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Servant leadership: Validation of a short form of the SL-28

Robert C. Liden [a,*], Sandy J. Wayne [a], Jeremy D. Meuser [a], Jia Hu [b], Junfeng Wu [a], Chenwei Liao [c]

[a] University of Illinois at Chicago, USA
[b] University of Notre Dame, USA
[c] Michigan State University, USA

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ABSTRACT

Although research on servant leadership has been expanding over the past several years, a concise, valid scale for assessing global servant leadership has been lacking. In the current investigation a 7-item measure of global servant leadership (SL-7), based on Liden, Wayne, Zhao, and Henderson's (2008) 28-item servant leadership measure (SL-28), is introduced. Psychometric properties of the SL-7 were assessed at the individual level with data collected from 729 undergraduate students, 218 graduate students, and 552 leader–follower dyads from 11 organizations, and at the team level with a study consisting of a total of 71 ongoing intact work teams. Results across three independent studies with six samples showed correlations between the SL-7 and SL-28 scales ranging from .78 to .97, internal consistency reliabilities over .80 in all samples, and significant criterion-related validities for the SL-7 that parallel those found with the SL-28.

Introduction

In response to the increasing need for employee engagement, creativity, and sharing among coworkers, as well as societal demands for higher levels of ethical behavior in organizations, servant leadership has emerged as a desirable approach to leadership, because it promotes integrity, focuses on helping others, and prioritizes bringing out the full potential of followers. Indeed, servant leadership offers the promise of combatting negative outcomes associated with promoting one's self-interest (O'Reilly, Doerr, Caldwell, & Chatman, 2014), which appears to underlie many incidents of unethical behavior (Hoogervorst, De Cremer, & van Dijke, 2010). Servant leadership, although alluded to in ancient philosophy, was introduced in the contemporary vernacular by Robert Greenleaf (1970) in his classic essay. Greenleaf stressed the importance of leaders prioritizing the support and development of followers, accomplishing this by setting an example through demonstrating honesty, compassion, and hard work. Servant leadership is unique relative to other approaches to leadership for its prioritization of serving followers before attending to one's own needs, acting as a servant leader in all realms of life – work, home and community – and developing followers into servant leaders.

Although Greenleaf's (1970) essay appeared prior to the introduction of the most widely studied approaches to leadership (Dinh et al., 2014), transformational leadership (TFL, Bass, 1985) and leader–member exchange (LMX; Dansereau, Graen, & Haga, 1975), empirical scientific investigation of servant leadership was not actively pursued by researchers until after the publication of the seminal work by Mark Ehrhart (2004). Over the past 10 years, empirical research has demonstrated the incremental value of servant leadership as evidenced by the explanation of additional variance beyond TFL, LMX, and/or consideration/initiating structure (Fleishman, 1998) in individual (Liden, Wayne, Zhao, & Henderson, 2008; Neubert, Kacmar, Carlson, Chonko, & Roberts, 2008; van

* Corresponding author at: Department of Managerial Studies MC 243 University of Illinois at Chicago 601 S. Morgan Chicago, IL 60607.
E-mail address: bobliden@uic.edu (R.C. Liden).

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Dierendonck, Stam, Boersma, de Windt, & Alkema, 2014), group (Ehrhart, 2004; Schaubroeck, Lam, & Peng, 2011), and organizational (Peterson, Galvin, & Lange, 2012) outcomes. The strength and consistency of the incremental variance demonstrated in these studies has served to legitimize servant leadership as a construct worthy of continued research attention.

