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Service-Learning and Community Engagement in Asian Higher Education

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Research Articles

Previous studies have demonstrated that service-learning (SL) can help students not only develop their personal qualities but also enhance their social and civic sense of responsibility. Despite many promotions since the mid-1990s, the development of SL is popular in humanity faculties but not in technical faculties with intellectual orientations less associated with social services. The shortage of support in these areas can be attributed to the lack of a conceptual model to guide the delivery of a quality service-learning subject for disciplines like building and engineering. To fill the gap, this study examined use of a 3-tier service-learning model that offers a pragmatic pedagogical design for developing SL subjects by encompassing interdisciplinary academic education and field services. The findings reveal that, beyond the technical skills in building and engineering, students' generic skills and their awareness of social responsibilities have been enhanced through this interdisciplinary SL program.

This article chronicles a service-learning (SL) subject on community psychology in Hong Kong (n = 26) and elaborates on how students experience concepts, frameworks, and values in community psychology and put them into practice at service-learning settings.

Upon acquiring basic concepts in community psychology, including sense of community, empowerment, human diversity, and social capital, students engaged in 40 hours of service-learning sessions that included assigned community services and independent SL projects addressing both community needs and students' strengths. Learning reported by students in terms of experiential acquisition of community psychology concepts, personal empowerment, and implications on their service-learning practices are discussed with reference to Zimmerman's *(1995)* conceptual framework of personal empowerment. Students' interpersonal, interactional, and behavioral outcomes from their service-learning experiences are detailed.

37.....The Long-Term Impact of Service-Learning on Graduates' Civic Engagement and Career Exploration in Hong Kong

Carol Ma Hok-ka, Chad Chan Wing-fung, and Alfred Chan Cheung-ming
Lingnan University, Hong Kong

Service-learning (SL) is a relatively new pedagogy in Hong Kong and so far, no study of SL's long-term impact in Hong Kong exists. To explore SL's impacts on Hong Kong students, researchers conducted a quantitative study to compare graduates with SL experience to graduates without SL experience in terms of three domains: (1) adaptability, brain power, and creativity (ABC) skills; (2) civic responsibility; and (3) career exploration. Most prominently, this study found that students with SL experience have significantly higher scores in civic responsibility than do their counterparts without SL experience; they are more willing to be involved in community service after graduation, and they invest more hours of service per month. This study indicates that from a long-term perspective, SL participants benefit in terms of greater civic responsibility, better career exploration, and enhanced whole-person development (ABC) skills.

57.....Engaging and Empowering Academic Staff to Promote Service-Learning Curriculum in Research-Intensive Universities

Yahui Fang
National Cheng Chung University

Much of the literature on service-learning discusses issues related to faculty, students, and community partners. However, there is little research on issues related to academic staff. In this project, through a series of meetings and workshops, change lab methodology was used to analyze the barriers to staff members' involvement in service-learning, and intracollegiate collaboration supported their increased involvement in community-engaged curricula. A series of designed-research processes was utilized to create new artifacts, to mediate and foster a drive toward mutual engagement in the agential-structural relationship, to encourage staff members to engage in reflective practice, and to enable staff to empower themselves. After witnessing the real-life needs of a rural community and empowered through col-

laboration and professional development, academic staff devoted time to working with teachers, students, and community, further transforming themselves from a mostly administrative support role to that of researcher.

Projects with Promise

A vision care-based community service subject is offered to general university students for fulfillment of a service-learning compulsory credit requirement. Here, a professional health subject is taught in a way that caters to generalist learners. Students gain basic skills they can apply to provide vision screenings for the needy population. All enrolled undergraduates had no background in eye health-related subjects. The teaching was not content-driven, requiring students' direct recall of facts. Rather, the teaching focused on Socratic teaching of logical theories and applications. The objective was to increase awareness of current eye care problems using case examples. Students learned to appreciate ways to promote active outreach services. Through activities and project work, students learned and practiced strong teamwork and direct application of knowledge in community-based eye care services. This learning experience demonstrates emergence of authentic practice from theory.

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From the Editors…

Grace Ngai
Lead Editor, Special Issue

Andrew Furco
Associate Editor for Research, *JHEOE*

Lorilee R. Sandmann
Editor, *JHEOE*

For more than two decades, much of the literature on service-learning in higher education has been dominated by presentations of U.S.-based programs and their impacts on students, faculty, institutions, and communities. With the continued, impressive expansion of service-learning across the globe, the long-standing American domination of the literature is giving way to fresh new perspectives on the character of this complex and multifaceted pedagogy. In particular, this new literature brings to the fore non-Western and non-global-North perspectives that challenge many of the norms that have heretofore defined the roles, purposes, character, and impacts of service-learning.

Through this special issue, we shine a spotlight on some of the rich and robust service-learning efforts taking place in Asia. Situated in countries where service-learning has found a strong footing (Hong Kong and Taiwan, in particular), the issue's five articles unpack some of the prevailing questions and challenges that undergird the emergent service-learning agendas in this region. In the articles, we find both familiar discussions about program implementation and new conceptualizations and operationalizations of service-learning. They reveal a growing network of scholars pushing for more and better scholarship on the study and practice of service-learning. They also reveal a dedicated and committed cadre of educational practitioners and leaders seeking to make service-learning a more central feature of their institutional academic and scholarly agendas.

Readers will note that the discussions and research presented in these articles suggest that, regardless of the country or cultural context in which service-learning is practiced, the challenges to institutionalizing service-learning in higher education are universal. As with the extant U.S.-based literature, we find in these articles faculty members and institutional leaders who are struggling to secure service-learning's academic legitimacy among their peers. We also find ongoing debates over the potential benefits and inherent

challenges of requiring students to experience service-learning.

Perhaps most interesting and enlightening is the volume's glimpse into how particular cultural norms and beliefs within this region of the world shape service-learning in its many aspects: the nature of its discourse, the approaches to its practice, and the potential for its success. Indeed, among these articles are several emergent themes that are uniquely Asian, and these, in turn, provide the broader field of higher education scholars and practitioners an opportunity to view service-learning from a new vantage point.

These articles, along with the other Asian-situated service-learning pieces that have recently appeared in international journals, provide a much-needed foundation on which to further study and practice service-learning in Asian higher education.

We are delighted that the *Journal of Higher Education Outreach and Engagement* has provided this space to bring these scholars' work to light. There is much to learn from the robust service-learning and community engagement practice under way in Asia and in other parts of the world. May this special issue spawn additional issues that spotlight higher education outreach and engagement programs and agendas from various parts of the globe.

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In This Issue…

Grace Ngai, Stephen C. F. Chang, and Kevin Chan
Hong Kong Polytechnic University
JHEOE Special Issue Editors

The situation in Asia has changed dramatically in the last 30–40 years. Standards of living have greatly improved, and higher education has become more of an expected commodity rather than a privilege reserved for the elite few. Along with these changes is a growing sense of social consciousness and responsibility, especially in young people, and a realization that education should not be simply about vocational and professional training, but also about holistic education of the whole person, and that intangible aspects such as global outlook, social responsibility, and ethical leadership are as important as discipline-related skills and knowledge.

Service-learning has been shown to be an effective pedagogy, and many higher education institutions in Asia have incorporated it as an institutional strategy. However, many cultures in Asia do not have a strong tradition of service-learning or, indeed, of community service. Many of these areas are still considered developing regions, and many others fit into that category until recently and were themselves the beneficiaries of service projects. Building up a culture of service-learning in these contexts, therefore, necessitates educating the local stakeholders and supporting adaptation of commonly held beliefs and practices.

In this issue, we present five double-blind, peer-reviewed articles that investigate service-learning in Asia from different perspectives.

In Asia, universities and higher education have traditionally been seen as a stepping stone to a better (and more well-paid) career. This differs from the West, where higher education is viewed more as part of personal development and expansion of knowledge. Therefore, many Asian universities have departments that are highly specialized and professional. As these universities learn to incorporate service-learning into their curriculum, these same departments have initiated novel methods of incorporating two aspects of service-learning: applying the skills and knowledge from their professional discipline in a general education context and making these projects available and appropriate for all students. Two articles in this issue present projects such as these. In one Project with Promise, "Blending Community Service and Teaching

to Open Vision Care and Eye Health Awareness to University Students," Do et al. document a service-learning subject that combines major and nonmajor students in a vision-screening project. The authors discuss how students are prepared and assessed, as well as the gains accruing to the teachers in planning and teaching this subject. In the research study "Service-Learning in Building Engineering by Use of Interdisciplinary Field Education," Leung documents a three-tier model and a pragmatic pedagogical design developed through her service-learning class in building engineering education, which incorporates interdisciplinary academic education and field services.

Service-learning differs from volunteerism and community service in its equal emphasis on community impact and student learning. In "Empowering Students Through Service-Learning in a Community Psychology Course: A Case in Hong Kong," K. Chan et al. present a qualitative evaluation of student learning outcomes from a service-learning community psychology class. The authors analyze students' reflective essays to identify concepts that the students learned and examine the relationship between these concepts and class activities. In "The Long-Term Impact of Service-Learning on Graduates' Civic Engagement and Career Exploration in Hong Kong," A. Chan et al. tackle the challenging topic of the longitudinal effect of learning interventions to link service-learning with civic responsibility and career choice.

Although student learning is the ultimate objective of service-learning, teacher education and empowerment are necessary for students to be given these opportunities. In "Engaging and Empowering Academic Staff to Promote Service-Learning Curriculum in Research-Intensive Universities," Fang takes on the issues of staff motivation, tension between research and teaching, and promoting understanding between different stakeholders in a research university in Taiwan.

We thank the authors for their insightful articles and research and the peer reviewers, editor-in-chief, and *JHEOE* editorial team for their time and effort through the whole submission, reviewing, and resubmission process. We hope that this issue helps to shed light on one of the fastest growing and most exciting areas in service-learning.

Research Articles

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Service-Learning in Building Engineering by Use of Interdisciplinary Field Education

Barbara Y. P. Leung

Abstract

Previous studies have demonstrated that service-learning (SL) can help students not only develop their personal qualities but also enhance their social and civic sense of responsibility. Despite many promotions since the mid-1990s, the development of SL is popular in humanity faculties but not in technical faculties with intellectual orientations less associated with social services. The shortage of support in these areas can be attributed to the lack of a conceptual model to guide the delivery of a quality service-learning subject for disciplines like building and engineering. To fill the gap, this study examined use of a 3-tier service-learning model that offers a pragmatic pedagogical design for developing SL subjects by encompassing interdisciplinary academic education and field services. The findings reveal that, beyond the technical skills in building and engineering, students' generic skills and their awareness of social responsibilities have been enhanced through this interdisciplinary SL program.

Introduction

Service-learning (SL) has been widely promoted in higher education in recent years as a way to offer students opportunities to learn and practice civic engagement and develop their generic skills. Through offering community services to disadvantaged people, it can not only help students pursue all-around development that includes critical thinking, problem solving, and professional knowledge, but can enhance their citizenship skills and confidence and enable them to demonstrate their empathy in accord with their increased perceptions of societal problems and social justice *(Eyler, Giles, & Braxton, 1997)*. Yet higher education, especially technical departments, still tends to focus on passing knowledge to students for performing their professions with little emphasis on the civic role that students should play in society *(Suspitsyna, 2012)*. Even worse, the lack of a philosophical framework and conceptual model in supporting a pragmatic approach for addressing complex social issues is another issue for the development of SL in technical departments. In view of this, can interdisciplinary study be used to formulate a pedagogical model that

encompasses the transfer of technical skills and nurtures the students' personal qualities and sense of civic responsibility?

The education arena in Hong Kong faces the same problem. Although community service has been organized as a cocurricular activity on a voluntary basis for many years, it was not until 2010 that the Hong Kong Polytechnic University (HKPolyU) took the lead to formally make SL a mandatory credit-bearing project for meeting graduation requirements. In committing to strengthening the learning aspects of social engagement and generic development of students, the HKPolyU set up the Office of Service Learning to oversee the coordination and development of SL subjects to accomplish the mission in full gear.

As shown in Table 1, the HKPolyU has a total of two schools and six faculties that make up 27 teaching departments. Among them, a total of 41 credit-bearing SL subjects were successfully delivered in the academic year 2014–2015. Most SL subjects were offered by the Faculty of Health and Social Science and the Faculty of Humanity. Although the Faculty of Engineering and the Faculty of Construction and Environment were able to offer a number of SL subjects, many of them were interdisciplinary subjects jointly developed by different faculties and institutions from different disciplines, and the number of subjects was far behind that offered by Health and Social Science and Humanity. It is also interesting to note that eight departments and one school have not been involved in SL programs, although the undertaking has been made a graduation requirement by the university. These departments include two from the Faculty of Business, two from the Faculty of Engineering, and one from the School of Design.

Table 1. ***Service-Learning Subjects Offered by HKPolyU***

Faculty	**No. of SL subjects (No. of departments in the faculty)**
Faculty of Health and Social Science	16 (5)
Faculty of Humanity	7 (3)
Faculty of Applied Science and Textiles	3 (4)
School of Hotel and Tourism Management	3 (1)
School of Design	0 (1)
Faculty of Engineering	5 (6)
Faculty of Construction and Environment	6 (4)
Faculty of Business	1 (3)
Total	*41 SL subjects (27 departments)*

Note. Information retrieved from the Office of Service Learning, HKPolyU.

It has been found that SL subjects are popular in liberal arts colleges and in faculties of humanities but not in technical departments, perhaps because technical subjects, such as engineering and building, find it more difficult to address complex societal problems and civic engagement effectively through their specific disciplines *(Jones, LePeau, & Robbins, 2013)*. Hence, SL programs offered by technical departments tend to involve interdisciplinary studies and collaboration with local communities and social groups for field services that are usually costly and difficult to sustain. In addition, the lack of a philosophical framework and conceptual model in supporting a pragmatic approach for addressing complex social issues is another difficulty for the development of SL in technical departments. Similar difficulties encountered by the teaching staff of the HKPolyU have been voiced in experience-sharing workshops, and a number of SL subjects offered by technical departments eventually closed due to the inefficient operation of the programs. To fill the gap and facilitate the development and management of quality SL subjects in technical departments, a study has been conducted with the aim of helping technical departments develop a signature pedagogical model using interdisciplinary study by supporting the transfer of technical skills and nurturing students' personal qualities and sense of civic responsibility.

Literature Review

Higher education plays the dual role of not only providing students with the skills and capacity needed for their career development and participation in the economy, but also offering an educational experience that strengthens the well-being of society *(Kerins, 2010)*. Lucas *(2009)* stated that SL takes the form of structured experiential education to promote student learning and development through engaging in activities that address human and community needs. A study conducted by Eyler et al. *(1997)* with 1,500 students from 20 colleges and universities found that students who undertook SL combining community service and academic study showed greater improvement in their attitudes, generic skills, and understanding of social issues than those who did not. Langstraat and Bowdon *(2011)* also found that SL increases student motivation and can enhance students' intellectual and emotional development. As one of the national U.S. organizations that promotes and advances SL, the Association of American Colleges and Universities announced a distinct set of value premises higher education should provide that have formed the five core teaching objectives for SL. They are "striving for excellence, cultivating per-

sonal and academic integrity, contributing to a larger community, taking seriously the perspectives of others, and refining ethical and moral reasoning" *(Dey & Associates, 2008, p. 2)*. In addition, Lucas *(2009)* came up with the four broad essential learning outcomes of SL agreed on by colleges and universities, which include acquiring intellectual and practical skills, acquiring knowledge of human cultures and the physical world, undertaking integrative and applied learning across general and specialized education, and assuming personal and social responsibility through civic engagement. To sum up, by integrating learning and community-based services, SL has been found to help students enhance the application of their professional knowledge, pursue all-around development, nurture their empathy, and demonstrate a sense of civic responsibility as citizens.

