

Promotion of well-being and leadership qualities among university students after taking a credit-bearing service leadership subject

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Abstract

With the increasing development of service economies, service leadership (SL) concepts and educational programs have been advocated in Hong Kong. To assess the impact of SL education initiative, the current research evaluated changes in SL attributes and well-being in 88 students after completing a credit-bearing General Education subject entitled “Service Leadership” at The Hong Kong Polytechnic University in 2017/18 academic year. Through a one-group pretest-posttest methodology, the research showed that students showed positive changes in SL qualities indicated by “self-leadership,” “character strength,” “caring disposition,” and “SL beliefs” as well as personal well-being indexed by “life satisfaction” and “positive youth development.” This research also found that changes in SL qualities and well-being were positively correlated with each other. Our findings suggest that it is promising to nurture SL attributes and foster well-being among university students through formal leadership curriculum.

Keywords: Service economy, positive youth development, life satisfaction, one-group pretest-posttest design, university students

Introduction

The world has stepped into a post-industrial era featured with the rapid development of new technologies and strong emphasis on knowledge, service, and human capital. Service sectors have occupied a much bigger share than manufacturing industries in some developed regions, such as the United States, the United Kingdom, and Hong Kong. For instance, in Hong Kong, the value added by service sectors in GDP (“gross domestic product”) has been over 92.0% since 2015 (1). Developing countries, such as China and India, have also been paying more attention in

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service-sector-related fields, such as finance, in order to survive and thrive in the increasingly fierce global competition (2). In mainland China, the service sector contributed to 52.2% of the GDP in 2018, compared to 41.2% of the GDP in 2004 (3). The industrial era witnessed machines replacing human laboring which promoted productivity and efficiency. The post-industrial era, however, has a higher level of technological support as well as human resources contribution to service, creativity and other related fields, such as trades, finance, and technologies (1). Obviously, one should ask what the desired leadership qualities are under service economies which emphasize human capital, particularly soft skills of the workers.

Characterized by empowerment, innovation, and creativity, the service economy calls for organizational changes and re-definition of youth leadership (4). Therefore, holistic leadership qualities have been much stressed on across the globe in the 21st century, as the society needs the younger generations to be equipped with integrative competencies including not only “hard skills” (e.g., professional knowledge), but also “soft skills,” such as “creativity and innovation,” “communication and collaboration,” “social and cultural skills,” and “critical thinking” (5). In fact, employers now require university graduates to have these “soft skills” as one of the entry-level requirements (6). In addition, some scholars proposed the “Service Leadership Theory” which specifies that effective “service leaders” in the contemporary service era need to possess three “Cs,” which denote “Competence,” “Character,” and “Care” (4). This perspective of whole-person development should be kept in mind in providing leadership education for university students. However, such leadership training is far from sufficient in the context of higher education and to some extent, university graduates have failed to meet the requirements of being an effective “service leader.” The gap between the society’s demanding needs for university students’ service leadership (SL) qualities and their actual performance awaits to be urgently bridged.

Shouldering social responsibilities is one of the missions and visions of higher education institutes. Through education and research, making contributions to the society has been a tradition of universities which can be traced back to the

establishment of University of Oxford and University of Cambridge, two of the oldest universities in the world. After hundreds of years, the mission and vision of contributing to “society through the pursuit of education, learning and research at the highest international levels of excellence” (7) and “benefit society on a local, regional, national and global scale” (8) are still included in the core values of the two universities for future development. In today’s rapidly transitioning world of the service economy, higher education plays an even more active role in sustaining societal development by continually fostering research and raising up future service leaders. For instance, Dugan and Komives (9) stated that “the education and development of students as leaders has long served as a central purpose for institutions of higher education” and leadership is “a critical colleague outcome” (p. 8). Unfortunately, there are increasing voices criticizing that contemporary universities focus too much on ranking and student achievements without paying due attention to the holistic development of students.

