

ABSTRACT

The growth of service-learning as an educational approach in colleges and universities has led to the use of more advanced pedagogical techniques in service-learning programs. This article describes a financial literacy service-learning program that a team of undergraduate business students completed while following a participatory action research perspective in the planning, implementation and measurement of a financial literacy event for high school students. This approach fits in the literature on ethics, financial literacy and service-learning and provides an illustrative example of how to incorporate this participatory action research perspective into future financial literacy service-learning initiatives.

Measuring Impact While Making a Difference: A Financial Literacy Service-Learning Project as Participatory Action Research

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Financial Literacy and Service-Learning

Teaching financial literacy through service-learning is an increasingly popular instructional method in undergraduate business programs (Sabbaghi, Cavanagh, & Hipskind, 2013). In financial literacy service projects, undergraduate business students typically provide a short-term financial literacy education program to peers, community members, K-12 students, or underserved populations. This type of service-learning project is an excellent fit for undergraduate business students, since it challenges students to apply their extensive training in matters related to financial literacy. Engaging undergraduate business students in financial literacy service projects has shown mixed positive impacts in learning outcomes for business students and project participants (DeLaune, Rakow, & Rakow, 2010), which demonstrates that this approach has potential both for financial literacy and as an effective academic tool particularly for undergraduate business students. Beyond the financial literacy education component of these programs, additional research has shown that financial literacy service-learning projects improve undergraduate student leadership competencies and awareness of social justice issues (Rosacker, Ragothman, & Gillispie, 2009).

A recent study by Goetz, Durband, Halley and Davis (2011) documented significant increases in undergraduate student understanding of the specific needs and interests of the various populations that were targeted in the financial literacy education program.

Historically, financial literacy programs first started to appear as service-learning projects in colleges and universities during the economic crisis of 2008, as numerous individuals from a wide variety of backgrounds suffered adverse personal financial consequences during the economic downturn (Willis, 2009; Wolfe-Hayes, 2010). The financial recession also raised a great deal of media attention toward specific financial problem areas such as predatory lenders and the easy access to credit. The media attention to financial literacy matters has continued with a focus on such matters as escalating student debt, the nationwide negative savings rate, high credit card debt, and limited retirement savings (Mandell & Klein, 2009; Willis, 2009). A 2010 study by Lusardi, Mitchell and Curto revealed that only 27% of American respondents could correctly answer a basic set of questions on financial literacy. A national survey conducted in 2013 indicated that the majority of Americans have low financial literacy (Hastings, Madrian, & Skimmyhorn, 2013). More recently, in a 2015 national study of personal financial literacy, more than 63% of participants answered three or fewer items correct on a five question test assessing basic finance and economic knowledge encountered in everyday life (FINRA Investor Education Foundation, 2016). The consequences of the widespread lack of basic financial knowledge are particularly severe for vulnerable population segments (Braunstein & Welch, 2002). In particular, low-to-moderate income households, minorities, and recent immigrants exhibit lower rates of open bank accounts and higher usage rates of predatory financial services such as check-cashing, payday loans, and high-cost remittance services, which carry greater cost and risk (Wolfe-Hayes, 2010).

In response to the financial recession and data indicating low financial literacy in America, national policy initiatives have been directed at improving financial literacy levels (Willis, 2009). The Dodd-Frank Act mandated the creation of the Consumer Financial Protection Bureau (CFPB) and the establishment of the Office of Financial Education as federal agencies that are tasked with the development of financial literacy programs (Hastings et al., 2013). In response to national directives, state-level education departments and educational organizations such as the JumpStart Coalition for Personal Financial Literacy were developed and offered programs in communities across the country (JumpStart Coalition for Personal Financial Literacy, 2017; Pennsylvania Department of Education, 2016). This national movement to incorporate financial literacy into educational programs has also led to a focus on financial literacy in service-learning programs in colleges and universities. In particular, given the relevance of topics related to core curriculum content in finance, accounting and economics, financial literacy service-learning programs are a common area-of-focus in undergraduate business programs (Hagedorn, Schug, & Suiter, 2016).