However, translating these teaching and learning objectives into common conceptual frameworks and complementary pedagogies for education institutions to follow is not an easy task. According to a study by Mayhew *(2012)*, SL subjects are popular in liberal arts colleges and in faculties of humanities but not in departments with orientations such as building and engineering. These departments that are less associated with services related to humanistic orientations have to develop SL in an interdisciplinary form *(Wentworth & Davis, 2002)*. Schneider *(2003)* also stated that students should connect their learning with the world beyond the academy, to integrate knowledge and modes of thinking from multiple disciplines in order to create products, solve problems, and offer explanations of the world around us *(Lucas, 2009)*. Miller and Boix-Mansilla *(2004)* adopted an explanation-action approach, stating that there is a gap between teaching and application. It appears that drawing from other domains can help form solutions and interventions in defining the problem of the dynamic environment; therefore, interdisciplinary knowledge becomes the primary means that technical disciplines use to fill the gap. Apart from using interdisciplinary studies of SL, Huerta-Wong and Schoech *(2010)* stated that learning is not just a combination of input and output; it also involves the process or learning environment, which, through field education, uses both experiential learning and active learning as key factors. Peterson, Bacon, Phillips, and Machunda *(2011)* advocated an evidence-based approach and the development of pedagogical models and methods that can encourage students to adopt a lifelong learning approach that supports searching objectively and efficiently for answers to the questions posed in the study. These studies indicate that finding ways to develop innova-

tive curriculums that can prepare students to think critically while drawing on multiple diverse sources of knowledge to address societal problems is a pressing issue for higher education to address.

Experiences from different institutions provide evidence of the challenge that SL can pose. For one, the lack of sufficient resources can limit the involvement of students and the capacity to have a full complement of interdisciplinary collaboration. At one U.S. university, for example, students studied the welfare and experience of human rights in the Maya community. Faculty from multiple disciplines, including nursing, history, political science, art, and education, collaborated to form SL projects to help the local Maya community through health education and learning about the laws and customs of the United States. Although the project was popular, it lacked the resources to accommodate all interested students who wished to take part *(Kennesaw State University, 2011; Lucas, 2009)*. Lack of time can also be a challenge. At another U.S. institution, the community-based activity was packaged as a capstone project that allowed students to reflect on their learning, experiences, and personal growth in civic engagement. However, due to the substantial time required for design, implementation, and assessment tied to these courses, only a limited number of spaces were offered for student enrollment *(Mars Hill College, 2013)*. Although students showed significant gains in critical thinking, communication, problem solving, and cultural competencies, the faculty had to expend twice the effort in communication, problem solving, and cultural competencies compared to regular programs. The lack of a philosophical framework and conceptual model to streamline the programs for addressing complex social issues caused this implementation of SL to be considered inefficient. Similar difficulty is also encountered by the HKPolyU. Resources are made available, but no pragmatic signature pedagogical model is guiding technical departments on the development and management of SL projects. As stated by Jones et al. *(2013)*, if higher education is serious about preparing students to be civically engaged citizens, leaders of higher education must find ways to overcome the hurdles for nurturing the empathic concerns of the students and their sense of civic responsibility.

Methodology

Much discourse has been devoted to the conceptual modeling and pedagogical design of SL. Bringle and Hatcher *(1996)* stated that developing SL has been characterized as a cycle that includes awareness, planning, prototype, support, expansion, and evaluation. In addition, creating measurable and attainable learning outcomes

can strengthen the integration of civic engagement and application of professional skills and knowledge. Establishing desired learning outcomes will also guide the development of appropriate learning activities and provide the basis for conducting formative and summative assessment of the subjects *(Thomas, O'Connor, & Netting, 2011)*. Apart from the different methods proposed by researchers in the pedagogical design of SL, Kronick, Cunningham, and Gourley *(2011)* advocated the "thinking-skill level," which follows the hierarchical learning of Bloom's taxonomy theory (*Bloom 1994, p. 7)*. The learning hierarchy focuses on how learners apply what they know in solving problems of various levels arising from their experience in the environment. Basic learning includes acquisition of knowledge and is followed by comprehension and application. Once the tasks become complex, new knowledge and answers to meet the challenges can be generated only by going through higher levels of learning to perform analysis, synthesis, and evaluation.

In addition, Bogo and Vayda *(1998)* advocated that practice generates effective learning through two interlinked processes. One is students' subjective reflection on their understanding of and reactions to the practice situation. The second process involves conceptualization of the practice situation through making connections to theory. Synthesizing the teaching methods proposed by the aforesaid researchers and the hierarchical learning taxonomy has yielded a three-tier service-learning model that can help students apply interdisciplinary theories to conceptualize the practice situation with the aim not only of acquiring technical knowledge but also fostering their empathy and sense of civic responsibility.

Figure 1 shows both the conceptual framework and the management process of composing an interdisciplinary pedagogical SL subject. Tier 1 begins with a comprehensive review of the study area and the objectives to achieve. It forms the basis for working out the pedagogical design for a SL project that can achieve the transfer of technical knowledge and address social issues by use of interdisciplinary teaching through collaboration between academic and community organizations. Once the pedagogical design is formed and the integrated project is developed, in Tier 2, students will be assigned to perform services in the community not only for exposure and experience but also to collect the necessary data for meeting project objectives through the technical professions. Evaluation will be conducted in Tier 3 to study the impacts on the development of personal qualities and sense of civic responsibility of the students. They will reflect on their experiences in the community, synthesize the information collected, evaluate the

situations encountered, and contextualize their civic responses in both pre- and post-program evaluations and reflective journals. The three-tier service-learning model is different from most SL initiatives in that students participate in a highly structured integrated project involving collaboration between the academic institution and community organizations. To evaluate the effectiveness of the model, a project-based credit-bearing subject studying the contemporary issue of the health and safety conditions of subdivided housing in Hong Kong has been developed in the form of an interdisciplinary SL capstone project by the Department of Building and Real Estate. Approval from IRB was exempted for this research because the interviews for data collection in this study were conducted as part of the regular subject approved by the HKPolyU–Housing for the Community.

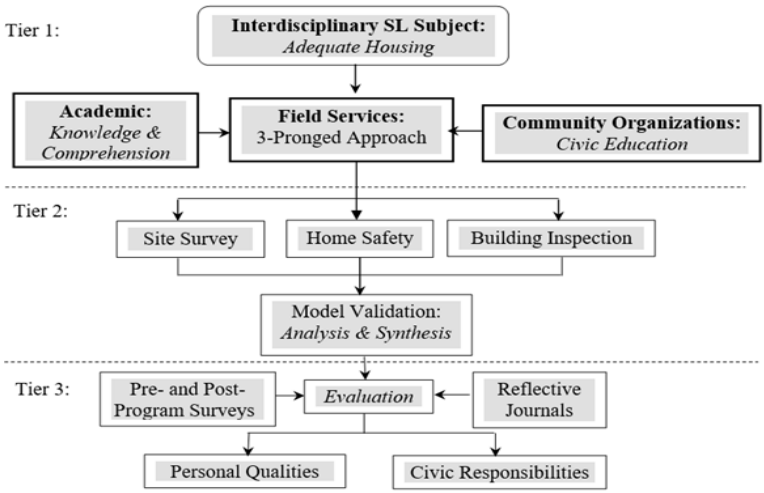

Figure 1. Three-tier service-learning (SL) model.

The Three-Tier Service-Learning Capstone Project

Hong Kong is a well-developed city that contains not only modern but also neglected districts filled with old and dilapidated buildings. These buildings are often targets of rehabilitation and redevelopment. However, the underprivileged communities, such as the elderly, singles, immigrants, the less educated, and the poor, who live in neglected housing, are often the most vulnerable when they have to face poor living conditions and possible eviction, especially in districts with urban decay. In collaboration with

the relevant community service groups and institutions, including the Urban Renewal Authority, the Housing Society, the Society for Community Organization, and Engineers Without Borders, a capstone SL project, Housing for the Community, was developed for students to address the housing problems that underprivileged community members face and to assess whether housing standards prescribed by UN-Habitat have been met (Table 2). If required, small repairs were also performed, such as installation of handles for the elderly, replacement of leaking water taps, and repair of small furniture, for promotion of a healthy and safe living environment.

Table 2. ***Adequate Housing Standards Prescribed by UN-Habitat***

Adequate housing	UN-Habitat categorization
Affordability and security of tenure	(1) Security of tenure (2) Affordability (3) Accessibility
Habitability of housing unit	(4) Habitability
Building condition	(5) Materials (6) Facilities
Community services and facilities	(7) Availability of services (8) Infrastructure (9) Location (10) Cultural adequacy

Note. Information retrieved from "The Right to Adequate Housing" by UN-Habitat, 2009.

The project was expected to help students not only broaden their knowledge in regard to technical building skills, but also develop their sense of social responsibility. In Tier 1 of the project, by use of lectures, seminars, and workshops, students were equipped with the *knowledge* and able to *comprehend* what they learned through hands-on training. Lectures were delivered by instructors to provide students with the building knowledge and skills relevant to their profession. Seminars were also given by practitioners in the industry and social groups, including the Society for Community Organization, to share their views about the living conditions of the most vulnerable groups in the society and the difficulties and social issues they face. Collaborative workshops were organized with community organizations to give students hands-on training in topics that included small household repairs before home visits were conducted. The workshops were of significance because the instructors and practitioners used role

playing and perspective taking to coach students in the importance of self-control and emotional regulation when dealing with people who might come from a difficult background. Technical workshops for performing building inspections were also given by Engineers Without Borders, the Urban Renewal Authority, and the Housing Society, and students were instructed regarding the assistance schemes available for helping these residents and for improvement of the living environment.

Upon completion of the training in Tier 1, students were assigned to conduct field services in Tier 2, guided by the three-pronged approach shown in Figure 1. Home visits were conducted to examine disadvantaged households' satisfaction with housing, and small repairs that would improve living conditions in these households were carried out. Information in regard to the health and safety of the buildings and the utility and recreational facilities of the community were collected by building inspection and site survey. Students were required to plan the activities involved in performing these community services under the guidance of the supervision team. These activities included preparing for the site investigation, assembling a building inspection checklist, administering an interview questionnaire for the home visits, and subsequently consolidating and analyzing the information collected. The supervision team arranged consultations and periodic reviews in which students reported their progress with the community services and the difficulties encountered before further progression. Based on the problems encountered by the community members and their housing needs identified from the surveys, students acting as service advisors would then search for the assistance schemes available to meet the specific needs of the households.

For the project outcomes in Tier 3, both pre- and post-program evaluations were conducted with students by use of questionnaires and reflective journals. Reflective journals were used to evaluate not only the living conditions that the service recipients encountered, but also the role that the students played as responsible citizens. A questionnaire was used to assess the efficacy of the pedagogical design of the integrated project, the improvement of the students' generic skills, and the demonstration of social responsibility. A 5-point Likert scale was used in the rating, with 5 representing the most importance and 1 representing the least. Open recruitments were offered to full-time students from the Faculty of Construction and Environment in their second year of study, and a total of 76 students were recruited in three cohorts to join the study from June 2012 to January 2015. A total of 68 disadvan-

taged households were interviewed, either by cold calls or referrals by community organizations. Community members lived in subdivided units (SDUs), partitioned rooms, or bedspace. Table 3 contains summary statistics of these households, including their demographic characteristics.

Table 3. ***Descriptive Statistics of the Interviewed Households***

	M	*Mdn*	Min	Max
Internal Floor Area (m^2)	7.4	6.0	2.1	30.0
Age	31	30	1	75
Family Size	2	2	1	4
Rent (HK$)	2903	2900	1300	6200
Household income (HK$)	8043	8000	3000	14000
Rent-to-income ratio (%)	38	37	25	62
Applied social housing	Yes		No	
	41 (60%)		27 (40%)	
No. of households	68			
No. of members	156			

Note. Statistics are per household except Internal Floor Area and Age, which are per household member.

Discussion of the Findings

Reflective journals were prepared, and both pre- and post-program surveys using the same set of questions were conducted with the 76 students to study the effectiveness of the subject. The findings are discussed below.

Efficacy of Pedagogical Design

The pedagogical design of the teaching, which included the use of lectures, workshops, and seminars, was found effective in equipping students with the necessary skills and knowledge before conducting the fieldwork. Some hands-on practice in performing small household repairs was also conducted. The students found the technical workshops particularly useful for carrying out the site survey, building inspection, and home visits. The reflective journals revealed that although the districts under study were affected by urban decay, the public facilities and community services (including the provision of education, medical, and recreational facilities) were found adequate. However, in regard to the building and home visits, most interviewed households lived in subdivided units in dilapidated buildings. They faced not only substandard housing with poor health and safety conditions, but also insuffi-

cient space and problems with tenure security and affordability. For example, a family of three might be jammed into an area of only 100 square feet. Concrete spalling, water seepage, debonding of plaster, and electrical short circuits were common due to unauthorized alterations. Although these units possessed such facilities as independent kitchens and washrooms specified by UN-Habitat, they could hardly meet the health and safety requirements.

Upon identifying households' unique problems and with help from the NGOs, students were able to search for assistance schemes. Possible solutions included the Integrated Building Maintenance Assistance Scheme offered by the Housing Society, Public Housing Schemes offered by the Housing Authority, and Subsidy for Building Improvement offered by the Community Care Fund. In addition to advice, students carried out some small repairs such as installation of handles for elderly residents and replacement of folding doors for the cooking and washing cubicles for some households as required. Through these exercises, students found that they could play a bigger role in fulfilling their social responsibility. In their reports, students indicated that they could "show more care and support to the disadvantaged groups, give suggestion for improvement"; further, they had learned "not to abuse social resources and leave them to those more in need, and help to voice out the needs of the disadvantaged group to the government and the society."

Table 4. ***Students' Rating of the Efficacy of the Pedagogical Design***

	Efficacy of Pedagogical Design	Rating
C1	Become more involved in the community	4.32
C2	Will continue to be involved in the community service	4.46
C3	My work benefited to the community	4.47
C4	Be more aware of the community's needs	4.51
C5	Have the social responsibility to serve the community	4.66
C6	Can make a difference in the community	4.12
C7	Can apply the knowledge learned to the project	4.17
C8	Satifisfied with the SL subject/project	4.21

The effectiveness of the pedagogical design is reflected in the findings of the postprogram survey shown in Table 4. The findings revealed that students treasured the learning experience of the subject with a high average score of 4.21. They were able to apply their professional knowledge and skills in the services (4.17) and

were more aware of the needs in the community (4.51) and their social responsibility (4.66) after the project. The following quote from one student's reflection is representative of the general views of most students in this subject:

> Getting myself enrolled in this course has broadened me with new perspectives when looking at housing problems, which include the lack of facilities, social welfare and services, poor building structure and others. These problems cannot be alleviated unless different parties bear their own responsibilities.… By getting ourselves to home-visit the disadvantaged households, it made me more aware and understand the real needs of these families. We have always been sitting in classroom, getting lectured and studying issues that others have raised, so what is better than getting into a real situation, knowing what people need, and finding out the problems and solutions by ourselves?

Comments on the overall arrangement of the program and suggestions on the areas for improvement were also collected. In regard to the arrangement of the program, students found the course very stimulating. The lectures and workshops were very useful in terms of offering knowledge, techniques, and insights for critical thinking on contemporary issues. The activities arranged provided an all-around development for students, and each activity effectively enabled the learning outcome. Interviews and site visits could reflect the real situation faced by those in need and provide a lot of experiential learning.

Generic Skills of Students

In regard to generic skills, students showed significant improvement in performing teamwork, as shown in Table 5. They were more eager to try their best toward meeting team goals (T1), more willing to consider criticisms or opinions from the perspectives of team members (T3), and better able to develop creative solutions that satisfied both sides during conflicts (T5). The improvement was particularly obvious in sharing of information, with an 11.6% increase in the rating (T2), and in listening accurately to team members' ideas before making judgments (T4; an increase of 8.5% in the rating). Students' good team effort was demonstrated in the excellent presentations and the well-prepared reflective journals.

Table 5. ***Pre- and Post- Program Evaluation of Teamwork***

	Teamwork	Pre-Prog	Post-Prog	% change
T1	Will do my best toward meeting team goals	4.29	4.43	3.26
T2	Share latest and relevant information with team members	3.88	4.33	11.60
T3	Try to consider criticisms and opinions of team members	3.91	3.99	2.05
T4	Listen accurately to team members' ideas before making judgment	4.00	4.34	8.50
T5	Develop creative solutions which satisfy both sides during conflicts	3.91	4.25	8.70

Referring to interpersonal effectiveness (Table 6), after the service experience students considered it easier to have a sincere conversation and sharing with others (I3) and found themselves more comfortable with people from different backgrounds (I6). However, students still found it difficult to say "no," especially to disadvantaged community members who needed both support and care (I4). Furthermore, the skill relating to awareness of doing or saying the right things in different social settings was yet to improve (I5). Students had been reminded to avoid sensitive wordings when conducting interviews with the elderly and residents whose pride and dignity had to be well-regarded. However, remarks such as "don't you have money to go traveling?" sometimes inadvertently slipped out even though the student regretted saying that. This part of the experience made students aware of the need for further improvement in their interpersonal skills.

