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Subjective outcome evaluation of a university subject on leadership and intrapersonal development

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Abstract: First-year undergraduate students (n=890) responded to a 48-item subjective outcome evaluation scale (SOES) after taking a leadership subject at The Hong Kong Polytechnic University in the second semester of the 2012–2013 academic year. Consistent with our expectation, factor analyses showed that the scale contains three dimensions (program, instructor and benefits). Results showed that students had positive perceptions of the program contents and the instructors, and most of the students perceived the subject to be beneficial to their development in different areas. As predicted, perceived qualities of the program and instructors were significant predictors of the perceived effectiveness of the program. Perceived qualities of the program, instructors and benefits predicted student's overall satisfaction with the program.

Keywords: factor analysis; holistic development; leadership; multiple regression; subjective outcome evaluation; university students.

Introduction

University is an important place for the social and psychological transitions from adolescence to adulthood. Freshmen are usually given opportunities to develop their personal, academic and career interests in a self-regulated learning environment. However, recent studies on college students showed that they are facing challenges in intrapersonal and interpersonal development, such as substance abuse, Internet addition, inappropriate sexual behavior, lack of a purposeful life, lack of civic and community engagement [1–3]. They also have a high risk of having mental health issues, such as depression, anxiety and suicidality [4]. These developmental issues could have negative influences on both their academic performance and healthy transitions to adulthood. For educators, it is becoming urgent to integrate the university curriculum with educational programs to promote student's intrapersonal and interpersonal development [5, 6].

Developmentally speaking, university freshmen go through multiple life transitions – from adolescent to young adult; from dependence to independence from parents; from being disciplined to becoming self-disciplined and responsive to the societal demands. In fact, they have more interactions with people from different backgrounds. They are experiencing transformations as well – such as forming a new identity, taking different roles, and developing intrapersonal and interpersonal competencies. What they need is not only "solution" for academic performance, but more importantly, "space" and "support" for the holistic development in all domains. To respond to this challenge, many scholars argued for promoting inner strengths of university students [7, 8]. The inner strengths (e.g. competence, resilience, aspiration) are important for university students not only because they help promote their psychosocial wellbeing, but also they protect them from the development of risk behavior.

To promote holistic development of university students, Shek [5] developed a leadership subject entitled "Tomorrow's Leaders" which attempts to promote leadership and intrapersonal competencies for university students at The Hong Kong Polytechnic University. After successfully running as a pilot project in the 2010–2012 academic years [6, 9], the program was officially offered as a credit-bearing subject to more than 2100 freshmen per year. The course content includes teaching and learning

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the personal attributes of becoming a whole person and an effective leader which covers self-understanding, emotional competence, cognitive competence, social competence, resilience, morality, spirituality and team building. The course is taught by a team of lecturers and tutors, who pair up for each class. In order to maintain consistency of teaching input and learning output, the team meets twice a month to discuss the progress of teaching, students' feedback and ways to promote the teaching and learning quality.

The subjective outcome evaluation scale (SOES) was developed [6] which attempted to measure the students' perception of the program outcomes and the effectiveness of the program on their holistic development. Results from the initial studies [9, 10] showed that the students were satisfied with the qualities of the subject and the instructors and that the subject was conducive to promoting their intrapersonal and interpersonal development. This paper aims to further examine the psychometric properties of the scale and investigate the students' satisfaction as well as program effectiveness (PE) of the course using a new set of data collected from different student cohorts.

