

Development of Service Leadership Behavior Scale: Background and conceptual model

**Daniel TL Shek^{1-6,*}, PhD, FHKPS, BBS,
SBS, JP, Xiaoqin Zhu¹, PhD,
and Kin-Man Chan⁷, PhD**

¹Department of Applied Social Sciences, The Hong Kong Polytechnic University, Hong Kong, PR China

²Centre for Innovative Programmes for Adolescents and Families, The Hong Kong Polytechnic University, Hong Kong, PR China

³Department of Social Work, East China Normal University, Shanghai, PR China

⁴Kiang Wu Nursing College of Macau, Macau, PR China

⁵Hong Kong Institute of Service Leadership and Management Limited, Hong Kong, PR China

⁶Division of Adolescent Medicine, Department of Pediatrics, Kentucky Children's Hospital, University of Kentucky School of Medicine, Lexington, Kentucky, USA

⁷Department of Sociology, The Chinese University of Hong Kong, Hong Kong, PR China

Abstract

The growth of the service economy in the contemporary world calls for a shift in the requirement of leadership qualities as compared to the manufacturing economy. However, contemporary leadership approaches and associated leadership behavior scales fail to fully encompass the required leadership qualities in the service economy. To satisfy the emerging needs of service economy which is predominant in Hong Kong, the Service Leadership Model has been proposed by the Hong Kong Institute of Service Leadership and Management Limited. To objectively assess service leadership behavior, the Service Leadership Behavior Scale (SLB) was developed. This paper presents the background of the development of the Service Leadership Model, outlines its unique features as the theoretical foundation of the SLB, documents the content of the initial SLB (i.e., SLB-LF-97) regarding its four key domains, and summarizes the findings surrounding the validation studies on the SLB.

Keywords: Service leadership, leadership behavior, scale development, leadership model, leadership, scale validation

Introduction

Leadership has a long history as a universal human behavior that has evolved to solve adaptive challenges throughout history (1). In the contemporary world, leadership is still indispensable for almost every aspect of human life to function effectively in different areas, such as the economic, professional, military, religious, and political fields. Traditionally, leadership is conceived as a dynamic process in which a leader exerts influence on a group to work enthusiastically towards a collective goal (2,3). However, traditional leadership theories are no longer able to encapsulate the contemporary leadership needs due to the substantial change in economic structure over the world.

* **Correspondence:** Daniel TL Shek, PhD, FHKPS, BBS, SBS, JP, Associate Vice President (Undergraduate Programme), Chair Professor of Applied Social Sciences and Li and Fung Professor in Service Leadership Education, Department of Applied Social Sciences, The Hong Kong Polytechnic University, Hunghom, Hong Kong, PR China. E-mail: daniel.shek@polyu.edu.hk

During the past few decades, along with the growing globalization and technological innovation, the structure of global economy has transformed from an industrial to a postindustrial mode, which is characterized by the expansion of service industries and the shrinking of manufacturing industries (4). For example, from 2000 to 2016, the share of the services sector (e.g., trades, financial, personal services, etc.) in Gross Domestic Product (GDP) has increased from 64.9% to 69.3% in Japan, from 87.3 to 92.2 in Hong Kong, and from 39.8% to 51.6% in mainland China (5). The manufacturing economy makes tangible goods from tangible raw materials through standardized procedures, which involve little human interactions or employees' personal input. In such circumstance, leadership is usually task-oriented and the top-down leadership style with highly centralized decision-making and minimal empowerment of followers appears to be adaptive due to its high standardization in mass production process (6). In contrast, the service economy produces intangible services through personalized interactions between service providers and recipients, which call for distributed leadership and "service leaders" who are service-oriented and people-oriented (6).

A number of leadership scholars came to realize the emerging requirements of service-oriented economy and regarded leadership as a relational process between leader and followers instead of merely focusing on the leader (7). In fact, different leadership models have been proposed in the postindustrial era to highlight adaptive leadership styles as well as vital qualities associated with each style. For example, the transformational leadership theory highlights ethical behavior and willingness to change of an effective transformational leader, who demonstrates idealized influence, inspirational motivation, personalized consideration, and intellectual stimulation (8). Similarly, servant leadership theory primarily focuses on the leader's motivation to serve others and give priority to others' needs rather than their own (9). Based on these leadership models, a considerable number of instruments have also been developed to measure leadership qualities in terms of knowledge, attitude, skill or behavior. For example, Multifactor Leadership Questionnaire (10) and Transformational Leadership Scale (11) are two examples of widely used leadership behavior scales.