Table 6. ***Pre- and Post- Program Evaluation of Interpersonal Skills***

	Interpersonal Skills	Pre-Prog	Post-Prog	% change
I1	Able to suggest interesting activities to do with new friends	3.84	4.12	7.29
I2	Aware of social issues in the community	3.84	4.05	5.47
I3	Can have a sincere conversation/sharing with others	3.96	4.40	11.11
I4	Able to say "no" to turn down an unreasonable request	3.86	3.71	-3.89
I5	Aware of whether doing/saying the right things in different social settings	4.13	4.04	-2.18
I6	Feel comfortable being with people from different backgrounds	4.22	4.26	0.95

The surveys also revealed students' improvement in problem solving (Table 7), particularly the ability to rank problems (P1), list all possible solutions (P2), and revise the plan when facing unexpected difficulties (P4), rating increases of 9.26%, 12.4%, and 5.71%, respectively. In regard to their ability in determining actions to take by comparing different possible solutions, ratings were not as high as before, with a slight decrease of -0.72%. Through the exercise, students found that they were still "green" and realized that they had yet to accumulate enough experience and knowledge to handle complex social issues.

Table 7. ***Pre- and Post- Program Evaluation of Problem Solving***

	Problem Solving	Pre-Prog	Post-Prog	% change
P1	Rank the problems by their degree of urgency and importance	3.78	4.13	9.26
P2	List all the solutions of the problem	3.63	4.08	12.40
P3	Determine actions by comparing different possible solutions	4.18	4.15	-0.72
P4	Revise the plan when facing unexpected difficulties	4.03	4.26	5.71

In regard to social and civic responsibilities (Table 8), students were more concerned about the well-being of people in the community upon completion of the project (S2). They were more willing to help others even if they didn't get paid for it (S3 and S4). However, it is interesting to find that the rating in regard to making contributions to meeting the needs of the community went down slightly, from 4.13 to 4.11 (S5). The reflective journals revealed that some students felt frustrated when they saw the substandard housing that the underprivileged households faced but could do little to help except show concern. In the words of one student,

> In our case study, the households clearly reflected that living in a small cubic is not the type of living that they want, but they have no choice.… Being students, we have no power and no money.… Although we cannot give them tangible help, we would like to fulfill our roles. We believe that each tiny contribution from everyone can form big power to change the society in the long run. As a member of this society, we should act rather than just sitting in the classroom, go and seek for changes.

Table 8. ***Pre- and Post- Program Evaluation on Social and Civic Responsibilities***

	Social and Civic Responsibilities	Pre-Prog	Post-Prog	% change
S1	Can define the key issues of the problems	4.01	4.09	2.00
S2	Concern about the well-being of the people and the community	3.88	4.18	7.73
S3	Be enthusiastic in serving the needy people	4.12	4.33	5.10
S4	Help others even if I don't get paid for it	4.20	4.37	4.05
S5	Make contributions to meeting the needs of the community	4.13	4.11	-0.48

Lessons Learned from the Initiative

The interdisciplinary SL subject, Housing for the Community, was well received by the students. It helped students enhance their awareness of their civic responsibility and demonstrate their empathy apart from applying their professional knowledge through interdisciplinary studies and field services.

The adequacy of housing for underprivileged households in Hong Kong has been studied through the capstone project, and the findings have been disseminated. With the benefit of hindsight, the success of this SL program is attributed to the three-tier service-learning model, yet we offer the following suggestions for improvement:

- An effective program must be able to articulate clear learning and service goals for every participant involved. In this project, the complexity of problems that households encountered in real situations sometimes left students frustrated because there was little that they could do to help. However, students could still demonstrate their empathy and showed their concern to the underprivileged group by visiting them and understanding their difficulties and showing them that they were being cared about and not alone. Households would appreciate even small repairs or offers of assistance very much.
- To ensure the effectiveness of the program, students must be provided all-around training that can fully equip them with the necessary skills not only for doing the technical work and handling household interviews but also for encountering unexpected circumstances that involve human interaction, perspective taking, and emotional control.

- Commitment of the NGOs and collaborating units in the program is of utmost importance. Although the program is considered meaningful, NGOs and collaborating units offered support indispensable to the success of the subject by providing our students with background information and circumstances faced by the households, training in the workshops, coordination for the home visits, and guidance in conducting the surveys and searching for available supporting schemes. Early involvement of the collaborating parties in agreeing on a common target for all stakeholders of the program is also indispensable.

Conclusion

Substantial numbers of studies have been conducted to explore the functions and pedagogical design of SL, which can help students develop their sense of civic responsibility and achieve all-around development. However, many of these studies are confined to liberal and humanities fields rather than technical subjects, which are less associated with social services. Very often, the hurdle is the lack of a conceptual framework and a signature pedagogical design to follow. To fill the gap, this study has proposed the three-tier service-learning model for the development of SL subjects, in particular for technical subjects such as building and engineering, by use of interdisciplinary field study, which can support technical teaching tied to themes of service-learning and civic engagement. This approach differs from most SL initiatives in that students participate in a highly structured pedagogical design, not only acquiring technical skills, but also serving a particular community. A SL subject in the form of a capstone project, Housing for the Community, was developed based on the three-tier service-learning model for validation of the model. The findings revealed that the subject was able to help students acquire the necessary technical skills for conducting building inspection, raise their awareness of civic responsibilities, and develop concern about the well-being of society.

Although the three-tier service-learning model has offered a pragmatic pedagogical model for upholding the transfer of technical knowledge and addressing social issues by use of interdisciplinary study, which suits SL for engineering and building faculties, this study has been limited to a single technical program that included a small number of students and households. More studies on the application of the model in other disciplines, such as

business and design arenas, and a wider coverage of students and households can help refine the model and enhance its adaptability.

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Empowering Students Through Service-Learning in a Community Psychology Course: A Case in Hong Kong

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Abstract

This article chronicles a service-learning (SL) subject on community psychology in Hong Kong (n = 26) and elaborates on how students experience concepts, frameworks, and values in community psychology and put them into practice at service-learning settings. Upon acquiring basic concepts in community psychology, including sense of community, empowerment, human diversity, and social capital, students engaged in 40 hours of service-learning sessions that included assigned community services and independent SL projects addressing both community needs and students' strengths. Learning reported by students in terms of experiential acquisition of community psychology concepts, personal empowerment, and implications on their service-learning practices are discussed with reference to Zimmerman's *(1995)* conceptual framework of personal empowerment. Students' interpersonal, interactional, and behavioral outcomes from their service-learning experiences are detailed.

Introduction

Experiencing service-learning as an extension and pedagogy for learning and practicing community psychology is imperative for students to learn both the "science" and "practice" of psychology *(Duffy & Bringle, 1998)*. *Service-learning* (SL) in this context refers to credit-bearing educational experience that mobilizes students in service catering to community needs while reflecting on their experience to deepen their understanding, appreciation, and application of the subject matter. Apart from the intended learning outcome, SL also serves to foster an enhanced sense of civic responsibility among students *(Bringle & Hatcher, 1995)*. An emerging body of recent research has associated SL with various positive effects in students *(Eyler, Giles, Stenson, & Gray, 2001)* including learning outcomes, such as academic performance *(Astin, Vogelgesang, Ikeda, & Yee, 2000)*; social outcomes, such as positive changes in sense of civic responsibility *(Singer, King, Green, & Barr, 2002)*; and personal outcomes in areas like self-efficacy and moral development *(Conway, Amel, & Gerwien, 2009; Eyler et al., 2001)*. Nonetheless, the process and nature of empowerment taking place

in the SL context, with particular reference to what students and teaching staff from the university can learn from the projects and service organizations *(Ferrari & Worrall, 2000; Konwerski & Nashman, 2002)*, remains an area that could be enhanced with further research from SL settings.

Psychological empowerment is a dynamic concept that is heavily context-specific. It refers to how individuals in specific community settings develop skills, mobilize resources, and are affected by community involvement and participation *(Zimmerman, 1995)*. Although community members usually receive the spotlight in SL projects, how students themselves have become active learners in the process is often overlooked *(Munter, 2002*). In the case of SL, the significance of such empowerment processes and outcomes in students and their service recipients have been addressed as a call to focus on what students learn from the SL experience *(Munter, 2002; Werner, 1998)*.

Psychological empowerment of service recipients and students in this subject can be conceived in terms of three levels of outcomes: interpersonal, interactional, and behavioral. Interpersonal outcomes center around individual-level changes, including perceived competence and a sense of mastery in community work. Interactional outcomes include the development of critical awareness about resources and skills required for community intervention and understanding of causal agents in community issues. Behavioral outcomes include activities such as community involvement and participation *(Zimmerman, 1995*).

This article serves to integrate students' reflections on their own personal outcomes with their learning of community psychology as an academic subject. The personal outcomes, related to the concept of psychological empowerment, are illustrated in the context of a nomological network for conceptualizing the construct *(Zimmerman, 1995)* to yield a contextualized discourse illustrating the processes and outcomes in SL.

Method

Participants

Students from a service-learning course on community psychology at a university in Hong Kong were evaluated. With a class size of 26, comprising 17 females and nine males, students came from 12 diverse academic disciplines in the university, including language, business, engineering, and tourism majors. Students par-

ticipated in the community service components as designated in the subject for 6 weeks during the 14-week subject span. All students were attached to a single partner community organization with a strong focus on health promotion in its neighborhood. The partner community organization serves an aging community that is densely populated with seniors over age 65 and contains a significant proportion of economically deprived and ethnically diverse families. An exemption from ethical approval was obtained from an institutional review board (IRB) body equivalent at the authors' host institution given the the study's focus on the scholarship of teaching and learning and the masked identities of the students involved.

Service-Learning Subject

Prior to their service-learning sessions, all students in this SL subject attended six classroom-based lectures on fundamental concepts and frameworks in community psychology: (1) definition of community psychology as a discipline and its relationship with community science, (2) defining and operationalizing different types of community, (3) social capital and community, (4) understanding human diversity and social inequality, (5) empowerment in the community context/social change in the community, and (6) prevention program development and evaluation in a community setting. Apart from the content lectures on major tenets of community psychology, students also received preservice training before embarking on their 6-week SL sessions, under supervision by teaching staff and a designated supervisor at the partner community organization.

The students' learning processes were closely monitored and assessed through various channels. Students' reflection on the process in the form of reflective journals, project blogs, and project presentations counted for 40% of their overall assessment. Acquisition of community psychology concepts and their application (45% of the grade) were evaluated via an application report and a funding proposal of community intervention to assess their implementation of concepts learned and program development skills. Students' SL performance evaluation by subject instructors and partnering agency supervisors constituted the remaining 15% of assessment grades.

Description of the Service-Learning Activities in the Community Psychology Subject

The 40-hour community service-learning comprised two sets of activities: mandatory home visits at the service community assigned by the service agency and independent projects proposed by the students. Collaborating with the subject instructors, students nurtured their initial ideas about the nature and purpose of service projects while gaining familiarity with the local community from their mandatory activities, which provided face-to-face encounters with community members in the district served by the partner organization. The incubated ideas were then aligned with the reception and needs as revealed by the partner community organization, with those that met community needs and were well-received by the partner organization being brought into implementation. Working in small groups of four to eight, the students completed the mandatory and independent SL requirements in a span of about 6 weeks. Details of the assigned activities and the student-developed activities for each project group are listed in Table 1.

It is worth noting that students utilized their personal expertise as well as strength from their academic disciplines in the provision of service. For example, a student group with the majority coming from the Department of Fashion and Textiles organized a scarf tie-dying workshop for the housewives at the center, whereas the group of students experienced with computer knowledge offered a computer class for the elderly in the area.

Both the mandatory home visits that provided hands-on exposure to community members and the independent projects that called for collaboration with the community partner organization were designed to raise the students' awareness regarding the community and strengthen their civic engagement and agency. In addition, participating in those activities provided an ideal platform for understanding and comprehending community psychology concepts such as sense of community, empowerment, prevention, and diversity by seamlessly corroborating these concepts and values with experience from the community and enabling students to "witness that connection firsthand" *(Osborne, Weadick, & Penticuff, 1998, p. 134)*. The experiential approach is consistent with the core premise of community psychology and community science, which advocates understanding of the community along with actions that bring forth changes in the setting *(Wandersman, 2003)*. Furthermore, we have observed the intended interactional outcomes in our students throughout the SL experience, such as improvement in

team-building skills, effective communication skills, and problem-solving skills at the SL settings.

Table 1. ***Service-Learning Activities Performed by Students***

	Activities assigned by service agency	**Activities held by students**
Group 1 (n = 6)	*Home visit for Cho Yiu Housing Estate* Local residents were assessed on their needs for community health service (e.g., screening, long-term medication compliance, healthy lifestyle interventions).	*Scarf tie-dye workshop* Students organized and conducted a workshop for local residents on do-it-yourself (DIY) tie-dying with natural dye materials such as onion peel and red cabbage.
Group 2 (n = 7)	*Home visit for solitary elderly in Lai King Estate* In addition to assessing the community health needs as in the Cho Yiu Housing Estate visits, information pertaining to the needs of solitary elderly, including instrumental support and social support, was collected and assessed.	*South Asian youth development in the community* A pilot community assessment of health and social needs among the Pakistani community in the housing estate, with particular attention to bilingual (Pakistani languages and Chinese) teenagers and housewives who do not speak Chinese at all.
Group 3 (n = 8)	*Care for the elderly raffle* Students participated in the raffle ticket sales while coordinating with other local volunteers in the community at various stations during their sessions for exposure to the community settings and the residents.	*Rummikub competition for elders* Students organized and conducted a tournament of the board game Rummikub to promote community involvement and engage seniors in mental exercises.
Group 4 (n = 5)	*Home visit for Cho Yiu Housing Estate* Local residents were assessed on their needs for community health service (e.g., screening, long-term medication compliance, healthy lifestyle interventions).	*Elderly computer/social media class* Two hands-on computer workshops were organized for seniors in the community. The workshops were designed to narrow the digital divide among local elders and promote intergenerational relationships by empowering seniors with social media such as Facebook and instant messaging tools to liaise with their offspring, as well as accessing digital entertainment and health information via the internet.

Contents from reflective journals of students in this class were analyzed to extract evidence of personal empowerment in students and service recipients *(Zimmerman, 1995)*. A qualitative case study approach was adopted for extracting psychological empowerment themes from the data in students' reflective journals. Students were required to write up to four journal entries throughout their SL sessions. With reference to the model of reflective thinking proposed by Kember et al. *(2000)*, journal entries attaining an appropriate level of reflection or critical reflection were incorporated in this study to align with the stated learning outcomes.

Results

Reflections of personal empowerment from reflective journal entries were analyzed with the NVivo 10 qualitative data analysis package to extract nodes corresponding to four dimensions in personal empowerment (PE) in the service-learning context: (a) sense of mastery in students, (b) sense of mastery in service recipients, (c) personal empowerment from critical awareness about community issues (interactional), and (d) personal empowerment from experiencing community involvement and service participation (behavioral). Table 2 details the distributions of the observed PE dimension across entries from the 26 participating students.

Table 2. ***Empowerment Types Identified Among Participating Students***

Empowerment Types	Identified	Not Identified
Mastery in service recipients	26 (100%)	0 (0%)
Mastery in students	11 (42%)	15 (58%)
Personal empowerment—critical awareness	4 (15%)	22 (85%)
Personal empowerment—community involvement	14 (54%)	12 (46%)

Reflections on Psychological Empowerment From the Service-Learning Experience

The students submitted a total of 90 reflective journal entries. The following four entries fulfill Kember et al.'s *(2000)* reflective thinking criteria and highlight the notion and experience of personal empowerment.