To nurture youth leadership, both “hard skills” and “soft skills” need to be stressed on, especially “soft skills” that are hugely emphasized in the service era but are somehow overlooked in the contemporary leadership education. Traditionally, when talking about leadership, people would think of leaders “doing things right” and leadership training accordingly focused mainly on hard skills and elitism, such as management skills and decision-making skills. As of today, comprehensive and effective leadership education proposes to train leadership in “knowing” (leadership knowledge), “being” (mindset, service orientation, character, and care) and “doing” (leadership skills) (4). Such leadership education not only teaches young people how to “do things right,” but also to “do the right things.” This mode of leadership education has been proved to be effective in nurturing youth leaders in previous research. Students obtained significant growth in civic responsibility, personal and societal values, and holistic development (9-11). A notable example is SL education guided by the “Service Leadership Theory” in Hong Kong (12). The implementation of SL education highlighted “the importance of caring disposition and moral character in addition to competencies” (p. 97), and in practice

efficiently deepened participating university students' knowledge of SL and fostered their SL qualities (13).

As the name suggests, the concept of SL stresses on service and leadership and refers to "ethically satisfying the needs of self, others, groups, communities, systems, and environments" (14). In contrast to traditional leadership thoughts that pertinent to elite leadership and leading others, SL notions manifest in stressing service orientation and equally emphasizing the development of competences, ethics and morality, and caring disposition (i.e., the 3Cs) (4,12). In addition, the SL proposition believes in young people's strengths and potentials, thus it holds the belief that "every day, everywhere, everyone can take a leading role" (15). To apply these SL concepts into practice, the "Hong Kong Institute of Service Leadership and Management" (HKI-SLAM) developed SL curriculum materials and initiated a SL education schema in eight government-funded universities in Hong Kong in 2012.

As one of the participating universities in the scheme, The Hong Kong Polytechnic University (hereafter PolyU) provided students with both credit-bearing General Education subjects (i.e., "Service Leadership" subject) and non-credit-bearing SL training programs since 2012/13 academic year. The SL education at PolyU aims to nurture leaders who possess leadership competencies, demonstrate concern, empathy, and sincerity to others, listen to and care for others' needs, and show positive ethical traits. These intentions echo the core values of SL propositions that "leadership is service" and "everyone can be a leader" by serving (4). To ensure the effectiveness of the SL education, course curriculum was rigorously developed and reviewed by the research team and instructors were well-trained to better deliver course materials. Specifically, the core concept of the course is the beliefs of SL, the importance of generic competencies, morality and caring disposition, and application of SL concepts in daily life and career development (16). Furthermore, multiple teaching methods are used in the course to better engage students in active learning, such as the experiential teaching and learning pedagogy, reflective and collaborative learning. This provides more opportunities for students to be engaged in experiential learning emphasizing the importance of reflective learning, collaborative learning, and self-

leadership. Previous research has demonstrated that these teaching and learning approaches can effectively promote student engagement and deep learning (17, 18).

Theoretically, SL is an innovative concept. Practically, SL education has been well received by students and proved to be effective and fruitful in promoting student development. After years of implementation in Hong Kong, both qualitative and quantitative evaluation studies revealed positive perceptions held by teachers and students toward the implementation. They claimed significant positive changes among participating students in terms of leadership development and healthy functioning (19, 20). Comparisons between student conditions before and after receiving the education revealed positive changes happened among the participants. For example, Shek, Yu and Ma (21) used a pre- and post-test method to analyze the effectiveness of the credit-bearing "Service Leadership" subject offered to students in 2012/13 academic year at PolyU. They found that the students who participated in the course displayed higher SL qualities, such as ethical attributes, after the completion of the course.

In addition, Shek and Lin (22) did pretest, immediate posttest, and follow-up test to examine the effectiveness of a 12-day intensive "Service Leadership" course as an academic component of a leadership training program jointly launched by PolyU and a university in Mainland China. The results suggested that the course effectively promoted students' qualities and beliefs of SL as well as well-being. Similar positive findings were reported in Shek, Lin, Leung, and Zhu's (22) study which analyzed student changes after taking another intensive SL course. Their findings further demonstrated the sustainable positive effects of the course as the authors put "students scored much higher on all indicators in the follow-up test than in the pre-test" (p. 69). Because of the positive impact, SL initiatives have won several teaching awards. In 2016, the subject entitled "Service Leadership" won the "Bronze Award (Ethical Leadership)" and the subject entitled "Service Leadership through Serving Children and Families with Special Needs" won the "Bronze Award (Social Enterprise)" in the "QS Reimagine Education Awards 2016" which was regarded as the "Oscar in Education."

