughter, a social work graduate from Kenya, translated everything for us so that all children could understand at the same level. Although English is the official language in Kenya, the community language is Swahili. Depending upon when children started coming to school, their English proficiency varies. From our team, two students delivered the content of the lesson describing the female reproductive system and how it works, which the others were on hand to support the effort, answer questions, and assist with making bracelets to identify cycles. At the end of the lesson, our team distributed the reusable pads to the girls. We did not have enough, but the girls expressed excitement in receiving them and we were able to leave a sewing machine on site so that additional pads could be made after we left. The pad project is being evaluated and will be the subject of a future research study. The focus of this paper, however, is the US student's transformative learning after being involved with such a service-learning project abroad.

Data Collection Methods

First, students conducted a series of pre-travel reflections, in-country reflections, and post-travel reflections (see attached A). Students began by identifying their desires for the course, their concepts of global citizenship, and their personal goals for growth. In-country, they were asked to reflect on their experiences as being outsiders, and with communication difficulties, and similarities and differences they experienced with the people with whom they were interacting. These reflections were designed to have them be fully present in the experience instead of just showing up as a tourist. Further, the discussion of content of readings, guest lectures, and documentary films that they engaged in prior to travel presented them with facts and cultural issues that they could expect to encounter. All journals, reflections, and discussions were analyzed for common themes and transformative learning experiences. These themes were then placed into categories around issues identified as service-learning principles.

Findings

The first premise of service-learning is that there should be reciprocal benefits to the community partner and to the students. Examining the journals and reflections of students involved in the class reveals that both of these criteria were met. First, to the benefits to the community partner, Tumaini Academy and the students that attend there, we were able to

provide important information about female health and provide an intervention that will be sustainable. Our team provided answers, and shared information concerning some of the most basic issues female biology. For example, one child asked, “If you have a period does that mean the baby died?” Other experiences that were reflected in the journals of program participants relate to providing factual information to the girls:

> The girls did not have any idea that the cycle was a 28-day cycle that repeats each month. They did not know how to track their period and be prepared. We made bracelets with them that had 7 of the same color beads lumped together and then 21 different color beads. The beads showed them how to count their cycle and how to become aware of the consistency of their own cycles and be prepared.

> We learned that many families and communities had myths about female reproductive health. For example, the story about the girl who what beaten because she started her period and her family thought that it meant she was having sex – told by the school teacher.

Providing accurate information to the girls empowered them to take control of their lives. They were so excited to receive the reuable pads. They giggled and smiled and shared with each other when we were short. (Many more girls were in attendance than we had originally been told). The project was such a success that the school personnel agreed to continue the efforts after we were gone.

Students benefited from feeling empowered to actually address a problem in a sustainable way. Student reflections include the following:

> I am very honored and humbled to be part of the reusable pad project. It was something I did originally with MedHope and being able to bring it to Kenya and actually see the girls receive them and the teachers appreciate them so much is an amazing opportunity. I am thrilled that Eunice is going to take up the project as a community education initiative as well.

> The most lasting impact I saw was with the reusable pads and sewing patterns we gave out there to the neighboring school. Beyond a one-time visit and getting to play and talk together, this seems like something that will help the girls out every single month. Additionally, it is being given the opportunity to expand as they have been given the resources to continue the project independently now that we are back home.

> Overall the lesson went amazing. It was cool to see how this topic, even though awkward, allowed for the girls to ask questions. Hearing some of the misconceptions was sad, but luckily [we] were able to clear these issues up. Handing out the pads and seeing the girl’ face light up will probably be one of the best moments.

The menstrual health lesson at Tumaini was a great learning point and it felt great to feel like we were helping provide information and resources that were really need in this community.

The atmosphere for the MHM lesson was great. It felt like such a safe space, conducive for learning about women's health and feeling more comfortable with the issue altogether. I feel like all of us talking about menstrual health plainly and laughing and being easygoing about the topic helped reduce the stigma. I was just overjoyed that it was so well received. The teachers said they were grateful because they say their girls gaining a lot from the lesson and they knew it would make a difference in the long run. She said she planned to review everything with them in homeroom to make sure they remembered everything. The girls seemed really interested in learning about menstrual health and using the reusable pads, so I really hope that it will be useful to them in the future.

I think the lesson went really well and I am so grateful for this experience. It has truly changed my life to be able to make a difference in someone else's and I will never forget it.

Reciprocity in the relationship is demonstrated by two important prospects. First, students were able to identify with the girls and women about this critical aspect of female life. They talked about "girls being girls and talking about girl things." Next, the project directors at Tumiani were so excited about the project, and the benefit to the girls, their families, and the schools, that they have continued it after our study abroad was complete. We continue to search for ways to support the efforts, but the project director refers to this as "life changing work." Both the students and the partners have benefitted from this project.