With reference to the focus of the paper, there is obviously the question on why post-course subjective outcome evaluation was used. From a post-positivistic research point of view, both objective outcome and subjective outcome evaluation are important. While the former measures psychosocial functioning of the program participants, the latter assesses the program participants' perceptions of the program outcomes and benefits to their personal development [11]. Subjective outcome evaluation has been used to promote practice evaluation in the field of education, including the classroom teaching and learning. It helps researchers understand the students' overall satisfaction through their perceptions of the program content, quality of facilitation and benefits of the program. In this study, the SOES can help to examine the effectiveness of "Tomorrow's Leaders" on the improvement of intrapersonal and inner strengths of university students, such as attributes of critical thinking, problem solving, life-long learning, effective communication and ethical leadership. Several research questions were addressed in this study as follows:

1. What are the psychometric properties of the SOES? With reference to previous research, it was expected that three dimensions could be extracted from the scale.
2. What are the perceptions of the students on the subject, instructors and benefits of the subject?
3. What are the inter-relationships between perceived program quality (PQ), instructors and benefits? Based on previous studies [9, 10], it was hypothesized that the three major aspects of subjective outcomes (i.e. PQ, instructor quality and PE) would be inter-related (Hypotheses 1a, 1b and 1c).
   - Hypothesis 1a: PQ and instructor quality would be inter-related.
   - Hypothesis 1b: PQ and PE would be inter-related.
   - Hypothesis 1c: Instructor quality and PE would be inter-related.
4. Do perceived program and instructor qualities predict perceived benefits of the subject? Based on past studies [9, 10], students' perceived program and instructor qualities would predict their perceived benefits of the subject (Hypotheses 2a and 2b).
   - Hypothesis 2a: PQ would predict PE.
   - Hypothesis 2b: Instructor quality would predict PE.
5. What is the impact of perceived subject, instructors and benefits on students' overall satisfaction with the subject? Based on previous research findings [9, 10], it was hypothesized that these three aspects of subjective outcome evaluation would predict students' overall satisfaction with the subject (Hypothesis 3).
   - Hypothesis 3: PQ, instructor quality and PE would predict overall satisfaction with the subject.

Methods

The participants (n=890) were those who took "Tomorrow's Leaders" in semester two of the 2012–2013 academic year. They were invited to respond to the study voluntarily. The participants filled in the questionnaire in a self-administration format. Enough time was given to each student to complete the questionnaire. The collected questionnaires were scanned by a reliable machine called "Datacap" with a well-designed statistics software entitled "Toptest". All the data were cleaned by well-trained research assistants.

Instruments

A modified SOES was used in the evaluation which was validated in the previous study [6]. Factor analyses showed that there were three dimensions intrinsic to the scale, including perceived quality of the program, perceived quality of instructors (QI) and perceived benefits of the subject. Reliability analyses also showed that the total scale and the three subscales had adequate reliability. There are several parts of the closed questions:

1. PQ includes eight items (a1, a2, a3, a4, a5, a6, a7, a8 in Table 1).
2. QI includes 10 items (b1, b2, b3, b4, b5, b6, b7, b8, b9, b10 in Table 2).
3. PE includes 21 items (c1, c2, c3, c4, c5, c6, c7, c8, c9, c10, c11, c12, c13, c14, c15, c16, c17, c18, c19, c20, c21 in Table 3).
4. Overall satisfaction with the program, includes three items (a9, a10, e1) with a six-point Likert-type scale.

Table 1: Summary of the participants' perceptions towards the program (PQ).

	1		2		3		4		5		6		Positive	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
a1. Objectives of the curriculum are very clear	5	0.60	7	0.80	33	3.70	243	27.30	534	60.10	67	7.50	844	94.80
a2. Design of the curriculum is very good	8	0.90	10	1.10	52	5.80	288	32.40	461	51.90	70	7.90	819	92.02
a3. Activities were carefully arranged	3	0.30	5	0.60	24	2.70	246	27.60	523	58.80	89	10.00	858	96.40
a4. Classroom atmosphere was very pleasant	3	0.30	6	0.70	48	5.40	267	30.10	455	51.20	109	12.30	831	93.37
a5. Peer interaction amongst the students	3	0.30	7	0.80	31	3.50	242	27.30	454	51.20	150	16.90	846	95.06
a6. I participated actively during lessons	5	0.60	15	1.70	58	6.50	277	31.20	439	49.40	95	10.70	811	91.12
a7. I was encouraged to do my best	3	0.30	5	0.60	44	5.00	308	34.70	445	50.10	83	9.30	836	93.93
a8. Enhanced my interest towards the lessons	13	1.50	27	3.00	87	9.80	326	36.70	381	42.90	55	6.20	762	85.62

All items are on a six-point Likert scale with 1=strongly disagree, 2=disagree, 3=slightly disagree, 4=slightly agree, 5=agree, 6=strongly agree. Positive=Participants with positive responses (options 4–6).