Despite the positive evaluation findings in previous studies, it is also necessary to further examine the beneficial influences of SL education in a continuous manner. Thus, the first research purpose of the current study is to replicate previous positive evaluation findings and unveil the effectiveness of the “Service Leadership” subject delivered in 2017/18 year at PolyU. To do it, this study analyzed student changes after they completed the course in the aspects of SL qualities and values, as well as well-being. In the realm of science, replication is always an important benchmark to evaluate stability of the findings. Besides, although previous evidence has demonstrated that SL education can foster student well-being, the underlying mechanisms contributing to such benefits remain unclear. Existing evidence showed that individuals’ well-being was linked to their leadership qualities (e.g., 23, 24). Theoretically, it makes sense to expect that student attainment in SL qualities would promote their well-being. One possible explanation is that students’ positive learning experience and their personal development after learning enable students to have more positive feelings toward themselves and gain a sense of accomplishment and well-functioning (25). Testing this possibility constitutes the second purpose of this study. Specifically, we explored whether student development of SL attributes and improvement in well-being are related to each other.

To achieve the above-mentioned two research purposes, this study utilized a “one-group pretest-posttest” methodology (also called “single-group pretest-posttest”). Although this methodology has some limitations because of the lack of a control group for comparison, Thyer (26) commented that it is a valuable strategy in the field of human services as a pre-experimental design. To have a control group in an evaluation study helps exclude the effects of confounding factors such as maturation through comparing the experimental group and the control group. However, in practice, especially in the education field, it is not always applicable to have a control group concerning costs and sometimes ethical factors as well as its demanding requirements for administrative manpower and advanced research training in teachers in reality. This is why McCall et al. (27) once asserted that conducting experimental evaluation research is “extremely difficult and often

impossible” (p. 982). In this regard, one-group pretest-posttest design is a practical and cost-effective way to investigate outcomes of educational programs (28).

This evaluation methodology has been widely used in social science research fields, such as therapeutic service and education. For example, Williams, Poulsen, Chaguturu, Tobia, & Palmeri (29) used the one-group pretest-posttest methodology to evaluate an online training course which taught psychiatry residents about TUD (i.e., tobacco use disorder). Another example of the usage of this design is a research on the effectiveness of a training program called “Pakistani Educators’ Instructional Leadership Institute (PEILI),” which attempted to help educators in Pakistan acquire new professional knowledge and skills and build new supporting networks (30). In our study, participating students filled out the same questionnaire before the first lecture of the “Service Leadership” subject (i.e., pretest) and after the last lecture (i.e., posttest). By comparing and analyzing the data collected from the pretest and posttest, the changes happened to the students after taking the course and the effectiveness of the SL education could be revealed.

Methods

Data used in this study were collected from students enrolled in the “Service Leadership” subject that was offered at PolyU in the first semester of the academic year of 2017/18. At the beginning of the first lecture in the first week, students were invited to fill out the pretest questionnaire forms. Upon the completion of the last lecture in the thirteenth week, students responded to the same questionnaire forms as the posttest. In both occasions of the test, participants were well informed of the data collection principles, such as the principle of anonymity and the usage of data provided by them for educational and research purpose without revealing any personal information in the reports or articles. Each participating student signed a written consent form before doing the pretest. Enough time was given to the participants during both pretest and posttest in filling out the questionnaire in a paper-and-pencil manner. A total of 88 students completed both pretest and posttest. There

were 33 (37.9%) male students and 54 (62.1%) female students and one participant did not report gender information. The average age of the participants was 20.6 ± 2.53 years old. Specifically, most participants were at the early twenties and aged between 19 and 22 years old (e.g., 6 participants aged below 18 years old while 4 aged above 23 years old). More details are depicted in Table 1.

Table 1. Demographic information of participants (n = 88)

Demographic variables	Frequency	Valid percent (%)
Gender		
Male	33	37.9
Female	54	62.1
Age		
18 or below	6	6.8
19-year-old	17	19.3
20-year-old	29	33.0
21-year-old	21	23.9
22-year-old	11	12.5
23 or above	4	4.4

Mean age = 20.6 ± 2.53 .