Apart from these endeavors, some scholars have explicitly highlighted the importance of people skills (or interpersonal competence) in determining leadership effectiveness, such as communication and team work, which are also highly desired by contemporary employers (12). Additionally, shared decision-making has been gradually adopted in organizations and new assessment tools have been developed to capture effective empowering leader behaviors (13). Furthermore, there is a growing tendency to emphasize the ethical parts of leadership and value moral behaviors and qualities such as integrity, trust, honesty and caring (14,15).

The above-mentioned developments in leadership literature have deepened our understanding of the leadership requirements in a postindustrial age. Unfortunately, these advances are not adequate to satisfy the needs of service economy. Particularly, there are still three problems need to be addressed. First, previous leadership theories or related studies stressed some of the requirements for an effective "service leader," such as interpersonal competence or ethical concerns. In other words, there is a lack of holistic leadership framework which can fully encompass required leadership qualities in service economy. Second, the existing leadership behavior scales developed based on previous theories are not able to comprehensively assess effective leadership behaviors in service economy. For instance, transformational leadership scales primarily assess a leader's skills in satisfying the needs of followers and the organization by motivating and stimulating the followers as well as demonstrating ethical behaviors as a role model (11, 16). However, other constructs desired in service economy such as a leader's people skills and caring characteristics were not included. Third, as mentioned above, the service industry is of dominance in Hong Kong and growing rapidly in mainland China. However, little effort has been devoted to delineating what an ideal "service leader" is with specific reference to the Chinese culture. Most important of all, leadership assessment tools including behavior scales that are tailor-made for Chinese people are also missing. This issue is particularly relevant when we consider the possibility that culture values may shape one's understanding of leadership which lead to particular ideal leadership practices in a specific culture (17, 18). Indeed, some scholars have

advocated for considering cultural settings and traditional Chinese wisdom in studying contemporary leadership practices in China (19).

To address these issues, Chung (20) proposed the notion of “service leadership” which is conceived as “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” (20). Based on this notion, the Service Leadership Model was developed as a theoretical foundation to guide service leadership education in Hong Kong (21, 22). Moreover, based on the Service Leadership Model, service leadership scales were tentatively developed for the purpose of assessing service leadership qualities and evaluating the effectiveness of service leadership education (23-25). This paper will focus on one of the service leadership assessment instruments, namely “Service Leadership Behavior Scale” (SLB). In following sections, we will briefly introduce several distinguishing features of the Service Leadership Model, based on which the item pool of the SLB was constructed. Second, the work surrounding the development and validation of the SLB will be outlined as well.

Unique features of the Service Leadership Model

The notion of service leadership incorporates and goes beyond the propositions of the extant leadership theories in the postindustrial era by adopting the strengths of previous theories and adding new arguments that are seldom mentioned in other leadership approaches. In other words, service leadership theory shares some commonalities with other classic leadership approaches, while it has its own distinct features (6). In particular, the uniqueness of the Service Leadership Model is manifested in its seven core beliefs, which systematically address what is effective service leadership as well as its determinants. As the seven core beliefs have been presented elsewhere in details (22), we briefly highlight several notable ideas of the Service Leadership Model, which reflect the paradigm shift in leadership mindset and serve as the principle references of the development of SLB.

First, the Service Leadership Model strongly emphasizes service orientation. Instead of treating leadership as a means of achieving personal and organizational success, the Service Leadership Model holds that leadership is “a service aimed at ethically satisfying the needs of self, others, groups, communities, systems, and environments” (22). The underlying belief is that people evolved service propensities as an outcome of natural selection, so that both serving others and being served by others are inherent tendencies hard-wired into human minds (26). Therefore, leadership prioritizing service can reach the hearts of people and thus satisfy the needs of others and the leaders themselves.

Second, in strong contrast to traditional conception of leadership that leaders were “great men and women” (27), the Service Leadership Model contends that “every day, every human occupies a position of leadership and possess the potential to improve his or her leadership quality and effectiveness” (22). Primarily, the notion of “everyone can be a leader” enhances confidence in every individual and encourages all employees to contribute to decision-making, constituting a timely response to the needs of distributed leadership in service economy. Besides, to take a leading role effectively whenever is necessary, one should take initiatives and be well-prepared by continuously improving one’s abilities and willingness to provide high-quality service. Therefore, self-leadership by means of actively engaging in self-reflection, self-management, and self-improvement is regarded as indispensable for one to achieve leadership success.