Fostering a sense of mastery in students. A social policy major in this class reflected on her experience in working with the elders on how to build rapport with them and attain a sense of mastery in dealing with human diversity:

> I learnt that patience is the most important thing in communicating with elderly after running this activity. In explaining the game rules, I need not one but repeated illustrations. I have to sit close enough to them so they can hear me well and speak slowly when I cover the rules and encourage them to engage in the games. Fortunately, we have enough group members to cover all participants at the event. Now I realize that how the important it is of having sufficient personnel to work with the elderly.

Fostering a sense of mastery in service recipients. Reporting from her tie-dyeing workshop, a fashion and textile student recalled what her clients said after attending her session:

> All of them really enjoyed tie-dyeing and attempted with several rounds of hands-on practices. We were delighted to see the satisfaction on their faces with their work. Towards the end of the session, they were eager to join more advance class about tie-dyeing and even asked for an advance level extension of this tie-dyeing workshop. We wish that they can do it [tie-dyeing] with their own garment to explore and create more special tie-dye effects. We wrapped up the session with a group photo of our team, the tie-dyeing students, and our products.

Developing critical awareness about community issues. A number of students' reflections reported their critical awareness concerning elders' motivation to stay housebound in the housing estate they visited.

> Hindered by the pain in their legs and backs, these elders seldom go out for a walk or shopping.… One elder we interviewed was a widower who lives alone, instead of living with his children and grandchildren. He has difficulty in walking, and that reminded me of the fact that perhaps the Cho Yiu Estate is not design-friendly to elders like him. Although he revealed interest in getting a blood pressure check, he withdrew his request after learning that he must go to the Community Service Center, which would cost him a 10-minute walk down the hill, which was out of his physical access. Can we do

> something to improve access to health service in this community?

Experiencing community involvement and participation. From their SL experience, students were able to learn about behavioral outcomes in psychological empowerment in terms of their observed community involvement beyond merely looking into service center attendance count:

> I thought the elders joined the Rummikub competition to kill time and earn a chance to win the prizes, in our case, a pack of rice for the winner and noodles for the runner-up team. We were all wrong about that. At the end of the day, we learnt that rather than earning the prizes, they were motivated in learning the game itself, engaging with other folks in the community, and spending quality time with young people like us. People in this community genuinely love hanging out with each other.

Discussion

With an increasing number of universities in Hong Kong incorporating service-learning into their modes of study *(A. C. M. Chan, Lee, & Ma, 2009; C. L. W. Chan & Chau, 2009; Ngai, 2006; Shek, 2010)*, the findings and reflections from this study illustrated that SL, in this case featuring community psychology as the subject content, generated a dynamic interplay between students and their service experience. Students earn the opportunity to observe how constructs in community psychology, such as the appreciation of human diversity and processes in community involvement, operate in their natural settings.

The SL experience enabled students to learn about and experience empowerment simultaneously. For example, after learning about empowerment in the classroom setting, students were able to augment such understanding by comparing "personal narratives from elders and textbook-based study" *(Boyle-Baise & Binford, 2005, p. 152)* to realize that elders in Hong Kong are often a neglected group in society, and participation in community activity, which they were engaged in personally, is a way to empower the elders in terms of their agency toward health promotion or community engagement. From the Rummikub tournament project, students learned experientially about what constituted a sense of commu-

nity from the solidarity exhibited among the elderly participants in their tournament when the elders liaised on recreational activities primarily to socialize with other local residents. At the same time, the elders also cherished the experience of establishing intergenerational relationships with the younger university students.

Meanwhile, the students themselves, a community of their own, are transformed into active observers. Their progress is not limited to their appreciation of community psychology subject matter; in fact, the empowerment processes and outcomes that these students experience while working toward their SL goals is another page worth studying in exploring this pedagogy.

Nevertheless, findings from this study are constrained by several limitations. Because it is a descriptive and explorative study, findings on personal empowerment among students through SL are subject to various confounding factors, including the students' psychological well-being and motivation. An experimental or quasi-experimental design could better examine the causal mechanism for the effect of SL on students' personal empowerment. The case study approach adopted in this study highlighted coherent reflections from students' work to illustrate how personal empowerment emerged from SL. Nonetheless, a more representative sampling strategy to embrace students' diversity in the Asian context would have extended the generalizability and ecological validity of this study.

Conclusion

Findings from the current study provided evidence that students can benefit from service-learning in accord with psychological empowerment principles outlined by Zimmerman *(1995)*. Aligning the observed changes in students with the empowerment framework adopted, students in SL have attained interpersonal, interactional, and behavioral outcomes from their empowerment through experiential learning in SL. Further research is required to delineate the impact of students' empowerment on other SL learning outcomes, including mastery of subject matter, development of empathy, and civic engagement.

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The Long-Term Impact of Service-Learning on Graduates' Civic Engagement and Career Exploration in Hong Kong

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Abstract

Service-learning (SL) is a relatively new pedagogy in Hong Kong and so far, no study of SL's long-term impact in Hong Kong exists. To explore SL's impacts on Hong Kong students, researchers conducted a quantitative study to compare graduates with SL experience to graduates without SL experience in terms of three domains: (1) adaptability, brain power, and creativity (ABC) skills; (2) civic responsibility; and (3) career exploration. Most prominently, this study found that students with SL experience have significantly higher scores in civic responsibility than do their counterparts without SL experience; they are more willing to be involved in community service after graduation, and they invest more hours of service per month. This study indicates that from a long-term perspective, SL participants benefit in terms of greater civic responsibility, better career exploration, and enhanced whole-person development (ABC) skills.

Introduction

Service-learning (SL) as a pedagogy has been advocated for in the United States for over 20 years; however, no longitudinal study has yet focused on individual institutions and their students regarding the impacts of service-learning. Though a few national impact studies *(Astin et al., 2006; Gray et al.,1999)* were conducted to investigate the effect of SL on students in the United States, these are not longitudinal studies focused on an individual institution and its students. Additionally, most SL researchers in Hong Kong have focused on the implications and evaluations of SL programs *(Chan, Lee, & Ma, 2009; Chan, Ma, & Fong, 2006; Ngai, 2006, 2009; Powers, 2010)*. Therefore, a discernible need exists for a study focused on revealing the long-term impact of SL on students, especially for the development of civic responsibility *(Bringle & Steinberg, 2010; Hébert & Hauf, 2015; Prentice & Robinson, 2010)* and career exploration (*Huff, Zoltowski, & Oakes, 2016; Karlsson, 2016)*.

Lingnan University, the context for this research study, is the only liberal arts university in Hong Kong emphasizing students' whole-person development. In 2006, the Office of Service-

Learning (OSL) was established with support from a donor, Mr. Michael Leung, making Lingnan the first university in Hong Kong to have an office dedicated to SL. The OSL has promoted SL at Lingnan University and integrated SL into the curriculum for over 7 years. Students who choose to take SL projects in the three credit-bearing courses with SL elements are required to serve their community with at least 30 hours (including training and service) by using their classroom-based knowledge. To examine SL's impact on students, our researchers have asked students to complete pre- and post-test questionnaires before and after participating in SL. In 2011, OSL conducted a 5-year-outcome study of the local programs involved, which included 1,372 participating students in the SL programs from the 2006–2007 school year to the 2010–2011 school year. The results showed that through participating in SL programs, students demonstrated significant gains in six domains: subject-related knowledge, communication skills, organizational skills, social competence, problem-solving skills, and research skills. Lingnan constitutes a good research site for conducting long-term impact studies of SL on graduates because it has a good track record for impact on students' learning.

For the study of SL's impact on graduates, we conducted two surveys in 2011 to explore SL's long-term impact in terms of graduates' sense of civic responsibility and career exploration. For Phase I, in April 2011, we collected 425 valid questionnaires from the alumni who participated in SL programs during their undergraduate studies. With support from the registry, we conducted Phase II with the alumni who did not participate in SL programs during their undergraduate study. From this population, we collected 345 valid questionnaires in November 2011. We then compared the findings of both phases and summarized them for the study of the long-term effects of SL participation on graduates.

Objectives

This research aimed to compare and summarize the findings of the above two phases with the following objectives:

1. to examine SL's long-term effects among graduates,
2. to explore the student learning outcomes' long-term impact, and
3. to study SL's influence on civic responsibility and career exploration among graduates.

Methodology

In order to assess SL's long-term impact among graduates in terms of their learning outcomes, namely civic responsibility and career exploration, we conducted this longitudinal quantitative study in two phases. We interviewed the alumni with SL experience (the experimental group) and those without SL experience (the comparison group) either by phone or by e-mail in April 2011 and in September 2011, respectively. We then compared the findings of the two phases and used them as a basis for this study's conclusions.

Sample

We applied purposive sampling in both phases because of the known sampling frame and the goal of generating the highest possible response rate. In this data collection method, elements are chosen based on the purpose of the study, and selection targets a particular group of people *(Bernard, 2002; Bernard et al., 1986; Ma, 2007)*. The project begins with an objective in mind and usually has one or more specific subset groups. The sample is thus selected to include those people who are interested in the study and who meet the study criteria.

The experimental group was composed of Lingnan University alumni who graduated between 2004 and 2010 and who completed at least one SL course. The comparison group consisted of alumni who graduated between 2004 and 2010 and did not attend any SL courses. Although we included all of the aforementioned alumni in the initial sample, we found conducting the research with the entire sample to be difficult since contact information for the alumni was faulty or outdated. For instance, international students' contact information was no longer available after they left Hong Kong. Therefore, we included data only from students who graduated in the same period from 2005 to 2010 in order to facilitate an accurate comparison. In the end, the final numbers of the experimental group and of the comparison group were 425 and 345, respectively.

Procedures

We designed two sets of quantitative questionnaires to understand SL's long-term impacts. The questionnaires were mainly composed of closed-ended and scaled questions. Each questionnaire was divided into different sections: students' general demographic information, their SL participation (for the experimental group) or other community involvement service during university years (for the comparison group), their current employment profile,

their community involvement since graduation, their evaluation of the SL program (not applicable to the comparison group), their perceived skills, their sense of civic responsibility and engagement, their career exploration, and their reasons for not choosing to participate in SL (not applicable to the experimental group).

In order to better understand SL's impact on the experimental group, this group was asked five additional questions:

1. What did you learn from the SL program that you might not have learned in a traditional classroom setting? Please give an example to illustrate your answer.
2. Did SL change your worldview and attitude towards life? If yes, how? If no, why?
3. Did SL help you in your career development? If yes, in what aspects?
4. What comments do you have for SL?
5. Would you recommend SL to your friends? Why?

For the experimental group, we first e-mailed the survey to participants in March 2011. We followed the e-mail with a telephone survey, conducted by trained interviewers. We used telephone surveys to minimize erroneous data through personal assistance and to reach as many of the targeted population as possible. Interviewers went through the questionnaire with the interviewees. If the interviewee did not remember participating in SL or did not remember details about their involvement, we excluded their interview data. For the comparison group, we sent an online survey invitation to participants via e-mail and then followed up with two rounds of Short Message Service (SMS) reminders and one round of telephone reminders in November 2011. We adopted SMS as a direct form of contact since most of the e-mail addresses were Lingnan University accounts which the students most likely did not use after graduation.

Measurement

We systematically divided the questionnaire's core questions into three parts: learning outcomes (ABC skills; 14 items), civic responsibility (23 items), and career exploration (four items). Each part was based on a well-justified and validity-proven scale used in previous studies *(Chan et al., 2006; Furco, 1995; Furco, Muller, & Ammon, 1998; Merrell, 2002; National Service-Learning Cooperative, 1999)*. We eliminated a few items from these scales because they were not

relevant to this study or duplicated other items, and we modified a few items so they would be culturally relevant to the Hong Kong student/graduate population. For example, three questions categorized under communication skills were very similar: "I am tense and nervous while participating in group discussions with peers/agencies/course instructors/coordinators"; "Presentation in front of peers/agencies/course instructors/coordinators usually makes me uncomfortable"; and "Generally, I am comfortable while participating in a discussion with peers/agencies/course instructors/coordinators." Therefore, we deleted two questions, leaving only one. For the scale of career exploration, we selected four items out of eight for comparison purposes because other items were related to SL's effect (for the experiential group) and to community service involvement during undergraduate years (for the comparison group) that we could not compare directly. The parts of evaluation of SL or reasons for not joining SL were added to the applicable questionnaire based on the target group. (A full description of the questionnaire is available through the corresponding author.)

Results

Demographic Characteristics

Respondents with SL experience and those without SL experience completed 425 and 345 valid questionnaires, respectively. We found diverse characteristics in gender, academic background, work experience, and community involvement between these two groups of alumni (details in Table 1).

Table 1. ***Demographic Data of Respondents***

	Participated in SL		Did not participate in SL		Total	
	n	%	*n*	%	*n*	%
Gender						
Male	119	28.00%	151	43.77%	270	35.06%
Female	306	72.00%	194	56.23%	500	64.94%
Degree						
BA	32	7.53%	24	6.96%	56	7.27%
BSS	178	41.88%	104	30.14%	282	36.62%
BBA	215	50.59%	217	62.90%	432	56.11%

	Participated in SL		Did not participate in SL		Total	
	n	%	*n*	%	*n*	%
Year of Graduation						
2005	38	8.94%	55	15.94%	93	12.08%
2006	33	7.77%	13	3.77%	46	5.97%
2007	62	14.59%	61	17.68%	123	15.97%
2008	97	22.82%	74	21.45%	171	22.21%
2009	100	23.53%	59	17.10%	159	20.65%
2010	95	22.35%	83	24.06%	178	23.12%
GPA						
Below 1.00	0	0.00%	0	0.00%	0	0.00%
1.00-1.49	1	0.24%	0	0.00%	1	0.13%
1.50-1.99	6	1.44%	4	1.16%	10	1.31%
2.00-2.49	92	22.12%	59	17.10%	151	19.84%
2.50-2.99	193	46.39%	176	51.01%	369	48.49%
3.00-3.49	109	26.20%	95	27.54%	204	26.81%
3.50-4.00	15	3.61%	11	3.19%	26	3.42%
Average GPA		2.78 (*M*) 0.39 (*SD*)		2.80 (*M*) 0.37 (*SD*)		2.79 (*M*) 0.38 (*SD*)
Current Job						
Management	47	11.22%	45	13.04%	92	12.04%
Professionals	61	14.56%	80	23.19%	141	18.46%
Associate professionals	226	53.94%	74	21.45%	300	39.27%
Clerks	42	10.02%	72	20.87%	114	14.92%
Service workers	24	5.73%	52	15.07%	76	9.95%
Craft workers	0	0.00%	1	0.29%	1	0.13%
Machine operators	0	0.00%	2	0.58%	2	0.26%
Elementary occupations	0	0.00%	1	0.29%	1	0.13%
Graduate students	12	2.86%	5	1.45%	17	2.23%
Not active paid labor/job search	3	0.72%	2	0.58%	5	0.65%
Unemployed	4	0.95%	9	2.61%	13	1.70%
Others	0	0.00%	2	.0.58%	2	0.26%

	Participated in SL		Did not participate in SL		Total	
	n	%	*n*	%	*n*	%
Time taken for seeking first job						
3 months or below	374	90.56%	305	88.40	679	89.58%
4-6 months	36	8.72%	21	6.09%	57	7.52%
7-12 months	3	0.72%	14	4.06%	17	2.24%
More than 12 months	0	0.00%	5	1.45%	5	0.66%
Average time taken for seeking first job		1.77 (*M*) 1.52 (*SD*)		2.19 (*M*) 2.65 (*SD*)		1.96 (*M*) 2.12 (*SD*)
Work experience						
12 months or below	111	26.88%	55	15.99%	166	21.93%
13-24 months	93	22.52%	83	24.13%	176	23.25%
25-36 months	95	23.00%	63	18.31%	158	20.87%
37-48 months	57	13.80%	71	20.64%	128	16.91%
49-60 months	35	8.47%	30	8.72%	65	8.59%
More than 60 months	22	5.33%	42	12.21%	64	8.45%
Average work experience		28.73 (*M*) 18.80(*SD*)		33.08 (*M*) 20.61 (*SD*)		30.71 (*M*) 19.75 (*SD*)
Salary						
HK$8,000 or below	8	2.01%	10	2.91%	18	2.43%
HK$8,000–9,999	58	14.57%	45	13.12%	103	13.90%
HK$10,000–11,999	90	22.61%	23	6.71%	113	15.25%
HK$12,000–13,999	78	19.60%	25	7.29%	103	13.90%
HK$14,000–15,999	49	12.31%	70	20.41%	119	16.06%
HK$16,000–17,999	35	8.79%	76	22.16%	111	14.98%
HK$18,000–19,999	20	5.03%	58	16.91%	78	10.53%
HK$20,000 or above	60	15.08%	36	10.49%	96	12.95%
Still involved in Community Service?						
Yes	126	29.79%	99	28.70%	225	29.30%
No	297	70.21%	246	71.30%	543	70.70%
Average number of service hours per month		6.29 (*M*) 16.57(*SD*)		5.54 (*M*) 7.14 (*SD*)		5.96 (*M*) 13.21 (*SD*)

In terms of gender, the difference in response was even greater for the alumni with SL experience (28.00% and 72.00% for males and females, respectively) than for the alumni without SL (43.77% and 56.23% for males and females, respectively). In general, more females responded (64.94%, $n = 500$) than males (35.06%, $n = 270$).

