The Service Leadership Behavior Scale: Norms and personal correlates

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Abstract

The shift from industrial society to service society calls for effective service leaders who can unite and motive people to work together effectively. However, valid scales assessing important leadership qualities required by service economy are rare. To fill this gap, three scales were developed based on the Service Leadership Theory to measure leadership qualities. The current study presents findings on the norms and personal correlates of the Service Leadership Behavior Scale using data collected from an online questionnaire administered to 4,486 students from eight University Grants Committee (UGC) funded universities in Hong Kong. As significant gender differences were found, two norms were developed separately for female and male participants. No significant influence of age on leadership behaviors was noted. For other personal correlates, students' grade point average (GPA), experience in leadership training, and experience of being a leader were associated with the leadership behavior scores, though the effect size was small. Limitations and implications of the present findings are discussed.

Keywords: Service leadership, leadership behavior, scale development, leadership education, norm construction

Introduction

The economic growth in the twenty-first century is shown by the transition from the manufacturing economy into service economy (1). This transition, characterized by the provision of service rather than goods, has transformed global economies on a massive scale. As service is essentially delivered through people to people, strong service leadership that helps people work together effectively has become the key to organization success.

The era of service economy calls for effective leaders. Growing leadership training programs in higher education sectors have been developed to improve university students' leadership qualities,

which can better prepare them for the challenges in the service economy. For example, supported by the Victor and William Fung Foundation, a leadership program entitled "Fung Service Leadership Initiative" was developed and launched in eight public universities funded by the University Grants Committee (UGC) in Hong Kong, aiming at nurturing students' development in leadership knowledge, attitude and behavior (2).

To improve program effectiveness, objective outcome evaluation is essential as it provides evidence of the program's contribution to students' leadership development and the knowledge base. However, scales specifically designed to measure leadership qualities required by service economy are rare. In the following sections, the "Fung Service Leadership Initiative" in Hong Kong and the development of the Service Leadership Behavior Scale are described.

Service leadership education and evaluation in Hong Kong

The economy of Hong Kong is very service-oriented (3). The share of the service sector has almost reached 93% of the Gross Domestic Product (GDP) in Hong Kong in 2007, and remained around that level in the recent decade (4). Chung has thoroughly discussed the contemporary service society in Hong Kong and proposed the Service Leadership Theory (5–7). According to Chung (8), service leadership is to "satisfy needs by consistently providing quality personal service to everyone one comes into contact with, including one's self, others, groups, communities, systems, and environments." Service Leadership Theory highlights three essential qualities underlying effective service leadership, which include competence, character and care. All of these three qualities are indispensable to effective leadership. In other words, a lack of any of the three fundamental characteristics may lead to ineffectiveness, dysfunction, and even the dark side of leadership (9).

The Service Leadership Theory serves as the cornerstone of the leadership education program of eight UGC-funded universities in Hong Kong. Supported by the Victor and William Fung Foundation, these universities have developed service

leadership education programs to enrich students' knowledge about service leadership, shape their attitude of being service leaders, and improve their leadership behavior in practice (2). For example, in The Hong Kong Polytechnic University (PolyU), education programs have been provided in different forms, including credit-bearing and non-credit-bearing courses, as well as short-term workshops (10). These programs have been carefully designed to help students improve the three fundamental service leadership qualities, namely competence, character and care. Previous studies have showed that students reported a high level of satisfaction towards the programs, and the programs were perceived to be effective (11–13).

Development of the Service Leadership Behavior Scale (SLBS)

Many leadership theories have focused on behavior of leaders (14). A number of leadership models have been developed in the postindustrial era to understand the role of leadership behavior in employees' engagement and organization effectiveness (15). Recent leadership literature has increasingly moved the focus from highlighting leaders' competences (e.g., charismatic leadership) towards an emphasis on shared, ethical, people-centered leadership styles (16,17). For example, servant leadership highlights the personal growth of followers (16). Ethical leadership focus on normatively appropriate conduct demonstrated by leaders (17).