The rise of financial literacy programs is complemented by trends showing a growing attention to service-learning as a common educational approach in undergraduate business education. For undergraduate business programs, service-learning typically consists of students working on projects in areas related to their coursework in accounting, finance, management and marketing that is aimed at building

capacity for a community partner. Course content objectives are taught through a combination of dynamic real world service project experiences and assignments that lead students to engage in critical reflection on how the service experience impacts their personal and professional development (Bryant, Schonemann, & Karpa, 2011; Godfrey, Illes, & Berry, 2005; Kenworthy-U'Ren & Peterson, 2005; Martin, 2015). A substantial body of literature documents significant increases in student learning outcomes from the skillful application of service-learning, including advances in cognitive, social, and leadership competencies (Bryant et al., 2011; Celio, Durlak, & Dymnicki, 2011; De Leon, 2014; Niehaus & Crain, 2013; Rama, 2011; Vogelgesang & Astin, 2000; Yorio & Ye, 2012).

A more advanced version of service-learning combines a traditional service-learning project with participatory action research to enable students to engage in service-learning projects while utilizing and developing research skills. Undergraduate research enhances students' critical thinking, problem-solving abilities, analytical abilities, content knowledge, and intellectual curiosity (Buff & Devasagayam, 2016; Levenson, 2010). Undergraduate research also improves students' professional skills, resumes, references, understanding of major, and college graduation rates (Buff & Devasagayam, 2016; Craney et al., 2011). Several studies of the impact of undergraduate research have demonstrated the benefits of conducting student research through service-learning, but surprisingly, this has been somewhat absent within the business education literature (DeHaven, Gimpel, Dallo, & Billmeier, 2011; Gray, Galvan, & Donlin, 2017). Furthermore, research on financial literacy outcomes is particularly relevant as academics are increasingly calling for more critical financial literacy research (Bay, Catasús, & Johed, 2014; Fernandes, Lynch, & Netemeyer, 2014; Mandell & Klein, 2009).

The current research on the impact of financial literacy documents mixed results regarding the efficacy of financial literacy education and an overarching need for more research on the development of innovative approaches to financial literacy and the measurement of financial literacy outcomes. Reviews of the impact of educational programs on financial literacy by Gale and Levine (2010) and Hastings et al. (2013) show both significant and non-significant results in learning outcomes for participants after going through financial literacy programs. Fernandes et al.'s (2014) meta-analysis found that financial literacy intervention explains 0.1% of variance in financial behavior; however, the researchers observed that many interventions did not include enough details on methodology to code for the influence of extraneous variables that could influence results (such as a detailed assessment of the participants' prior financial knowledge). DeLaune et al. (2009), Hagedorn et al. (2016), and Rosacker et al. (2009) documented positive improvements in financial literacy test scores following intervention. Lusardi et al. (2010) observed a significant correlation between financial literacy and educational attainment. The JumpStart survey did not find significant results between high school students receiving personal finance courses and those not receiving the course; however, students who played a stock market game did significantly better than other students on the financial literacy exam (Mandell, 2008; Mandell & Klein, 2009). In response to the mixed results, Mandell (2008) recommended additional research on the quality of financial literacy education and the systematic identification of best practices in financial literacy programming. There is a need for

more research on the outcomes of financial literacy as current studies lack methodological rigor and consensus regarding validity of measurements (Brunstein et al., 2015; Fernandes et al., 2014).

A Program in Leadership and Ethics for Undergraduate Business Students

Financial literacy is a viable topic for undergraduate business education, particularly in educational programs that take an experience-based learning approach. The University of Pittsburgh's College of Business Administration developed a unique 16-credit Certificate Program in Leadership and Ethics (CPLE) since 2004. There are typically 30-40 students who pursue the program each year, as students apply to the program in the second semester of their freshman year and go through the program as a cohort starting in the first semester of their sophomore year. Students must be enrolled in the College of Business Administration in order to apply for the program and students from all majors within the business school are eligible. The CPLE uses a competency-based approach focusing on student development across five key areas: ethical awareness and decision making, relational leadership, high impact communication, project team management, and civic/social engagement.