For academic background, the majority of all respondents graduated with a degree in business administration (BBA; 56.11%, $n = 432$). This reflects the percentage of the total SL courses offered by different faculties (BBA = 51.20%; BSS = 29.70%; BA = 19.10%) from 2006–2007 to 2010–2011. Among bachelor of social sciences (BSS) degree holders, the alumni with SL experience (41.88%, $n = 178$) constituted a greater percentage than those without SL (30.14%, $n = 104$). Respondents who graduated in 2010 constituted the largest group (23.12%, $n = 178$). The response rate of the alumni who graduated from 2005 to 2007 without SL experience (37.39%, $n = 129$) constituted a greater percentage than those with SL experience (31.30%, $n = 133$). In contrast, more alumni with SL experience (68.70%, $n = 292$) graduated between 2008 and 2010 than alumni without SL experience (62.61%, $n = 216$). Most respondents reported a GPA (grade point average) ranging from 2.50 to 2.99 (48.49%, $n = 369$). Moreover, alumni without SL experience had higher GPAs ($M = 2.80$, $SD = 0.37$) than alumni with SL experience. However, alumni with SL experience had a higher proportion of GPAs between 3.5 and 4.0 (3.61%, $n = 15$) than alumni without SL experiences (3.19%, $n = 11$).

Regarding their work, we investigated the differences in participants' current jobs, the time taken for seeking their first jobs, their overall work experience, and their salaries. For the current job, the top three occupation categories for alumni with SL experience were associate professionals (53.94%, $n = 226$), professionals (14.56%, $n = 61$), and management (11.22%, $n = 47$). The top three occupation categories for alumni without SL experience were professionals (23.19%, $n = 80$), associate professionals (21.45%, $n = 74$), and clerks (20.87%, $n = 72$). The alumni with SL experience reported taking a shorter time to get their first jobs ($M = 1.77$, $SD = 1.52$) than those without ($M = 2.19$, $SD = 2.65$). A larger percentage of those without SL experience were represented in the salary group of HK$16,000 to HK$19,999 (US$2,051 to US$2,564). However, more alumni with SL experience (15.08%, $n = 60$) than alumni without (10.49%, $n = 36$) reported salaries of HK$20,000 (US$2,564) or above.

For community service, we found a similar percentage still involved in community service among alumni with SL experi-

ence (29.79%, $n = 126$) and among those without (28.70%, $n = 99$). Alumni with SL experience were more willing to be involved in community service, and they reported a higher average for service hours per month ($M = 6.29$, $SD = 16.57$) than did alumni without SL experience ($M = 5.54$, $SD = 7.14$). Furthermore, 50.43% of the respondents in the comparison group ($n = 174$) reported that they had been involved in community service during their undergraduate years.

Attitude Toward Service-Learning

The alumni with SL experience provided their evaluation of SL. The mean of the overall evaluation of quality and engagement of SL was 6.97 ($SD = 1.21$), which was above the average in the range of 1 (*totally disagree)* to 10 (*totally agree)*. The mean of the 20 items that we used to measure the evaluation of quality and engagement of SL had a range from 6.51 to 7.70 (see Table 2).

Table 2. ***Evaluation of the Quality and Engagement of Service-Learning Among the Alumni With Service-Learning Experience***

1. You were provided clear learning goals that were linked to curricular objectives.	*M* = 6.72 *SD* = 1.47
2. You acquired and applied course concepts and skills through the service project.	*M* = 6.64 *SD* = 1.56
3. You were encouraged to apply higher level thinking skills and more complex information in order to complete the service project.	*M* = 6.83 *SD* = 1.56
4. You were required to use multiple communication methods to deliver information and ideas to different people.	*M* = 7.31 *SD* = 1.58
5. You were engaged in challenging tasks in new roles and/or in unfamiliar settings.	*M* = 7.18 *SD* = 1.62
6. You clearly understood the learning goals and assessment of the program.	*M* = 7.21 *SD* = 1.65
7. You clearly understood the service goals of the program.	*M* = 7.70 *SD* = 1.56
8. You recognized the service project's importance to the community's need.	*M* = 7.21 *SD* = 1.83
9. You assisted with tasks that provide unique assistance to the community.	*M* = 6.65 *SD* = 1.78
10. You had a significant voice in selecting, designing, implementing, and evaluating the service project.	*M* = 6.51 *SD* = 1.71
11. You worked with a diverse group and appreciated the diversity.	*M* = 6.87 *SD* = 1.68

12. You were encouraged to seek out ways to ensure interaction between and respect for all persons involved.	*M* = 7.49 *SD* = 1.48
13. You were engaged in a wide variety of community participants and groups in the service project.	*M* = 7.17 *SD* = 1.82
14. You had a good orientation to the community and people with whom you worked in the service project.	*M* =: 6.58 *SD* = 1.67
15. You developed cooperatively an agreement concerning your roles and tasks with the teacher, community partners, and group members.	*M* = 7.32 *SD* = 1.49
16. You had reflection before, during, and after service.	*M* = 7.36 *SD* = 1.60
17. You used multiple methods of reflection.	*M* = 6.59 *SD* = 1.59
18. You observed that everyone involved in the program actively engaged in reflection.	*M* = 6.77 *SD* = 1.66
19. You learned to acquire, evaluate, and synthesize learning from your service experience and apply it to your own life and to the broader community.	*M* = 6.83 *SD* = 1.62
20. You made connection between the service project and the curricular objectives.	*M* = 6.70 *SD* = 1.63
Overall	*M* = 6.97 *SD* = 1.21

We also explored the reasons for those who did not join SL. The top three reasons for the alumni who did not join the SL included "schedule problems" (33.6%, $n = 116$), "not interested in SL" (33.0%, $n = 114$), and "no related course available" (23.2%, $n = 80$). A significant portion of respondents were willing to join SL, but scheduling and lack of related courses restricted their participation.

Correlation Among Scales

To start the analysis, we tested the reliability of the impact study's main measurement scales, which included the scales of ABC skills (14 items), civic responsibility (23 items), and career exploration (four items). The reliability of ABC skills and civic responsibility was satisfying in terms of internal consistency, with reported Cronbach alpha coefficients of 0.90 and 0.95, respectively. For career exploration, the Cronbach alpha coefficient was 0.52, which indicated poor internal consistency (a value of more than 0.7 is acceptable). Deleting question G1 raised the alpha to 0.65, but this still left the alpha at an unacceptable level. As Cronbach alpha values are quite sensitive to the number of items in the scale, researchers need to use the mean interitem correlations (0.27) as

the indicator of the scale's internal consistency when they use fewer than 10 items (0.2 to 0.4 is acceptable; see Table 3).

Table 3. ***Reliabilities of the Three Measurement Scales***

Instruments	Items	*N*	Alpha	Interitem correlations
ABC Skills				
Communication skils	3	768	0.78	--
Organizational skills	3	766	0.74	--
Social competence	3	767	0.80	--
Problem-solving skills	3	767	0.64	0.38
Research skills	2	768	0.70	--
Overall	14	763	0.90	--
Civic Responsibility				
Connection to community	4	769	0.79	--
Civic awareness	9	768	0.89	--
Civic effiacy	10	766	0.89	--
Overall	23	765	0.95	--
Career Exploration				
Learning impacts on students	3	769	0.47	0.30
Career development	1	--	--	--
Overall	4	769	0.52	0.27

After confirming the reliability of the scales, we used Pearson correlation to indicate the correlation among the scales. We found small, positive, and significant correlations between participation in SL and ABC skills ($r = 0.10$, $p < 0.01$), civic responsibility ($r = 0.24$, $p < 0.001$), and career exploration ($r = 0.08$, $p < 0.05$). We found a medium, positive, and significant correlation between ABC skills and civic responsibility ($r = 0.42$, $p < 0.001$) as well as career exploration ($r = 0.46$, $p < 0.001$). Finally, we found a strong, positive, and significant correlation to be generated between civic responsibility and career exploration ($r = 0.60$, $p < 0.001$; see Table 4).

Table 4. ***Pearson Correlation Matrix for SL Participants: ABC Skills, Civic Responsibility, and Career Exploration***

	Participated in SL	ABC skills	Civic responsibility
Participated in SL			
ABC Skills	.10**	—	
Civic responsbility	.24***	.42***	
Career exploration	.08*	.46***	.60***

Note. *Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed). ***Correlation is significant at 0.001 level (2-tailed).

Comparison Among Comparison Group and Experiential Group

We employed the independent samples *t*-test, a frequently used test, to compare the continuous variable (mean scores) for the two different groups (alumni with SL experience and alumni without; *(Pallant, 2010)*. The results showed a significant difference in the ABC skills ($t = 2.82$, $p < 0.01$), civic responsibility ($t = 6.57$, $p < 0.001$), and career exploration ($t = 2.18$, $p < 0.01$) for the alumni with SL experience and alumni without. The magnitude of the differences in the means was small in ABC skills ($\eta^2 = 0.01$) and very small in civic responsibility and career exploration ($\eta^2 = 0.00$; see Table 5).

Table 5. ***Comparison of ABC Skills, Civic Responsibility, and Career Exploration in SL Participants and Nonparticipants***

	Joined SL			Did not join SL			t-test		
	n	*M*	*SD*	*n*	*M*	*SD*	Differences	*t*	*p*
ABC Skills									
Communication skills	424	7.40	1.21	345	7.09	1.43	0.31	3.21***	0.001
Organization skills	424	7.32	1.10	345	7.25	1.30	0.07	0.78	0.436
Social comptence	424	7.58	1.09	345	7.45	1.36	0.13	1.41	0.158
Problem solving	424	7.21	1.05	345	6.98	1.18	0.24	2.92**	0.004
Research skills	424	6.77	1.26	345	6.43	1.61	0.34	3.17**	0.002
Overall	424	7.29	0.93	345	7.08	1.09	0.21	2.82**	0.005
Civic Responsibility									
Connection to community	424	6.20	1.33	345	5.47	1.66	0.74	6.71***	0.000
Civic awareness	424	6.28	1.25	345	5.69	1.52	0.58	5.73***	0.000
Civic efficacy	424	5.21	1.31	345	4.55	1.59	0.66	6.23***	0.000

Overall	424	5.80	1.20	345	5.16	1.47	0.65	6.57***	0.000
Career Exploration									
Learning impacts on students	424	6.37	2.07	345	5.98	1.73	0.40	2.83**	0.005
Career development	424	7.19	1.57	345	7.35	1.92	-0.16	-1.26	0.209
Overall	424	6.58	1.69	345	6.32	1.56	0.26	2.18*	0.030

Note. *Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed). ***Correlation is significant at the 0.001 level (2-tailed).

Service-Learning's Impact on Learning Outcomes Among Graduates

Although we found no significant difference in grade point average (GPA) between the alumni with and without SL experience, we did find significant differences in learning outcomes, especially the overall perceived ABC skills between the alumni with SL experience and those without ($t = 2.82$, $p < 0.01$). The ABC skills are considered crucial learning outcome indicators because they are based on the ABC education (adaptability, brain power, and creativity) model used in Lingnan's liberal arts education, which administrators believe reflects the extent of students' whole-person development. The ABC skills model contains 14 items in five domains: communication skills, organizational skills, social competence, problem-solving skills, and research skills. The alumni with SL experience had higher means in all five outcome domains than did the alumni without. Furthermore, in three of the five domains, the results indicated significant differences between the alumni with SL experience and those without: communication skills ($t = 3.21$, $p < 0.001$), problem-solving skills ($t = 2.92$, $p < 0.01$), and research skills ($t = 3.17$, $p < 0.01$). These results suggest that SL has a significant impact on students' perceived learning outcome in terms of developing their communication skills, problem-solving skills, and research skills.

We also found positive and significant correlations between some learning outcome domains and SL participation. For instance, a positive correlation was found between social competence and problem-solving skills ($r = 0.66$, $p < 0.001$) as well as organizational skills ($r = 0.66$, $p < 0.001$; see details in Table 5). Furthermore, the results showed small and positive correlations between participation in SL and communication skills ($r = 0.12$, $p < 0.001$), problem-solving skills ($r = 0.11$, $p < 0.01$), and research skills ($r = 0.12$, $p < 0.001$).

Table 6. ***Pearson Correlation Matrix of the Learning Outcome Domains and Participation of SL***

	SL	CS	OS	SC	PS	RS
Participation in SL (SL)	_					
Communication skills (CS)	0.12***	_				
Organization skills (OS)	0.03	0.59***	_			
Social Competence (SC)	0.02	0.65***	0.66***	_		
Problem Solving (PS)	0.11**	0.59***	0.64***	0.66***	_	
Reserarch skills (RS)	0.12***	0.42***	0.44***	0.39***	0.59***	_

Note. **Correlation is significant at the 0.01 level (2-tailed). ***Correlation is significant at the 0.001 level (2-tailed).

The Impact of Service-Learning on Civic Responsibility Among Graduates

A lasting impact on civic responsibility is important for one's whole-person development. Studies indicate that students who participated in SL were more likely to engage in community service—even beyond their school projects—and to have a heightened sense of civic responsibility *(Bringle & Steinberg, 2010; Misa & Anderson, 2005; National Commission on Service-Learning, 2002)*. Apart from the percentage with involvement and average number of service hours per month, we also found a significant difference in the scale of overall civic responsibility between alumni with SL experience and alumni without ($t = 6.57$, $p < 0.001$). The civic responsibility scale consisted of 23 items, which were divided into three civic domains: connection to community, civic awareness, and civic efficacy. The alumni with SL experience had statistically significant higher mean scores than alumni without in regards to connection to community ($t = 6.71$, $p < 0.001$), civic awareness ($t = 5.73$, $p < 0.001$) and civic efficacy ($t = 6.23$, $p < 0.001$). Those outcomes illustrate the scale on which SL can enhance students' civic responsibility in the long run.

We also found a positive and significant correlation across all domains of civic responsibility and participation in SL (see Table 6). Results also showed a small and positive correlation between participation in SL and connection to community ($r = 0.24$, $p < 0.001$), civic awareness ($r = 0.21$, $p < 0.001$), and civic efficacy ($r = 0.22$, $p < 0.001$).

The results showed that community involvement during undergraduate years was a crucial element for students' whole-person development, civic responsibility, and career exploration beyond graduation. We found significant differences in ABC skills ($t = 2.53$, $p < 0.05$), civic responsibility ($t = 7.75$, $p < 0.001$), and career exploration ($t = 4.53$, $p < 0.001$) among graduates who joined com-

munity service during their undergraduate years (involving both alumni with and without SL experience). However, SL had a higher impact on students' development of civic responsibility than on development of community service. The alumni with SL experience reported a higher mean of civic responsibility (M = 5.80, SD = 1.20) than did alumni who did not participate in SL but who had community involvement during their undergraduate years (M = 5.53, SD = 1.40). We also found a significant difference (t = 2.24, $p < 0.05$) in the independent sample t tests.

Table 7. ***Pearson Correlation Matrix of Civic Responsibility and Participation in SL***

	SL	CC	CA	CE
Participation of SL (SL)	--			
Connection to community (CC)	0.24***	--		
Civic awareness (CA)	0.21***	0.82***	--	
Civic efficacy (CE)	0.22***	0.75***	0.82***	--

Note: *** Correlation is significant at the 0.001 level (2 tailed).