Servant leadership has been presented as a multidimensional construct (Ehrhart, 2004; Liden et al., 2008; van Dierendonck & Nuijten, 2011). The dimensions uncovered by Liden and colleagues are: 1) *emotional healing*, which involves the degree to which the leader cares about followers' personal problems and well-being; 2) *creating value for the community*, which captures the leader's involvement in helping the community surrounding the organization as well as encouraging followers to be active in the community; 3) *conceptual skills*, reflecting the leader's competency in solving work problems and understanding the organization's goals; 4) *empowering*, assessing the degree to which the leader entrusts followers with responsibility, autonomy, and decision-making influence; 5) *helping subordinates grow and succeed*, capturing the extent to which the leader helps followers reach their full potential and succeed in their careers; 6) *putting subordinates first*, assessing the degree to which the leader prioritizes meeting the needs of followers before tending to his or her own needs; and 7) *behaving ethically*, which includes being honest, trustworthy, and serving as a model of integrity.

As with any multidimensional construct, it is important to specify the nature of relationships between each dimension and the overall or global construct (Law, Wong, & Mobley, 1998). Law et al. (1998, p. 743) specify three "relational forms" in which dimensions relate to the overall construct: 1) latent, in which the construct "exists at a deeper conceptual level than its dimensions;" 2) aggregate, describing constructs that "can be formed as an algebraic function of its dimensions;" and 3) profile, which are constructs that are based on "levels of each of the dimensions." Servant leadership is best represented by the aggregate model, as it is a construct that consists of the sum of its dimensions. Indeed, none of these dimensions alone, or even subsets of the dimensions, adequately capture the complexity of global servant leadership. In contrast to the aggregate model where the construct is formed from its dimensions, Law et al. (1998) describe the latent model as the focal construct leading to its dimensions. We contend that servant leadership is not a higher-level construct that underlies its dimensions because the dimensions of servant leadership are not representing the same construct with different degrees of accuracy but instead are capturing different aspects of leader behavior. Servant leadership also does not fit the typology for a profile multidimensional construct. According to Law et al. (1998), a profile construct can only be interpreted via a "set of profiled characteristics of the dimensions; there is not a single theoretical overall construct that summarizes and represents all of the dimensions" (p. 747). This is not the case for servant leadership as there is theory and empirical research that supports the overall construct. Servant leadership is thus best described as the combination of its dimensions. It captures honest leaders who put the needs of followers first, promote helping in the larger community as well as at work, and possess the technical skills necessary to provide meaningful help to followers.

Consistent with its identity as an "aggregate" construct (Johnson, Rosen, & Chang, 2011; Law et al., 1998), it is typically operationalized in its global form. This is appropriate given that servant leadership theory describes a comprehensive approach to leading. For example, although it contains an ethical behavior component, it extends far beyond ethical leadership (Brown, Treviño, & Harrison, 2005), by specifying the multiple elements necessary for serving followers. Extending beyond TFL, leaders not only individualize their consideration for followers but put the fulfillment of follower needs ahead of satisfying their own personal needs. Similarly, servant leadership transcends LMX by not only providing support to followers, but attending to the personal needs of followers that may go beyond the work setting. While it is useful to explore specific research questions with the dimensions separately, capturing the full essence of the construct requires the combination of all of its dimensions.

When focusing on overall servant leadership, each dimension must be captured in a global measure, but not as many items are needed as when each dimension is analyzed separately. Indeed, at least three items per dimension are required when dimensions are assessed individually for the purpose of accurately estimating internal consistency reliability of each dimension. A global measure requires a total of at least three items for the same reason, but does not require three or more items per dimension. In fact, Credé, Harms, Niehorster, and Gaye-Valentine (2012) argued that long scales may have the unintended effect of reducing respondent attention when reading items, thus lowering the integrity of responses and subsequent validity. In sum, there are both theoretical and design factors that favor concise global measures.