The above-mentioned models capture many key elements of leadership skills and behaviors, but are not sufficient to measure service leadership behavior in specific cultural contexts. First, most models solely measure leadership competences, and only a few theories specifically focus on leaders' character and care. However, almost none of these theories has considered competence, character and care the three indispensable elements of effective service leadership (18). In other words, a model integrating these three leadership qualities required by service economy is missing. Second, though it is widely agreed that culture and local contexts are important to leadership research, assessment tools of leadership behavior seldom take cultural contexts into accounts. As Tsui

advocated, to develop contextual measurement to deepen leadership research in China is "not only desirable, but essential" (19).

To fill the above gaps, the research team at The Hong Kong Polytechnic University (PolyU) designed a long-form Service Leadership Behavior Scale (SLB-LF-97) guided by the Service Leadership Theory. The SLB-LF-97 contains 97 items, aiming to measure the behavioral characteristics of a service leader (20). The initial validation of SLB-LF-97 was conducted in a study involving 231 PolyU undergraduate students as part of the "Development and validation of measures based on the Service Leadership Model" project. The reliability of the SLB-LF-97 was excellent ($\alpha = 0.97$). Exploratory factor analysis (EFA) suggested the removal of 32 items with multiple or low loadings. A short-form of the Service Leadership Behavior Scale (SLB-SF-65) containing 65 items was formed. The results of the initial validation of the SLB-LF-97 were reported in another article prepared by Shek, Ma and Lin in this special issue. Generally speaking, the refined scale (i.e., SLB-SF-65) reflected good internal consistency and convergent validity. The SLB-SF-65 was further validated in a large-scale project, which resulted in the final version of the scale including 38 items (SLB-SF-38). Details can be seen in another paper prepared by Shek and Ma in this special issue as well as in the User Manual.

Norms and correlates of the Service Leadership Behavior Scale

The present study aims to provide norm data of the Service Leadership Behavior Scale to better interpret students' leadership behavior scores. Besides, potential personal correlates between gender, age, academic achievement, experience in leadership training, experience of being a leader and students' service leadership behavior scores were examined.

Norm data of a scale provide the necessary frame of reference to aid test administrators, educators and researchers to interpret the scores of individuals. For the test data that are normally distributed, standardized scores are commonly used to represent an individual's performance level (21). For the non-normative sample, percentile rank is often used as an alternative option. Compared with standardized score,

percentile rank provides the ranking position of individual's score among the population, and directly shows the intrinsic meaning which the standardized scores do not (22). The norms can consist the tables including all percentile ranks for each raw score, or only including some landmark percentiles and the corresponding raw scores (22). The norms are useful source that help improve the effectiveness of leadership educational programs. On the one hand, identifying the benchmarks of behavior performance for different populations helps better design these programs for populations with specific needs. On the other hand, changes in percentile rank for an individual can be tracked, implying that the effectiveness of the leadership program at the individual level can be evaluated.

As the norm data may differ among populations, gender and age are two important demographic characteristics that were taken into account in the present study. Several reviews have thoroughly discussed gender difference in leadership styles and behaviors (23-25). For example, Mandell and Pherwani (24) examined gender difference in emotional intelligence and transformational leadership style. The results suggested that female leaders managed their own and others' emotions better than their counterparts did. In addition, using 40 data sets drawn from 28 studies in research of gender and instructional leadership, Hallinger and his colleagues (23) concluded that compared with male principals, female principals tented to engage in more active instructional leadership. However, gender difference in leadership behavior remains inconclusive. For example, Oshabemi and Gill (25) collected data from leaders in UK and found no significant gender difference in leadership styles.

