

# The Service Leadership Attitude Scale: Normative data and personal correlates in Chinese university students

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## Abstract

As there are few validated measures of service leadership in the Chinese contexts, there is a need to develop and validate scientific instruments to assess service leadership attitudes and beliefs of Hong Kong university students. The purpose of the present study was to present normative findings for the 46-item Service Leadership Attitude Scale (SLA-SF-46) and explore the potential personal correlates in a large university sample ( $N = 4,486$ ) recruited from eight universities in Hong Kong. Results showed that while female students scored significantly higher on the SLA-SF-46 compared to male students, no age-related differences were observed. Hence, separate norm tables for both gender groups were constructed. With regard to the potential personal correlates, students' grade point average (GPA), previous leadership training, and experiences of being a leader were all positively correlated with their SLA-SF-46 scores, although the effect sizes were not large. The creation of the percentile norms helps educators and practitioners to understand the service leadership attributes of individuals.

**Keywords:** Service leadership, leadership attitude, leadership education, percentile norms, program evaluation

## Introduction

Hong Kong has experienced a drastic reform of the economic system from an industrial era to a post-industrial era since the 1970s. The service sector, represented by traditional key industrials (such as trading, tourism, and financial services) and emerging industries (such as medical services, education services, and creative industries), has replaced manufacturing and become the engine of economic development in Hong Kong. The core assets of the modern society are intangible human capitals (e.g., knowledge, intelligence, and skills) beyond tangible physical assets (e.g., the real estate or the machinery). Leadership, as a core determinant

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for the operation of contemporary business enterprises, has different meanings in every era and every society (1). For the traditional manufacturing economy, top-down and bureaucratic paradigms of leadership models are notably effective as they are product-oriented and task-focused. However, those paradigms are no longer well suited for the modern service-oriented and knowledge-based economy (2). As commented by Manville and Ober in the "Harvard Business Review," "we're in a knowledge economy, but our managerial and governance systems are stuck in the Industrial Era. It's time for a whole new model" (3). Unfortunately, we find very few explicit discussions of leadership models for the knowledge era with regard to Hong Kong. Against this background, Chung (4) advocated the notion of service leadership and refined the idea with the Service Leadership and Management (SLAM) model. According to him, service leadership "is about satisfying needs by consistently providing quality personal service to everyone one comes into contact with, including one's self, others, groups, communities, systems, and environments" (4).

Classic leadership models proposed that leaders shall possess specific genetic traits, which was much based on the belief that leaders are born and not made (5). In contrast, service leadership theory begins with the basic assumption that leadership could be learned and everyone can be a leader (6). Therefore, the call for leadership is for everyone. Particularly, for students in tertiary institutions, leadership development is viewed as one of the most prominent themes and objectives as they will become pillars of the society in the foreseeable future (7). Although there are leadership courses and programs targeting young people, several limitations merit attention. First, most of the existing leadership development programs in the business world are usually expensive and still aim for "elitists" solely (8). Second, only "hard" skills (such as knowledge and management skills) of a leader are emphasized in most leadership development programs (9), whereas "soft" skills (such as interpersonal and intrapersonal competences) are overlooked. Third, there is a lack of systematic evaluation of leadership training programs (9).

### *Service leadership education in Hong Kong*

Effective leadership courses or programs designed for university students are rare in Hong Kong. As such, with the theoretical groundwork of the Hong Kong Institute of Service Leadership and Management (HKI-SLAM) and financial support of the Victor and William Fung Foundation, the Fung Service Leadership Initiative was launched in 2012 and a series of service leadership projects were subsequently conducted in eight institutions that funded by the University Grants Committee (UGC). These projects included both credit-bearing subjects and non-credit bearing programs aiming to nurture leaders with the fundamental service leadership qualities, including competences, characters, and caring dispositions (4). To date, findings from many evaluation studies suggested that service leadership training had received favorable responses from different stakeholders. Taking The Hong Kong Polytechnic University (PolyU) as an example, participants indicated their satisfaction with the service leadership programs and showed great improvements in service leadership attributes (such as intrapersonal competences) based on multiple evaluation strategies (10-12).