Given the consistent support for relationships between servant leadership and important individual, team/unit, and organizational outcomes, researchers have focused their attention on better understanding both the processes through which servant leadership affects outcomes as well as the antecedents of servant leadership. Pursuing such an ambitious research agenda requires sound measurement of servant leadership. Although a number of measures have been introduced, the scale developed by Liden et al. (2008) has been frequently used due to the rigorous methods employed in its development (van Dierendonck, 2011). One limitation of this measure, however, is its 28-item length. The large number of items not only takes time that could otherwise be used for measuring additional variables, but also may introduce fatigue or boredom among respondents, which may negatively influence the quality of the responses obtained (Credé et al., 2012). At the same time, Credé et al. (2012) stress that short scales may compromise validity when not developed using rigorous methods. Thus, in introducing a 7-item unidimensional version of the original SL-28 scale (Liden et al., 2008), labeled "SL-7," we followed the recommendations of Credé et al. (2012) for creating short versions of scales. These scholars emphasize the need for and assessment of several forms of validity, including criterion-related validity, as well as utilizing multiple diverse independent samples. Our ultimate goal was to develop a global measure of overall servant leadership that is substantially shorter than the original SL-28, but at the same time captures each of the seven dimensions assessed in the full 28-item scale. A second purpose of the current investigation is to provide additional validation of the full 28-item measure, which may be the measure of choice when research questions require assessing servant leadership dimensions separately.

Servant leadership measurement

Liden et al.'s (2008) scale development effort commenced with the identification of nine servant leadership dimensions based on the servant leadership philosophy introduced by Greenleaf (1970), as well as the conceptual work by Barbuto and Wheeler (2006), Graham (1991), Page and Wong (2000), and Spears and Lawrence (2002). Liden et al. (2008, p. 165) indicate that capturing the domain of the construct was the key consideration when generating items. Specifically, they state that "Each member of our research team independently reviewed the full list of potential items, selecting those items that would best capture each servant leadership dimension." These researchers then subjected 85 items to exploratory factor analyses and seven factors emerged. After rotation, the four items with the highest factor loadings for each factor were retained, resulting in a 28-item measure capturing seven servant leadership dimensions.

At the individual level, research has demonstrated that servant leadership is positively related — directly or indirectly — to a wide range of outcomes, including individual self-efficacy, job performance, engagement, organizational citizenship behaviors, community citizenship behaviors, organizational commitment, commitment to the supervisor, creativity, customer service behaviors, and turnover intentions (Liden, Wayne, Liao, & Meuser, 2014; Liden et al., 2008; Neubert et al., 2008; van Dierendonck et al., 2014; Walumbwa, Hartnell, & Oke, 2010). Team- and unit-level research also has demonstrated relationships between servant leadership and team outcomes, such as team potency, team/unit performance, customer satisfaction, and team-level organizational citizenship behaviors (OCBs; Ehrhart, 2004; Hu & Liden, 2011; Hunter et al., 2013; Liden, Panaccio, Meuser, Hu, & Wayne, 2014; Liden, Wayne, Liao, & Meuser, 2014; Schaubroeck et al., 2011). Peterson et al. (2012) have also found CEOs' servant leadership to be positively related to organizational performance as assessed by return on investment.

Although Liden et al.'s (2008) research presenting the psychometric development of the scale assessed each of the seven dimensions separately, virtually all subsequent research using the scale has summed the items for use as a global measure of servant leadership. Support for summing all 28 items to create a global servant leadership measure was provided through higher-order confirmatory factor analyses (Hu & Liden, 2011). Studies employing Ehrhart's 14-item servant leadership scale have similarly summed all items to form a global measure (e.g., Hunter et al., 2013; Walumbwa et al., 2010). Given the interest among researchers to investigate global servant leadership, it would be desirable for researchers to have a scale that is psychometrically sound, yet shorter than the existing 14- (Ehrhart), 28- (Liden et al., 2008), and 30-item (van Dierendonck & Nuijten, 2011) servant leadership scales. Our main purpose in the current investigation was to provide such a scale.