Despite the different results drawn from statistical comparison, many studies have suggested that female leadership are often characterized by strong interactive, transformational and cooperative management. Rosener (26) pointed out that women tended to adopt a transformational style through providing care to others. This argument was supported by Carless (27), who argued that women were naturally socialized towards skills in participative leadership, collaborative group management, and quality interpersonal relations. Therefore, in the present study, we hypothesized that female participants' service leadership

behavior scores would be higher than those of male participants (Hypothesis 1). As to age, some studies have suggested that the elder leaders may present stronger leadership as both their leadership experience and social relationship would be developed as time goes on (28), though the associations were often found to be weak (29). In addition, given that the participants were all university students in this study, the variation in age was small. Therefore, we included age as a demographic characteristic in the analysis, but did not anticipate that age would significantly influence service leadership behavior scores.

The present study also took participants' academic achievement, experience of receiving leadership training and experience of being a leader into account. Grade Point Average (GPA) has been commonly used to define participants' academic achievement. Though the direct relationship between university students' GPA and their leadership remains unclear (30), many studies have revealed that GPA is closely related to some important abilities that can strongly predict leadership. For example, Kellett, Humphrey and Sleeth (31) found that GPA was a strong predictor to complex task choice, and these two factors showed a combined positive influence on leadership perceptions. In addition, studies in the Chinese context also observed similar correlations (32). As such, we hypothesized that there would be a positive correlation between GPA and leadership behavior scores (Hypothesis 2).

As to the potential correlation between leadership training experience and behavior, research has highlighted the benefits of service and experiential learning to students' leadership development (33). Many leadership programs often provide a variety of activities to construct the connection between students' own experience and reflection, which can effectively engage students in the learning process. We hypothesized that leadership training experience would be positively related to students' service leadership behavior (Hypothesis 3).

Regarding the experience of being a leader, it is argued that students with relevant experience may have a deeper understanding of how to lead, motivate, unite, and serve others (28). Therefore, we hypothesized that the experience of being a leader would show positive correlation with service leadership behavior (Hypothesis 4).

Methods

The data were collected from an online questionnaire administered to undergraduate students from eight UGC-funded universities in Hong Kong in March 2017, which included The Hong Kong Polytechnic University (PolyU), The Chinese University of Hong Kong (CUHK), The Education University of Hong Kong (EdUHK), Hong Kong Baptist University (HKBU), City University of Hong Kong (CityU), Lingnan University (LU), The University of Hong Kong (HKU), and The Hong Kong University of Science and Technology (HKUST). The research team in PolyU developed the questionnaire and set up the online survey. The local researchers in each university distributed the link to students. The participants were informed of the purpose of the study, and were assured that the data would be analyzed anonymously, and all information would be kept confidential. In addition, they were encouraged to response honestly based on their knowledge and impression about themselves. Each participant received a supermarket voucher of HK$100 as a token of appreciation for completing the survey.

Data collection lasted for around four months from March till June 2017. A total of 4,555 partici-pants completed the survey. Sixty-nine responses were excluded from the following analyses due to a denial of consent form, duplicated responses, and the responses completed by non-targeted group (e.g. graduates). After removing the invalid responses, the final sample consisted of 4,486 participants, including 2,969 females (66.2%) and 1,517 males (33.8%). The age of the participants ranged from 15 to 34 years old ($M = 20.47$, $SD = 1.67$). The demographic characteristics of the participants are showed in Table 1.

Measures

Based on the literature on the service leadership, the Service Leadership Behavior Scale was developed to measure the extent to which the participants demonstrate behaviors that are representative of a service leader. The SLB-SF-65 was measured on a 6-point Likert scale (1 = strongly disagree; 2 = disagree; 3 = slightly disagree; 4 = slightly agree;

5 = agree; 6 = strongly agree). Some sample items include: "I constantly seek to improve my personality," "I strive to take care of other people regardless of their positions", "when there is a problem, I can solve it quickly", and "I am able to develop positive relationships with my friends."