Instruments

The questionnaire used in the study included two outcome indicators: “well-being” and “SL qualities and beliefs.” Subjective and psychological well-being were assessed as two forms of well-being. To index subjective well-being, we measured life satisfaction which is pertinent to an individual’s cognitive appraisal of his or her overall life qualities. Positive

youth development (PYD) was measured as an index of psychological well-being reflecting young people’s adequate and healthy functioning (31). SL qualities were assessed by three subscales including “self-leadership,” “character strength,” and “caring disposition,” which were considered important for leadership effectiveness in the service era (21). Values and beliefs held by students toward SL were also measured through a subscale. These four subscales related to qualities and beliefs of SL have been used in previous evaluation studies and showed good reliability (21, 22).

Assessment of Life Satisfaction (LS)

LS was measured by “Satisfaction with Life Scale” (SWLS) on a 6-point scale (“1” = “strongly disagree,” “6” = “strongly agree”) with a higher score representing higher LS. SWLS was designed to measure individuals’ perceptions of the qualities of their lives from a subjective point of view (32). This scale has been widely used in youth development studies in Chinese contexts with a translated and validated Chinese version (22, 33). The scale included five items, such as “I am satisfied with my life” and “so far I have got the important thing I want in life.” The level of LS was operationalized as the mean score of the five items. The Cronbach’s alpha coefficients of scale in the present study were .87 in both the pretest and posttest, indicating that the scale had good internal consistency (see Table 2).

Table 2. Outcome changes between pre-test and post-test (N = 88)

	Pre-test		Post-test		F	η^2_p
	Mean (SD)	α	Mean (SD)	α		
Higher-order PYD factors					3.43^{^a}	.108
Cognitive-behavioral competencies	4.48 (.49)	.80	4.63 (.51)	.83	7.39 ^{**}	.078
Positive identity	4.41 (.65)	.79	4.59(.61)	.79	8.57 ^{**}	.090
General PYD qualities	4.55 (.50)	.87	4.63 (.46)	.83	4.17 [*]	.046
Total PYD	4.50 (.46)	.92	4.63 (.45)	.91	9.17 ^{**}	.095
Life satisfaction	4.03 (.85)	.87	4.18 (.81)	.87	3.70[†]	.041
Service leadership qualities and beliefs					3.24^{^a}	.134
Self-leadership	4.48 (.54)	.72	4.60 (.57)	.76	4.75 [*]	.052
Character strength	4.50 (.47)	.83	4.58 (.45)	.83	4.73 [*]	.052
Caring disposition	4.75 (.51)	.86	4.86 (.51)	.87	5.67 [*]	.061
Beliefs of service leadership	4.72 (.64)	.86	4.98 (.62)	.91	10.73 ^{**}	.110

Note. [†]p < .10; *p < .05; **p < .01; ***p < .001. PYD = positive youth development. [^]Adjusted Bonferroni value = .013.

Assessment of PYD

PYD attributes were measured by the “Chinese Positive Youth Development Scale” (CPYDS) on a 6-point scale (“1” = “strongly disagree,” “6” = “strongly agree”). CPYDS was developed as an objective measurement tool on “growth, cultivation, and nurturance of developmental assets, abilities, and potentials” in Chinese youths by taking into account both PYD studies conducted in the Western context and features of Chinese culture (34). In this study, concerning the “Service Leadership” subject features, 10 out of 15 subscales included in the original CPYDS was utilized to measure ten PYD attributes (e.g., “cognitive competence,” “behavioral competence,” “clear and positive identity” and “moral competence,” etc.) (13). Based on these subscales (thirty-one items), three higher-order factors including “cognitive-behavioral competencies” (CBC), “positive identity” (PI), and “general PYD qualities” (GPYD) were calculated to index PYD attributes. Specifically, CBC was comprised of three subscales: “cognitive competence” (4 items, e.g., “I know how to see things from different angles” and “I know how to find the causes of and solutions to a problem,” etc.), “behavioral competence” (2 items, e.g., “I can face criticisms with an open mind” and “I can express views that are different from others”), and “self-determination” (3 items, e.g., “I am capable of making wise choices” and “I believe things that will happen in my life are mostly determined by myself”). PI consisted of two subscales including “clear and positive identity” (2 items, e.g., “I am a person with self-confidence” and “I believe I have the qualities and abilities of a leader”) and “belief in the future” (3 items, e.g., “I have confidence to solve my future problems” and “I have confidence that I will be a useful person after I graduate”). GPYD included five subscales: “social competence” (3 items, e.g., “I know how to communicate with others” and “I understand the rules and expectations when interacting with others”), “emotional competence,” (3 items, e.g. “when I am unhappy, I can appropriately express my emotions” and “when I have a conflict with others, I can usually manage my emotions”), “moral competence” (4 items, e.g., “I have high moral standards about my behaviors”