The Impact of Service-Learning on Career Exploration among Graduates

Career exploration's impact came across in the career exploration scale, in the development of the skills for a career, and in career choices. Some studies have also demonstrated that SL students had received assistance in exploring their career interests, in developing their skills for future careers, and in confirming their career choices through participating in SL *(Eyler, Giles, Stenson, & Gray, 2001; Miller & Gonzalez, 2009)*.

For career exploration, alumni with SL experience had higher overall scores (M = 6.58, SD = 1.69) than did the alumni without (M = 6.32, SD = 1.56), and we found a significant difference here (t = 2.18, $p < 0.05$). The scale of career exploration included four items that were divided into two domains: learning impacts on students and career development. The alumni with SL experience had significantly higher scores (M = 6.37, SD = 2.07) than the alumni without (M = 5.98, SD = 1.73). These data indicate that SL has a significant impact on students' career exploration.

We found a small, positive, and significant correlation between impact on career and participation in SL (r = 0.10, $p < 0.01$; see Table 8).

Table 8. ***Pearson Correlation Matrix of Career Exploration and Participation in SL***

	SL	CC	CA
Participation in SL (SL)	--		
Learning impacts on students (LI)	0.10**	--	
Career Development (CD)	-0.05	0.31***	--

Note. **Correlation is significant at the 0.01 level (2-tailed). ***Correlation is significant at the 0.001 level (2-tailed).

For the development of skills for a career, we found a positive and significant correlation among the domains of learning outcome and career (see Table 9). That is, SL participation had a significant impact on communication skills, problem-solving skills, and research skills, which are the skills related to career domains (learning impacts on students and career development). This indicates that SL participation can help students develop skills that are useful for their future careers.

Table 9. ***Pearson Correlation Matrix of the Learning Outcome Domains and Career Domains***

	OS	SC	PS	RS	LI	CD
Communication skills (CS)	--					
Organization skills (OSO	.59***	--				
Social competence (SC)	.65***	.66***	--			
Problem solving (PS)	.59***	.64***	.66***	--		
Research skills (RS)	.42***	.44***	.39***	.59***	--	
Learning impacts on students (LI)	.30***	.24***	.29***	.34***	.30***	--
Career development (CD)	.45***	.43***	.45***	.40***	.33***	.31***

Note. ***Correlation is significant at the 0.00 level (2-tailed).

For the career choices, although results showed no significant difference between alumni with SL experience and alumni without, SL and community involvement during undergraduate years had a significant impact on students' career choices overall. We found a significant difference in whether community involvement impacted career choices among graduates who participated in community service during their undergraduate years ($t = 5.38$, $p < 0.001$). Graduates who participated in community service during their undergraduate years reported a higher mean ($M = 4.93$, $SD = 2.38$) than graduates who did not ($M = 3.82$, $SD = 2.37$).

Limitation

This is the first study in Hong Kong to discuss the impact of SL on graduates. However, there are some limitations due to the design of the study. First, this study focused on self-reported quantitative data. Thus, it would be beneficial to collect qualitative data for triangulation and further understanding of the factors that are influencing students' learning outcomes and the impact of SL. Second, instructors' and agency supervisors' views on SL impact are also important for understanding SL impact on students/graduates, especially for civic responsibility. Therefore, a study with different stakeholders' views about the impact of SL will be needed to present a more comprehensive picture on SL impact. Next, graduates may need more time to develop their career. Compared to an alumni study by Maynard *(2011)*, which examined subjects 8–15 years after graduation, our study examined respondents with a relatively short average period of work experience (2.5 years). Therefore, we recommend conducting a second impact study 10 years after the earliest graduation year of respondents with SL experience in order to measure the long-term impact of SL on graduates.

Conclusion

This study demonstrates that SL in Hong Kong has long-term and multiple impacts, to various degrees, on graduates' whole-person development, sense of civic responsibility, and career exploration. The great potential of SL for engaging students in many critical learning activities is reflected in graduates' development of cognitive ability and social skills such as communication, research skills, problem solving, and organizational skills. In general, respondents who had participated in SL had a positive attitude toward it during their undergraduate studies. Furthermore, it had a higher long-term impact than community service on developing students' sense of civic responsibility because it is embedded in the curriculum and helps foster future community leaders. Integrating SL into courses is beneficial because it not only addresses faculty concerns about participation in service and academic learning, but also lets faculty further understand how students learn throughout the course *(Astin & Vogelgesang, 2000)*.

Although the results showed no significant difference in salary and position between alumni with SL experience and alumni with no SL experience, SL involvement helped students to develop their skills—particularly communication, problem-solving, and research skills—for future careers, and it also influenced students'

career choices *(Astin & Vogelgesang, 2000; Astin, Vogelgesang, Ikeda, & Yee, 2000)*. The number of research studies in these areas in Asia remains limited, so more studies are needed in the future to determine what specific elements of the SL experience contribute to these areas of growth.

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Engaging and Empowering Academic Staff to Promote Service-Learning Curriculum in Research-Intensive Universities

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Abstract

Much of the literature on service-learning discusses issues related to faculty, students, and community partners. However, there is little research on issues related to academic staff. In this project, through a series of meetings and workshops, change lab methodology was used to analyze the barriers to staff members' involvement in service-learning, and intracollegiate collaboration supported their increased involvement in community-engaged curricula. A series of designed-research processes was utilized to create new artifacts, to mediate and foster a drive toward mutual engagement in the agential-structural relationship, to encourage staff members to engage in reflective practice, and to enable staff to empower themselves. After witnessing the real-life needs of a rural community and empowered through collaboration and professional development, academic staff devoted time to working with teachers, students, and community, further transforming themselves from a mostly administrative support role to that of researcher.

Introduction

Compared to teaching universities or vocational colleges, most research universities commit few resources to service-learning and engagement-related research. This is detrimental to community engagement and community–university partnerships. Multiple studies have discussed organizational factors that influence university-based researchers' engagement in knowledge transfer *(Creso & Brenton, 2011; Jacobson, Butterill, & Goering, 2004)*, which highlights effective partnership management and opportunities for the cocreation of knowledge that is worthy of deliberate cultivation within community–university partnerships *(McNall, Reed, Brown, & Allen, 2009)*. Another set of studies has investigated the motivating and deterring factors that influence faculty members when considering participating in or leveraging service-learning as a resource. Whether the process is called "institutionalization of service learning" *(Abes, Jackson, & Jones, 2002; Bringle & Hatcher, 2000)* or the incorporation of service-learning in faculty development activities *(Bringle & Hatcher, 1995)*, it has been

shown that developing broad institutional commitment is critical to widespread integration of service-learning into teaching and learning practices *(Holland, 1997)*. As Holland and Gelmon *(1998)* commented, there are two challenges regarding higher education community engagement. The first is to change curriculum and institutional culture to encourage partnerships with communities based on mutual learning as well as mutual benefit. The second is to learn how to do it correctly.

The Carnegie Foundation for the Advancement of Teaching *(2015)* further defined community engagement as the "collaboration between institutions of higher education and their larger communities for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity" *(p. 2)*. Weerts and Sandmann *(2008)* studied six institutions (three land-grant and three urban public research institutions) and found engagement work was typically performed by boundary spanners in academic staff positions, not by traditional tenure-track faculty members. These boundary spanners often came from community organizing, practitioner, or nonprofit advocacy roles. Weerts and Sandmann found that this interpersonal level was a factor carefully scrutinized by community partners when evaluating an institution's commitment to engagement. However, few subsequent studies have discussed how these boundary-spanning roles could be developed to trigger changes in curriculum and institutional culture within an institutional context.

The research described in this article is a Humanities Innovation and Social Practice (HISP) project led by a project team of nine faculty members, four postdoctoral research fellows, and seven research assistants who went from a traditional academic research team to a university–community partnership interdisciplinary team. Through this transformation, team members acted as action researchers who believed in and had embraced a research university's transformation with respect to community-bounded work. This change reflects the findings of Holland and Gelmon *(1998)* and Weerts and Sandmann *(2008)*. This article documents the efforts of this project-based research team to ultimately reverse the effect of disproportionality, that is, the lack of learning opportunity for children, insufficient local medical service delivery, and brain drain in disadvantaged rural areas through community engagement, learning, and service delivery by campus-based faculty and staff.

To achieve its ends, this project took a participatory action research (PAR; *Chevalier & Buckles, 2013)* approach. This approach started with recruiting key stakeholders to collaboratively inquire

into knowledge that is created through university-initiated community engagement. While surveying learning resources available on campus, the project team found that service-learning pedagogy embraced "learning by doing" and experiential learning. Moreover, it used academic credit as an institutional motivator to encourage students to become more engaged in the community. Therefore, the change lab *(Engeström, Virkkunen, Helle, Pihlaja, & Poikela, 1996)*, based on activity theory, was designed to provide a methodology to expand the implementation of university–community engagement among faculty and staff through collaboration in community-engaged curriculum design toward incorporating community engagement issues into the current service-learning curriculum. This approach also was oriented toward shaping a culture of inclusiveness in the institution by enabling participants to lead the process and own it. This was done with the intention of making the intervention ecologically valid and the transformations systematic and sustainable.

The purpose of this article is twofold. First, it will present the initial findings regarding the impacts and institutional-level changes that the change lab brought about at a research university. Then, more specifically, it will address the following research questions: (1) In what ways do staff and faculty engage in this curriculum design process? (2) What are the challenges and possibilities for academic staff who wish to engage multiple stakeholders in curriculum design?

Project Context and Community Needs

The target of this study was National Cheng Kung University (NCKU) in Tainan, a medium-sized city of fewer than 180 million people in Taiwan. NCKU has been ranked as the number one university in the southern region and as one of the top three in Taiwan. This urban university was established in the 1930s and is well known for its industrial and engineering departments. It has 20,100 students and nearly 4,200 full-time faculty and contracted employees. From April 2014 to December 2016, one research project in the university was supported by the Top University Project subsidies, at a total of NT$31,000,000 (New Taiwan dollars). For comparison, the university spends only NT$800,000 per year to support 209 service-learning courses. The work distribution between tenure-track faculty and academic staff is representative of traditional faculty culture: faculty emphasis and rewards focus on research and somewhat on teaching quality, but rarely on com-

munity service. This is similar to the findings from Weerts and Sandmann's *(2008)* study of other research-intensive institutions.

The Humanities Innovation and Social Practice Project

The target for this research was the Humanities Innovation and Social Practice (HISP) project. Its mission was to engage with the community in disadvantaged areas, and it was supported by funding from the Ministry of Science and Technology, which supports indigenous research that creates real social impact and changes. The hope was that this project-based team would engage more faculty members from different disciplines to build capacity and ultimately trigger positive social change.

Inspired by Amartya Sen's *(1999)* ideas on human development and social justice, the project sought to set up a collaborative network where interdisciplinary research teams, civic groups, and individuals work together for community development. Following the definition advanced by the Global Alliance on Community-Engaged Research (http://communityresearch-canada.ca/), community-based research (CBR) uses knowledge and community–university partnership strategies for democratic social and environmental change and justice, particularly among the most vulnerable people and places in the world. The project has been trying to combat inequality in distribution of welfare resources in disadvantaged areas, support community capacity, and strengthen resilience through asset building.

A group of eight faculty members with teaching appointments from five different colleges (Medical Science, Management, Social Science, Literature, Planning) was organized by the Research Center for Humanities and Social Science of NCKU to implement the project in 2013. They reformulated their membership and mission to develop a system for physical and societal support. The project team worked mainly on team building among different disciplines and introduced the participatory research approach to faculty members. Three villages were targeted as the research field, and engagement was initiated in 2013. In 2015, after 2 years of engagement, the research field expanded from a community-based to a regional scale.

Challenges in Curbing Disproportionality Through Organizational Efforts

Disproportionality is not simply a matter of statistical probability, but a symptom of larger issues of equity in a society stratified along the intermingled lines of race and ability *(Artiles, 2011; Bal, 2011; Donovan, 2013)*. Disproportionality is a "runaway object" that is shared among and determined by multiple interacting social systems: schools, families, districts, and the local educational institution. Mitigating disproportionality requires that participants of those activity systems continuously collaborate and dialogue to examine and develop solutions *(Bal, Kozleski, Schrader, Rodriguez, & Scott, 2014)*.

Our partnering community, Gong-Guan, which is classified as "super aged" since 23% percent of its population are elderly people (over age 65), is a typical victim of disproportionality. The community's economy is based on small-scale agriculture (banana, bamboo, plum cordia), but its limited access to wholesale channels results in low-income status for its residents. It also lacks health services, police stations, and public education institutions. The only school has been shut down for over a decade owing to insufficient numbers of children, which makes it even harder for young people to access learning opportunities. The project team tried three unsuccessful initiatives, then started a distance learning service to support the local Presbyterian church's after-school learning program, which is organized by the church to provide learning courses for local children on weekends or in the evening on weekdays. Furthermore, we attempted to promote systematic thinking as a means for community development and to create a positive loop in order to leverage an internal solution. Our objective was to develop a solution that would address the issues of rural education and community rejuvenation simultaneously. Approaching this ambitious goal, as a researcher on curriculum design, I reflected:

> Education is holistic; it represents [a way to combat] disproportionality of many social determinants. It reveals many existing kinds of outsourcing (academics, parenting outsourcing) in which schools and communities address challenges in a piecemeal fashion, rather than in a systemic and collaborative manner. This inevitably results in conflicts and redundancies. A better strategy would be to establish positive leverage, engaging university, community, school and social sectors in mutual communication, to look for hidden connections among

different stakeholders, from seeing parts to seeing the whole picture of the system. Therefore, we could co-construct a new positive work structure that mitigates negative loops that snowball with each cycle.

In this case's context and in others, disproportionality is an adaptive systemic issue *(Bal et al., 2014)* that is not under any one entity's control. Collaboration and critical dialogue between local stakeholders and stakeholders in the institution are necessary.

Theoretical Framework

Activity Theory and Its Implications for Educational Transformation

Activity theory is a commonly accepted name for a line of theory and research initiated by the founders of the cultural–historical school of Russian psychology, L. S. Vygotsky, A. N. Leont'ev, and A. R. Luria, in the 1920s and 1930s. It deals with transcending the dualism between thought and activity, theory and practice, and facts and values. It provides a structured analysis method that can be applied to concepts, such as human activities—object-oriented, collective, or culturally mediated—and activity systems and elements, which consist of the object, subject, mediating artifacts (signs and tools), rules, community, and division of labor *(Engeström, 1987)*.

Based on this concept, there is a continuous transition between these components in any activity system. Along with embedded hierarchical levels of collective motive-driven activity, individual goal-driven action, and automatic operations driven by tools and conditions of action, internal tensions and contradictions are generated as motivating forces of change and development *(Engeström, Miettinen, & Raija-Leena, 1999)*.

Activity theory is widely used to study organizational transformation, contradictions and tensions in educational contexts, historical development of organizational learning, and university–school partnerships. Researchers extend their research themes to divergent contexts in different organizations and analyze how elements in different activity systems interact and "multivoicedness" emerges (*Engeström et al., 1999, p. 10)*. It provides a research framework to capture complicated processes of social interactions among educators in collaborative work. As Engeström *(1987)* noted, using an activity system framework provides a collective, multi-

voiced construction of past, present, and future zones of proximal development.

A Praxis-Based Model of Systemic Intervention

Developmental work research (DWR), which is grounded in the research framework of activity theory, was developed at the Centre for Historical Activity Theory of the University of Helsinki. It is a methodology of investigating the links between individual and social dimensions of learning and knowledge creation. Its synthesizing nature places it at the intersection of education, knowledge management, and knowledge creation.

Informed by activity theory, the change lab, an application of DWR, was created for developing work practices by practitioners. The needs and possibilities for development are manifested by the process in an activity, not in relation to a given standard or objective, but by jointly constructing the zone of proximal development of this activity.

The change laboratory (CL) process *(Engeström et al., 1996)* implements the cycles of expansive learning that empower practitioners to engage in reflective cycles of deconstruction, reconstruction, trial, and readjustment on creation of new artifacts, production of novel social patterns, and expansive transformation of activity contents. The implementation of the change lab follows the cycle of systemic change in a series of stages called the *expansive learning model*: ethnographic analysis of the current situation (Steps 1 and 2); transforming the model (Steps 3 and 4); implementing the new model of activity (Step 5); and reflecting on the new practice, consolidating it, and spreading it (Steps 6 and 7). This model is illustrated in Figure 1. This process of development provides the opportunity for a continuous cycle of collective critical reflection and action among local stakeholders.