Table 1. Demographic characteristics of the participants

University	PolyU	CUHK	EdUHK	HKBU	CityU	LU	HKU	HKUST	Total
Participants (n/%)	1000/22.29	505/11.26	500/11.15	517/11.52	464/10.34	500/11.15	500/11.15	500/11.15	4486/100
Age Range	18-27	17-29	17-34	15-28	18-34	18-29	17-28	16-28	15-34
Age (Mean/SD)	20.46/1.65	20.08/1.55	21.05/1.75	20.79/1.67	20.63/1.77	20.54/1.55	20.38/1.67	19.85/1.50	20.47/1.67
15-19 (*n*/%)	297/29.70	193/38.22	95/19.00	117/22.63	112/24.14	133/26.60	173/34.60	224/44.80	1,344/29.96
≥ 20 (*n*/%)	703/70.30	312/61.78	405/81.00	400/77.37	352/75.86	367/73.40	327/65.40	276/55.2	3,142/70.04
Males (*n*/%)	409/40.90	130/25.74	98/19.60	122/23.60	128/27.59	148/29.60	151/30.20	331/66.20	1,517/33.82
Females (*n*/%)	591/59.10	375/74.26	402/80.40	395/76.40	336/72.41	352/70.40	349/69.80	169/33.80	2,969/66.18

Note. PolyU = The Hong Kong Polytechnic University; CUHK = The Chinese University of Hong Kong; EdUHK = The Education University of Hong Kong; HKBU = Hong Kong Baptist University; CityU = City University of Hong Kong; LU = Lingnan University; HKU = The University of Hong Kong; HKUST = Hong Kong University of Science and Technology.

In the large-scale validation study, the SLB-SF-65 was refined based on exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Two subsets were randomly generated from the entire dataset (*N subset A* = 2,246; *N subset B* = 2,240). EFA was conducted on subset A to examine the factorial structure of the SLB-SF-65 by applying the principal component analysis. A trimmed scale (SLB-SF-48) containing 48 items was formed. Six factors were extracted, including self-improvement and self-reflection, people and principles orientation, resilience, social competence, problem-solving and mentorship. Details of the formation of SLB-SF-48 based on the EFA can be found in another article prepared by Shek and Ma in this special issue. CFA was performed on subset B using maximum likelihood estimation to evaluate the factorial structure. After removing ten items reflecting unsatisfactory factor loadings, and allowing the residual covariance for three pairs of parameters, we observed a significant improvement in goodness-of-fit. The resultant 38-item scale (SLB-SF-38) reflected a good fit (CFI = .92; NNFI = .91; RMSEA = .055), which met the benchmarks suggested by Hu and Bentler (34). The SLB-SF-38 reflected the same factorial structure and labeling as the SLB-SF-48 did. In addition, the SLB-SF-38 showed good internal reliability (Cronbach Alpha = .96). The detailed information of CFA and indicators of the SLB-SF-38 are reported in another article submitted for the consideration of publication as well as in the User Manual. In the present study, the final data generated by CFA were used to develop norm tables and personal correlates.

Demographic characteristics and personal correlates

Age and gender were two important demographics included in this study. In addition, students' academic achievement, experiences of participating leadership training program, and being a leader were taken into account. Following previous research, we also used

GPA to represent participants' academic achievement. The GPA systems in eight universities were adjusted and the GPA scores were standardized. Students were asked to report their recent GPA (ranging from 0-4), whether they have ever participated any leadership course or program (0 = *No*, 1 = *Yes*), and whether they have served in any leadership position in any organization (0 = *No*, 1 = *Yes*).

Data analyses

We performed multiple regression analyses to examine the influence of gender and age on participants' behavior scores with SPSS version 23. If the behavior scores were significantly predicted by gender, separate percentiles norms should be provided for female and male groups.

Normality tests were conducted for selecting the way to present norms. If the sample was normatively distributed, both the standardized scores and the percentile norms would be presented. If the sample is non-normatively distributed, only the percentile norms would be provided.

