Developing & Pilot-Testing an Assessment Tool on Student Outcome – The Service-Learning Self-Efficacy Scale on Program Planning Competencies (SL-SEPP)

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Abstract

Purpose: Reliable tools on measuring outcomes of service-learning (SL) are scarce. This study aimed to develop and test a service-learning assessment tool to measure students' perceived self-efficacy on program planning related competencies (SL-SEPP) and an overall SL impact scale. **Methods**: Students in a core Master of Public Health (MPH) course on program planning participated in the study (n=44). Course-based SL projects were incorporated into the learning process. Data from the baseline survey were used to assess the reliability of the 12-item SL-SEPP, and data from the posttest survey were used to assess the 5-item overall SL impact scale at the end of the course. **Results**: Data showed satisfactory reliability scores, with Cronbach alpha of .87 for the SL-SEPP and .84 for the overall impact scale. Even with this relatively small sample size, preliminary analyses showed that the SL-SEPP was sensitive to detect meaningful changes of self-efficacy scores after the course. **Conclusion**: This study provides needed pilot data supporting the reliabilities of the SL-SEPP tool. The study has implications for researchers and educators to apply or adapt this tool to assess student self-efficacy outcomes on program planning competencies.

Keywords: service-learning, self-efficacy, scale reliability, student outcome, program planning

Introduction

Service-learning can help deepen students' learning and provide opportunities to discover linkages between theory and practice in authentic settings. The Learn and Service America's National Service-Learning Clearinghouse (NSLC) defines that service-learning as "a teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience…" (National Service-Learning Clearinghouse). Although benefits of using service-learning pedagogy have been documented (Bringle & Hatcher, 2000; Butin, 2006), surprisingly, teachers and university faculty members continue to find it challenging to identify reliable tools to assess the impact of service-learning on students. There have been some assessment tools developed in the field to assess student learning and attitudes towards service-learning, such as tools developed by the Community-Campus Partnerships for Health, Campus Compact, and Health Professions Schools in Service to the Nation (HPSISN) (CCPH, 2007; Gelmon, Holland, Driscoll, Spring, & Kerrigan, 2001; Shinnamon, Gelmon, & Holland, 1999). However, reliabilities of these tools are not available. Most of these tools assessed students' general attitudes or perceptions towards community service, service-learning and civic engagement, or perspectives of working in a diverse community. Few attempted to link or assess the impact of service-learning on competency-based student outcomes that are designed and linked with course objectives.

Competency-based student outcomes are particularly important for individuals pursuing a professional career in areas such as public health as competency defines workforce related skills

(Council on Education for Public Health, 2006). Competency has also been increasingly used as an important indicator by academic accreditation body such as Council on Education for Public Health (CEPH) to assess the quality of academic programs. In 2005, CEPH revised its accreditation criteria for Schools of Public Health and Public Health Programs (SPHs/PHPs) to reflect a shift in focus to competency-based education. The revised accreditation criteria require that SPHs/PHPs present competencies for each degree program and each area of specialization. The Association of Schools of Public Health (ASPH) describes the "Core MPH Degree Competencies" as a unique set of applied knowledge and skills, grounded in theory and evidence, for the broad practice of public health (ASPH, 2006). These are competencies that every Master of Public Health (MPH) student ought to be able to demonstrate upon graduation regardless of the major or area of specialization. Course learning objectives, on the other hand, describe the knowledge and skills that a student is expected to demonstrate upon completion of a specific course. When carefully designed, these objectives are intended to relate, in some discernable way, to the competencies for the overall program of study.

One major challenge of measuring the actual skills or competencies is that behavior change or skill acquisition takes time and may not always be realistic or feasible outcome indicators for evaluation immediately after a program or course. Behavioral scientists have come up with various indicators of predicting behavioral outcomes. Among these, the Social Cognitive Theory (Bandura, 1986) is arguably the most significant and widely used and accepted theory that has been applied to various learning outcomes. According to the Social Cognitive Theory, how people behave can often be better predicted by the beliefs they hold about their capabilities, which are called self-efficacy beliefs. These self-perceptions or judgment of person's capability to accomplish a certain level of performance help determine what individuals do with the knowledge and skills they have. As a consequence, self-efficacy beliefs exercise a powerful influence on the level of accomplishment that individuals ultimately realize. Studies have shown that self-efficacy significantly improved prediction of behavior outcomes such as eating behaviors (Strachan, 2009), academic performance (Lane & Kyprianou, 2001), and university major persistence (Elias & Loomis, 2000).