Overview of the studies

In our effort to develop a short version of the servant leadership scale, we were sensitive to evidence demonstrating that adding or deleting items from established scales can severely compromise validity (Bono & McNamara, 2011; Keller & Dansereau, 2001). In constructing the abbreviated scale of servant leadership, we were guided by the advice of Smith, McCarthy, and Anderson (2000), who identified common errors made by researchers when constructing shorter scales from longer scale parents. The first step was to select a subset of items from Liden et al.'s (2008) 28-item multidimensional servant leadership scale, abbreviated as "SL-28." In order to maximize domain coverage of the servant leadership construct, one item was selected from each of the seven dimensions based upon the exploratory factor analysis loadings reported in the 2008 article. In cases where there was a tie for the highest loading on a particular dimension, the item from that dimension with lower cross-loadings on the other 6 dimensions (factors) was selected. We also compared the factor loadings from one previously published study (Hu & Liden, 2011) that used the full 28-item scale. The selected items had the highest average factor loading on their respective dimensions among the three datasets. Given the robust

Table 1
Comparison of SL-7 and SL-28 psychometrics in Samples 1–3.

Item number		sItem		CFA standardized factor loadings		
SL-28	SL-7			Sample 1	Sample 2	Sample 3
9	1	My leader can tell if something work-related is going wrong.		.51	.41	.63
17	2	My leader makes my career development a priority.		.70	.74	.82
1	3	I would seek help from my leader if I had a personal problem.		.63	.72	.80
5	4	My leader emphasizes the importance of giving back to the community		.55	.59	.65
22	5	My leader puts my best interests ahead of his/her own.		.71	.83	.92
15	6	My leader gives me the freedom to handle difficult situations in the way that I feel is best.		.61	.53	.72
27	7	My leader would NOT compromise ethical principles in order to achieve success.		.54	.52	.64
.95	.80	Sample 1 Cronbach alpha	CFI	.97	.99	.96
.95	.81	Sample 2 Cronbach alpha	SRMR	.03	.03	.04
.97	.89	Sample 3 Cronbach alpha	RMSEA	.06	.04	.10
			Chi-square (df)	45.36 (14)	20.03 (14)	32.21 (14)
			Chi-square significance	<.01	.13	<.01
			Pearson correlation between SL-7 and SL-28	.95	.95	.97

Note. SL-7 item 1 has been revised, adding "work-related" to more closely align it with the original meaning as a *conceptual skills* item rather than an emotional or personal item. Sample 1 = undergraduate student sample (N = 598); Sample 2 = graduate student sample (N = 218); and Sample 3 = undergraduate students (N =131). Pearson correlation calculated between SL-28 and SL-7 within sample. Response scale: strongly disagree = 1; disagree = 2; slightly disagree = 3; neutral = 4; slightly agree = 5; agree = 6; and strongly agree = 7.

scale development procedures used in Liden et al.'s (2008) original multidimensional scale development as highlighted by van Dierendonck (2011), parsimony dictated that a short servant leadership scale should be drawn from these preexisting items rather than by crafting seven novel items. The resulting items contained in the SL-7 are presented in Table 1.

In order to ensure that the short version maintains the psychometric integrity of the full 28-item version (Liden et al., 2008), we utilized rigorous scale development procedures in multiple studies (as per Credé et al., 2012). Specifically, we compared the SL-7 and SL-28 in terms of their reliability and validity in three separate studies containing six independent samples. As with the original scale development for the SL-28 (Liden et al., 2008), a 7-point strongly disagree to strongly agree response scale was used in all samples.

Given the focus of the developers (Liden et al., 2008) of the original 28-item scale on ensuring that each item captured the intended domain, we anticipate that reliability and validity results for the SL-7 should mirror findings for the full 28-item scale. First, concerning the psychometric properties of the SL-7, reliability is expected to exceed the minimum accepted cutoff of .70, as is true for the SL-28 when used as on overall measure of servant leadership. Second, just as support has been found for a higher order confirmatory factor analysis showing that the seven dimensions, measured with four items for each dimension, are separate but all load on a higher order factor capturing global servant leadership (Hu & Liden, 2011), we hypothesize that the seven items making up the SL-7 load on a single factor that reflects overall servant leadership. Third, in addition to being reliable, variance in the SL-7 should parallel the variance captured by the SL-28, as reflected in a high simple correlation between the SL-7 and SL-28. Finally, because the creators of the frequently used servant leadership measures (Ehrhart, 2004; Liden et al., 2008; van Dierendonck & Nuijten, 2011) were drawing largely from the work of Greenleaf (1970) and identified similar components of servant leadership, these measures are expected to correlate with one another, demonstrating convergent validity.