Third, it is believed that “leadership effectiveness is dependent on possessing relevant situational task competencies plus being judged by superiors, peers, and subordinates as possessing character and exhibiting care” (22). To elaborate, the Service Leadership Model places equal importance on the three fundamental determinants in defining effective service leadership (**E**), namely **m**oral character (**M**), **c**ompetence (**C**), and **c**aring disposition (**C**) (i.e., $E = MC^2$). By covering a wide range of personal qualities in multiple dimensions, this framework extends beyond conventional leadership theories focusing on leadership skills and establishes a more holistic model to explain how these characteristics

jointly contribute to effective leadership in service economy.

Finally, the Service Leadership Model incorporates the Chinese traditional values and integrates the philosophy of Buddhism, Confucianism, and Taoism, aiming to “help East meet West” (28). Concerning the notion of “thinking globally while acting locally,” one can argue that when participating leadership in the Chinese communities, in addition to the universally preferred leadership qualities such as problem-solving and efficiency, an effective leader should also be aware of and demonstrate the qualities historically valued in the Chinese culture such as the ability to maintain harmony and have constant self-reflection.

The Service Leadership Behavior Scale (SLB)

With reference to the unique propositions of the Service Leadership Model, the research team at The Hong Kong Polytechnic University (PolyU), one of the eight universities funded by the University Grants Committee (UGC) in Hong Kong, developed a long-form of SLB (SLB-LF-97) which consists of 97 items (see Table 1 for the list of related references). With each of the 97 items describing a specific leadership behavior desired in service economy, the SLB-LF-97 covers a wide range of constructs emphasized in the Service Leadership Model. Specifically, the content of the SLB-LF-97 can be subsumed to the following four key domains (see Table 2 for example items).

The first domain is “service provision” (4 items), which measures behaviors related to providing individualized service to others, going beyond one’s own interest, and being sensitive to others’ unique needs. These behaviors are indicative of a leader’s service mindset as well as automatic and genuine manifestation of care for others’ needs.

The second domain is related to the Principle “ $E = MC^2$ ”, which further includes three aspects: “competence” (38 items), “character” (14 items), and “caring disposition” (15 items). As a key determinant of effective service leadership, leadership competence in service economy has broad requirements including intrapersonal competencies (29) and interpersonal competencies (30). More specifically, the SLB-LF-97 covers four types of intrapersonal competencies

underlying effective leadership behaviors. First, 7 items are pertinent to intelligence quotient (IQ) which is manifested in problem-solving capacities, analytical abilities, independent and critical thinking, logical reasoning, and agile mindset. Second, 5 items measure emotional quotient (EQ), which serves as one of the most significant non-intellectual contributors to the success of personal life and career (31). Behaviors pertaining to EQ in the SLB-LF-97 includes understanding, recognizing and managing emotions of oneself and others. Third, 4 items are on the adversity quotient (AQ), which reflects one’s ability not only to withstand loss, misfortune, or other types of adversity but also to rebound stronger than before (32). AQ is conceptually similar to the idea of resilience and possessing AQ is deemed vital to one’s leadership quality (29). The last type of intrapersonal competencies covered in the SLB-LF-97 is spiritual quotient (SQ), which is closely related to meaning, purpose and values in one’s life (33). In the SLB-LF-97, 3 items assess the extent to which one can utilize meaning, faith, and other spiritual resources to solve problems.

Regarding interpersonal competencies, scholars have proposed a five-dimensional framework including “initiating relationships”, “self-disclosure”, “asserting displeasure with others’ actions”, “providing emotional support,” and “managing interpersonal conflict” (34). These five dimensions have been further adapted and enriched based on Chinese culture and philosophy. Specifically, an effective service leader should be people-oriented (“*yi ren wei ben*” – people as the central focus) and able to maintain positive social relationships with others. In addition, a good service leader is expected to demonstrate good communication skills in order to build collaborative relationships with teammates and assert one’s personal thoughts and feelings when having conflicts with others. Apart from maintaining healthy social relationships, a competent service leader with adequate interpersonal competencies would also appreciate different opinions (“*he er bu tong*” – peace within diversity) and resolve interpersonal conflicts in a constructive way. As such, six revised components concerning one’s ability dealing with interpersonal competencies are intrinsic to the SLB-LF-97: “passionate about people” (2 items); “positive social relationships” (5 items);

“assertiveness” (3 items); “collaboration and cooperation with people” (2 items); “conflict resolution” (3 items); and “communication skills” (4 items).