Another cornerstone of service-learning for transformative student experience is that service-learning must be partnered with multicultural education and reflection. Likewise, multicultural education without engagement with communities of difference isolates students from the individuals who are different from them and from the larger community (O'Grady 2000). Both of these components were carefully crafted in the course, and we believe, were accomplished. Content was designed to ground them in the social justice issues with which they

would be faced in Kenya, especially as they relate to women and girls. It was important for students to put aside their experiences of being a female in America and be able to understand the cultural expectations and gender role definitions of females in Kenya. Without such understanding, presentation of solutions would be unrealistic.

Based on the information contained in their reflections, students seemed prepared for their experience, and really embraced their role as support and not savior to the girls and women they met and interacted with. In response to identification of the greatest barriers faced by women and girls in Kenya, students reflected:

> The biggest barrier is the deep-rooted cultures that value a patriarchal society. The best way to advocate for girls and women is through education. Kenya, as a country, has laws and rights for women, but many individuals aren't aware of them and some cultures still enforce other rules in opposition to them. Many of the adults don't even understand things like female biology which results in the girls not receiving proper education and support from their families and not receiving proper supplies. They have a desire for education and advancement.

> Greatest barrier facing women and girls: a simple lack of resources. A girl could be seen as equally deserving of an education by her family, but if the money isn't there to sponsor her through secondary school, what other option is there besides marriage for a family who can't afford to feed or house her any longer?

> Women and girls have a lot of issues they deal with that seem to be universal, such as struggles with puberty and sex education, gender inequality, gender roles and expectations, sexual violence, and oppression based on strict traditional values. Feminism empathy and understanding of these similarities helped us to communicate openly and effectively even in a cultural setting that was so new and different to us.

Students were also asked to reflect on the greatest strength that they noticed among the people they met and interacted with in Kenya. This reflection was designed to have students see positives of a society and a culture that is different from their own. As social workers, we are a strength-based profession. Being able to see strengths is a hallmark of our ability to empower people to take charge of their own lives. In response to this reflection, students related:

> These females are super heroes. They are strong and smart. They have big dreams, and they possess the tools to achieve them. They are independent and powerful, but they are also caring and form a community of support for one another. That is the image we should show the world: strong, capable, determined women they are and not as helpless. They need support, but they do not need rescuing from us.

Greatest displays of strength: to know that young girls were willing to leave their homes to pursue educations over marriage, and to hear what they wanted to be as they continued their educations was incredible.

The main connection that I observed between all the stories I heard and people that I met is the great amount of strength and resilience that these young girls displayed.

Americans perception of Africa is very sad. America portrays the citizens of Africa as being miserable, uneducated people and this is just not true. Every picture I saw from a child was positive and the kids were all smiles while painting. I loved seeing how happy the kids were to see pictures of themselves.

Students were also asked to reflect upon their learning about different cultures and what they wanted others who had not had this experience to know about the people they met and worked with in Kenya. This reflection was designed to help them give voice to their learning, to appreciate the engaged part of the learning. They did not only study about a group of people, they met them and worked with them. Thus, their cultural experience was paired with engagement to reinforce their learning. In response to questions about what they wanted people to know who had never traveled to Kenya, students relayed:

> I learned that every person is the expert of his or her own live. I've heard it in classrooms and been instructed to apply it as we began field placement this semester, but this experience was the realest example I have seen so far, as something I lived through more so than other opportunities this semester.

> Something that really stuck out in my mind was how to serve and support communities in need without taking on a role of a white, colonial savior. Communities need "support, not saving." Cultural competency is a key concept in social work practice and education, and I think this trip helped me learn more about how to be a culturally competent social worker. Empathy and flexibility were important

> I think my perspective changed in that I realize just because we are shown filth, disaster, and need doesn't mean that is all there is to that country. It was never brought to my attention all the positive things they have there.

Desired outcomes for co-curricular service-learning include multicultural awareness, clarifying career and life goals, and understanding of local and global social issues. Journals and Reflection indicate that these goals were met through this course.

Multicultural awareness:

> Sharing our lessons with children and women in Kenya was a great learning experience that forced us out of our comfort zones and helped us gain experience and learn about some of the practical skills needed to work with different communities and cultures, particularly regarding sensitive topics.

> I would like people in the US and everywhere to understand more about people from Kenya and any other country is that they are all human. We are more alike than we are different.