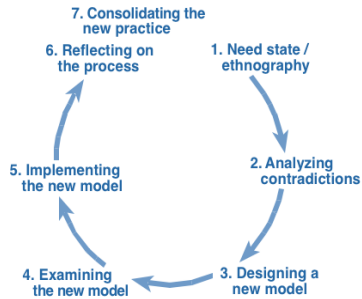

Figure 1. Steps of expansive learning. From "The Change Laboratory as a Tool for Transforming Work," by Y. Engeström, J. Virkkunen, M. Helle, J. Pihlaja, and R. Poikela, 1996, *Lifelong Learning in Europe, 1* (2), p. 11. Reprinted with permission.

Methodology

This section will highlight the participants of the study. It will also describe the actual implementation of a change lab as methodology and the data collected and analyzed in the study of the change lab as a strategy to empower academic staff to embrace and become involved in service-learning curricula.

Participants

Based on need and preferences of community-engaged curriculum design, the change lab at the institution of study in this project included a mission-based intracollegiate service-learning team. Its members were staff members from the Curriculum Division and Center of Teacher Education in the Office of Academic Affairs and the Extracurricular Activities Division in the Office of Student Affairs. The starting point was to transform regular team meetings from administrative discussions to *expansive learning*. The next step was to reformulate service-learning curricula, pedagogical training, and student activities and finally, to integrate the resources and practices.

Transformation of Work in an Educational Setting: Change Lab Implementation

In June 2014, the HISP project first approached the Curriculum Division to explore community-engaged curriculum design. After several months of collaboration, the HISP project team was invited as a member of the intracollegiate service-learning team. It was February 2015, and a new president of the institution had taken office and claimed community engagement as the university's mission. This institutional commitment encouraged the team to engage in intracollegiate activity. Therefore, the lab for intracollegiate service-learning collaboration was intentionally formulated to facilitate the crossing of work boundaries between the HISP project and campus units affiliated with service-learning.

Until mid-February, lab members engaged in the first stage of expansive learning: ethnographic analysis of the current situation to identify the focus of systemic transformation (see Figure 1). Then lab participants engaged in a strategic decision-making process: working together on an innovative community service-learning proposal and targeting the Gong-Guan community (one of HISP's three research fields) as a site to implement a community-engaged curriculum.

Since March 2015, the lab participants have met monthly for 2-hour meetings, as well as holding one quarterly empowerment workshop with all stakeholders: faculty, community partners, and students engaged in the Gong-Guan community. The consensus workshop started in June 2015. Table 1 compares characteristics of the lab with learning lab and original change lab.

Table 1. ***Comparison of Change Laboratory in Theory and as Practiced in This Study***

Laboratory Method	Learning Laboratory	Change Laboratory	NCKU's Intracollegial Service-Learning Collaboration
Contents	Business and management problems	Past, present, and future of work activity	Past, present, and future of work activity
Concepts	Systems theory, system archetypes	Activity theory, models of activity, system and cycle of expansive learning	System theory, models of activity, system and cycle of expansive learning
Outcome	Positive loops lead to mastery of complexity	Resolution of systemic change contradictions leads to new mode of activity and contradictions	Resolution of systemic change contradictions leads to new mode of activity and contradictions
Distance practice	Practice simulated	Practiced observed and change from the site; laboratory is located in the workplace	Practice observed and change from the site; laboratory is located in the workplace

Note. Adapted from "The Change Laboratory as a Tool for Transforming Work," by Y. Engeström, J. Virkkunen, M. Helle, J. Pihlaja, and R. Poikela, 1996, *Lifelong Learning in Europe, 1*(2), p. 13. Adapted with permission.

NCKU's intracollegial service-learning collaboration initially employed systems theory to analyze the current situation of university–community engagement. After investigation, this study applied the change lab as a methodology to enact and study a real-life social relationship, situated in a real workplace, toward more engaged higher education. The action was founded on participants' and stakeholders' past experiences and history; project participants then undertook active engagements, participatory interventions, and sense making. In our interactions, elements of participatory action research were utilized as a norm such that professional engagement and primary intervention facilitated various forms

of reflection in multiple cycles that expanded activity systems. In PAR, (a) researchers and participants actively participate in coconstructing knowledge; (b) there is promotion of a critical and self-aware approach that leads to individual, collective, and social changes; and (c) researchers and participants develop an alliance while planning, implementing, and disseminating as part of the research process *(Chevalier & Buckles, 2013; McIntyre, 2008; Stringer, 1999)*. This follows a constructivist paradigm, with an emphasis on sensemaking in collaborative inquiry and action on inquiry question (action) and making meaning by constructing group knowledge *(Bray, Lee, Smith, & Yorks, 2000, p. 14)*.

Data Generation

In collecting field data for interpretation and analysis within the activity theory theoretical framework, the view of anthropologist Geertz *(1975)* was adopted. He wrote, "Not extraordinary empathy, but readily observable symbolic forms enable the anthropologist to grasp the unarticulated concepts that inform the lives and cultures of other people" *(p. 47)*. In this sense, findings were presented based on observable data, documents, outcome, and artifacts, although additional insights and empathetic understandings were explicitly gathered during the participation and the joint actions.

Table 2. ***Research Questions, Data Collection, and Analysis***

Research Questions	Timetable	Data Set	Analysis
1. In what ways do staff and faculty engage in this curriculum design process?	Sept. 2014–Aug. 2015	Meeting minutes, interventions, and feedback from intracollegiate service-learning team	Categorization discussion with intra-collegiate service-learning team Triangulation of data and interpretation of themes and results
2. What are the challenges and possibilities for academic staff to engage multiple stakeholders in curriculum design?	Sept. 2014–Aug. 2015	Reflections and feedback from service-learning team and annual report	Evaluation of post-study understanding of service-learning team and collaborative inquiry

Moreover, under the process of action research, researchers tried to open themselves to the organization's situation to perceive the intermediary beneficial relationships embedded between

researchers and staff members. The research method consists of workplace observations, semistructured taped interviews, and analysis of organizational documents together with data from empowerment workshops, reflection activities, and self-examined daily records of coaching feedback (see Table 2).

Results and Discussion

What was found from the analysis of efforts of the intracollegiate service-learning collaboration, of faculty and academic staff involved in the community and change lab activities? Two major conclusions were drawn from the findings. Challenges were also noted.

Development of Tools for Collaborative Teaching

From September 2014 to July 2015, the intracollegiate service-learning collaboration progressed intensely with more interactions among interdisciplinary and interdivision faculty, students, and staff members. Development of tools as mediated artifacts to take action for achieving objectives (see Table 3) emerged in the work context. As Leont'ev *(1978)* explained, "you cannot teach or control motives, you can only cultivate and nurture them by organizing people's lives" (quoted in *Engeström, 2008, p. 87)*. This study had similar findings: Organization of the collective work life activities in which service-learning was embedded was of crucial importance for motivating and achieving performance. Embedded in the work context, the lab enabled a dense mediational setting, which is a set of interconnected new sociocognitive processes that modified old tools to create new tools.

Table 3. ***Development of Intracollegiate Service-Learning Collaboration***

Tool Development	Objectives (Short-Term)	Outcomes
Panel of university–community collaboration	Benchmarks of best practices to motivate actions on intracollegial collaboration	Center of General Education invited teachers to cooperate with the project, but no concrete institutional measure Cooperated with Curriculum Division to develop professional development workshop

Participatory professional development workshop	Members reflected on what was done in 2014 and co-proposed positive factors for achieving 2015 goal	Self-evaluation helped team members overcome a bureaucratic mindset and made them more aware of the necessity for systemic integration
Designed community service-learning contents are embedded in 4 subsidized professional courses	To assist teachers to work out community-engaged activities in their professional course	The community service-learning contents were partially embedded into 2 out of 4 subsidized courses and fully embedded into 1 course
Tentative collaborations on students' and teachers' engagement in after-school distance learning initiative	Brokering teacher with after-school distance learning initiative	Engaged 8 teachers and 2 NGOs for collaborations
Learning circle initiated	Diagnose current process and challenges, propose institutional innovation on exploratory teaching	Planned curriculum structure aiming at service leadership
Gong-Guan as core community engagement partner	Gong-Guan, as a pilot case, to develop model of community-engaged service-learning	Collaborated with project team and working team to promote curriculum and activities

Possibilities Emerged During the Process of Engagement

The process of engagement with community and with each other through the collaboration and change lab spawned several notable outcomes. These relate to creating a milieu for discourse, building capacity as boundary spanning, and developing a community-oriented community within the university bureaucracy.

An expansive discourse and understanding generated a sense of capability. It was found that the overall learning experience depended heavily on how the members collectively and critically understand disproportionality through existing and new tools. The change lab offered a framework for collaborative inquiry and the process of making sense and meaning. It encouraged team members to integrate discourse and develop collective impacts on the project. Moreover, it was a situated learning space that allowed the participants to learn and have new understandings while interacting with others.

A dramatic change was found in staff not only acquiring effective skills and knowledge, such as participating in negotiations during meetings, but also using the tools for their personal cognitive integration. This kind of "appropriation" showed that the staff could properly combine their new tools with their preexisting skills that supported survival within a bureaucratic culture. They transformed their meetings, first through continuous informal contacts and communications, then through decision-making processes in formal meetings.

Development of work is possible when the practitioner's agency is advanced after the process of "appropriation." Edwards *(2005)* noted:

> New forms of practice are being required which call for a capacity to work with other practitioners and draw on resources that may be distributed across systems to support one's actions.… It is argued that relational agency leads to an enhanced form of professional agency which is of benefit to the objects of practice. *(p. 168)*

With awareness of their social relationships and their empowered capacity, staff members offered support and asked for support from others. Within less than 2 months, the working team generated four new courses for Gong-Guan that involve 10 faculty members, two affiliated NGOs, two specialists, and three different commercial companies.

Becoming boundary spanners: Nurturing listening skills and a service ethic. With the aid of the development tools—that is, communicative protocols such as panels and workshops—academic staff members created an open and safe social space to encourage a two-way flow of knowledge between different departments, as well as between institutions and communities. Moreover, the behavior of the staff members on the team showed a service ethic that was characterized by respect and a "community first" attitude. They acquired a more holistic viewpoint on the process of curriculum design, acting more like systems thinkers. This finding is consistent with Weerts and Sandmann's *(2008)* assertion that successful spanners

> effectively managed power relationships and struggles between institutional and community partners.… These struggles were best understood by the composi-

> tion of governance structures and by who controlled the agenda during meetings. *(pp. 94, 97)*

Building a societal, inclusive working community within a schooling bureaucracy. The cultural tradition of a research university is a combination of bureaucracy and individualistic orientation *(Pernicka & Lücking, 2012)*. Consequently, there is usually little incentive for collaborative teamwork. The change lab initiated a "whole system" working environment through workshops such that participants could connect with one another to engage in service-learning curriculum, share their discoveries of role and power relationships, and take action. Well-designed activities for sharing personal histories and the exposure of working experiences increased understanding among participants, empathy, and holistic thinking about relationships behind the "work." The executive secretary reflected on her insights after the first lab meeting:

> Now I know why colleagues from Student Affairs were always delaying their reports until the last minutes, that's because they are quite busy dealing with students' affairs.

Since June 2015, members of the intracollegiate service-learning team have gradually engaged more in curriculum and community activities in the Humanities Innovation and Social Practice project. Since the HISP project initiator and senior researcher was not a faculty member at the target university, perceptions of insufficient information and lack of communication led to uncertainty and tension. Excerpts from an after-school learning project meeting are presented to illustrate some of these tensions and lack of clarity as follows:

> *Researcher:* How do the team members cooperate; how is information distributed among various classes?

> *Executive Secretary:* We have to make a "must-do" list, the *work distribution* must be clear. For example, we specify: Could you write down your experience that [we] could share with other teachers? E.g., how long will it take to give feedback on student journals from distance learning? What must be done before and after distance learning? That's easier for other teachers to follow and catch up.

> *Researcher:* You're right… the work distribution must be clear… among different activities. We never did this before. Now it is clear so everyone understands the weekly regular work contents in the current collaboration structure.

Through redefining "the division of labor" on the after-school learning project by academic staff and project specialists, an internal partnership between project and institution has been created, and related institutional procedures have been restructured to support implementation. Moreover, the change lab process has encouraged agency among the stakeholders who inhabit multiple activity systems. Students and staff members are empowered as para-educators, and faculty colearn and connect with community partners. With new relationships built among stakeholders, there is more interdependency and reciprocity in sharing information, resources, and knowledge. This new approach is appreciated and appears to be gradually transforming academic work into a kind of societal, inclusive working community.

Staff members were motivated by the process of development of work toward such a working relationship. One staff member has expressed that although coordination increases workload, "I feel that I work with a team." Another said, "Compared to documents and texts, I found that engaging with community issues is more meaningful." All those efforts lead to a process of "job crafting." Their work identity has been reformulated so that they feel that they are doing unique things. They better understand that what they commit to would generate collective efforts, which would result in a value that is both societal and educational. As Weerts and Sandmann *(2008)* discovered,

> Trust and power sharing can be developed through building flexible governance structures and porous structures that enable meaningful university–community exchanges to take place.… Partners continually negotiate and restructure community participation in shared governance, shared staff positions, and committee work. *(p. 82)*

This work team has worked intensely throughout this 3-year project as it coorganized and implemented a "whole system" lab with faculty, students, staff, community partners, project specialists, and local authorities. The intracollegiate service-learning team

represents distributed agency with collective intentionality. It has encouraged new qualities, such as an emerging landscape of collaboration and social production, as reflected in a meeting discussing students' self-directed community engagement:

> *Researcher:* Let's reflect what was done last semester. I found that members of this mission-based team, with a collective intentionality to develop a community-engaged curriculum, went beyond the boundaries and gaps between institutional sectors and project-based teams. This type of "intra-agency" could connect and reciprocate across boundaries, and beyond teamwork itself. Like the nodes and links in mycorrhizal networks.
>
> *Director of Center of Teachers' Education:* Um… I understand… this university is like a plant, and the visible fungus is like our mission team, who is intimately contacted with its surroundings. The objective of the mission team is to expand the invisible organic texture like the mycelium layer, which soaks up water and nutrients over a larger area to provide to the whole plant.
>
> *Researcher:* Act like the links in the mycorrhizal network, and coexist with the "plants." This is how we could influence the institution with respect to service-learning, so that it can create social impact and help to bring well-being to disadvantaged areas.

People who engaged in developing a community-engaged curriculum for disadvantaged areas act as boundary crossers to connect and reciprocate with their own intention and agency. Engeström *(2006)* used the term *knotworking* for this emerging way of organizing work that initiates collaboration between partners without strong predetermined rules or central authority. Engeström has compared such collaborations to mycorrhizae, symbiotic networks in which plant roots and fungus live in intimate contact in order to exploit complementary forms of metabolism. The mycorrhizae-like formation that is the foundation of knotworking typically does not have strictly defined criteria of membership; rather, its members are distinguished by their activism *(Engeström, 2006).*

Challenges

> I know we are trying "to do the right thing." Though doing this requires jumping out of the box, the bureaucratic thinking, we are pleased to learn by doing. *—Executive secretary of intracollegiate service-learning team*

At the research university that was home to this project, data indicated that academic staff members felt that they are treated as supplemental to the faculty, who assume staff are less professional and lack expertise. One member of the team expressed how she felt powerless when dealing with teachers' complaints about administrative processes and how she lacked financial support for outbound service-learning activities. Staff members often feel frustrated when the school's annual budget for service-learning is decreased. With no institutional commitment, it is even harder to create innovative community-engaged curricula.

Although this project documented how academic staff can be empowered to practice boundary-spanning roles at the interpersonal level, the organizational elements of "architecture" (e.g., leadership, structure, and rewards) still remained as "engagement de-motivators." As Weerts & Sandmann *(2008)* claimed, "campus leaders were essential in tipping institutions toward engagement and served as key leverage points to move research institutions toward a two-way interactive philosophy" *(p. 82)*.