“Character” (14 items) is another aspect under the second domain in the SLB-LF-97, which is also one of the three principle determinants for effective service leadership (35). Drawing on the groundwork of defining universally valued character strengths (e.g., integrity and humility) in Western societies (36) and also taking into account traditional Chinese virtues such as benevolence (“ren”), affection (“ai”), and forgiveness (“shu”) (37), the SLB-LF-97 synthesizes strengths of character in both cultures and operationalizes the virtues of an effective service leader using “integrity” (5 items), “humility” (4 items), “fairness” (3 items), and “acting as an ethical role model” (2 items).

The last aspect of the second domain is “caring” (15 items). A caring service leader is supposed to show concern to others as well as to oneself (38). By referring to the Chinese culture, the SLB-LF-97 measures one’s caring disposition from two aspects: the qualities of concern (“guan xin”) including “empathy” (3 items) and “compassion” (3 items); and the qualities of providing care (“zhao gu”) for others in terms of “loving others” (3 items), “supporting others” (3 items), and “developing others” (3 items).

The third domain is “commitment to continuous improvement”. As aforementioned, one of the key features of the Service Leadership Model is its emphasis on the need for continuous improvement, through which everyone can be a leader at a certain time (39). Besides, only through continuous professional and personal improvement could one be well prepared to serve oneself as well as others. Therefore, effective service leaders should put self-development efforts “aimed at ethically improving one’s competencies, abilities, and willingness to help satisfy the needs of others” (22) in terms of promoting self-leadership (5 items), engaging in constant self-reflection (4 items), and committing to life-long learning (4 items).

“Distributed leadership” is the last domain, which also represents a timely response to the belief that “every day, every human occupies a position of leadership and possesses the potential to

improve his leadership quality and effectiveness” (22). Distributed leadership in the service economy has two attributes. First, the leaders encourage every team member to voice out and take initiatives and empower them to contribute to the decision-making of a team. Second, the leaders would trust and respect their followers by recognizing their views and by trusting their abilities. As such, the domain of “distributed leadership” in the SLB-LF-97 includes three elements: “shared decision-making” (5 items), “empowerment of team-mates” (4 items), and “trust and respect” (4 items).

The SLB-LF-97 is developed as a component of the scale development project supported by the Victor and William Fung Foundation. Several validation studies have been carried out to streamline the scale and provide evidence for its reliability and validity (see Table 2 and Table 3). It is worth noting that two papers based on the validation studies are included in this special issue and other related papers are under preparation. To show a full picture of the development of the Service Leadership Behavior Scale, the section below will briefly outline findings of these validation studies.

Validation of Service Leadership Behavior Scale (SLB)

First, an initial validation study involving 231 PolyU students was conducted in order to refine the original scale, i.e., SLB-LF-97. Based on the results of the exploratory factor analysis (EFA), 65 out of the 97 items were retained, forming the short form of the scale (i.e., SLB-SF-65). In addition to this, the SLB-SF-65, alongside its 12 sub-scales (e.g., “problem-solving,” “self-leadership and life-long Learning,” and “distributed leadership”), demonstrated a good internal consistency and a robust convergent validity, as is indicated by the significant positive correlations with several theoretically linked constructs such as moral self-concept and leadership efficacy. A paper by Shek, Ma, and Lin documenting the psychometric properties of the SLB-SF-65 is included in this special issue.

Table 1. Literature review on measures of leadership behavior and service leadership