and “I have a habit of self-reflection”), “spirituality” (4 items, e.g., “I have found my purpose in life” and “I believe spiritual riches are more important than material prosperity”), and “resilience” (3 items, e.g., “when I face difficulties, I do not give up easily” and “my belief is that even though tomorrow becomes worse, I will still live in a good manner”). A total PYD score was also computed according to each participant’s responses to the ten subscales. Details of reliabilities of the higher-order PYD factors in pretest and posttest are presented in Table 2. This scale has been used in many studies and there are findings showing that the scale and the related subscales are valid and reliable.

Assessment of SL qualities and beliefs

As aforementioned, three subscales with 28 items in total were adopted to measure essential qualities and attributes related to SL including “self-leadership,” “character strength,” and “caring disposition.” The “self-leadership” subscale included 5 items with sample items as “I have a good planning on my life” and “I control my own behavior to avoid stepping out of line.” The subscale of “character strength” had 15 items and samples items were “I do not hesitate to fight against what I think wrong despite opposition” and “most of the time, I can keep my mind peaceful in face of gains or losses.” The third subscale, “caring disposition,” consisted of 8 items with two sample items as “I know how to appreciate others, even those who are completely different from me” and “I pay attention to others when they are talking to me.” Beliefs about SL were assessed by 6 items pertinent to one’s identification with SL notions. Sample items included “leadership effectiveness is determined by situational task competencies, character strength and caring ability” and “a successful leader should try his/her best to improve his/her competencies and satisfy others’ needs.” All the 34 items were rated on a 6-point scale (“1” = “strongly disagree,” “6” = “strongly agree”). In our study, the four subscales also showed good internal consistency as suggested by the Cronbach’s alpha coefficients ranging from .72 to .91 in the pretest and posttest (see Table 2).

Data analysis

First, the internal consistency of the measurement tools used in the pretest and posttest was examined through a series of reliability test. Second, to compare participating students' posttest scores with corresponding pretest scores on the outcome indicators, we performed three repeated-measures multivariate GLM (i.e., "general linear model") analyses with three types of outcome measure (i.e., LS, PYD, and SL qualities and beliefs) as the DVs ("dependent variables") and the time (i.e., pretest vs. posttest) as the IVs ("independent variables"). The Bonferroni adjustment procedure was used to reduce Type I error in detecting omnibus time effect. Following multivariate analyses, univariate analyses were performed for each indicator of PYD or SL qualities and beliefs. SPSS 25.0 was used to conduct reliability tests and GLM analyses.

Finally, AMOS 25.0 was used to do two cross-lagged path analyses to investigate associations between changes in well-being indicators and SL qualities. Figure 1 shows the cross-lagged models. Each model involved two scores (pretest and posttest) of two variables: a well-being indicator (LS or PYD

total score) and SL qualities indicated by a composite score of self-leadership, character strength, caring disposition and beliefs of SL. In each model, there were six paths representing associations among different variables. Taking the cross-lagged model including SL qualities and PYD total score as an example, the six paths were:

- "Concurrent relationship" (CR): the correlational relationship between two pretest scores;
- "Temporal effect 1" (TE1): SL qualities pretest score predicted its post-test score;
- "Temporal effect 2" (TE2): PYD pretest score predicted its post-test score;
- "Cross-lagged effect 1" (CLE1): the effect of pretest score of SL qualities on PYD total score at post-test;
- "Cross-lagged effect 2" (CLE2): the effect of PYD total score at pretest on the post-test score of SL qualities;
- "Correlated change" (CC): the correlation between the residuals of SL qualities and PYD total score at post-test.