When producing the norm data, we first presented the raw scores corresponding to the percentiles from 0 to 100. Second, the full tables presenting the percentiles for each raw score were provided. By doing so, the individual's score can be positioned precisely, which is useful for proper interpretation of the results. Crawford and colleagues (22) have suggested that though the behavior score is discrete, the underlying leadership ability is considered a continuous index. Thus, a given score *x* is actually a point estimate of the real valued behavior ability ranging from *x* - 0.5 (inclusive) to *x* + 0.5 (exclusive). In other words, given that the population distribution is unknown, the best estimation would be that the ability of half of the participants scoring *x* is actually below *x* and half above (22). Thus, we followed Crawford et.al' suggestion on the definition of a percentile rank: the percentage of scores that fall below the score of interest and half of those obtaining the score of interest (22). The calculation formula is showed as follows:

$$\text{Percentile rank} = \left(\frac{m + .5\, k}{N} \right) \times 100$$

In this formula, *m* refers to the number of participants scoring below a given raw score, *k* represents the number of participants that obtain a given raw score, and *N* means the entire normative sample size. The percentile ranks were calculated and rounded to integer.

For GPA, experience of leadership training, and experience of being a leader, correlation analyses were applied to examine the potential relations between these factors and students' behavior scores with SPSS version 23.

Results

The results of multiple regression analyses suggested that students' behavior scores were significantly predicted by gender, though the effect size was small (β = .049, *p* < .001; Cohen's f^2 = .002). In particular, female students obtained higher behavior scores (*Mean* = 172.02, *SD* = 21.49) than male students did (*Mean* = 169.69, *SD* = 25.15). Hypothesis 1 was supported. The influence of age on behavior scores was not statistically significant.

Tests for normality were conducted separately on female and male groups. The results of Shapiro-Wilk's test indicated that the distribution of behavior scores was non-normative for both female and male groups (*p* < .001) (35). Field has suggested that the Shapiro-Wilk's test for large samples can be significant though the scores are only slightly different from a normal distribution (35). Therefore, we also checked the histograms and the values of skew and kurtosis. The histograms showed a left-skewed and leptokurtic distribution for both female and male groups. In particular, the behavior scores yielded a skewness of -0.78 for male participants (*SE* = .06, *z*-value = -12.37, *p* < .001) and a skewness of -0.54 for female participants (*SE* = .04, *z*-value = −11.99, *p* <.001). In terms of kurtosis, the results showed a peaked distribution with positive kurtosis for both male (kurtosis = 2.23, *SE* = .13, *z*-value = 17.79, *p* < .001) and female groups (kurtosis = 1.76, *SE* = .09, *z*-value = −19.61, *p* < .001) (35). According to the results of multiple regression and normality tests, we presented separate percentile norms for male and female participants (see Table 2 and Table 3).

Table 2. Percentiles and corresponding raw scores of Service Leadership Behavior Scale (SLB-SF-38) by gender