One important dimension of leadership training is leadership attitudes and beliefs such as whether a leader believes the followers are changeable. It is not rare to measure leadership attitudes and beliefs with respect to a particular leadership model. For instance, Fleishman (13) developed the Leadership Opinion Questionnaire (LOQ) to assess leadership attitudes in the industry setting from the perspective of the Leadership Skills Model that mainly focused on the competences of leaders, such as problem-solving skills and social judgment skills. Wielkiewicz (14) also developed a Leadership Attitudes and Beliefs Scale (LABS) based on the assumption that leadership could be understood through organizational success rather than individual actions. Unfortunately, none of the extant leadership attitude scales is suitable for examining individuals' understanding of the service leadership theory. In contrast to these existing theories, Service Leadership theory adopts a more systematic and comprehensive approach. As service leadership training programs have been designed and organized in different institutions, it is imperative for

researchers and educators to have a standardized tool assessing service leadership attitude.

Under this premise, the Research Team at PolyU endeavored to develop and validate scales on service leadership knowledge, attitude, and behavior. With regard to the Service Leadership Attitude Scale (SLA), a 132-item long form (i.e., SLA-LF-132), was initially developed on the grounds of the SLAM framework (4) with relevant publications authored by Chung, Shek, and collaborators (15-17). The previous study demonstrated that SLA-LF-132 had good content validity (18). Results of an initial exploratory factor analysis (EFA) based on 200 sets of questionnaires suggested a 5-factor solution with 73 items (i.e., SLA-SF-73), which showed good reliability and significant correlation with the 50-item short-form Service Leadership Knowledge Scale (i.e., SLK-SF-50). Based on the SLA-SF-73, further EFA and confirmatory factor analysis (CFA) based on larger samples ( $N = 2,246$  and  $2,240$ , respectively) informed a finalized solution with 46 items (i.e., SLA-SF-46), which demonstrated good fit indices ( $CFI = 0.93$ ;  $NNFI = 0.92$ ;  $RMSEA = 0.041$ ). Results showed that the SLA-SF-46 covered dimensions of vision and competence, people orientation, caring disposition, ethical role model, social competence, self-understanding and reflection, positive view about human beings, and unchangeable and dark human nature. The findings are reported in a paper in this special issue. In the current study, all the results were based on the final version Service Leadership Attitude Scale (i.e., SLA-SF-46).

### *Normative data for the Service Leadership Attitude Scale*

Normative data for the Service Leadership Attitude Scale is fundamental to the development and implementation of the service leadership education. The use of normative data is common in psychological assessment. In the field of leadership study, there has been relatively little research concerning the norms of leadership (19), not to mention in different Chinese contexts. Accordingly, the development of normative data for SLA-SF-46 is an important addition to the literature. First, normative data provides a yardstick to measure, rank, and compare

individuals' level of service leadership attitudes and beliefs. Second, with the help of normative data, educators could detect students' current beliefs and blind spots on service leadership. Then targeted curriculum and teaching could be offered and developed. Third, a straightforward and convenient norm table provides a very useful research tool that could objectively assess program effectiveness.

The literature on normative data suggested different ways of explaining the means and standard deviations of raw scores (20). For normative distributions, standardized Z scores could be calculated for estimation. The normal curve could indicate the corresponding area with the given Z score. However, the distributions in real life are usually non-normal. In such situations, another alternative but complementary approach to describe normative data is percentile norms (21), which provides a full and concise picture of the correspondence between a raw score and its percentile rank. Furthermore, percentile norm is convenient to use, even for non-professionals. As such, the overarching objective of this paper was to provide the estimates of percentile ranks corresponding to raw scores on the SLA-SF-46.