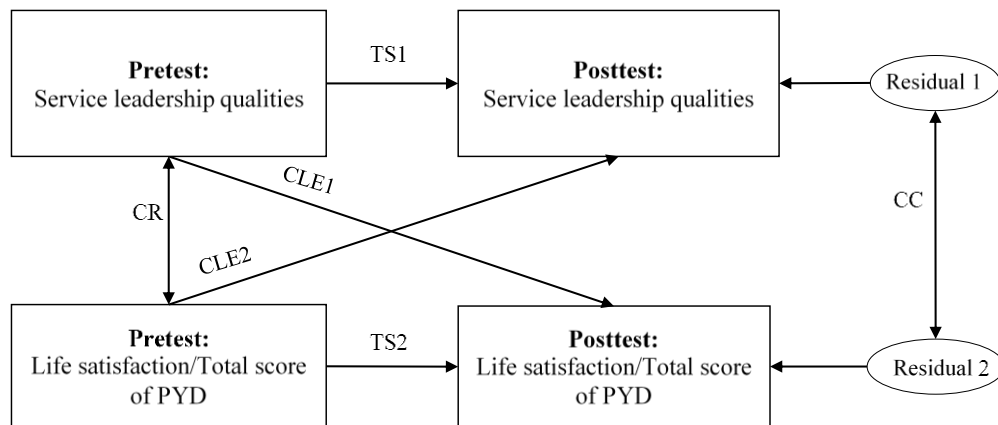


Figure 1. Cross-lagged models among service leadership qualities and well-being indicators in pretest and posttest. PYD: Positive youth development; CR: Concurrent relationship; TS1: Temporal stability of service leadership qualities; TS2: Temporal stability of well-being; CLE1: Cross-lagged effect of service leadership qualities on well-being; CLE2: Cross-lagged effect of well-being on service leadership qualities; CC: Correlated change.

As shown in Figure 1, there was an association between any two variables in one model. Thus, both cross-lagged models were saturated (i.e., $df = 0$ or Fitness statistics were perfect). Furthermore, after CR, TE1, TE2, CLE1, and CLE2 were statistically contr-

olled, CC represented a valid estimated correlation between within-individual changes from pretest to post-test regarding well-being indicator and SL qualities measure (25, 35). This analysis method has been widely used in personality studies to explore the

common mechanism underlying the development of two different personality traits (e.g., 36). In the present study, analyses of CC helped to inform whether well-being and SL qualities increased together. We expected that there would be significantly correlated changes between SL attributes and well-being.

Results

As shown in Table 2, there was a significant omnibus time effect for PYD attributes ($F(3, 85) = 3.43, p < .05, \eta^2_p = .108$). Thus, it can be concluded that students gained significant development in their PYD attributes. Follow-up univariate analyses showed that there was also a significant improvement in each higher-order PYD factor (“cognitive-behavioral competencies”: $F(1, 87) = 7.39, p < .01, \eta^2_p = .078$; “positive identity”: $F(1, 87) = 8.57, p < .01, \eta^2_p = .090$; “general PYD qualities”: $F(1, 87) = 4.17, p < .05, \eta^2_p = .046$; “total PYD score”: $F(1, 87)$

$= 9.17, p < .01, \eta^2_p = .095$). For LS, a marginally significant improvement was observed ($F(1, 87) = 3.70, p = .058, \eta^2_p = .041$). These findings suggested an increasing trend in students’ both psychological and subjective well-being after completing the “Service Leadership” subject which are consistent with the original prediction of the study.

Similar to the results of PYD factors, the omnibus time effect for SL qualities was also significant ($F(3, 85) = 3.24, p < .05, \eta^2_p = .134$). A series of univariate analyses were also performed for each indicator and significant positive changes were identified for all indicators (“self-leadership”: $F(1, 87) = 4.75, p < .05, \eta^2_p = .052$; “character strength”: $F(1, 87) = 4.73, p < .05, \eta^2_p = .052$; “caring disposition”: $F(1, 87) = 5.67, p < .05, \eta^2_p = .061$; “beliefs of SL”: $F(1, 87) = 10.73, p < .01, \eta^2_p = .110$). Overall speaking, SL qualities and beliefs among students improved significantly after they completed the subject. Again, these findings are consistent with the original expectations.