Table 2: Summary of the participants' perceptions towards the implementers (QI).

	1		2		3		4		5		6		Positive	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
b1. The lecturer(s) had a good mastery of the curriculum	2	0.20	1	0.10	12	1.30	179	20.10	497	55.90	198	22.30	874	98.20
b2. The lecturer(s) was (were) well prepared for the classes	2	0.20	0	0	12	1.30	122	13.70	468	52.60	285	32.10	875	98.31
b3. The teaching skills of the lecturer(s) were good	3	0.30	2	0.20	21	2.40	174	19.60	484	54.40	206	23.10	864	97.08
b4. The lecturer(s) showed good professional attitudes	3	0.30	3	0.30	18	2.00	133	15.00	457	51.50	274	30.90	864	97.08
b5. The lecturer(s) was (were) very involved	2	0.20	1	0.10	11	1.20	116	13.00	461	51.90	298	33.50	875	98.31
b6. The lecturer(s) encouraged students to participate	2	0.20	1	0.10	8	0.90	138	15.50	476	53.60	263	29.60	877	98.54
b7. The lecturer(s) cared for the students	2	0.20	5	0.60	14	1.60	184	20.70	442	49.80	241	27.10	867	97.42
b8. The lecturer(s) was (were) ready to offer help	2	0.20	3	0.30	11	1.20	137	15.40	478	53.80	257	28.90	872	97.98
b9. The lecturer(s) had much interaction with the students	2	0.20	3	0.30	17	1.90	200	22.50	481	54.10	186	20.90	867	97.42
b10. I have very positive evaluation of the lecturer(s)	6	0.70	1	0.10	19	2.10	122	13.70	492	55.30	249	28.00	863	96.97

All items are on a six-point Likert scale with 1=strongly disagree, 2=disagree, 3=slightly disagree, 4=slightly agree, 5=agree, 6=strongly agree. Positive=Participants with positive responses (options 4–6).

5. The extent to which the students would recommend the course to their friends (d1) and the extent to which the students would join similar courses in the future (d2) with a six-point Likert-type scale.
6. There are four open-ended questions to explore further the learning experience from the students, including: (a) The important things that the students learned from the course; (b) Things that the students appreciated most; (c) Comments about the instructor and tutor; and (d) Areas for the course to improve.

However, only quantitative data based on the rating scale items were examined in this study.

Data analyses

All data analyses were performed by SPSS 21 (IBM SPSS Statistics, IBM Corp, Somers, NY). Descriptive statistics (frequencies and percentage values) were calculated. A composite measure of each sub-scale (i.e. perceptions of program, perceptions of instructors, perceived PE, and overall effectiveness) was created based on the total scores of each scale divided by the number of items. Pearson correlation analyses were performed to investigate whether PQ and instructor quality were related to the PE (Hypotheses 1a to 1c). Multiple regression analyses were conducted to examine how well each factor would predict PE (Hypotheses 2a and 2b) and to explore the predictors of overall satisfaction with the subject (Hypothesis 3).

Results

Research question 1: psychometric properties of the SOES

Correlation matrix showed that inter-item correlation coefficients of the 39 items (total items of PQ, QI and PE) were all above 0.30. In this sample, KMO value was 0.982, and the Bartlett's test was significant ($p<0.0001$), which suggested that factor analysis was appropriate for this sample. Principal factor analysis showed that three factors were extracted from the scale with eigenvalues above 1 (eigenvalue=21.192, 4.111, 1.359), accounting for 68.36% of the

Table 3: Summary of the participants' perceived effectiveness of the program (PE).