The interface between leadership and ethics is the distinctive content feature of the CPLE and each of the five required courses have an experience-based learning component through a service-learning project in which students do various class projects for clients from businesses, alumni, university offices, and community organizations who are involved in various local communities all throughout the City of Pittsburgh. The program is based on the assumption that an emphasis on leadership, without proper consideration of ethics, will not generate leaders who approach their roles with a sense of responsibility and accountability. By the same token, an emphasis on ethics, without proper consideration of leadership, will not produce leaders with the necessary tools to develop and implement their vision and understanding of ethics. The certificate offers undergraduate business students an integrated and sustained program of study into the relationship between leadership and ethics, and contributes to a student's preparation for a career in business by providing hands-on experience into the complex nature of ethical leadership in modern business environments. The program's pedagogical strategy reflects models of service-learning (Eyler, 2002) and Kolb's (1984) theory of experiential learning. The use of an experiential learning approach has also been cited as an effective tool for teaching ethics in business management curriculum (Laditka & Houck, 2006). The CPLE curriculum is designed so that students go through an experience-based exposure to ethics and leadership in different organizational settings in the five required courses.

One of the five required courses in the CPLE is *Service Learning in Organizations*, in which participants work in small teams (3-to-5 students) of consultants on projects with clients (local businesses, alumni, community organizations, university offices, etc.) who are doing interesting work in the community. The students spend the first half of the semester in a traditional academic format learning principles of servant leadership that they apply to themselves in a personal reflection paper and a mid-term examination. In the second half of the course, the students work in their project teams and are expected to provide value for their clients in particular areas-of-expertise that are appropriate for second semester sophomore business students, such as social

media planning, benchmarking and best-practices research, market segmentation analysis, and program needs assessments. The course finishes with students writing a second personal reflection based on peer feedback from the project experience.

Service-Learning with an Emphasis on the Measurement of Community Impact

A service-learning course of second semester sophomore business students reflects several of the fundamental challenges to service-learning. While there are many pedagogical tools and techniques available to promote the students' learning outcomes, the initiative must take into account the basic challenge of ensuring that the service-learning exercise is actually achieving democratic and social justice outcomes for the community (Kliwer, 2013; Meens, 2014; Mitchell, 2013). Service-learning has a natural tension between the importance of delivering value to members of local communities while meeting the learning objectives of the program within the greater aim of generating civic engagement and properly reflecting relevant social justice matters (Morton & Bergbauer, 2015).

Interestingly, the high level of emphasis on self-reflection (Kolb, 1984) and personal leadership development in an effective service-learning project can actually lead to a disconnect between the academic work in the course and the impact of the project on the community (Eyler & Giles, 1999). The impact on the community can be less clear (Sandy & Holland, 2006), particularly given the fact that a class service-learning project might have clearly defined expectations and duties for the students, with the community simply being framed as the target of the service project or client of the learning activity. The educational setting can actually create a context in which students can focus heavily on tasks and assignments that push their individual and team leadership development, but without ultimately holding themselves accountable for the impact of the project on the community. While it is laudable to state that the participants need to have some level of concern for the impact of the project on the community, we contend that this commitment to community impact should be built into every stage of the project, from design and planning to implementation and evaluation.

The growing body of literature on participatory action research (Giles, 2014; Lewis, 2004; Marullo & Edwards, 2000; Reardon & Shields, 1997) is one of the most useful models for designing a service-learning project that has an emphasis on the impact of the project on the community. In this model, student participants work in a community-oriented research project that facilitates ongoing dialogues among the students and community stakeholders to ensure that the needs and interests of specific actors in the community receive attention throughout the duration of the research project. As such, it is not enough for a group of business students to simply deliver a service event or recommend a software program for a community entrepreneur. Instead, the students must engage project stakeholders as active participants throughout every stage of the research project. The focal point is to engage community members directly through collaborative work between the students and community members over the course of the entire project (Hardina, 2006). It is also important to understand ethics within a realistic context that is dynamic, complex, and does not conform to an easily solved problem or dilemma.