Hypothesis 1. SL-7 is a psychometrically sound unidimensional representation of SL-28, such that it: a) demonstrates an internal consistency reliability exceeding .70; b) represents a single factor reflecting global servant leadership; c) positively correlates with SL-28; and d) shows convergent validity as reflected in positive correlations with Liden et al.'s SL-28 composite, Ehrhart's 14-item composite, and van Dierendonck and Nuijten's 30-item composite.

In addition to construct and convergent validity, as captured in Hypothesis 1, criterion-related validity is essential in establishing the overall validity of any measure (Credé et al., 2012; Society for Industrial & Organizational Psychology (SIOP), 2003). Because servant leadership is relevant at multiple levels of analysis (van Dierendonck, 2011), we assessed criterion-related validity at both the individual and group levels. At both levels of analysis, although a short version of a scale does not have the depth in covering the domain of the construct that is possible with a longer version of the measure (Credé et al., 2012), we contend that because all seven dimensions of the SL-28 are included in the SL-7, the SL-7 captures the essence of the global servant leadership construct. Indeed, the hypotheses that follow, which are characteristic of hypotheses tested in the servant leadership literature, are specifically focused on overall or global servant leadership. Three main theoretical explanations, which complement one another, have been offered to understand why servant leadership relates to work outcomes at the individual level. First, the support and encouragement provided to followers by servant leaders in the form of empowerment, prioritization of fulfilling follower needs, and striving to bring out the full potential in followers serve to enhance follower job performance and engagement in helping and other OCBs. This occurs due to increased self-efficacy that comes from the combination of servant leaders providing developmental support through training and growth opportunities, and autonomy and influence through empowering followers. Indeed, research has demonstrated that empowerment (Seibert, Wang, & Courtright, 2011) and self-efficacy (Stajkovic & Luthans, 1998) are positively related to job performance.

Second, according to social exchange theory, when leaders prioritize the needs of followers above their own self-interest and show concern for followers' personal ambitions and potential, followers reciprocate the good deeds of their leaders by developing work attitudes and engaging in work behaviors that benefit their leaders (Blau, 1964; Gouldner, 1960). In an attempt to reciprocate for what the leader has provided, followers not only perform their required job duties well, but also engage in discretionary behaviors in the form of OCBs (Kamdar & Van Dyne, 2007; Walumbwa et al., 2010; Wayne, Shore, & Liden, 1997). And because servant leaders provide a climate of psychological safety (Schaubroeck et al., 2011), risks associated when employing creative solutions to problems are greatly reduced. As a result, we contend that servant leadership is positively related to follower creativity (Liden, Wayne, Liao, & Meuser, 2014; Neubert et al., 2008).

Third, based on Bandura (1977) and Greenleaf (1970), in striving to encourage followers to also engage in helping/serving behaviors, servant leaders act as role models by engaging in behaviors that help others, both at work and in the larger community. Primarily due to the servant leader's strong sense of ethics and integrity, followers admire and trust the leader. When followers form such positive views of their leaders, they often strive to emulate the behaviors of the leader (Hunter et al., 2013) and, thus, engage in such behaviors including OCBs (Yaffe & Kark, 2011).

Hypothesis 2. Servant leadership measured with the SL-7 and SL-28 both show positive relationships with follower in-role job performance, creativity, helping, and OCBs.