Purpose
The current study is among the first to apply the self-efficacy constructs to the service-learning field. This study aimed to develop and pilot-test a new service-learning assessment tool, as an adjunct measure for class development, on students' perceived self-efficacy (i.e. perceived confidence) on program planning related competencies. The planning course discussed in the current paper was designed to cover broad program planning competencies, emphasizing the social and behavioral sciences perspective. Providing evidence-based learning outcomes is an important way to demonstrate the impact service-learning has on student learning. This study describes the reliability and preliminary results of a 12-item self-efficacy scale and a 5-item overall service-learning impact measurement.

Methods

Design and Sample of the Study
A total of 44 students in a core MPH course on Program Planning participated in the study. The mean age of the students was 26.58 (SD = 5.43). This three-credit-hour core course is taken by MPH student across disciplines and discussed processes and factors related to public health program planning in a variety of settings. Weekly lectures and discussions guided students through the various phases of health promotion program planning models and frameworks to assess community identified needs. Some of the community partners students worked with included public health departments, community cancer support centers, regional hospitals, HIV/AIDS social service agencies, senior centers, and community churches. The purposes of these course-based service-learning projects are to (1) provide students early exposure in the field with guided feedback from course instructor and student peers, and to (2) facilitate

student engagement and enhance the quality and relevance of applications.

One important feature is the infusion of service-learning projects into classroom lectures and group discussions. Via learning and working with pre-selected or student-identified community partners, students apply knowledge and skills learned to identify and analyze needs and assets in the community. These projects provide students learning within context as opposed to the traditional classroom knowledge transfer or the development of hypothetical projects. The final product of each group project was a comprehensive needs and capacity report, guided by the planning model, along with recommendations on strategies to utilizing existing community assets to address the identified health issues.

Measures
Items of the service-learning self-efficacy scale on program planning competencies were drafted, modified, and guided by three main sources: (1) Learning objectives of the planning course designed with a service-learning component; (2) ASPH's core MPH competencies; and (3) HPSISN Service-Learning – student survey. The ASPH's core MPH competencies in the social and behavioral science domain as well as the program planning competencies in the cross-cutting / interdisciplinary domains were both used to guide in the development of the course learning objectives. Items in this assessment tool integrated service-learning objectives with relevant core program planning competencies. Selected items related to students' personal reflection on the service-learning experience from the HPSISN-student survey were also included to assess the overall impact of service-learning at the end of the course. These data were meant to complement other items to provide a clearer picture of the students' perspectives and attitudes toward this form of learning. This assessment tool consists of a 12-item self-efficacy scale used to assess the infusion of service-learning on program planning related competencies beyond the classroom environment, as well as a 5-item

overall impact scale. A three-person expert panel of individuals familiar with competency-based education and experienced in service-learning pedagogy was invited to review the assessment tool regarding item appropriateness, comprehensiveness, and clarity. Their comments were incorporated into the item revisions to enhance clarity and comprehension. A group of service-learning colleagues also provided input to the scale development and revision.

Procedure
The 12-item SL-SEPP was given before and after the course. An additional 5-item overall SL impact scale was also administered at the end of the course. Data from the baseline survey were used to assess the reliability of the 12-item SL-SEPP, and data from the posttest survey were used to assess the 5-item overall SL impact scale. Students rated anonymously their agreement level with these statements on a 5-point Likert-type scale, ranging from strongly agree (coded as 5) to strongly disagree (coded as 1). No personal information, such as name or student ID, was asked. Students were reminded that how they rated their confidence level on these statements would not influence the grade they would receive. An IRB was not needed for such normal routine of classroom assessment activities.

Results

Reliabilities of the 12-item scale as well as the 5-item summary assessment scales were analyzed. The scores of the 12-item scale demonstrated satisfactory reliabilities, with Cronbach alpha of .87. Table 1 provides detailed item descriptions and statistics. In Table 2 the reliability of the 5 overall impact items also showed satisfactory internal consistency (Cronbach alpha =.84). With this small sample size, preliminary analyses using paired-t test also showed that the SL-SEPP is sensitive to detect meaningful changes of self-efficacy after the course. The average rating for each of the 12 self-efficacy statement increased from 3.64 (SD = .76) at baseline to 4.28 (SD = .40) at the end of the course, revealing a significantly increased

score on students' sense of self-efficacy on program planning related competencies t (29) = 5.61, p < .001.