Table 3. Standardized path coefficients of cross-lagged analyses (N= 88)

Variables in the cross-lagged analyses	Standardized path coefficients (β)					
	CC	CR	TS1	TS2	CLE1	CLE2
Service leadership qualities and life satisfaction	.40**	.30***	.61***	.59***	.08	.05
Service leadership qualities and total positive youth development score	.75***	.76***	.54***	.58***	.08	.11

Note. CC = Correlated change; CR = Concurrent relationship; TS1 = Temporal stability of service leadership qualities; TS2 = Temporal stability of well-being; CLE1 = Cross-lagged effect of service leadership qualities on well-being; CLE2 = Cross-lagged effect of well-being on service leadership qualities. * $p < .05$; ** $p < .01$; *** $p < .001$.

Correlated changes in student well-being and SL qualities

As aforementioned, we used cross-lagged models to detect the relationship between changes in well-being and SL qualities. The results are depicted in Table 3. After statistically controlled temporal stability of both well-being and SL attributes as well as cross-lagged effects between each other, significant correlated changes were identified in both models (SL qualities and LS, $\beta = .40, p < .01$; SL qualities and total PYD, $\beta = .75, p < .001$). In general, the improvement of university students’ well-being in terms of LS and PYD attributes was significantly associated with their positive changes in SL qualities.

Discussion

The SL education initiative was launched in Hong Kong to sustain its competitive advantage in the service era through nurturing SL qualities and promoting well-being among university students. By using the one-group pretest-posttest quantitative evaluation method and collecting self-reported data from participating students, this study evaluated the effectiveness of the SL education based on the “Service Leadership” subject offered in one university in Hong Kong.

The present findings are encouraging as students generally achieved positive changes in both SL qualities and well-being after completing the subject.

Specifically, in comparison to the baseline conditions in the pretest, students demonstrated better “cognitive-behavioral competencies,” “positive identity,” “general PYD qualities,” and “total PYD qualities” in the posttest, which reflected improved psychological well-being. In addition, there was also an increasing trend in student life satisfaction, despite that the improvement was marginally significant. Furthermore, students also gained significant improvement in their SL attributes in terms of “self-leadership,” “character strength,” “caring disposition,” and “SL beliefs.” These findings support our expectations. They are also in line with previous studies and provide support for the effectiveness of the subject in enhancing students’ SL qualities and well-being levels (16).

Regarding the question of why the “Service Leadership” subject influenced participants positively, not only in SL qualities but also in well-being, there are several points to be noted. First, the subject was created and designed based on the “Service Leadership Theory” which endorses the holistic development of university students in terms of a wide spectrum of competencies (e.g., emotional competence, spirituality, and relationship building, etc.) as well as moral character and caring for others. In addition, some propositions of this theoretical basis echo PYD theory that focuses on youths’ potentials and what they are capable of, instead of the problems they have (20). For example, the core belief of “everyone is (can be) a leader” reflects the PYD notion that “young people are resources to be developed.” In this regard, the subject teaching materials accordingly incorporated the perspective of positive and whole-person development. While being taught with knowledge or theories, students’ abilities and potentials were fully admitted so that they were encouraged to recognize their own strengths and make more growth. In the literature of PYD, the cardinal belief is that young people have strengths and potentials. The core issue is how to nurture their competences and unleash their potentials. In short, the present findings are consistent with the predictions of the positive youth development literature.