### *Personal correlates of Service Leadership Attitude*

For sub-groups of a population, separate norms would be needed if they demonstrate notable differences. Gender and age were the principal demographic factors covered in the current study. Societies always have discrepant gender role expectations, which influence individuals' leadership attitudes and beliefs. Across cultures, females are still underrepresented in leadership positions in comparison to males (22). In previous literature, there was an incongruity in the association of gender and leadership attitude. According to Wielkiewicz et al. (23), a greater percentage of male first-year college students was located in the Low Hierarchical/Low Systemic category of leadership beliefs, which was associated with effective ecological leadership. Based on this finding, it was hypothesized that male college students in Hong Kong would possess a higher level of service leadership attitude than female college students (Hypothesis 1a). Nevertheless, multiple

empirical studies demonstrated that women leaders were better at emotional balance and control, more expressive, and cooperative than men (24, 25). Hence, it could also be assumed that female college students in Hong Kong would possess a higher level of service leadership attitude compared with male college students (Hypothesis 1b). The primary goal of this study was to test these two competing hypotheses, and preliminarily explore the gender differences issue in service leadership.

Although a body of research has tried to shed light on the age-related differences in leadership over the last decades, there is no solid conclusion (26). Existing findings on age-leadership linkages are scarce and contradictory. For example, Barbuto et al. (27) found that age positively predicted transformational leadership and individualized consideration. Other studies, in contrast, observed that older leaders demonstrated less mastery of teamwork knowledge (28), less delegating and considerate behaviors (29). Besides, other studies have reported non-significant relationships between leaders' age and their task-oriented behaviors (27, 30) or leadership styles (31). Considering the inconclusive findings of the relationship between age and leadership, and the narrow span in age for the targeted population (i.e., university students), we did not put up any specific hypothesis on the relationship between age and service leadership attitude.

Other personal factors were assumed to be associated with service leadership attitude in the current study, which included participants' grade point average (i.e., GPA), their leadership training experience, and the previous experience of being a leader. GPA has been regarded as a good predictor of the performance of solving complex tasks, which was closely associated with favorable leadership attributes (32). Besides, studies have observed that university students' GPA was positively correlated with their life-long learning attitude, self-rated leadership abilities, and disagreement with hierarchical leadership thinking (33). Therefore, the current study attempted to examine this GPA-leadership linkage and expected a positive correlation between participants' GPA and service leadership attitude (Hypothesis 2).

Multifarious leadership training programs in and out of campus are not uncommon for university

students. Empirical studies have investigated the benefits of such education efforts. According to a longitudinal study that assessed the outcomes of 31 leadership development programs in ten institutions in the United States (34), participation in leadership programs had a positive impact on college students' personal development, multi-cultural awareness, and values understanding ability. Although the philosophy and concepts of other leadership programs would not perfectly match service leadership theory, some could share the similar attitudes or beliefs. As inspired by previous studies, it was expected that one's leadership training experiences would be positively related to the service leadership attitude (Hypothesis 3).

Apart from the leadership training experiences, college students nowadays have abundant opportunities to serve as a leader. Qualitative findings showed that college students' practices in leadership roles brought about positive experiences in the aspects of skills-building and interacting personality (35). Accordingly, it was expected that being a leader previously would be positively associated with service leadership attitude (Hypothesis 4).

## **Methods**

An online survey was adopted in the present study. A total of 4,555 university students were recruited using snowball sampling from the eight UGC-funded universities in Hong Kong, including The Hong Kong Polytechnic University (PolyU), The University of Hong Kong (HKU), The Chinese University of Hong Kong (CUHK), Hong Kong Baptist University (HKBU), City University of Hong Kong (CityU), The Education University of Hong Kong (EdUHK), Lingnan University (LU), and Hong Kong University of Science and Technology (HKUST). Each institution recruited at least 500 full-time undergraduate students to complete the survey via the PolyU "mySurvey" online survey platform (<https://www.polyu.edu.hk/mysurvey/>).

Website link of the survey was provided for interested participants, where they were able to electronically sign a consent form before the survey started. Students were informed about the confidentiality of their responses and the rights to withdraw from this study at any time. Each participant

would be given \$HK100 as a token of appreciation upon completion of the survey. The online survey hosted at each university with links between March to June 2017. Among all the 4,555 respondents, six students were excluded as they declined to complete the questionnaire. In the next step, thirty-three cases who completed the questionnaire for multiple times were also removed. Other thirty more cases were deleted due to the ineligibility of participants (e.g., mismatching in the institution and the questionnaire version, as well as those postgraduate students who accidentally completed the questionnaire). In the end, the sample of this study consisted of 4,486 university students between the age of 15 and 34 years ( $M_{age} = 20.47$ ,  $SD_{age} = 1.67$ ), including 1,517 (33.82%) males and 2,969 (66.18%) females. Table 1 summarizes the socio-demographic characteristics of the participants.