Servant leadership has also been proposed to promote desirable group-level outcomes (Ehrhart, 2004). Because servant leaders are ethical and strive to bring out the full potential in all followers, group members develop trust in the leader (Schaubroeck et al., 2011). This collective trust can also be enhanced by the way that the servant leader empowers the group and provides support designed to assist the team in meeting its goals. Coupled with servant leaders' encouragement of followers helping one another, followers develop a sense of confidence in their abilities, or potency beliefs of their teams (Hu & Liden, 2011). When followers feel that the leader can be trusted and is there to assist the team, team members respond not only by performing well as a team, but

also by engaging as a team in discretionary behaviors (Hunter et al., 2013; Liden, Panaccio, Meuser, Hu, & Wayne, 2014; Liden, Wayne, Liao, & Meuser, 2014; Schaubroeck et al., 2011). One of the explanations for the influence of servant leadership at the group level is that servant leaders positively affect work climates and cultures. Specifically, servant leadership appears to promote procedural justice climate (Ehrhart, 2004; Walumbwa et al., 2010), service climate (Hunter et al., 2013; Walumbwa et al., 2010), as well as serving culture (Liden, Panaccio, Meuser, Hu, & Wayne, 2014; Liden, Wayne, Liao, & Meuser, 2014). Because strong climates and cultures are pervasive, they are shared by followers and thus influence both team process and outcomes (Naumann & Bennett, 2000). The more followers perceive that procedural fairness and an orientation toward helping/serving others is promoted, the more they respond with high levels of team performance and team OCBs.

Hypothesis 3. At the team level, servant leadership measured with SL-7 and SL-28 both show positive relationships with team potency and subsequent team performance and team OCBs.

Study 1: testing reliability, factor structure, and convergent validity

Method, Study 1

Study 1, Sample 1: working undergraduate students — reliability and factor structure

In order to test the psychometric properties of the seven items identified for inclusion in the SL-7 scale, SL-28 data were collected from 633 undergraduate students in business school courses at a major midwestern university. 598 (94%) provided usable data. Demographics were reported as follows: 47.9% White/Caucasian, 19.5% Asian/Pacific Islander, 17.1% Hispanic/Latino/Latina, 9.3% Black/African American, 1.9% Middle Eastern, and 0.2% Native American. 53.7% were male. The average age was 22.96. The average lifetime employment experience was 4.71 years. The average job tenure was 2.77 years. The average time knowing and working for the leader was 2.77 and 2.40 years respectively.

Study 1, Sample 2: graduate students — reliability and factor structure

In order to further increase confidence in the psychometric properties of this scale, we also administered the SL-28 scale to 252 graduate students in the same college of business. 218 provided usable data (87%). Demographics were reported as follows: 43.3% White/Caucasian; 22.1% Hispanic/Latino/Latina, 16.6% Asian/Pacific Islander, 10.1% Black/African American, 1.4% Middle Eastern, 0.5% Native American. 54.0% were male. The average age was 23.48. The average lifetime employment experience was 5.45 years. The average job tenure was 3 years. The average time knowing and working for the leader was 3.46 and 2.20 years, respectively.

Study 1, Sample 3: university students with work experience — convergent validity

In order to address convergent validity of the SL-7 scale, we collected data using three common servant leadership scales: 28 items from Liden et al. (2008), $\alpha = .97$; 14 items from Ehrhart (2004), $\alpha = .96$; and 30 items from van Dierendonck and Nuijten (2011), $\alpha = .95$. As described earlier, the 28 items from Liden et al.'s (2008) measure capture 7 dimensions. Example items unique to the 28-item scale are "My manager is always interested in helping people in our community" and "My manager is interested in making sure that I achieve my career goals." Example items from the Ehrhart (2004) measure include "My department manager spends the time to form quality relationships with department employees" and "My department manager creates a sense of community among department employees." The van Dierendonck and Nuijten (2011) measure consists of items capturing eight dimensions including empowerment, standing back, accountability, forgiveness, courage, authenticity, humility, and stewardship. Example items include "My manager keeps himself/herself in the background and gives credits to others" and "My manager is open about his/her limitations and weaknesses."