Steps	Details
Step 1: Literature Review on Leadership Behavior Measures, Particularly in Different Chinese Contexts	<p>Example of References:</p> <ul style="list-style-type: none"> – Aycan, Z., Schyns, B., Sun, J. M., Felfe, J., & Saher, N. (2013). Convergence and divergence of paternalistic leadership: A cross-cultural investigation of prototypes. <i>Journal of International Business Studies</i>, 44(9), 962-969. – Chan, SCH., & Mak, W. M. (2014). The impact of servant leadership and subordinates' organizational tenure on trust in leader and attitudes. <i>Personnel Review</i>, 43(2), 272-287. – Chen, X. P., Eberly, M. B., Chiang, T. J., Farh, J. L., & Cheng, B. S. (2014). Affective trust in Chinese leaders linking paternalistic leadership to employee performance. <i>Journal of Management</i>, 40(3), 796-819. – Cheng, B. S., Chou, L. F. & Farh, J. L. (2000). A triad model of Paternalistic Leadership: The constructs and measurement. <i>Indigenous Psychological Research in Chinese Societies</i>, 14, 3-64. (in Chinese) – Li, C., Shi, K. (2005). The Structure and Measurement of Transformational Leadership in China. <i>Frontiers Bus Res China</i>, 2(4), 571-90. – Qian, J., Lin, X., & Chen, G. Z. X. (2012). Authentic leadership and feedback-seeking behaviour: An examination of the cultural context of mediating processes in China. <i>Journal of Management & Organization</i>, 18(3), 286-299. – Sun, J. M. & Wang, B. (2009). Servant leadership in China: Conceptualization and measurement. In: <i>MobleyWH, Wang Y, Li M, eds. Advances in global leadership. Bingley: Emerald Group, 5:321-44.</i> – Sheer, V. C. (2013). In search of Chinese paternalistic leadership: Conflicting evidence from samples of mainland China and Hong Kong's small family businesses. <i>Management Communication Quarterly</i>, 27(1), 34-60. – Wang, Y. & Chen, W. M. (2012). Study on the Structural Dimensions of the Authentic Leadership in Enterprises. <i>East China Economic Management</i>, 7, 98-101. (In Chinese)
Step 2: Literature Review on Service Leadership	<p>Example of References:</p> <ul style="list-style-type: none"> – Chung, P. P. Y. (2012). <i>Service reborn: The knowledge, skills and attitudes of service companies</i>. New York, NY: Lexingford Publishing. – Chung, P. P. Y. & Bell A. H. (2015). <i>The 25 Principles of Service Leadership</i>. New York, NY: Lexingford Publishing. – Shek, D. T. L., Chung, P. P. Y., & Leung, H. (2015). How unique is the service leadership model? A comparison with contemporary leadership approaches. <i>International Journal on Disability and Human Development</i>, 14(3), 217-231. – Shek, D. T. L., Chung, P. P. Y., & Leung, H. (2015). Manufacturing economy vs. service economy: Implications for service leadership. <i>International Journal on Disability and Human Development</i>, 14(3), 205-215. – Shek, D. T. L., & Lin, L. (2015). Core beliefs in the service leadership model proposed by the Hong Kong Institute of Service Leadership and Management. <i>International Journal on Disability and Human Development</i>, 14(3), 233-242. – Shek, D. T. L., Sun, R. C. F., & Liu, T. T. (2015). Character strengths in Chinese philosophies: Relevance to service leadership. <i>International Journal on Disability and Human Development</i>, 14(4), 309-318. – Shek, D. T. L., & Yu, L. (2015). Character strengths and service leadership. <i>International Journal on Disability and Human Development</i>, 14 (4), 299-307.

Table 2. Initial development of the Long-Form (SLB-LF-97) and Short-Form (SLB-SF-65) Service Leadership Behavior Scale

Steps	Details
Step 3: Development of the Item Pool (97 Items) with Reference to the Main Proposed Domains	<p>Four domains were proposed to be subsumed under the 97-item long-form Service Leadership Behavior Scale (SLB-LF-97) including:</p> <ul style="list-style-type: none"> [1] <u>Service Provision</u> (e.g., I work for the best interests of others instead of just for my own benefit), [2] <u>Principle “E = MC²”</u> included three aspects (e.g., <u>Moral character</u>: I am aware of my weaknesses; <u>Competence</u>: I am able to argue logically; <u>Caring disposition</u>: I show kindness to those whom I had conflict with before.), [3] <u>Commitment to Continuous Improvement</u> (e.g., I am self-disciplined), and [4] <u>Distributed Leadership</u> (e.g., I respect others’ ideas and suggestions).
Step 4: Initial Validation of the Original Scale (i.e., SLB-LF-97)	<p>The SLB-LF-97 was subjected to a validation study involving 231 PolyU students in November 2016. Results of the exploratory factor analysis (EFA) informed the retention of 65 items, forming the trimmed version of the scale (i.e., SLB-SF-65). The SLB-SF-65, alongside its twelve factors (see the list below), overall demonstrated good internal consistency and robust convergent validity. See the paper by Shek, Ma, and Lin in this special issue.</p>
Step 5: Development of Scale Used in the Main Survey (i.e., SLB-SF-65) and the Major Domains	<p><i>Factor 1: Problem-Solving</i> 6. I am capable of independent thinking.</p> <p><i>Factor 2: Self-leadership and Life-long Learning</i> 47. I spare no effort in achieving my goal.</p> <p><i>Factor 3: Non-cognitive Intrapersonal Competences</i> 10. I am often aware of my emotions.</p> <p><i>Factor 4: Distributed Leadership</i> 65. I hold others’ ideas and suggestions in high regard.</p> <p><i>Factor 5. Integrity</i> 31. Others often see me as a reliable person.</p> <p><i>Factor 6. Care Provision</i> 44. I do not miss any chances to help others grow.</p> <p><i>Factor 7. Concern</i> 36. I have no problem sharing my weaknesses with others.</p> <p><i>Factor 8. Self-Reflection</i> 54. I often reflect on my expertise and shortcomings.</p> <p><i>Factor 9. Service Provision</i> 3. I serve others based on their specific needs</p> <p><i>Factor 10. Positive Social Relationship</i> 28. I am capable of developing a rapport with others.</p> <p><i>Factor 11. Communication Skills</i> 24. I am adept at working with others.</p> <p><i>Factor 12. Fairness</i> 35. Treating those around me equally is what I always do.</p>

Note. All sample items were slightly re-worded to avoid familiarity effect.