**Table 1. Socio-demographic profiles of participants (N = 4486)**

	N (%)
Gender	
Male	1,517 (33.82%)
Female	2,969 (66.18%)
Age	
15-19 years	1,344 (29.96%)
20-24 years	3,070 (68.44%)
25-29 years	69 (1.54%)
30 years or above	3 (0.07%)
University	
PolyU	1,000 (22.29%)
CUHK	505 (11.26%)
EdUHK	500 (11.15%)
HKBU	517 (11.52%)
CityU	464 (10.34%)
LU	500 (11.15%)
HKU	500 (11.15%)
HKUST	500 (11.15%)

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.

### Instruments

The online survey consisted of demographics, the composite Service Leadership Scale, and several well-validated leadership or personality measurements (e.g., Leadership Efficacy Scale; Interpersonal Reactivity Index) (36-38) serving as external criteria. The composite Service Leadership Scales measured Service Leadership Attitude, Service Leadership Knowledge, and Service Leadership Behavior. This paper only focused on Service Leadership Attitude Scale and its potential personal correlates.

### Service Leadership Attitude Scale

The 46-item final version SLA-SF-46 was developed and validated by the first author of the current study (18) on the basis of the SLAM framework and relevant literature on service leadership theory (9,39). Details for the scale validation procedure shall be documented in another article in this special issue.

The scale aims to assess individuals' views and beliefs about the role of leader or desirable leadership practices/qualities. Scores for each item range from 1 (very dissimilar to me) to 6 (very similar to me). Eight subscales are incorporated in the SLA-SF-46, including vision and competence (10 items), people orientation (8 items), caring disposition (7 items), ethical role model (5 items), social competence (4 items), self-understanding and reflection (5 items), positive view about human beings (2 items), and unchangeable and dark human nature (5 items). A raw score of SLA is yielded by summing scores of all 46 items. The SLA-SF-46 was found to be internally consistent in this study ( $\alpha = .94$  for the full scale;  $\alpha = .70$  to  $.90$  for all subscales).

### Personal correlates

The demographic profile in the survey covered participants' age ( $M_{age} = 20.47$ ,  $SD = 1.67$ ) and gender (0 = Female, 1 = Male). Other potential correlates concerned their learning experiences in leadership-related courses/programs, leadership experience, and grade point average (GPA) in University. Specifically, participating students reported whether

they had ever taken any leadership (including but not limited to service leadership) course or program (0 = No, 1 = Yes), whether they had ever served in any leadership position in an organization (0 = No, 1 = Yes), and their recent GPA (ranged between 0 and 4 after standardization).

### Data analyses

All statistical analyses were performed using SPSS for Windows, version 23.0 (IBM-SPSS Inc, Chicago, Illinois, USA). First of all, to decide if there was a need to create separate SLA-SF-46 norms for different sub-groups, differences originated from gender and age were firstly assessed utilizing a multiple regression analysis.

Before creating the percentile norms, we ran normality tests to make sure whether SLA-SF-46 total scores were normally distributed or not. If the test scores of the sample are normally distributed, the raw scores should be standardized to *Z* scores based on the means and SDs. Then a parametric method (40) could be adopted to provide an interval estimate of the percentile rank. If not normally distributed, the interval cannot be estimated and only the percentiles for raw scores would be constructed.

To sketch the percentile norms, we listed all raw scores to each percentile from 1 to 100. Because of the granularity of raw scores, a given raw score could match more than one percentile. As suggested in the article of Crawford, Garthwaite, and Slick (20), in such situations, if the number of test items is modest, the user would be suggested to calculate the unique percentile rank for each raw score based on the standard formula (41): *Percentile Rank* =  $(m + 0.5k)/N \times 100$ . Among which, *m* stands for the number of individuals who scored lower than that specific raw score, *k* means the number of individuals who scored that specific raw score, while *N* indicates the total number of the norm sample. The calculated percentile ranks were then rounded to integers from 1st to 99th percentiles.