Table 1
The 12-item Self-Efficacy Scale on Program Planning Competency (SL-SEPP).

Item Description	Beginning of the course			
	Mean [a]	SD	CITC [b]	Alpha if deleted
Q-1. I feel confident to engage community partners in the process of program planning and assessment.	3.95	.888	.605	.852
Q-2. I feel confident in using a systematic approach to determine priority areas for health promotion program development.	3.64	.810	.504	.858
Q-3. I feel confident to conduct a community asset and needs assessment.	3.45	.901	.622	.850
Q-4. I feel confident to work with my peers in the planning process to accomplish project objectives and activities.	4.07	.818	.230	.874
Q-5. I feel confident in my ability to apply health promotion planning framework in "the real world."	3.57	.818	.676	.848
Q-6. I feel confident in preparing a community asset and needs assessment report using a health promotion planning model.	3.30	1.025	.498	.860
Q-7. I feel confident to provide constructive feedback to my peers in the process of program planning.	3.80	.795	.509	.858
Q-8. I feel confident to identify individual, organizational and community concerns, assets, resources and deficits for social and behavioral science interventions.	3.45	.901	.608	.851
Q-9. I feel confident to describe steps and procedures for program planning	3.00	1.100	.678	.846
Q-10. I feel confident to identify critical community partners for the program planning	3.41	.948	.608	.851
Q-11. I feel confident to apply ethical principles to public health program planning	4.05	.746	.523	.857
Q-12. I feel confident to identify social and behavioral factors that affect health of individuals and populations	4.02	.628	.555	.857
Overall (12 item)	**3.64**	**.762**	**[Cronbach alpha =.87]**	

Notes:
[a] Items were rated on a 5-point scale, ranging from strongly agree (coded as 5) to strong disagree (coded as 1).
[a] CITC = Corrected Item-Total Correlations

Discussion

Conducting systematic scientific research with theory- and evidence-based indicators on learning outcomes is important for providing evidence demonstrating effective student learning among practitioners and instructors. Although the SL-SEPP was meant to measure

self-efficacy specifically related to program planning competencies, these statements were intentionally described in broad terms assessing

common program planning process and steps to allow easy adoption or modification for other disciplines and fields.

Table 2
Descriptive information of the 5 overall assessment items.

| Item Description | End of the course | | | |
	Mean [a]	SD	CITC [b]	Alpha if deleted
Q-13. Overall, I feel *increased* confidence in plan a health program.	4.28	.566	.674	.775
Q-14. I feel *increased* confidence in working with people different from me.	4.22	.797	.489	.839
Q-15. I feel *increased* confidence in applying planning process to "the real world."	4.22	.722	.703	.760
Q-16. I feel *increased* confidence in conducting a capacity (asset) and needs assessment.	4.33	.535	.760	.757
Q-17. I feel *increased* awareness of my own strengths and limitations after the course and project.	4.25	.604	.550	.806
Overall (5 item)	**4.26**	**.499**	[Cronbach alpha =.84]	

Notes:
a Items were rated on a 5-point scale, ranging from strongly agree (coded as 5) to strong disagree (coded as 1).
a CITC = Corrected Item-Total Correlations

One limitation of the study was the relatively small sample size, which limited more in-depth analyses or validation. For example, factor analyses may not be reliable with this small sample size and additional studies are needed to examine further the structure of the scale. In addition, the use of one class sample also has implication on the study generalizability. Nevertheless, even with this small sample size, the current study shows that the SL-SEPP and the overall impact scales were reliable and are sensitive to detect meaningful changes of self-efficacy after the course.

This study is among the first to apply self-efficacy construct to develop the SL-SEPP scale on student learning outcome related to program

planning. These learning outcomes corresponded to course objectives, which were consistent with the core MPH competencies developed by ASPH. The pilot data provide preliminary evidence of the satisfactory reliabilities of the 12-item SL-SEPP and the 5-item overall impact scales. Using this tool in a class that uses service-learning and comparing it to a class that does not use service-learning would help to elucidate whether it assesses improved self-efficacy because of service-learning versus traditional learning. Results have implication for researchers or practitioners on the potential use of this quantitative measure to document the impact of infusing service-learning on complicated competency skills such as program planning and needs assessment.

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