Table 3. Refined scales based on exploratory factor analyses and confirmatory factor analyses

Steps	Details
<p>Step 6: Refined Scale Based on Exploratory Factor Analyses (i.e., SLB-SF-48)</p>	<p>Utilizing a subsample (N= 2,246) of the whole dataset (N= 4,486), a principal component analysis (PCA) was performed on the SLB-SF-65. Findings of the PCA suggested that six factors can be extracted with 48 items (loadings above 0.50) retained for the trimmed scale (i.e., SLB-SF-48). The SLB-SF-48 was revealed to be a stable factorial structure and internally consistent. The SLB-SF-48 was also correlated positively and significantly to other external criterion scales and other Service Leadership scales under validation, thereby corroborating its convergent validity. The six factors, each of which forms a subscale, include:</p> <ul style="list-style-type: none"> [1] Self-improvement and Self-reflection (e.g., I have a habit of reflecting my work and life), [2] People and Principles Orientation (e.g., I allow others to decide how to get things done), [3] Resilience (e.g., I have a sense of purpose in my life which helps me cope with stressful situations), [4] Social Competence (e.g., I can maintain positive relationships with others), [5] Problem-Solving (e.g., I am good at analyzing problems that I come across), and [6] Mentorship (e.g., I can facilitate other’s growth by mentoring them). <p>Details can be found in the paper by Shek and Ma in this special issue.</p>
<p>Step 7: Refined Scale Based on Confirmatory Factor Analyses (i.e., SLB-SF-38)</p>	<p>The SLB-SF-48 was subjected to CFA on the other subsample (N= 2,240) using the Maximum Likelihood (ML) estimator. The results overall suggested that the fit was unsatisfactory (i.e., CFI = 0.86; NNFI: 0.86; RMSEA= 0.061). Ten items with extreme modification indices (over 40.0) with multiple items on the same factor were removed.</p> <p>The resultant 38-item structure was again subjected to CFA. Findings revealed a considerably better fit (i.e., CFI = 0.90; NNFI: 0.89; RMSEA= 0.056). Furthermore, three pairs of parameters showed particularly large covariance. Accordingly, the correlation between errors were incorporated for these three pairs of parameters. Results of the CFA performed on this modified 38-item solution (i.e., SLB-SF-38) demonstrated that the model fit adequately (i.e., CFI = 0.92; NNFI = 0.91; RMSEA = 0.055) with the data. The SLB-SF-38, which shared the <u>same factorial structure and labeling as SLB-SF-48</u>, was accepted as the final solution.</p> <p>The SLB-SF-38 and the six subscales recorded good internal consistency and were shown to be positively and significantly associated with all external criterion scales. The SLB-SF-38, inclusive of the subscales, also correlated significantly and positively to other Service Leadership scales, further supporting its convergent validity.</p>

Note. All sample items were slightly re-worded to avoid familiarity effect.

Second, using the refined SLB-SF-65, a large-scale validation project was jointly carried out in the eight UGC-funded universities in Hong Kong including PolyU, with the adoption of both exploratory factor analyses (EFA) and confirmatory factor analyses (CFA). Utilizing a subsample (N = 2,246) of the whole dataset (N = 4,486), the EFA revealed a six-factor solution with 48 items (loadings above 0.50) being retained. These 48 items formed the trimmed scale (i.e., SLB-SF-48) as well as the six subscales named as “self-improvement and self-reflection”, “people and principles orientation”, “resilience,” “social competence”, “problem-solving,” and “mentorship.” The SLB-SF-48 was also found to have good reliability and convergent validity. Details

of this study and findings of EFA can be found in another paper by Shek and Ma in this issue as well.

Third, the SLB-SF-48 was further subjected to CFA using the other subsample (N = 2,240). After removing 10 items with extreme modification indices (over 40.0), the resultant 38-item structure demonstrated acceptable model fit. Thus, the 38-item scale (i.e., SLB-SF-38), which shared the same 6-factor structure and labelling as SLB-SF-48, was accepted as the final solution. Likewise, the SLB-SF-38 and its six subscales showed good internal consistency and convergent validity. An article presenting the CFA and related findings is under preparation. Information on the related analyses can be seen in the User Manual.