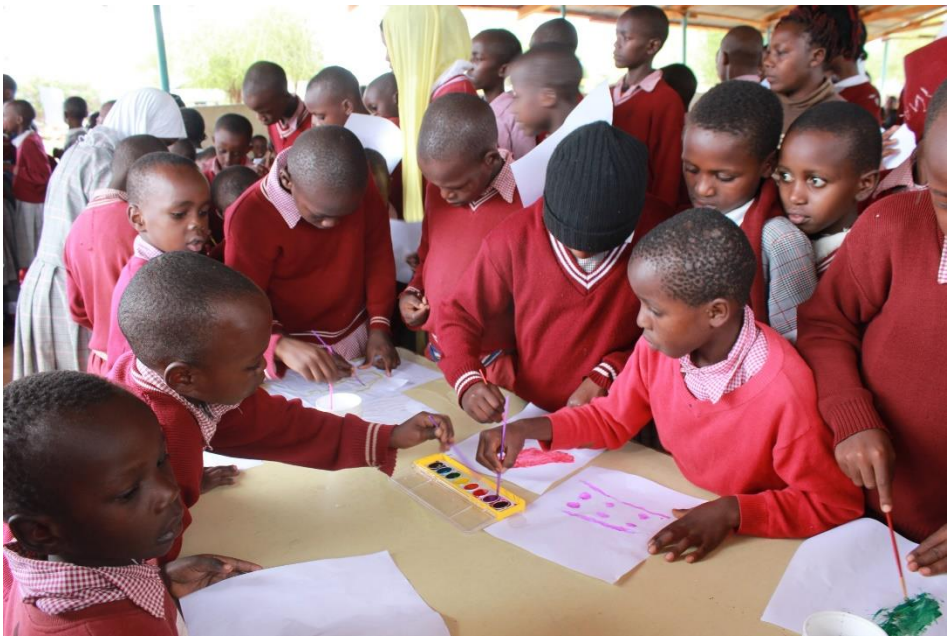
> I learned that you should never believe what you hear about countries (from the media). It is assumed that going to Africa is so scary and dangerous when in reality, it is no worse than America. The people we came in contact with were so kind and really seemed to care about us. I have never met anyone like our guides. They are the kindest and most loving people. To be afraid of Africa or anywhere in the world because of some preconceived notion of it is narrowminded. I am excited to travel more in my future.

Clarifying career and life goals:

> This trip and this class has made me more willing to talk about these things regarding women's rights and women's health like periods, contraceptives, HIV and STI, and FGM. It is important and I've now seen those who it affects the most. I can't not do something now.
>
> I have always been focused on health, but now I really want to focus on women's health. This trip brought me face to face with how important it is to make sure that women have both information and access to health.
>
> I think the lesson went really well and I am so grateful for this experience. It has truly changed my life to be able to make a difference in someone else's and I will never forget it.

Understanding of local and global social issues:

> Each person you attempt to help through service work regains their autonomy. People in need of social services or other resources are not lost puppies that need to be picked up and told where to go. They are the ones telling you what they need, they are the ones that know why they need it, and they are the ones who know their pasts and who will have to live their futures.



These are people and communities we should advocate for and support, but while standing beside them and not attempting to stand or speak over them. They are not by any means helpless or incapable of helping themselves and making decisions for their future. They are definitely not deserving of pity. Every person is deserving of their own autonomy and respect.

Sitting down and talking to the projects social workers allowed me to see the difference between social work in Kenya versus America. The conversation allowed me to see that the same type of cases are dealt with in Americas as in Kenya.

Students reflected on how it felt to provide lasting impact on an issue of women's health. Many of their journal entries related to being able to share something personal to girls with other girls. They laughed, they giggled, they asked and answered tough questions. They cleared up misunderstandings that American students take for granted. These experiences helped bond them to the girls in Kenya and formed a common thread.

Discussion and Conclusions

This paper demonstrates that short-term study abroad experiences coupled with critical service-learning opportunities can provide transformative student learning. Additionally, these opportunities allow a broader section of the study body to participate in international learning because they are less expensive and more manageable for the nontraditional student who has work and family obligations. We believe several important lessons were learned from this experience.

First, we cannot express enough the importance of advanced communication with community partners and a strong commitment to the same goals of the project. This project would not have been successful if the partners had not been supportive or if the environment had not been conducive. If the girls did not have soap and water and private drying space, this would not work. If we had not had a translator, if we had not had privacy away from men and boys, if the children had not had time off from their regularly scheduled classes. All of these logistical issues were addressed ahead of time by the community partner. The follow-up, continuation, and evaluation have all been attributed to the community partner. Thus, any program planning a service-learning trip abroad, especially a short-term experience, should begin working with the community partner well in advance for a successful project and learning experience.