Last, correlational analyses were carried out to assess other potential correlates (i.e., training experience in leadership courses/programs; experiences of being a leader; and GPA).

## Results

Multiple regression analysis (Cohen's  $f^2 = .02$ ) showed that age did not significantly contribute to the variances of participants' SLA-SF-46 score ( $\beta = -.01$ ,  $p = .41$ ). Generally speaking, gender significantly predicted participants' SLA-SF-46 score ( $\beta = -.14$ ,  $p < .001$ ), with higher SLA-SF-46 total scores for female students ( $M = 217.29$ ,  $SD = 19.49$ ) compared with male students ( $M = 210.79$ ,  $SD = 24.07$ ). Univariate analysis showed gender differences for all dimensions of SLA, with female students obtaining higher scores than male students ( $F = 14.60 \sim 96.39$ ,  $ps < .001$ ,  $\eta^2 = .005 \sim .021$ ). Therefore, Hypothesis 1b was supported while Hypothesis 1a rejected. Separate norm tables were subsequently created for different genders.

The normality tests showed that the SLA-SF-46 scores for both female and male groups were negatively skewed with a skewness of  $-.67$  for females and  $-1.07$  for males, and a kurtosis of  $3.58$  for females and  $3.90$  for males. Kolmogorov-Smirnov tests confirmed that the distributions deviated highly significantly from a normal distribution ( $D = .071$  and  $.076$  respectively for female and male groups,  $ps < .001$ ). Hence, percentiles for raw scores, instead of standardized *Z* scores, were calculated due to the non-normalized distributions. The tabulation method was adopted to display the corresponding raw score for each percentile rank (Table 2). Meanwhile, another lookup table demonstrated the corresponding percentile for each raw score (Table 3). The normative data were stratified by gender as gender influenced SLA-SF-46 scores appreciably.

Correlational analyses showed that the participants' SLA-SF-46 scores were significantly correlated with their leadership training experience ( $r = .09$ ,  $p < .001$ ;  $r^2 = .008$ ), leadership position experience ( $r = .09$ ,  $p < .001$ ;  $r^2 = .008$ ), and GPA ( $r = .15$ ,  $p < .001$ ;  $r^2 = .02$ ). As such, Hypotheses 2 to 4 were all supported. However, the findings should be interpreted with caution, as the effect sizes were limited.