A Participatory Action Research Project on Financial Literacy

Service-learning initiatives in undergraduate business programs have great potential for participatory action research projects, as the fundamentals of business administration can have value for community partners who are already doing work in local communities. A new entrepreneur could benefit from a social media plan that marketing students develop to target an underserved consumer segment. Alternatively, for accounting students with a background in audit, a small non-profit organization could benefit from a review of cash management and reconciliation practices. In a similar vein, one of the business school's alumni approached the CPLE faculty with a request for assistance from students who have a strong finance or accounting background for a spring 2017 financial literacy education event for students in the City of Pittsburgh's Public School system (PPS). This request soon evolved into a financial literacy project for one of the student consulting teams in the CPLE *Service Learning in Organizations* course. In the course, there are typically 5-to-7 different client projects, each with a specific area-of-focus for the respective client. Three of the students in the course selected this project and worked on an agreed upon set-of-deliverables that had to be completed by the end of the spring term. The student team met with the client and the client's partners in PPS and agreed on a project to design the financial literacy curriculum of the event, and then measure the impact of the event on the PPS student participants' knowledge of financial literacy. The student team had milestones in planning, implementation, and assessment that required ongoing communication with the client from mid-February through the final client presentation in April.

Financial literacy is a strong fit for a participatory action research project, since a program in which undergraduate business students provide high school students with information and perspectives to enhance financial literacy is a focused form of youth mentoring. The undergraduate business students utilize their expertise in financial matters to take ownership for the financial literacy learning outcomes of high school students. The literature on youth mentoring programs as a form of service-learning shows how this area has the potential to become as an excellent tool for community and civic engagement (Brady & Dolan, 2009). The idea of the undergraduate students taking ownership for the financial literacy outcomes of the participants actually "raised the stakes" of the project, in that the undergraduate business students quickly learned that they could not simply appear at an after school event and expect to have an impact on student learning. The student team faced a number of compelling matters throughout the course of the project that pushed them to remain in close contact with their client and the client's partners, from planning meetings on the design of the event, the long process of recruiting and engaging the high school student attendees, and in-depth discussions of expectations for the impact of the event and the set-of-tasks necessary to measure this impact.

Statistical Analysis on the Financial Literacy Outcomes of the Event

At the spring 2017 financial literacy event for PPS, the three undergraduate business students on the CPLE consulting team designed, administered, and tabulated a financial literacy pre-test and post-test. Thirty-eight high school students were included in the analysis. Participants included 9th, 10th, 11th, and 12th grade students from 8 high schools in the City of Pittsburgh School District. The CPLE consulting team

ran descriptive analysis and calculated the means for the overall test score and the 12 individual question scores. Out of a possible 12 point score, the mean pre-test score for students was 5.37 and the mean post-test score for students was 8.08.

The pre-test and post-test each contained the same 12 questions covering the following topics: Question 1-credit agencies; Question 2-credit reporting; Question 3-credit card use; Question 4-credit card protection; Question 5-loan interest rates; Question 6-loan procedures; Question 7-student loans; Question 8-savings accounts; Question 9-trust funds; Question 10-fixed expenses; Question 11-variable expenses and Question 12-ideal credit score range. An Independent-Samples T Test was conducted by the authors using SPSS for each of the questions. The findings are presented in Table 1. Students scored significantly higher on the mean post-test ($M=8.08$, $SD=3.129$) than the mean pre-test ($M=5.37$, $SD=1.496$), $t(72) = -4.801$, $p = .000$. These results indicate the financial literacy event had an immediate impact on the financial literacy knowledge of the high school student participants in the specific areas-of-focus of the curriculum.