Next, reflection and discussion are critical to student learning. Reflection helps students process what they have experienced. It imprints the experience in their minds and helps them retain it better. It also allows them to see their own misunderstanding, preconceived ideas, and role in making the global relevant to the local.

Additionally, for such a short-term experience, we believe that the success hinged on the arrangement of the course as a semester long for credit course. Students did not just show up and go abroad for 10 days and return. They spent time reading about the conditions in-country, watching documentaries about issues in-country, and meeting with other people from the country to talk and discuss issues. These pre-travel preparations grounded them in what to

expect and what was realistic. It helped to identify inequalities, oppressive structures and policies, and the privilege that they live in before traveling abroad. We believe students landed in Kenya with an open mind and a willingness to truly experience the culture. Having students in class for a month after they returned from Kenya was also beneficial. This time gave the course instructor opportunity to process with the students what they had experienced. In one of the meetings, students were asked to bring in photos from the trip that demonstrated their role as global citizens. The entire course discussion was around that topic. Students were also required to present their experiences two different times, once at the University wide Research Expo and again at the reception for the class that occurred on the last night of class. These post-travel requirements forced students to really reflect on their time abroad and share their experiences with students who were not able to travel.

Finally, journals and reflections from these students indicate that this short-term experience has made them consider their career and personal goals differently from before. Some want to go into the field of international social work and others want to work with refugee groups in the US. All of them have indicate a new level of respect for people in third-world countries that they are strong and innovative and have survived without many of the resources available in the states. These types of insights enable students to begin the process of understanding their role as global citizens.

Allowing a larger cross-section of the student population to take part in international experiences is perhaps the strongest argument to incorporate short-term study abroad into curricula, particularly in places that have a predominately non-traditional student body. Several of our participants were mothers who left their children with family members for the week. They each expressed throughout the experience that they could not believe that they were actually able to take part in a study abroad. They never thought the opportunity would present itself at the point in their lives where they already had children and families. Additionally, many of the students who participated in this experience have jobs and support themselves while they are in school. They were able to plan well in advance and get the time of work. Those students also stated they never thought they would be able to participate in study abroad because they didn't think it would fit into their schedules.

Overall, short-term study abroad experiences coupled with service-learning projects, when carefully planned and delivered can provide transformative student learning that we are seeking to provide our students. Strong relationships with community partners that assist with logistical planning are critical. Also coordinating with those partners about the needs and desires of the local community are critical. Finally, providing opportunities for reflection and processing of information is important so the experience involves active learning and not "tourism."

References

Cox, D. and Pawar, M. (2006) *International Social Work: Issues, Strategies and Programs*, Sage, Thousand Oaks, CA.

Dominelli, L. (2010*). Social Work in a Globalizing World*, Polity Press. Cambridge.

Dominelli, L. and Hackett, S. (2012) "Internationalizing social work theory and practice," International Social Work, vol 55, no. 2, pp. 151-153.

Deruy, E. (2016). Colleges Plan to Send More Students Abroad. Retrieved from https://www.theatlantic.com/education/archive/2016/05/colleges-pledge-to-send-morestudents-abroad/484589/.

Fisher, C.M. & Grettenberger, S.E. (2015) Community-Based Participatory Study Abroad: A Proposed Model for Social Work Education, Journal of Social Work Education, 51:3, 566-582, DOI: 10.1080/10437797.2015.1046342

Freire, P. (1970), Pedagogy of the Oppressed. New York, NY: Seabury Press.

Estes, R. (1992). Internationalizing Social Work Education: A Guide to Resources for a New Century. University of Pennsylvania. Retrieved from: http://caster.ssw.upenn.edu/~restes/intl.html

Healey, L.M. (1986). The International Dimension in Social Work Education: current efforts and future challenges. International Social Work, 29,135-47.

Healy, L. M. (1992). Introducing International Development Content in the Social Work Curriculum. Washington, D.C.: NASW Press.

International Federation of Social Work (IFSW) (2005) *Global Standards for the Education and Training of the Social Work Profession,* Adopted at the General Assemblies of International Association of Schools of Social Work and the International Federation of Social Work, Adelaide, Australia. Available at: http://www.ifsw.org

Jacoby, Barbara. (2015). *Service Learning Essentials: Questions, Answers, and Lessons Learned.* Josey-Bass: San Franisco, CA.

Lough, B. J. (2009). Principles of Effective Practice in International Social Work Field Placements. Journal of Social Work Education, 45(3), 467–480. https://doi.org/10.5175/JSWE.2009.200800083

Lough, B. (2011) *International Volunteers' Perceptions of Intercultural Competence*. International Journal of Intercultural Relations, vol. 35, pp. 452-464.