Second, the subject adopted various teaching modes based on teaching and learning purposes. These methods included lecture, group project and in-class activities (e.g. role play and drawing, etc.) which

enhanced teacher-student, as well as student-student interactions. The mixed-mode teaching style also helped to create a better teaching and learning atmosphere which is conducive to students’ proactive involvement in learning. This conjecture is consistent with Larson’s (37) argument that youth activities can be useful in enhancing young people’s concentration and initiative in fostering their positive development. Evidence from previous studies also suggested that the mixed-mode teaching style can improve teaching effectiveness and students’ learning achievement (22). In addition, in the “Service Leadership” subject, students also had plenty of opportunities to do individual or collaborative reflection excises for obtaining a better self-understanding, which is of great significance in personal and professional development (38, 39). In the era of the Internet, the learning mode of young people has changed from passively listening to lectures to actively learning via collaboration with peers and teachers. Hence, the study underscores the importance of utilizing more active mode of teaching and learning for students. In future, studies should be conducted to evaluate how different modes of teaching and learning might influence the achievement of learning outcomes of the subject.

The present positive findings provide additional support for Lin and Shek’s (25) argument that SL qualities can be developed and well-being can be nurtured through proper curriculum-based leadership education or training. This is different from conventional views of leadership that only those elite persons who occupy relatively higher positions can take a leading role (40). Instead, curriculum-based leadership development approach is able to reach and benefit a general population of university students rather than only serving a small group of students (e.g., a certain kind of elite students). Although the “Service Leadership” subject under investigation in the present study was initially launched in Hong Kong where the service economies are overwhelming predominant, the application of formal curriculum-based leadership education is certainly not limited to Hong Kong or service-dominant economies. For example, SL education and training have also been implemented in mainland China and Cambodia, where the service economies are less developed compared with Hong Kong. In

fact, empirical studies also showed that the SL programs in these two places also achieved a big success and effectively promoted participating students' leadership development and well-being (20, 22).

Empirically, students' positive changes in SL attributes were significantly related to their improvement in life satisfaction and PYD, index of subjective and psychological well-being, respectively. The results are in line with Lin and Shek's (25) previous observation which showed that the increase in student life satisfaction was closely linked with their positive attitudinal changes regarding SL. Once again, the present findings inform the possibility that one's endorsement of the new concept of SL notions, mindset change toward taking service-orientation as well as the development of SL qualities (e.g., moral character and concern for other's welfare) is very much likely to enhance the one's sense of accomplishment and good feelings about the overall quality of life. Theoretically speaking, the proposal of SL concepts stress on a people-orientation in the service era, emphasizing on both others' satisfaction and one's own development and fulfillment (41). Thus, the present study provides empirical support for this thesis. Furthermore, the findings are consistent with the previous observation of a close linkage between leadership qualities and well-being (24, 31). Nevertheless, the present study only spoke a correlational relationship between changes, and future research is needed to directly detect the possible causal effect of leadership development on well-being.

Despite the important and positive findings, this study has some limitations. The first limitation is the lack of a control group to minimize threats over internal validity so that the cause-effect relationship between leadership education and student positive development can be concluded. However, it should be noted that the use of control group may not be easy in the educational context and there would be many confounding variables involved. Second, without follow-up tests, the influence of the subject in a long run is unknown. Previous research revealed that students showed even greater positive changes two weeks after the completion of an intensive "Service Leadership" subject (22). It is necessary to conduct follow-up tests to examine the long term sustainability of student positive changes after the end of the

subject. In addition, there is a need to measure students' actual leadership behavior and practice in addition to their self-perceptions in follow-up tests. In this way, the effectiveness of the SL education in promoting student SL behavior in daily life can be rigorously determined. Third, the research method used in this study was quantitative methodology and the data were collected solely from participants' self-report questionnaire. In future studies, other methods such as objective observations, peer-report or teacher-report can be adopted to further strengthen the evaluation findings. Finally, the sample size of the study was not large (although the findings are quite robust). In future, it would be exciting to conduct a meta-analysis of the changes in the students based on the several studies conducted previously. Despite these limitations and in conjunction of other studies utilizing the one-group pretest-posttest design (42-44), the present study underscores the usefulness of using this methodology in understanding the changes in the young people taking service leadership subjects or other kinds of training programs.

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Ethical compliance

The authors have stated all possible conflicts of interest within this work. The authors have stated all sources of funding for this work. If this work involved human participants, informed consent was received from each individual. If this work involved human participants, it was conducted in accordance with the 1964 Declaration of Helsinki. If this work involved experiments with humans or animals, it was conducted in accordance with the related institutions' research ethics guidelines.

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