Table 1. Independent Samples T Test of Survey Questions

Independent Samples Test							
	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Q1 - Credit Agencies	2.958	.090	-3.804	72	.000	-.408	.107
			-3.814	71.908	.000	-.408	.107
Q2 - Credit Reporting	2.262	.137	-6.317	72	.000	-.596	.094
			-6.339	71.589	.000	-.596	.094
Q3 - Credit Card Use	8.828	.004	-1.421	72	.160	-.126	.088
			-1.432	68.078	.157	-.126	.088
Q4 - Credit Card Protection	1.316	.255	-1.142	72	.257	-.133	.116
			-1.142	71.579	.257	-.133	.117
Q5 - Loan Interest Rates	.058	.810	-5.845	72	.000	-.567	.097
			-5.841	71.596	.000	-.567	.097
Q6 - Loan Procedures	29.578	.000	-3.194	72	.002	-.333	.104
			-3.219	68.313	.002	-.333	.104
Q7 - Student Loans	3.281	.074	.913	72	.364	.096	.106
			.910	70.243	.366	.096	.106
Q8 - Savings Account	.440	.509	-.331	72	.741	-.037	.110
			-.332	71.951	.741	-.037	.110
Q9 - Trust Funds	6.782	.011	-1.395	72	.167	-.154	.110
			-1.391	70.031	.169	-.154	.110
Q10 - Fixed Expenses	1.572	.214	-2.116	72	.038	-.241	.114
			-2.113	71.370	.038	-.241	.114
Q11 - Variable Expenses	6.054	.016	-2.375	72	.020	-.266	.112
			-2.369	70.489	.021	-.266	.112
Q12 - Ideal Credit Score Range	.664	.418	.428	72	.670	.050	.116
			.428	71.629	.670	.050	.116
Total Test Score	23.387	.000	-4.801	72	.000	-2.715	.565
			-4.719	49.603	.000	-2.715	.575

Significant, $p < 0.05$

For question "Q1-credit agencies," students performed significantly higher on the post-test ($M=.75$, $SD=.439$) than the pre-test ($M=.34$, $SD=.481$), $t(71.908) = -3.814$, $p = .000$. This suggests the financial literacy workshop improved students' knowledge regarding credit agencies. For question "Q2-credit reporting," students performed significantly higher on the post-test ($M=.83$, $SD=.378$) than the pre-test ($M=.24$, $SD=.431$), $t(71.589) = -6.339$, $p = .000$. The results suggest that the financial literacy workshop effectively increased students' understanding of credit reporting.

For question "Q5-loan interest rates," students performed significantly higher on the post-test ($M=.78$, $SD=.422$) than the pre-test ($M=.21$, $SD=.413$), $t(71.596) = -5.841$, $p = .000$. The score improvement in question 5 indicates that the financial literacy workshop enhanced students' knowledge of loan interest rates. For question "Q6-loan procedures," students performed significantly higher on the post-test ($M=.83$, $SD=.378$)

than the pre-test ($M=.50$, $SD=.507$), $t(72) = -3.194$, $p = .002$. The results indicate the financial literacy workshop adequately taught students about loan procedures.

For question “Q10-fixed expenses,” students performed significantly higher on the post-test ($M=.58$, $SD=.500$) than the pre-test ($M=.34$, $SD=.481$), $t(71.370) = -2.113$, $p = .038$. The finding suggests the financial literacy workshop improved students’ knowledge of the financial topic of fixed expenses. For question “Q-11-variable expenses” students performed significantly higher on the post-test ($M=.56$, $SD=.504$) than the pre-test ($M=.29$, $SD=.460$), $t(72) = -2.375$, $p = .020$. The score improvement suggests that the financial literacy workshop increased students’ knowledge concerning variable expenses. The results for the other questions were not statistically significant, which led the student consulting team to recommend a specific set of revisions for the instructional delivery of the next iteration of the financial literacy event. The student consulting team also recommended that the client expand the instruction beyond the workshop setting for the financial literacy topics in the areas of credit card use, credit card protection, student loans, savings account, trust funds, and ideal credit score range.