Mason, Linda, Kayla Laserson, Kelvin Oruko, Elizabeth Nyothach, Kelly T. Alexander, Frank O. Odhiambo, Alie Eleveld, Aisha Mohammed, John Vulule and Penelope Phillips-Howard (2015). Adolescent school girls' experiences of menstrual cups and pads in rural western Kenya: a qualitative study. *Waterlines* Vol. 34, No. 1, 15-29.

Mason, L, Nyothach, E., Alexander K., Odhiambo, F.O. Eleveld, A., Vulule, J., Rheingans, R., Laswerson, K.F., Mohammed, A., and Phillips-Howard, P.S. (2013) "We keep it secret so no one should know": A qualitative study to explore young schoolgirls attitudes and experiences with menstruation in rural Western Kenya;, PLoS One 8:379132. http://dx.doi.org/10.1371/journal.pone.0079132.

McMahon, S.A., Winch, P.J., Caruso, B.A., Obure, A.F., Ogutu, E.A., Ochari, I.S., and Rheingans, R.D. (2011). "The girl with her period is the one to hang her head": reflections on menstrual management among schoolgirls in rural Kenya,' BMC International Health and Human Rights 11: 7. http://dx.doi.org/101186/1472-698X-11-7.

National Association of Foreign Student Advisors. (n.d.). Homepage. Retrieved from:www.nafsa.gov.

Midgley, J. (2001). Issues in International Social Work: Resolving Critical Debates in the Profession. Journal of Social Work, 1(1), 21–35. https://doi.org/10.1177/146801730100100103.

Mitchell, T.D. (2008). Traditional vs. Critical Service-Learning: Engagin the Literature to Differentiate Two Models. *Michigan Journal of Community Service Learning*, 14(2), 50-65.

National Association of Social Workers. (2015). Standards and Indicators for Cultural Competence in Social Work Practice. Washington, DC: National Association of Social Workers. Retrieved from https://www.socialworkers.org/practice/standards/.

Nurius, P. S., Coffey, D. S., Fong, R., Korr, W. S., & McRoy, R. (2017). Preparing Professional Degree Students to Tackle Grand Challenges: A Framework for Aligning Social Work Curricula. Journal of the Society for Social Work and Research, 8(1), 99–118. https://doi.org/10.1086/690562

O'Brien, M. (2011). Equality and Fairness: Linking Social Justice and Social Work Practice. *Journal of Social Work*, vol. 11 pp. 143.

O'Grady C.R. (2000). Integrating Service Learning and Multicultural Education: An overview. In C.R O'Grady, *Integrating Service Learning and Multicultural Education in Colleges and Universities.* Mahwaj: NJ: Lawrence Erlbaum.

Payne, M. and Askeland, G. (2008). *Globalization and International Social Work: Postmodern Change and Challenge*, Ashgate, Aldershot.

Paul, E.L. (2009). Community-based Undergraduate Research: Collaborative Inquiry for the Public Good. In B. Jacoby (Ed.), *Civic Engagement in Higher Education: Concepts and Practices*. San Francisco, CA: Jossey-Bass.

Roholt, R.V.; Fisher, C. (2013). Expect the unexpected: International Short-Term Study Course Pedagogies and Practices. *Journal of Social Work Education*. Vol 49.1 (Winter 2013).

Sobania, N., and Braskamp, L.S. (2009). Study abroad or study away: it's not merely semantics. *Peer Review*, 11 (4), 23-26.

Sommer, M., and Sahin, M. (2013). Overcoming the taboo: advancing the global agenda for menstrual hygiene management for schoolgirls. *American Journal of Public Health* 103: 1556-9. http://dx.doi.org/10.2105/AJPH.2013.301374.

Staniforth, B., Fouche, C. and O'Brien, M. (2011). Still doing what we do: Defining Social Work in the Twenty-First Century. *Journal of Social Work*, vol 11, no. 2., pp. 191-208.

Wade, R.C., Boyle-Baise, M., & O'Grady, C. (2001). Multicultural Service-Learning in Teacher Education. In J.B. Anderson, E. Swick, J. Kevin & J.Yff (Eds), *Serivce-Learning in Teacher Education: Enhancing the Growth of New Teachers, Their Students, and Communities*. Washington, DC: American Association of Colleges for Teacher Education.

Wehbi, S. (2009). Deconstructing Motivations: Challenging International Social Work Placements, *International Social Work*, vol. 52, pp. 48-59.

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