	1		2		3		4		5		6		Positive	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
c1. It has strengthened my resilience in adverse conditions	3	0.30	18	2.00	77	8.70	352	39.60	402	45.20	38	4.30	792	88.99
c2. It has enhanced my social competence	2	0.20	17	1.9	49	5.50	320	36.00	427	48.00	74	8.30	821	92.25
c3. It has improved my ability in expressing and handling my emotions	3	0.30	18	2.00	70	7.90	361	40.70	379	42.70	57	6.40	797	89.55
c4. It has enhanced my analytical ability	2	0.20	29	3.30	76	8.50	382	43.00	349	39.30	51	5.70	782	87.87
c5. It has enhanced my critical thinking	4	0.40	19	2.10	70	7.90	382	42.90	373	41.90	42	4.70	797	89.55
c6. It has strengthened my ability to distinguish between the good and the bad	4	0.40	18	2.00	71	8.00	380	42.70	370	41.60	47	5.30	797	89.55
c7. It has increased my competence in making sensible and wise choices	4	0.40	15	1.70	75	8.40	368	41.30	373	41.90	55	6.20	796	89.44
c8. It has helped me to have life reflections	4	0.40	13	1.50	36	4.00	262	29.50	427	48.00	147	16.50	836	93.93
c9. It has strengthened my self-confidence	6	0.70	19	2.10	86	9.70	378	42.50	357	40.20	43	4.80	778	87.42
c10. It has increased my self-awareness	3	0.30	14	1.60	46	5.20	312	35.10	440	49.40	75	8.40	827	92.92
c11. It has helped me to face the future with a positive attitude	4	0.50	14	1.60	61	6.90	321	36.10	414	46.60	74	8.30	809	90.90
c12. It has helped me to cultivate compassion and care about others	5	0.60	15	1.70	76	8.50	364	40.90	364	40.90	65	7.30	793	89.10
c13. It has strengthened my motivation to learn something new every day	5	0.60	23	2.60	85	9.60	376	42.20	343	38.50	58	6.50	777	87.30
c14. It has helped me to make ethical decision	3	0.30	15	1.70	48	5.40	335	37.70	420	47.30	67	7.50	822	92.36
c15. It has enhanced my desire for lifelong learning to improve leadership competence	5	0.60	21	2.40	80	9.00	355	39.90	359	40.40	69	7.80	783	87.98
c16. It has increased my ability to become an ethical leader	4	0.50	18	2.00	67	7.50	345	38.90	375	42.20	79	8.90	799	89.78
c17. The theories, research and concepts covered in the course have enabled me to understand the characteristics of successful leaders	4	0.40	14	1.60	49	5.50	290	32.60	441	49.60	91	10.20	822	92.36
c18. The theories, research and concepts covered in the course have helped me to understand the characteristics of successful leaders	4	0.40	13	1.50	42	4.70	298	33.50	452	50.80	80	9.00	830	93.26
c19. It has enabled me to understand the importance of interpersonal relationship in successful leadership	4	0.40	9	1.00	48	5.40	280	31.50	439	49.30	110	12.40	829	93.15
c20. It has promoted my sense of responsibility in serving the society	6	0.70	16	1.80	77	8.70	342	38.40	379	42.60	70	7.90	791	88.88
c21. It has enriched my overall development	6	0.70	14	1.60	48	5.40	310	34.90	423	47.60	87	9.80	820	92.13

All items are on a six-point Likert scale with 1=strongly disagree, 2=disagree, 3=slightly disagree, 4=slightly agree, 5=agree, 6=strongly agree. Positive=Participants with positive responses (options 4–6).

Table 4: Rotated factor structure of SOES.