Educational Impact of the Project on Undergraduate Business Students

In addition to measuring the impact of the event on the financial literacy outcome of the high school student participants, the mutual learning effort between the undergraduate business students on the student consulting team and the high school students attending the event creates a unique learning opportunity. This is also consistent with other peer-based financial literacy and youth mentoring programs, as the high school student participants have the chance to benefit from the specific expertise that the undergraduate business students have developed with respect to the specific dimensions of financial literacy. While it is one thing for high school students to hear lectures on keeping good credit and managing their money using techniques from budgeting, it is another thing to interact with a group of slightly-older students who are well-versed in these topics and committed to delivering a memorable and impactful educational experience. In a similar vein, it is highly-beneficial for the undergraduate business students to be challenged to apply something that is well within their area-of-expertise in financial literacy in a way that can be applied to high school students who do not necessarily have the same level of knowledge and appreciation of the topic. These undergraduate business students have career aspirations in finance and as managers in organizations. This is a worthwhile exercise to focus on topics like this with an audience who has the potential to benefit from the topic, but requires an engaging and immersive exercise to demonstrate the concepts.

Conclusion

The implementation of a peer-based financial literacy program is a productive area for additional research. This type of participatory action research generates ongoing dialogues with project partners throughout the planning, implementation, and measurement of the event, as well as challenging the undergraduate business student team to be “on the ground” with the high school students both in terms of the content of the event and in terms of having them carry the measurement piece all the way through to administering the pre- and post-test surveys, tabulating the results, and presenting

these results to our partners with a plan for growing and improving the event and its impact in subsequent years. The student team does not merely deliver on a project and walk away. They have to remain invested and hand off a workable plan for our partners to move forward in future versions of the event.

The limitations of this exercise are that it is a one day program that is done outside of school, so everyone has to have reasonable expectations for what can be done – both in terms of the scale and scope of the event and in terms of the level of content that can be covered. This limitation extends to the measurement of the impact of the event, as the students can only realistically measure what impact the event had on the high school students that day. It is not feasible to expect an afternoon financial literacy event to fundamentally change financial literacy outcomes for the high school students. As such, it is not realistic to attempt to measure the long-term impact of this event on the high school students.

The example of this program can be used to develop financial literacy programs on other campuses. A peer-based program is promising because it creates shared value both for the high school students going through the program and the undergraduate business students who are designing the program and facilitating its curriculum. The clearly defined student roles in designing, implementing, and measuring the impact of the program creates a high level of individual and collective accountability for the undergraduate business student team.

This work also has implications for how we approach teaching complex and critical concerns such as ethics to undergraduate business students. Previous research is clear that teaching ethics within the classroom requires a focus relevant both to students and within the business or social context (McDonald and Donleavy, 1995). This suggests that experiential learning tools such as our participatory action research approach within the service-learning project provide an effective tool for making ethics more relevant. In fact, some research explicitly argues that teaching of ethics is most effective when an experiential learning framework is employed (Brinkman & Sims, 2001). Action-orientated experiential learning methods may present a particularly useful tool for teaching of ethics as this actively engages students in the learning process and increases students' awareness of ethical attitudes, values, and decision making in complex ethical situations (Sims and Sims, 1991). For undergraduate business students who must face ethical dilemmas within complex and dynamic work environments, the use of service-learning as an experiential learning tool may have unique advantages as it allows students to consider the competing pressures that ethical dilemmas provoke as well as how to find effective solutions within a safe classroom environment (Sims, 2002). Our financial literacy project and the work within the CPLE for the past 15 years provides additional evidence that experiential learning tools can be an effective way to build key competencies among undergraduate students as well as demonstrate the importance of recognizing and addressing ethical issues in the workplace and within society.

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