Percentile (1-50)	Raw Score			Percentile (51-99)	Raw Score		
	Male (N = 1,517)	Female (N = 2,969)	Total Sample (N = 4,486)		Male (N = 1,517)	Female (N = 2,969)	Total Sample (N = 4,486)
1	≤ 94.36	≤ 112.70	≤ 107.00	51	173.00	174.00	174.00
2	112.36	123.00	119.74	52	173.00	175.00	174.00
3	121.00	131.00	128.00	53	174.00	175.00	175.00
4	126.00	135.00	131.00	54	175.00	176.00	175.00
5	129.00	137.00	134.00	55	175.00	176.00	176.00
6	131.00	139.00	136.00	56	176.00	177.00	177.00
7	133.00	142.00	138.00	57	177.00	177.00	177.00
8	135.00	143.00	141.00	58	177.00	178.00	178.00
9	137.00	145.00	142.00	59	178.00	178.00	178.00
10	139.00	146.00	144.00	60	178.00	179.00	179.00
11	141.00	147.00	145.00	61	179.00	179.00	179.00
12	142.00	148.00	146.00	62	180.00	180.00	180.00
13	143.00	149.00	147.00	63	180.34	180.00	180.00
14	144.00	150.00	148.00	64	181.00	181.00	181.00
15	146.00	151.00	149.00	65	182.00	181.00	181.00
16	147.00	152.00	150.00	66	182.00	182.00	182.00
17	148.00	152.00	151.00	67	183.00	182.00	183.00
18	149.00	152.60	152.00	68	183.00	183.00	183.00
19	150.00	154.00	152.00	69	184.00	183.00	183.00
20	151.00	154.00	153.00	70	184.00	184.00	184.00
21	152.00	155.00	154.00	71	185.00	184.00	185.00
22	152.00	156.00	154.00	72	186.00	185.00	185.00
23	152.00	156.00	155.00	73	186.00	185.00	186.00
24	153.00	157.00	156.00	74	187.00	186.00	186.00
25	154.00	158.00	157.00	75	188.00	186.00	187.00
26	155.00	159.00	157.00	76	188.00	187.00	187.00
27	155.00	160.00	158.00	77	189.00	187.00	188.00
28	156.00	160.00	159.00	78	190.00	188.00	188.00
29	157.00	161.00	160.00	79	190.00	188.00	189.00
30	158.00	162.00	160.10	80	190.00	189.00	189.00
31	158.00	162.70	161.00	81	190.00	189.00	190.00
32	159.00	163.00	162.00	82	191.00	190.00	190.00
33	160.00	164.00	163.00	83	191.00	190.00	191.00
34	161.00	165.00	163.00	84	192.00	191.00	191.00
35	162.00	165.00	164.00	85	193.00	191.50	192.00
36	162.00	166.00	165.00	86	194.00	192.00	193.00
37	163.00	167.00	165.00	87	195.00	193.00	194.00
38	164.00	167.00	166.00	88	196.00	194.00	195.00
39	164.00	168.00	167.00	89	197.00	195.00	196.00
40	165.00	168.00	167.00	90	198.00	197.00	197.00
41	165.00	169.00	168.00	91	199.00	198.00	199.00
42	166.00	169.00	168.00	92	201.00	200.00	200.00
43	167.00	170.00	169.00	93	202.00	201.00	201.00
44	167.00	171.00	170.00	94	204.00	202.00	203.00
45	168.00	171.00	170.00	95	207.00	205.00	205.00
46	169.00	172.00	171.00	96	208.00	207.20	208.00
47	169.00	172.00	171.00	97	212.00	211.00	212.00
48	171.00	173.00	172.00	98	217.00	215.00	216.00
49	171.00	173.00	173.00	99	222.82	221.30	222.00
50	172.00	174.00	173.00	100	≥ 228.00	≥ 228.00	≥ 228.00

Table 3. Raw scores and corresponding percentiles of Service Leadership Behavior Scale (SLB-SF-38)