Implications for Practice and Future Research

This case represents the development of an alliance between researchers and participants, which involved planning a systemic intervention, implementing the change lab method from developmental work research, and disseminating outcomes through cocreating new artifacts. This study has important implications for practice and future research.

Research universities moving toward being engaged campuses could utilize the change lab methodology to examine and address institutional challenges to incorporate community-engaged service-learning into the curriculum and organizational culture. Next, they could incorporate service-learning in faculty development activities. As this study has shown, such capacity-building steps empower staff and faculty to nurture their own relational agency to become boundary spanners and embrace and model a service ethic. Moreover, this case demonstrated that collaboration initi-

ated by distributed entities (team members and organizations) and leadership across their members is one possible approach to setting institutional goals, assessing current conditions realistically, and monitoring progress toward the desired level of implementation of service-learning.

Finally, this study reinforces and recommends that learning through service and reflection—that is, service-learning as a pedagogy—promotes active citizenship and is grounded in everyday institutional environments. It is not only for staff development in the workplace, but also for informal learning settings. As pedagogy and as professional and organizational development, it introduces a new way of learning designed to nurture what Fitzgerald and Zientek *(2015)* described: "a public-spirited practice… but part of the messy, difficult, give-and-take process of problem solving" *(p. 30)*. Therefore, it is highly recommended, based on this case, to invest in emergent or developmental evaluation to move within the messiness toward institutionalization.

These implications lead to acknowledgment of the limitations of this study and future research:

- The qualitative data includes perspectives of academic staff, but not those of other stakeholders. Life experiences and perspectives from students, faculty, and community practitioners who are engaged in service-learning would provide a more comprehensive and situated understanding of these change efforts.

- The study was performed under short-term, project-based conditions and focused on transforming staff members' boundary-spanning roles to mitigate engagement barriers at an interpersonal level. Due to the short term of engagement, the study does not include sufficient evidence to analyze the optimal interpersonal- and institutional-level interaction that could promote an "engaged campus" that would build and sustain university–community partnerships.

There is still a long way to go toward an optimal systematic developmental approach to community–university partnerships. The practices demonstrated through this action research case

provide insights into long-term possibilities on how to enable a research university to fulfill its social responsibility through curriculum reform wherein students learn in service with local communities, such that universities and these communities together can build "a network of actors" for cocreating a force for social change, a network that can trigger active, collective, and enduring momentum for community development.

By engaging local communities through social practice in research and teaching, universities can interact with them in such a way as to form mutually beneficial relationships through which all parties can grow and develop together. This requires transformation at the institutional level and pedagogical innovation. A number of institutional-level strategies hold promise:

- initiating appropriate rewards and structures with support from institutional leaders;
- diversifying stakeholder engagement, both physically and virtually, to improve public participation in knowledge production in order to cocreate visions and coworking as change catalyst; and
- fertilizing intracollegial cross-sector collaboration that encourages distributed cognition and leadership.

Pedagogical innovations are also needed:

- developing participatory (and emancipatory) pedagogies to help learners and participants to name their "word" and name their "world";
- encouraging transdisciplinary communication through narratives and collaborative teaching and inquiry; and
- supporting and coaching students, which can encourage them to self-organize, realize their authority with regard to their own learning process, and enable them to learn and research spontaneously.

The relational agency from staff in this study generated a "collegiality of working together" that unleashed possibilities of creating a service ethic in the workplace that triggered changes for community-engaged curriculum. An ancient African proverb says, "If you want to walk fast, walk alone. If you want to walk far, walk together." Based on the progress of this case, it seems we are walking together in the right direction.

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Projects With Promise

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Blending Community Service and Teaching to Open Vision Care and Eye Health Awareness to University Students

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Abstract

A vision care-based community service subject is offered to general university students for fulfillment of a service-learning compulsory credit requirement. Here, a professional health subject is taught in a way that caters to generalist learners. Students gain basic skills they can apply to provide vision screenings for the needy population. All enrolled undergraduates had no background in eye health-related subjects. The teaching was not content-driven, requiring students' direct recall of facts. Rather, the teaching focused on Socratic teaching of logical theories and applications. The objective was to increase awareness of current eye care problems using case examples. Students learned to appreciate ways to promote active outreach services. Through activities and project work, students learned and practiced strong teamwork and direct application of knowledge in community-based eye care services. This learning experience demonstrates emergence of authentic practice from theory.

Introduction

Service-learning has been advocated for supporting academic development because it allows students opportunities to actively practice in real-life settings what they have learned. Its benefits, such as improvement in interpersonal skills, socialization, and sense of civic responsibility, as well as its challenges, have previously been reviewed *(Hébert & Hauf, 2015)*.

Service-learning is a required element of undergraduate education implemented at the Hong Kong Polytechnic University. It serves to highlight civic responsibility and foster students' self-development. Collaborative relationships at various levels, including peers, community nongovernmental organizations (NGOs), and faculty members, coordinate academic learning with identified community needs. In health care settings, service-learning has been viewed as an effective means of providing students opportunities

to work with community partners and experience interdisciplinary collaborations.

Interprofessional service-learning has mainly focused on the contributions of various health care professionals in meeting health-related challenges. Current evidence supporting the effectiveness of interprofessional engagements is limited, with most data reflecting certain health care professions. A review by Hammick, Freeth, Koppel, Reeves, and Barr *(2007)*, for example, identified nursing with medical participants as an instance of students perceiving their learning experience positively. Their prime outcomes measure focuses on teamwork, with a limited number of studies that were actually conducted under real clinical settings. It has also been noted that there is a lack of reliable assessment tools in teamwork competency due to limitations in assessment platforms, validity measures, and trained observers, among other factors *(Havyer et al., 2016)*. Nonetheless, interprofessional collaboration has now emerged in many health education settings to reflect the importance of teamwork in professional education.

In 2014, we introduced a new subject intended to further interprofessional learning through on-site face-to-face interaction using online and traditional lecture-based coursework relevant to eye care. Here, we will report how a health profession discipline is incorporating service-learning for nonmajor students, including its effects on self-reported perception of providing organized vision screenings for the needy population.

Eye Care Needs in the Community

Eye diseases and visual disorders occur across all age groups and are major public health problems evident within our community. According to the World Health Organization Vision 2020 report *(2006)*, it is estimated that the number of blind people will double by 2020. Three key strategies are advocated by the Prevention of Blindness, Vision 2020: The Right to Sight Southeast Asian Regionals: (1) increase awareness, (2) partner with organizations, and (3) develop adequate human resources *(Ackland 2012; McGavin 1999)*. Although eye care professionals such as optometrists are trained to help detect and treat eye health and visual disorders, the public often does not understand the importance of keeping abreast of eye health awareness and prevention practices from these service providers. Barriers include lack of knowledge, lack of access, and lack of financial resources.

Intervention by Education

Creation of Interdisciplinary Service-Learning Subject in Eye Care

In our traditional program, optometry students have been involved with community and public health education promoting eye wellness and delivering vision screening work. For the interdisciplinary service-learning subject, however, students from different disciplines fulfill a credit-bearing service-learning requirement of their choice from more than 25 subjects offered at the university. In this course, they learn basic concepts in a professional health subject while studying their own curriculum (Table 1). The students then provide outreach services by participating in team projects relating to vision screenings with our optometric student body group. Through this activity, they serve the community while practicing collaborative bridging on site, acting as an interprofessional team to serve the needy.

Table 1: ***Overview of Program Details***

Subject name	Learning Through Providing Eye Care and Vision Health to the Community		
Subject duration	2 Semesters	**Year started**	2014
Class size per semester	120 students	**Group project size**	10-15
Learning outcomes	• Understand the major eye-related health issues/concerns and their impact on the underprivileged in the community • Plan, organize, and conduct vision screening project(s) in collaboration with community organizations (e.g., nongovernmental organization or charity bodies) • Appreciate the value of social responsibility, cultural diversity, and active citizenship • Work effectively in teams to solve problems encountered in planning and delivering the service • Communicate effectively with clients and other stakeholders • Demonstrate empathy for people in need and reflect on their roles and responsibilities as a responsible citizen		
Number of beneficiaries served	16,000 (schoolchildren: 56%, special needs: 4%, low-income families: 2%, ethnic minorities: 1%, physically disabled: 4%, others: 14%)		

Countries served	SE Asia (Cambodia, Vietnam; 13%), Mainland China (31%), Hong Kong (56%)
Student's self-ratings from a sample semester survey (*n* = 97)	• 60.8% reported that they took this subject in order to fulfill their graduation requirements. • 71.1% reported that they took this subject because they were very interested in this service-learning subject. • 62.9% reported that they found the service performed closely related to their majors. • 90.7% reported that they benefited a lot from their interaction with their instructors, TAs, and other students in class. • 91.8% reported that overall, they found the experience highly useful and rewarding.

The purpose of this subject was to offer an introductory-level course that would provide students early opportunities for on-site multidiscipline collaboration. The goal was to promote and encourage a mosaic-learning environment and create unique experiences to help prepare students to engage in team learning, as well as public health services. A class could include students majoring in fields such as arts, applied sciences and textiles, business, construction and environment, engineering, health and social sciences, humanities, design, or hotel and tourism. Through this approach, we aim to encourage students among various disciplines to acquire a lifelong knowledge base about potentially debilitating eye conditions that can affect people of various ages and population segments. Eventually, program participants will be able to serve as information sources for their peers as they enter the workforce.

Teaching Model and Service Planning Model (Blended Teaching Means)

Throughout lecture-based teaching, project preparation, and planning and execution of outreach activities, students learn how their actions can have a positive impact on the public, focusing their attention on community service to build their awareness of it. In this subject, course content and instructions are delivered through computer-based and on-site activities in addition to traditional teaching (formal lecture with discussion). We hypothesized that learning about and witnessing of real-life cases will improve students' awareness and concern for others. Through providing timely and appropriate eye care services to underprivileged groups, students will gain a better understanding of community health needs.

Training and Evaluation of Students' Competencies in a Team

Our introductory training consisted of phases from didactic lectures to skills laboratories as we aimed to bridge basic knowledge with application. First, students participated in an online learning module assignment utilizing study materials on service-learning goals and reflection prior to focused-topic lecture-based teaching. Next, our focus shifted to preparing individual students for quality service provision. Through hands-on laboratory teaching, students learned about basic vision screening procedures covered in class. Concepts assessments were then conducted using a procedures competency examination and a multiple-choice test format with immediate assessment. Section tutorials took place in a small group setting with supervisors in attendance to address any misconceptions that arose. To address and promote a team approach in serving the community, the group solved problems based on vision and eye health concepts presented and learned in class. With continuous feedback from supervisors, peers, and collaborating partner organizations, students practiced group productivity while constantly giving and receiving feedback from various sources. Each group understood their responsibilities, and every member of each group had a role (whether individually or overlapping) to serve their team. The quality assurance of vision screenings conducted had been under the direct supervision of optometric professionals who served as gatekeepers for proper referrals. Finally, as an added evaluation of learning outcomes, the use of reflective writing assignments helped students improve their learning and address their outlook or changes in attitude and behavior toward various concepts. Self-reported reflections indicate that students obtained a sense of civic values and appreciation of the importance of teamwork through these multiprofessional group projects (Table 2).

Table 2. ***Compilations on Sample Reflective Writing From Students***

Student Major	Project	Sample Outcomes Reflection
Biomedical Enginerring	Elderly residing in local senior residence	*"I not only learnt about vision health or practical eye examining skills, but also enhanced my interpersonal communication skills.… I had more chances to interact with different groups of people including under privileged elderly, social workers.… I listened to their stories from the elderly, and when I worked with the social workers, I learnt to work more systematically.… I hope I can also contribute to community using my knowledge in the future."*

Accounting & Finance	Schoolchildren in Mainland China	*"Previously, I think that community service is 'uneconomical' as I cannot earn money from it, but after joining this project, I realize that serving the community will not only help people who are less affluent than us, but improving ourselves.… I sincerely believed that the children have saved me and helped me to combat my pessimism, which is out of my expectation."*
Electronic and Information Engineering	Adults with special needs	*"This experience about vision screening not only taught me about eyes and optometric skills, but also gave us a chance to understand what happened about the minority in our society. They needed our care and help to improve their lives in order to live like normal people with a job, relationship and livelihood."*
Computing	Hong Kong schoolchildren	*"After this service-learning, I understand actually I have the ability to help the society more. Although I am not a professional optometrist, I can still try my best and work with others and to provide a good service."*
Accounting & finance	Schoolchildren in Mainland China	*" [A]s a future accountant and a business woman… Facing people who speak different accents from us requires great adaptability.… In the future, I will be in an accounting firm dealing with all sorts of people with all kinds of backgrounds. It is of utmost importance for me to learn how to communicate effectively with different people. I was satisfied with what I had done and learnt from this experience."*
Interior design	Seniors living alone	*"As an interior design student, I will be more sensitive about lighting design for elderly and how to use the spatial arrangement to enhance the living quality of the elderly. Recently, there are many elderlies living alone.… I hope my future design will enhance the community."*

How This Contributes to General Education and University Education of Students Involved

The current trend in working environments involves teamwork and collaboration. Based on the WHO report *Learning Together to Work Together for Health (1988)*, it has been suggested that efficiency can be improved in the workplace if a team is composed of members with different degrees, knowledge, and skills. When different professions are offered opportunities to learn together, they will work even better together, which ultimately benefits health care services and delivery. To prepare graduates for team-based work, we offered a subject directly related to applications of teamwork. Team-based learning allows us to address these competencies and

to foster students' critical thinking skills and work effectively as a team.

This approach also directly reflects realistic constraints when working in a team setting. For example, student schedules from different disciplines and prior coursework for each student in a group were vastly diverse. With the added time commitment in project design of vision screening activities, more tutorial work hours were needed to ensure preparation details were completely addressed. Students learned to be adaptable in these areas and provided support for their peers when needed. In this work with community partners, students played an early outreach role representing their university. The engagement of non-optometric staff with community partners through service delivery also meant that students needed to learn about flexibility in mindset and communication when interacting with people from different educational backgrounds, age groups, and origins.

How Teachers Benefit From Teaching Nonmajor Students

Because optometry plays an important role in the primary health care system, effective delivery of public health education in this field is critical. One of the most important reasons for optometric public health outreach is to support prevention and early intervention for eye diseases. These goals can best be achieved by broadening awareness and educating the public regarding the importance of community programs to address optometry-related needs and health concerns. It is, however, a difficult message to deliver to our currently young and healthy population who have not yet experienced any major diseases.

We utilized a blended teaching format in order to improve this awareness through different conduits. This subject offered an effective platform for teaching students about the visual consequences of improper eye-related hygiene and other health-related matters. Working with students outside our profession also helped teachers appreciate a layman's perspective and concerns and provided proof of concept regarding the workability of a team approach to solve health care issues relating to primary optometry education. In addition, teachers were able to build student research projects and promote new areas of interest that were introduced by students from different disciplines. In these research projects, students shared their knowledge, thereby efficiently promulgating concepts applicable for vision and eye health care. This utilization of knowl-

edge from multiple sources not only benefits our profession but also widens non-optometry students' scope for applying their own knowledge and skills to the community after graduation, enabling them to implement a lifelong learning approach as responsible citizens to our society.

The development of this education framework needs a concrete measure of whether students benefit from this service-learning. A measurement of its impact value using a pre/post questionnaire methodology is under way.

Conclusion

The subject introduced engages our university students across all disciplines to help provide direct service activities to benefit identified underprivileged communities. We have to emphasize that the subject does not replace a professional health program. Rather, it complements such a program as a supplementary community involvement of students with others. Students learn about adaptability to reflect different views and deal with problems in a collaborative effort. It opens up students' awareness of their own health and concerns. During these experiences, even the most passive students will openly approach their supervisors to discuss health symptoms and ask questions. Learning that takes place through this direct contact with people cannot be replaced. Last but not least, students are drawn from different backgrounds and are joined by optometry majors to provide support to make up a group. We emphasize that the skills nonmajors acquired in this program are not exactly the same as the professional skills taught to optometric students. The group as a whole, however, commits to a passion for service and lifelong benefit in connecting students to the public. This commitment helps build a shared vision that can lead to better communication.

Future research goals for the program include investigating these multiprofessional experiences in local as well as in overseas settings to ascertain students' perception of their learning experiences and cultural understandings.

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