**Table 2. Percentiles and related raw scores for Service Leadership Attitude Scale (SLA-SF-46) 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	≤ 136.36	≤ 163.70	≤ 155.00	51	214.00	218.00	216.37
2	155.00	173.40	165.74	52	214.00	218.00	217.00
3	161.54	179.00	172.00	53	215.00	219.00	217.00
4	167.00	182.00	176.48	54	215.00	219.00	218.00
5	172.00	185.00	179.00	55	215.00	219.00	218.00
6	174.00	187.00	182.00	56	215.00	220.00	218.00
7	176.00	190.00	184.00	57	216.00	220.00	219.00
8	178.00	191.00	186.00	58	216.00	220.00	219.00
9	179.00	193.00	188.00	59	217.00	221.00	220.00
10	181.00	194.00	190.00	60	217.00	221.00	220.00
11	182.00	195.70	191.00	61	218.00	221.00	220.00
12	184.00	197.00	192.00	62	218.00	222.00	221.00
13	186.00	198.00	194.00	63	219.00	222.00	221.00
14	187.00	199.00	195.00	64	219.00	223.00	222.00
15	188.00	200.00	196.00	65	220.00	223.00	222.00
16	190.00	201.00	197.00	66	220.00	224.00	222.00
17	191.00	202.00	198.00	67	221.00	224.00	223.00
18	192.00	203.00	199.00	68	221.00	225.00	223.00
19	193.00	203.00	200.00	69	222.00	225.00	224.00
20	194.00	204.00	201.00	70	222.00	226.00	224.00
21	195.00	205.00	202.00	71	223.00	226.00	225.00
22	196.00	206.00	203.00	72	223.00	227.00	226.00
23	197.00	207.00	203.00	73	224.00	227.00	226.00
24	197.32	207.00	204.00	74	224.00	228.00	227.00
25	198.00	207.00	205.00	75	225.00	228.00	227.00
26	199.00	208.00	205.00	76	226.00	229.00	228.00
27	200.00	209.00	206.00	77	226.00	229.00	228.00
28	201.00	209.00	207.00	78	227.00	230.00	229.00
29	202.00	210.00	207.00	79	228.00	231.00	230.00
30	203.00	210.00	208.00	80	228.00	231.00	230.00
31	203.00	210.00	209.00	81	229.00	232.00	231.00
32	204.00	211.00	209.00	82	229.00	233.00	232.00
33	204.00	211.00	209.00	83	230.00	233.00	232.00
34	205.00	212.00	210.00	84	231.00	234.00	233.00
35	206.00	212.00	210.45	85	232.00	235.00	234.00
36	206.00	213.00	211.00	86	234.00	236.00	235.00
37	207.00	213.00	211.00	87	235.00	237.00	236.00
38	207.00	213.00	212.00	88	236.00	239.00	237.56
39	208.00	214.00	212.00	89	237.00	240.00	239.00
40	209.00	214.00	213.00	90	238.00	242.00	240.00
41	209.00	214.00	213.00	91	239.00	243.70	242.00
42	210.00	215.00	213.00	92	241.00	246.00	244.00
43	211.00	215.00	214.00	93	243.00	247.00	246.00
44	211.00	215.00	214.00	94	245.00	248.80	248.00
45	212.00	215.00	214.00	95	247.10	250.00	249.00
46	212.00	216.00	215.00	96	251.00	252.00	251.00
47	212.00	216.00	215.00	97	252.00	254.00	253.00
48	213.00	217.00	215.00	98	255.00	257.00	256.00
49	213.00	217.00	216.00	99	259.00	261.00	261.00
50	214.00	217.00	216.00	100	≥ 271.00	≥ 272.00	≥ 272.00

Table 3. Raw scores and related percentiles for Service Leadership Attitude Scale (SLA-SF-46)

Raw Score	Percentiles		
	Male (N = 1517)	Female (N = 2969)	Total Sample (N = 4486)
≤ 136	1.0	1.0	1.0
137	2.0	1.0	1.0
138	2.0	1.0	1.0
139	2.0	1.0	1.0
140	2.0	1.0	1.0
141	2.0	1.0	1.0
142	2.0	1.0	1.0
143	2.0	1.0	1.0
144	2.0	1.0	1.0
145	2.0	1.0	1.0
146	2.0	1.0	1.0
147	2.0	1.0	1.0
148	2.0	1.0	1.0
149	2.0	1.0	1.0
150	2.0	1.0	1.0
151	2.0	1.0	1.0
152	2.0	1.0	1.0
153	2.0	1.0	1.0
154	2.0	1.0	1.0
155	2.0	1.0	1.0
156	3.0	1.0	2.0
157	3.0	1.0	2.0
158	3.0	1.0	2.0
159	3.0	1.0	2.0
160	3.0	1.0	2.0
161	3.0	1.0	2.0
162	4.0	1.0	2.0
163	4.0	1.0	2.0
164	4.0	1.0	2.0
165	4.0	2.0	2.0
166	4.0	2.0	2.0
167	4.0	2.0	3.0
168	5.0	2.0	3.0
169	5.0	2.0	3.0
170	5.0	2.0	3.0
171	5.0	2.0	3.0
172	5.0	2.0	3.0
173	6.0	2.0	4.0
174	6.0	3.0	4.0
175	7.0	3.0	4.0
176	7.0	3.0	4.0
177	8.0	3.0	5.0
178	8.0	3.0	5.0
179	9.0	3.0	5.0
180	10.0	4.0	6.0
181	10.0	4.0	6.0
182	11.0	4.0	6.0
183	12.0	5.0	7.0
≤ 136	1.0	1.0	1.0
137	2.0	1.0	1.0