Raw Score	Percentiles			Raw Score	Percentiles		
	Male (*N* = 1,517)	Female (*N* = 2,969)	Total Sample (*N* = 4,486)		Male (*N* = 1,517)	Female (*N* = 2,969)	Total Sample (*N* = 4,486)
≤ 78	0.0	0.0	0.0	129	5.0	2.0	3.0
79	1.0	0.0	0.0	130	5.0	3.0	4.0
80	1.0	0.0	0.0	131	6.0	3.0	4.0
81	1.0	0.0	0.0	132	6.0	3.0	4.0
82	1.0	0.0	0.0	133	7.0	3.0	5.0
83	1.0	0.0	0.0	134	7.0	4.0	5.0
84	1.0	0.0	0.0	135	8.0	4.0	5.0
85	1.0	0.0	0.0	136	8.0	5.0	6.0
86	1.0	0.0	0.0	137	9.0	5.0	6.0
87	1.0	0.0	0.0	138	9.0	5.0	7.0
88	1.0	0.0	0.0	139	10.0	6.0	7.0
89	1.0	0.0	0.0	140	10.0	6.0	8.0
90	1.0	0.0	0.0	141	11.0	7.0	8.0
91	1.0	0.0	0.0	142	12.0	7.0	9.0
92	1.0	0.0	0.0	143	13.0	8.0	9.0
93	1.0	0.0	1.0	144	14.0	8.0	10.0
94	1.0	0.0	1.0	145	14.0	9.0	11.0
95	1.0	0.0	1.0	146	15.0	10.0	12.0
96	1.0	0.0	1.0	147	16.0	11.0	13.0
97	1.0	0.0	1.0	148	17.0	12.0	14.0
98	1.0	0.0	1.0	149	18.0	13.0	15.0
99	1.0	0.0	1.0	150	19.0	14.0	16.0
100	1.0	0.0	1.0	151	20.0	15.0	17.0
101	1.0	0.0	1.0	152	22.0	17.0	19.0
102	1.0	0.0	1.0	153	24.0	18.0	20.0
103	1.0	1.0	1.0	154	25.0	20.0	22.0
104	1.0	1.0	1.0	155	26.0	21.0	23.0
105	1.0	1.0	1.0	156	28.0	22.0	24.0
106	1.0	1.0	1.0	157	29.0	24.0	25.0
107	1.0	1.0	1.0	158	30.0	25.0	27.0
108	2.0	1.0	1.0	159	32.0	26.0	28.0
109	2.0	1.0	1.0	160	33.0	27.0	29.0
110	2.0	1.0	1.0	161	34.0	29.0	31.0
111	2.0	1.0	1.0	162	35.0	30.0	32.0
112	2.0	1.0	1.0	163	37.0	32.0	34.0
113	2.0	1.0	1.0	164	38.0	33.0	35.0
114	2.0	1.0	1.0	165	40.0	35.0	37.0
115	2.0	1.0	2.0	166	42.0	36.0	38.0
116	2.0	1.0	2.0	167	44.0	38.0	40.0
117	2.0	1.0	2.0	168	45.0	39.0	41.0
118	2.0	1.0	2.0	169	46.0	41.0	43.0
119	3.0	1.0	2.0	170	47.0	43.0	45.0
120	3.0	2.0	2.0	171	49.0	45.0	46.0
121	3.0	2.0	2.0	172	50.0	47.0	48.0
122	3.0	2.0	2.0	173	52.0	49.0	50.0
123	3.0	2.0	2.0	174	53.0	51.0	51.0
124	4.0	2.0	3.0	175	55.0	53.0	53.0
125	4.0	2.0	3.0	176	56.0	55.0	55.0
126	4.0	2.0	3.0	177	58.0	57.0	57.0
127	4.0	2.0	3.0	178	59.0	59.0	59.0
128	4.0	2.0	3.0	179	61.0	61.0	61.0

Raw Score	Percentiles		
	Male (N = 1,517)	Female (N = 2,969)	Total Sample (N = 4,486)
182	66.0	66.0	66.0
183	67.0	68.0	68.0
184	69.0	70.0	70.0
185	71.0	72.0	72.0
186	73.0	74.0	74.0
187	74.0	76.0	76.0
188	76.0	78.0	77.0
189	77.0	80.0	79.0
190	80.0	82.0	82.0
191	83.0	84.0	84.0
192	84.0	86.0	85.0
193	85.0	87.0	86.0
194	86.0	88.0	87.0
195	87.0	89.0	88.0
196	88.0	89.0	89.0
197	89.0	90.0	90.0
198	90.0	91.0	91.0
199	91.0	92.0	91.0
200	92.0	92.0	92.0
201	92.0	93.0	93.0
202	93.0	94.0	93.0
203	94.0	94.0	94.0
204	94.0	95.0	95.0
205	94.0	95.0	95.0
206	95.0	96.0	95.0
207	95.0	96.0	96.0
208	96.0	96.0	96.0
209	96.0	96.0	96.0
210	96.0	97.0	97.0
211	97.0	97.0	97.0
212	97.0	97.0	97.0
213	97.0	97.0	97.0
214	97.0	98.0	98.0
215	98.0	98.0	98.0
216	98.0	98.0	98.0
217	98.0	98.0	98.0
218	98.0	99.0	98.0
219	98.0	99.0	99.0
220	99.0	99.0	99.0
221	99.0	99.0	99.0
222	99.0	99.0	99.0
223	99.0	99.0	99.0
224	99.0	99.0	99.0
225	99.0	99.0	99.0
226	99.0	99.0	99.0
227	100.0	99.0	100.0
228	100.0	100.0	100.0