Generally speaking, a well-developed and validated leadership behavior scale regarding service leadership is essential for educators and researchers to empirically evaluate individuals' service leadership qualities and assess their changes after service leadership education. By doing so, the Service Leadership Model as well as its associated propositions such as the principle "E = MC²" can be further validated as well. As such, the development as well as the validation studies for the Service Leadership Behavior Scale not only provide a pioneering assessment tool for contemporary service leadership education, but also represent an important progress in the journal of consolidating the Service Leadership Model.

Acknowledgments

The validation project is financially supported by the Victor and William Fung Foundation. The preparation for this paper is supported by the Foundation and the Endowed Professorship in Service Leadership Education at The Hong Kong Polytechnic University.

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.

References

- [1] King AJ, Johnson DDP, Van Vugt M. The origins and evolution of leadership. *Curr Biol* 2009;19(19):R911-6.
- [2] Cyert RM. Defining leadership and explicating the process. *Nonprofit Manage Leadersh* 1990;1(1):29-38.
- [3] Northouse PG. *Leadership: Theory and practice*. 5th ed. Thousand Oaks, CA: Sage, 2010.
- [4] Shek DTL, Chung PPY, Leung H. Manufacturing economy vs. service economy: Implications for service leadership. *Int J Disabil Hum Dev* 2015;14(3):205-15. DOI: 10.1515/ijdh-2015-0402.
- [5] The World Bank. Services, etc., value added (% of GDP), 2016. URL: <https://data.worldbank.org/indicator/NV.SRV.TOTL.ZS>
- [6] Shek DTL, Chung PPY, Lin L, Leung H, Ng E. Service leadership under the service economy. In: Chin JL, Trimble JE, Garcia JE, eds. *Global and culturally diverse leaders and leadership: New dimensions and challenges for business, education and society*. Bingley, UK: Emerald Publishing, 2018:143-61.
- [7] Bass BM, Bass R. *The bass handbook of leadership: Theory, research, and managerial applications*, 4th ed. New York: Free Press, 2008.
- [8] Bass BM, Avolio BJ. Transformational leadership: A response to critiques. In: Chemers MM, Ayman R, eds. *Leadership theory and research: Perspectives and directions*. San Diego, CA: Academic Press, 1993:49-80.
- [9] Greenleaf RK. *The servant as a leader*. Indianapolis, IN: Robert K Greenleaf Center Servant Leadership, 1970.
- [10] Avolio BJ, Bass BM. *Multifactor leadership questionnaire: Manual and sampler set*. 3rd ed. Redwood City, CA: Mind Garden, 2004.
- [11] Podsakoff PM, MacKenzie SB, Bommer WH. Transformational leader behaviors and substitutes for leadership as determinants of employee satisfaction, commitment, trust, and organizational citizenship behaviors. *J Manage* 1996;22(2):259-98.
- [12] Osmani M, Weerakkody V, Hindi NM, Al-Esmail R, Eldabi T, Kapoor K, et al. Identifying the trends and impact of graduate attributes on employability: A literature review. *Tert Educ Manag* 2015;21(4):367-79. DOI: 10.1080/13583883.2015.1114139.
- [13] Arnold JA, Arad S, Rhoades JA, Drasgow F. The empowering leadership questionnaire: The construction and validation of a new scale for measuring leader behaviors. *J Organ Behav* 2000;21(3):249-69.
- [14] Brown ME, Treviño LK. Ethical leadership: A review and future directions. *Leadersh Q* 2006;17(6):595-616.
- [15] Parris DL, Peachey JW. A systematic literature review of servant leadership theory in organizational contexts. *J Bus Ethics* 2013;113(3):377-93. DOI: 10.1007/s10551-012-1322-6.
- [16] Zhang W, Wang H, Pearce CL. Consideration for future consequences as an antecedent of transformational leadership behavior: The moderating effects of perceived dynamic work environment. *Leadersh Q* 2014;25(2):329-43. DOI: 10.1016/j.leaqua.2013.09.002.
- [17] Fu PP, Yukl G. Perceived effectiveness of influence tactics in the United States and China. *Leadersh Q* 2000;11(2):251-66. DOI: 10.1016/S1048-9843(00)00039-4.
- [18] Wong K-C. Chinese culture and leadership. *Int J Leadersh Educ* 2001;4(4):309-19. DOI: 10.1080/13603120110077990.