Data were collected from a sample of 214 undergraduate students from 2 large midwestern universities. 131 provided usable data (61%) after eliminating those who had not worked recently (> 1 year since their last job) and those who reported organization or leader dyad tenure of less than 2 months. We did this to ensure sufficient experience with and memory of the leader. ANOVA revealed no significant differences between the currently working and recently working samples on the four study variables, so we pooled the two groups for analysis. Demographics were reported as follows: 55.7% White/Caucasian; 17.6% Hispanic/Latino/Latina, 18.3% Asian/Pacific Islander, 3.1% Black/African American, and 5.3% reported "Other." 44.3% were male. Average tenure with leader was 1.5 years. The average age was 21.5; 6 elected not to report their age.

Results, Study 1

Results, Study 1, Sample 1: working undergraduate students

Supporting Hypothesis 1a, the Cronbach's alpha reliability estimates for the short (SL-7) and long (SL-28) servant leadership composite scales in this sample were .80 and .95, respectively. The lower internal consistency reliability for the SL-7 was not unexpected, as Cronbach's alpha is subject to inflation due to the increased number of items present in the full 28-item scale (Cortina, 1993). Providing support for Hypothesis 1b, a confirmatory factory analysis (CFA) conducted in Mplus suggests that a one factor SL-7 scale shows acceptable fit to the data (CFI = .97, SRMR = .03, RMSEA = .06; $\chi^2_{(14,\ N\ =\ 598)} = 45.36$, $p < .01$; CFA standardized factor loadings are available in Table 1). Consistent with Hypothesis 1c, the Pearson correlation between the SL-7 and SL-28 scales in this sample

is .95. These results (Table 1) provide evidence for the reliability and single factor structure of SL-7 and its convergent validity with the SL-28 composite measure.

Results, Study 1, Sample 2: graduate students

Providing additional support for Hypothesis 1a, Cronbach's alphas for the SL-7 and SL-28 scales in this sample were .81 and .95, respectively. Hypothesis 1b was further supported via a confirmatory factory analysis (CFA) conducted in Mplus (Muthén & Muthén, 2014) suggesting that a one factor SL-7 scale shows acceptable fit to these data as well (CFI = .99, SRMR = .03, RMSEA = .04; $\chi^2_{(14,\ N\ =\ 218)} = 20.03$, $p = .13$; CFA standardized factor loadings are available in Table 1). The Pearson correlation between SL-7 and SL-28 is .95, providing additional support for Hypothesis 1c. Table 1 contains the results of these analyses. Finally, an ANOVA was conducted between the undergraduate and graduate student samples. Results do not show differences in means, $t(814) = -.06$, $p = .95$, or variances, $F(1, 814) = 1.75$, $p = .19$, of the SL-7 scale between these two samples. The graduate student results therefore mirror the undergraduate results, showing the reliability and single factor structure of SL-7 and its convergent validity with the SL-28 composite measure.

Results, Study 1, Sample 3: working undergraduate students

Supporting Hypotheses 1c and 1d, Pearson correlations, reported in Table 2, show strong convergent validity among all four servant leadership scales (SL-7; SL-28 from Liden et al., 2008; Ehrhart, 2004; van Dierendonck & Nuijten, 2011) with correlations ranging from .89 to .97. While the correlations with the Ehrhart and van Dierendonck and Nuijten scales are lower for SL-7 versus SL-28, they are only slightly smaller. CFA results (Table 1) in this sample also show support for the integrity of the SL-7 scale (CFI = .96, SRMR = .04, RMSEA = .10; $\chi^2_{(14,\ N\ =\ 131)} = 32.21$, $p < .01$; CFA standardized factor loadings appear in Table 1), providing additional support for Hypothesis 1b. As with Sample 1 and Sample 2, the Cronbach alpha of the SL-7 dropped when compared to the SL-28, but remained strong at .89, providing additional support for Hypothesis 1a. Taken together, these (working) student samples support Hypothesis 1, showing SL-7 to be a reliable measure that offers strong convergent validity with other, much longer, scales of servant leadership.