Personal correlates of Service Leadership Behavior Score

The results of correlation analysis suggested that the behavior scores were significantly correlated with GPA ($r = .10$, $p < .001$; $r^2 = .01$), experience of taking leadership course or training ($r = .13$, $p < .001$; $r^2 = .036$), and experience of being a leader ($r = .14$, $p < .001$; $r^2 = .028$). Students achieving higher GPA, having experience of taking leadership course or training or being a leader were likely to have a better understanding of service leadership behavior. The results supported Hypotheses 2, 3 and 4, though the effect size of the correlates was low.

Discussion

Using data collected through a survey carried out in eight UGC-funded universities in Hong Kong ($N = 4,486$), the present study examined percentile norms and important correlates of the service leadership behavior scores. This study responded the call for valid assessment tool evaluating university students' leadership behavior in a Chinese context.

Results showed that female students achieved higher behavior scores than male students did, which was in line with previous research (27,29). Though men are often perceived as having stronger leadership qualifications (36), females were found to perform better in building relationship with others, showing care and empathy, and leading in a transformational way. The development of service economy provides females more opportunities in professional development, which will improve gender equity in organizational leadership roles.

Our results also indicated that students who have attended leadership training course or have acted as a leader tended to perceive themselves having a higher level of leadership behavior. This implies the value of training programs in improving students' leadership, as the related training may enrich their knowledge and provide opportunities from them to reflect and practice leadership behavior. Similarly, acting as a leader directly provides specific task and contexts that students need to make decisions, coordinate, solve problems, and handle conflicts, which will reinforce their leadership development. In addition, students'

GPA was also positively correlated with their leadership behavior scores. As GPA has been often used as an indicator of cognitive ability, students achieving high GPA may know how to choose learning strategies and possess the ability to work well with others in group projects, which will facilitate their learning process in relation to leadership development.

There are several theoretical, methodological, and practical implications. As stated earlier, numerous programs have been developed to respond the call for training effective leaders in service economies. However, valid measurements are limited. This study tried to contribute to the literature by presenting the norms and correlates of service leadership scores. A main methodological strength of this study is the development and validation of a measurement based on large sample size and confirmatory factor analyses. The findings also clarify the conceptual dimensions underlying the concept of service leadership behavior, which include self-improvement and self-reflection, people and principles orientation, resilience, social competence, problem-solving and mentorship dimensions revealed by the scale. This study also provides some practical implications for practitioners. The gender difference in service leadership behavior scores implies that more efforts should be made to improve male students' leadership performance.

Although we believe that our study has an addition to the Service Leadership Theory literature and leadership program evaluation, some limitations should be noted. More research variables can be included in the analysis to better understand the leadership behavior scores and variance. For example, students' majors can have an influence on their service leadership behavior scores. It is possible that students majoring in helping professions, such as nursing, psychological counseling, education and social work, may possess a higher level of service leadership skills. As to the research sample, the present study was conducted solely in eight universities in Hong Kong, implying that some results may be difficult to be generalized to other contexts. For example, some idiosyncratic characteristics of Hong Kong, such as its long-standing service economy, can have an influence on the norm data. In addition, as one of our research aims was to evaluate leadership programs in higher education, only

university students were involved in our study. Special attention should be paid to this issue when using the Service Leadership Behavior Scale in other populations. Despite these limitations, the present study contributes to the current literature by providing norm data of Service Leadership Behavior Scale to evaluate individual's leadership behavior and monitor their improvements.

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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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