Items	Component		
	1 (PE)	2 (QI)	3 (PQ)
a1			0.606
a2			0.631
a3			0.679
a4			0.643
a5			0.662
a6			0.645
a7			0.571
a8			0.559
b1		0.710	
b2		0.795	
b3		0.755	
b4		0.804	
b5		0.801	
b6		0.788	
b7		0.786	
b8		0.807	
b9		0.737	
b10		0.810	
c1	0.727		
c2	0.676		
c3	0.761		
c4	0.763		
c5	0.820		
c6	0.808		
c7	0.803		
c8	0.685		
c9	0.777		
c10	0.743		
c11	0.789		
c12	0.792		
c13	0.796		
c14	0.783		
c15	0.754		
c16	0.794		
c17	0.685		
c18	0.672		
c19	0.688		
c20	0.767		
c21	0.804		

Extraction method: principal component analysis. Rotation method: varimax with Kaiser normalization. a. Rotation converged in five interactions. a1–a8: items on perceived program qualities. b1–b10: items on perceived instructor qualities. c1–c21: items on perceived benefits. PE, Program effectiveness; QI, quality of instructor; PQ, program quality.

variance. The first factor (PE) explained 54.34% of the total variance; second factor (QI) explained 10.54% of the total variance; third factor (PQ) explained 3.49% of the total variance. Table 4 shows the rotated factor structure of the scale.

In Table 5, reliability analyses showed that SOES was internally consistent: eight items related to the program (α=0.92), 10 items related to the implementer (α=0.95), 21 items related to the benefits (α=0.98), the total 39 items measuring PE (α=0.98), and the three items assessed overall satisfaction of students on this program (α=0.88).

Research question 2: students' satisfaction with the subject, instructors and benefits

From Tables 1–3, 6, 7 results showed that most of the students were satisfied with the subject, instructors and benefits. In terms of PQ, 94.8% agreed that the objective of the curriculum was very clear, 96.4% appreciated the well-designed activities, and 95.1% enjoyed the peer interaction among students. In terms of QI, 98.31% thought that the lecturer and tutor were very involved, 98.54% thought that they were encouraged by the lecturer and tutor. In terms of PE, 93.93% agreed that the course helped them with life reflections, 92.92% agreed that it strengthened their self-awareness, 93.26% thought that the theories, research and concepts covered in the course had enabled them to understand the characteristics of a successful leader, 92.13% thought that it was effective at promoting holistic development.

Besides, 77.30% of the students would recommend this course to their friends, suggesting that many of them were satisfied with what they had learnt from "Tomorrow's Leaders", and they wanted to share the information with their friends. In addition, 55.28% of the students would consider taking similar courses, with many students were looking forward to join an advanced level leadership course (i.e. "Service Learning", "Service Leadership") to apply the theories and knowledge of leadership and holistic personal development through practices in the community.

Research question 3: inter-relationships amongst different aspects of SEOS

Table 8 shows that PQ and QI were strongly related ($r=0.70$; $p<0.01$). Total effectiveness was strongly related with PQ ($r=0.89$; $p<0.01$), QI ($r=0.77$; $p<0.01$) and PE ($r=0.95$; $p<0.01$). These findings gave support to Hypotheses 1a to 1c.

Research question 4: prediction of perceived benefits by perceived program and instructor qualities

Table 8 also shows that both PQ ($r=0.76$; $p<0.01$) and QI ($r=0.55$; $p<0.01$) were both strongly associated with

Table 5: Means, standard deviations, Cronbach's α, and means of inter-item correlations of each subscale.

	Mean	SD	Cronbach's α	Mean inter-item correlations
1. Program quality (PQ: 8 items)	4.63	0.66	0.92	0.60
2. Quality of instructor (QI: 10 items)	5.06	0.63	0.95	0.67
3. Program effectiveness (PE: 21 items)	4.49	0.69	0.98	0.66
4. Total effectiveness (39 items)	4.68	0.59	0.98	0.51
5. Overall satisfaction (3 items)	4.46	0.84	0.88	0.71

Table 6: Summary of the participants' perceptions towards the program.