Raw Score	Percentiles		
	Male (N = 1517)	Female (N = 2969)	Total Sample (N = 4486)
138	2.0	1.0	1.0
139	2.0	1.0	1.0
140	2.0	1.0	1.0
141	2.0	1.0	1.0
142	2.0	1.0	1.0
143	2.0	1.0	1.0
144	2.0	1.0	1.0
145	2.0	1.0	1.0
146	2.0	1.0	1.0
147	2.0	1.0	1.0
148	2.0	1.0	1.0
149	2.0	1.0	1.0
150	2.0	1.0	1.0
151	2.0	1.0	1.0
152	2.0	1.0	1.0
153	2.0	1.0	1.0
154	2.0	1.0	1.0
155	2.0	1.0	1.0
156	3.0	1.0	2.0
157	3.0	1.0	2.0
158	3.0	1.0	2.0
159	3.0	1.0	2.0
160	3.0	1.0	2.0
161	3.0	1.0	2.0
162	4.0	1.0	2.0
163	4.0	1.0	2.0
164	4.0	1.0	2.0
165	4.0	2.0	2.0
166	4.0	2.0	2.0
167	4.0	2.0	3.0
168	5.0	2.0	3.0
169	5.0	2.0	3.0
170	5.0	2.0	3.0
171	5.0	2.0	3.0
172	5.0	2.0	3.0
173	6.0	2.0	4.0
174	6.0	3.0	4.0
175	7.0	3.0	4.0
176	7.0	3.0	4.0
177	8.0	3.0	5.0
178	8.0	3.0	5.0
179	9.0	3.0	5.0
180	10.0	4.0	6.0
181	10.0	4.0	6.0
182	11.0	4.0	6.0
183	12.0	5.0	7.0
184	12.0	5.0	7.0
185	13.0	5.0	8.0
186	13.0	6.0	8.0
187	14.0	6.0	9.0



Raw Score	Percentiles		
	Male ( <i>N</i> = 1517)	Female ( <i>N</i> = 2969)	Total Sample ( <i>N</i> = 4486)
188	15.0	7.0	9.0
189	16.0	7.0	10.0
190	16.0	7.0	10.0
191	17.0	8.0	11.0
192	18.0	9.0	12.0
193	19.0	9.0	13.0
194	20.0	10.0	13.0
195	21.0	11.0	14.0
196	22.0	11.0	15.0
197	24.0	12.0	16.0
198	25.0	13.0	17.0
199	26.0	14.0	18.0
200	27.0	15.0	19.0
201	28.0	16.0	20.0
202	29.0	17.0	21.0
203	31.0	19.0	23.0
204	33.0	20.0	24.0
205	34.0	21.0	26.0
206	36.0	22.0	27.0
207	38.0	24.0	29.0
208	39.0	26.0	30.0
209	41.0	28.0	32.0
210	42.0	30.0	35.0
211	44.0	33.0	37.0
212	46.0	35.0	39.0
213	49.0	37.0	41.0
214	51.0	40.0	44.0
215	55.0	44.0	47.0
216	58.0	47.0	50.0
217	60.0	49.0	53.0
218	62.0	52.0	55.0
219	64.0	54.0	58.0
220	66.0	57.0	60.0
221	68.0	60.0	63.0
222	70.0	63.0	65.0
223	72.0	65.0	68.0
224	74.0	67.0	70.0
225	75.0	69.0	71.0
226	77.0	71.0	73.0
227	78.0	73.0	75.0
228	80.0	75.0	77.0
229	82.0	77.0	78.0
230	83.0	78.0	80.0
231	84.0	80.0	81.0
232	85.0	81.0	83.0
233	86.0	83.0	84.0
234	86.0	84.0	85.0
235	87.0	85.0	86.0
236	88.0	86.0	87.0
237	89.0	87.0	88.0
238	90.0	88.0	88.0
239	91.0	88.0	89.0