- [19] Ma L, Tsui AS. Traditional Chinese philosophies and contemporary leadership. *Leadersh Q* 2015;26(1):13-24. DOI: 10.1016/j.leaqua.2014.11.008.
- [20] Chung PPY. Hong Kong Institute of Service Leadership and Management curriculum framework. Hong Kong: Hong Kong Institute of Service Leadership and Management 2011. URL: <http://hki-slam.org/index.php?r=article&catid=1&aid=11>
- [21] Shek DTL, Chung PPY, eds. Promoting service leadership qualities in university students: The case of Hong Kong. Singapore: Springer; 2015.
- [22] Shek DTL, Lin L. Core beliefs in the service leadership model proposed by the Hong Kong Institute of Service Leadership and Management. *Int J Disabil Hum Dev* 2015;14(3):233-42. DOI: 10.1515/ijdhhd-2015-0404.
- [23] Shek DTL, Lin L, Leung H, Zhu X. The impact of an intensive service leadership course in mainland China: Objective outcome evaluation. *Int J Child Adolesc Health* 2017;10(1):63-71.
- [24] Shek DTL, Lin L. Changes in university students after joining a service leadership program in China. *J Leadersh Educ* 2016;15(1):96-109. DOI: 10.12806/V15/I1/A2.
- [25] Shek DTL, Lin L, Liu TT. Service leadership education for university students in Hong Kong: Subjective outcome evaluation. *Int J Disabil Hum Dev* 2014;13(4):513-21. DOI: 10.1515/ijdhhd-2014-0349.
- [26] Shek DTL, Sun RCF, Liu TT. Evolution and realms of service leadership and leadership models. *Int J Disabil Hum Dev* 2015;14(3):243-54. DOI: 10.1515/ijdhhd-2015-0405.
- [27] Rost JC. Leadership for the twenty-first century. Westport, CT: Praeger, 1993.
- [28] Chung PPY, Bell A. Service reborn: The knowledge, skills and attitudes of service companies. New York: Lexington, 2012.
- [29] Shek DTL, Lin L. Intrapersonal competencies and service leadership. *Int J Disabil Hum Dev* 2015;14(3):255-63. DOI: 10.1515/ijdhhd-2015-0406.
- [30] Shek DTL, Yu L, Siu AMH. Interpersonal competence and service leadership. *Int J Disabil Hum Dev* 2015;14(3):265-74. DOI: 10.1515/ijdhhd-2015-0407
- [31] Mayer JD, Salovey P, Caruso DR. Emotional Intelligence: Theory, findings, and implications. *Psychol Inq* 2004;15(3):197-215. DOI: 10.1207/s15327965pli1503_02.
- [32] Stoltz PG. Adversity quotient: Turning obstacles into opportunities. Hoboken, NJ: John Wiley & Sons, 1997.
- [33] Zohar D, Marshall I. Spiritual intelligence: The ultimate intelligence. London: Bloomsbury, 2012.
- [34] Buhrmester D, Furman W, Wittenberg MT, Reis HT. Five domains of interpersonal competence in peer relationships. *J Pers Soc Psychol* 1988;55(6):991-1008. DOI: 10.1037/0022-3514.55.6.991.
- [35] Shek DTL, Yu L. Character strengths and service leadership. *Int J Disabil Hum Dev* 2015;14(4):299-307. DOI: 10.1515/ijdhhd-2015-0451.
- [36] Park N, Peterson C, Seligman MEP. Character strengths in fifty-four nations and the fifty US states. *J Posit Psychol* 2006;1(3):118-29. DOI: 10.1080/17439760600619567.
- [37] Shek DTL, Sun RCF, Liu TT. Character strengths in Chinese philosophies: Relevance to service leadership. *Int J Disabil Hum Dev* 2015;14(4):309-18. DOI: 10.1515/ijdhhd-2015-0452.
- [38] Shek DTL, Li X. The role of a caring disposition in service leadership. *Int J Disabil Hum Dev* 2015;14(4):319-32. DOI: 10.1515/ijdhhd-2015-0453.
- [39] Shek DTL, Chung PPY, Leung H. How unique is the service leadership model? A comparison with contemporary leadership approaches. *Int J Disabil Hum Dev* 2015;14(3):217-31. DOI: 10.1515/ijdhhd-2015-0403.

Submitted: April 04, 2018. *Revised:* April 29, 2018.
Accepted: May 04, 2018.

Copyright of International Journal of Child & Adolescent Health is the property of Nova Science Publishers, Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.