	1		2		3		4		5		6		Positive	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
a9. I have very positive evaluation of the program	5	0.60	21	2.40	54	6.10	267	30.30	445	50.50	90	10.20	802	90.11
a10. I like this curriculum very much	11	1.30	39	4.7	70	8.40	302	36.10	353	42.20	61	7.30	716	80.45
e1. Overall, are you satisfied with this course?	10	1.10	23	2.60	44	5.00	409	46.10	310	34.90	92	10.40	811	91.12

All items are on a six-point Likert scale with 1=strongly disagree, 2=disagree, 3=slightly disagree, 4=slightly agree, 5=agree, 6=strongly agree. Item 3 (i.e. e1) is on a six-point Likert scale with 1=very dissatisfied, 2=moderately dissatisfied, 3=dissatisfied, 4=satisfied, 5=moderately satisfied, 6=very satisfied. Positive=Participants with positive responses (options 4–6).

Table 7: Other aspects of subjective outcome evaluation.

d1. Will you suggest your friends to take this course?									
1		2		3		4		Positive	
Definitely will not suggest		Will not suggest		Will suggest		Definitely will suggest		Participants with positive responses (options 3–4)	
n	%	n	%	n	%	n	%	n	%
47	5.30	151	17.00	546	61.60	142	16.00	688	77.30
d2. Will you participate in similar courses again in the future?									
1		2		3		4		Positive	
Definitely will not participate		Will not participate		Will participate		Definitely will participate		Participants with positive responses (options 3–4)	
n	%	n	%	n	%	n	%	n	%
102	11.50	294	33.00	433	48.80	59	6.60	492	55.28

Table 8: Correlation coefficients among the subscales.

Variable	1	2	3
1. Program Quality (8 items)	–	–	–
2. Quality of Instructor (10 items)	0.70[a]	–	–
3. Program Effectiveness (21 items)	0.76[a]	0.55[a]	–
4. Total Effectiveness (39 items)	0.89[a]	0.77[a]	0.95[a]

[a]$p<0.01$.

Table 9: Multiple regression analyses predicting program effectiveness.

	Predictors		Model	
	1. Program quality	2. Quality of instructor		
Program effectiveness	β[a]	β[a]	R	R_2
	0.74[b]	0.04[c]	0.76	0.58

[a]Standardized coefficients, [b]$p<0.01$, [c]Sig.=0.227.

PE. Table 9 shows that only PQ can significantly predict (β=0.74; p<0.00) PE, while QI had no significant prediction (β=0.04; non-significant) towards PE. Therefore, only Hypothesis 2a was supported.

Research question 5: prediction of overall satisfaction by perceived program and instructor attributes and perceived benefits

Results of the multiple regression analyses (Table 10) showed that all factors had significant effects on the overall satisfaction toward the program. Higher level of perceived PQ (β=0.50; p<0.00), QI (β=0.06; p<0.05) and PE (β=0.36; p<0.00) predicted higher overall satisfaction toward the program. The model explained 73% of the variance toward the prediction of students' overall satisfaction. Hypothesis 3 was supported.

Discussion

In this study, a 48-item scale was used to assess students' subjective perceptions of the program, instructors and effectiveness of the program. Several observations can be highlighted from the present findings. First, findings showed that the SOES possesses good psychometric properties. Factor analyses showed that the SOES has three major components – PQ, QI and PE, explaining 68.36% of the variance. Reliability analyses showed that the total scale and subscales based on PQ, QI and PE possessed good internal consistency. Besides, results of correlation coefficients showed that these three factors are internally correlated. The findings basically replicated our previous findings of the psychometric properties of the SOES [10]. It further reinforces the claim that SOES is a valid and reliable tool to examine the subjective learning outcome of "Tomorrow's Leaders" [6, 9, 10]. As there are few validated measures of subjective outcome evaluation in different Chinese contexts [9, 10], this study contributes to the Chinese scientific literature.

Table 10: Multiple regression analyses predicting overall satisfaction.

	Predictors			Model	
	Program quality	Quality of instructor	Program effectiveness		
Overall satisfaction	β[a] 0.50[b]	β[a] 0.06[c]	β[a] 0.36[b]	R 0.85	R_2 0.73

[a]Standardized coefficients, [b]p<0.01, [c]p<0.05.