Raw Score	Percentiles		
	Male ( <i>N</i> = 1517)	Female ( <i>N</i> = 2969)	Total Sample ( <i>N</i> = 4486)
240	92.0	89.0	90.0
241	92.0	90.0	91.0
242	93.0	90.0	91.0
243	93.0	91.0	92.0
244	94.0	91.0	92.0
245	94.0	92.0	93.0
246	95.0	92.0	93.0
247	95.0	93.0	94.0
248	96.0	94.0	94.0
249	96.0	94.0	95.0
250	96.0	95.0	96.0
251	96.0	96.0	96.0
252	97.0	96.0	97.0
253	98.0	97.0	97.0
254	98.0	97.0	98.0
255	98.0	98.0	98.0
256	99.0	98.0	98.0
257	99.0	98.0	99.0
258	99.0	99.0	99.0
259	99.0	99.0	99.0
260	99.0	99.0	99.0
261	99.0	99.0	99.0
262	99.0	99.0	99.0
263	99.0	99.0	99.0
264	99.0	99.0	99.0
265	99.0	99.0	99.0
266	99.0	99.0	99.0
267	99.0	99.0	99.0
268	99.0	99.0	99.0
269	99.0	99.0	99.0
270	99.0	99.0	99.0
271	100.0	99.0	100.0
272	100.0	100.0	100.0
273	100.0	100.0	100.0
274	100.0	100.0	100.0
275	100.0	100.0	100.0
276	100.0	100.0	100.0

## Discussion

To address the issue of evaluation and assess objective changes in attitudes and beliefs in Service Leadership education program, a validated measurement is indispensable. To fill this gap, the current study presents findings on the percentile norms and personal correlates of the Service Leadership Attitude Scale with a large university sample (*N* = 4,486) in a Chinese context. The constructed norms shall serve as a reference to rank and compare individuals' service leadership attitude among a particular population, as

well as a useful resource for educators and practitioners to detect the changes before and after receiving service leadership courses or programs.

The present study contributes to the future service leadership research and practices in two ways. First, a multi-institutional sample of Hong Kong university students helps to develop the normative profile, which can assist the interpretations of the raw scores. Second, the scale that originated from the SLAM framework provides some insight into the content of the service leadership theory.

Beyond the norms, the examination of individual differences and potential personal correlates broadens researchers and educational practitioners' understanding of university students' attitudes and beliefs towards service leadership. First, the current study revealed that female college students in Hong Kong possessed a higher level of service leadership attitude compared with male students. Although leadership has been traditionally viewed as a masculine activity (42), some studies have identified females' strengths being as leaders (23-25). One factor that contributes to gender differences in service leadership attitude owes to the features of service leaders. A service-oriented economy requires service leaders to be caring and interpersonal-oriented, which have been viewed as the unique features of femininity.

Second, no age-related difference was observed in the service leadership attitude, echoing prior scholars' arguments that non-significant relationship exists between leaders' age and their leadership behaviors (27,30). Meanwhile, leadership training experiences turned out to be positively associated with the service leadership attitude in the current study. The findings imply the importance of service leadership education that one's service leadership attitudes and beliefs could be acquired through training and learning.

Third, participants' service leadership attitude scores were positively associated with their GPA, leadership training experiences, and the experience of being a leader. These findings can be attributed to the fact that students with higher GPA usually perform better in solving cognitively complex tasks (32), which may promote their understanding of service leadership attitude. On the other hand, experiences of receiving leadership training and opportunities being a leader were believed to positively impact university

students' service leadership attitude. It is consistent with previous studies (43) that student leadership in universities creates positive impacts on building their skills and characters.

Although our study is pioneering in the field of leadership, it is not without limitations. First, the sample recruited in the current study was limited to Hong Kong university students. Hence, it restricts the generalizability of the findings to other populations or the same population in other regions. To follow up the pioneering work of this study, future research shall employ other heterogeneous populations to create corresponding norm tables, as well as test the possible personal correlates. To this end, the service leadership theory should be tested in various professions and industries. The second limitation pertains to the investigation of possible personal correlates. On the one hand, although the correlations were significant, the effect sizes were not large. A possible explanation for this might be the undetected intermediate effects, which should be further explored in future. Hence, future studies should take the possible correlates, such as students' majors and personalities, into account. Despite these limitations, this study constitutes a good progress for the area of service leadership measurement.

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## **Ethical compliance**

The authors have stated all possible conflicts of interest and 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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