Secondly, descriptive analyses of the positive percentage of the 44 closed question items showed some interesting findings. Most of the students enjoyed experiential learning (i.e. were fully engaged in class discussion, applied concepts and theories to life examples), and they appreciated the opportunity to reflect on their past, present and future life. These findings supported the objective outcome of the course, which attempted to help students develop their intrapersonal and interpersonal competencies in the context of classroom learning [5]. However, it is noteworthy that some students indicated that they would not take similar subjects again in future. It would be interesting to explore the reasons behind. Besides, it would be important to understand the origin of the negative responses.

Thirdly, the hypotheses of the study were generally supported. Correlation analyses showed that PQ, QI and PE were highly related to the total effectiveness of the program. To further demonstrate the positive relationship, multiple regression analyses showed that PQ, QI and PE could predict overall satisfaction by explaining 73% of the variance. These findings are generally consistent with the findings reported previously and they were also consistent with the hypotheses of the study. Theoretically speaking, as there are few models on the determinants of subjective outcomes in the Chinese context, this is a significant contribution to the literature.

There are several strengths of this study. First, a relatively large sample size (n=890) was used which could enhance generalizability of the research findings to other student populations. Second, as instructors encouraged the students to use reflective thinking and the identities of the students were anonymous, this might help the students to respond to the questionnaire in a non-threatening manner. Third, as there are few Chinese studies examining the determinants of subjective outcome evaluation in Chinese clients, the study is a welcome addition to the literature. Fourth, as there are few credit-bearing subjects attempting to promote intrapersonal and interpersonal competencies in university students and there are few related evaluation studies in the field, this is a valuable addition to the literature [12].

Nevertheless, there are some areas of improvement in this study. First, it is necessary to evaluate the overall learning benefits of the students in "Tomorrow's Leaders" by comparing the subjective outcomes with results collected from multiple evaluation approaches, such as objective outcome evaluation, process evaluation, focus groups and analysis of their reflective journals. To evaluate the effectiveness of the course "Tomorrow's Leaders" and how the course is connected with personal growth

of university students, three more questions should be addressed: (a) Have there been any positive changes in the students who took this course (which could presumably be answered by objective outcome evaluation, reflective journals)? (b) What happened during the program implementation process (which could presumably be answered by process evaluation)? (c) What are the subjective experiences of the program instructors (e.g. qualitative evaluation)? Secondly, as alternative responses (i.e. a few negative written comments) were noted, it would be helpful to conduct further studies to understand those responses. Despite these limitations, the present study provides strong support for the effectiveness of "Tomorrow's Leaders" as a newly-established course to promote holistic youth development in Hong Kong. The present findings are generally consistent with the evaluation findings reported previously [11, 13–18].

The findings also emphasize the need to develop holistic education for university students worldwide. For the knowledge on adolescent development, this study provides strong support that we should continue to support the transitions from adolescence to adulthood through the implementation of life education programs. The students can get benefits from the leadership subject through learning the theories and doing self-reflection on intrapersonal and interpersonal development. To provide further benefits for their career planning, research on the personal competencies required in the job market should be meaningful to reinforce the curriculum support for their holistic development. In view of the growing developmental and mental health issues in university students in the global context, the developed subject and the related evaluation findings are important.

For the curriculum design, through experiential learning and teacher-student interactions (i.e. case study, role play, and group presentation of real life examples), students can understand and apply theories of leadership and intrapersonal development to their life. The utilization of appropriate self-disclosure, self-reflection and connecting concepts and theories to life experience can help students develop a holistic set of life skills, including critical thinking, problem solving, effective communication and ethical leadership. Actually, these curriculum design strategies can also be used in other subjects.

For the teaching approach, instructor and tutor are working together to assist students in their personal reflection and exploration of a healthy and positive identity. They are not just teaching skills, but providing care and companionship to students who go through the transformations of adolescence to adulthood. It may be helpful for the educators to change their mindset when engaging adolescents in the university setting – we do not simply teach them to receive orders, but we cultivate them to develop self-leadership skills to become a responsible global citizen. For young people transit from secondary schools to universities, they need more care and attention so that the transition can be a smooth one.

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