Study 2: convergent and criterion-related validity — individual-level evidence

Although Study 1 results demonstrated internal consistency reliability, construct validity through confirmatory factor analyses, and convergent validity with other servant leadership measures, validity is complex and needs to be evaluated in multiple ways (Society for Industrial & Organizational Psychology (SIOP), 2003), including criterion-related validity.

Method, Study 2

Study 2, Sample 1: real estate employees

Data were collected online from employees of a large real estate company in the U.S. Followers (N = 499) and their managers (N = 222) were invited to complete surveys. We received usable data from 174 dyads (effective response rate of 38.89%). The majority of employees were White/Caucasian (77.0%); 10.3% were Black/African American, 5.2% were Hispanic/Latino/Latina, 3.4% were Asian/Pacific Islander, 2.3% reported "other", and three individuals elected not to report race. Most of the employees were female (58.6%), 40.8% were male, and one individual elected not to report sex. The majority of the sample had a 4-year college degree (52.9%), 17.2% had a graduate education, 24.7% reported an associate's degree or some college, 3.4% had a high school diploma, and three individuals elected not to report their education level. Their average organizational tenure was 5.14 years ($SD = 5.63$), average job tenure 2.58 years ($SD = 3.30$), and average tenure with their manager was 2.00 years ($SD = 2.13$).

Table 2
Study 1, Sample 3: Means, standard deviations, bivariate correlations, standard error and 95% confidence intervals around the correlations between the Liden et al. (2008) SL-28, SL-7, Ehrhart (2004), and van Dierendonck and Nuijten (2011) servant leadership scales.

Variables	Mean	*SD*		1	2	3	4
1. van Dierendonck & Nuijten, 2011	4.76	1.01		(.95)			
2. Ehrhart, 2004	4.74	1.32	Correlation	.93	(.96)		
			Std. error	.01			
			95% CI lower	.90			
			95% CI upper	.95			
3. Liden et al., 2008 (SL-28)	4.75	1.24	Correlation	.92	.94	(.97)	
			Std. error	.01	.01		
			95% CI lower	.90	.91		
			95% CI upper	.94	.96		
4. SL-7	4.67	1.35	Correlation	.89	.90	.97	(.89)
			Std. error	.02	.02	.01	
			95% CI lower	.85	.86	.96	
			95% CI upper	.92	.94	.98	

N = 131. All correlations are significant at the $p < .01$ level (2-tailed). Cronbach alpha is reported in parentheses on the diagonal. Bootstrap results are based on 1000 samples. *SD* = standard deviation. CI = confidence interval. SL-28 and SL-7 represent the long and short form servant leadership scales, respectively.

Measures, Study 2, Sample 1. The response scale for OCB-O and OCB-I captured the frequency of citizenship behaviors with a scale ranging from 1 = never to 7 = always. A strongly disagree = 1 to strongly agree = 7 response scale was used for all other measures.

OCB-O. Managers completed ratings of their followers' OCBs directed toward the organization using Podsakoff, MacKenzie, Moorman, and Fetter's (1990) 14-item measure. A sample item is "attendance at work is above the norm." Cronbach's alpha for this measure was .87.

OCB-I. Managers completed ratings of their followers' OCBs directed toward individuals in the workgroup using a 5-item measure adapted from Rupp and Cropanzano (2002). A sample item is "This follower helps you when you have a heavy work load." Cronbach's alpha for this measure was .89.

In-role performance. Managers also completed ratings of their follower's in-role performance using Williams and Anderson's (1991) 7-item measure. A sample item is "This follower adequately completes assigned duties." Cronbach's alpha for this measure was .90.

Servant leadership. Followers completed the SL-28 (Liden et al., 2008) of which the short form is a subset (SL-7; see Table 1 for the complete list of items). Cronbach's alphas for SL-28 and SL-7 are .96 and .86 respectively.

Study 2, Sample 2: Singapore employees

Data were collected on-site from 10 organizations in Singapore. A variety of industries were represented, including education, healthcare, consulting, and non-profit etc. In total, 409 employees (response rate = 88%) and their 78 managers (response rate = 94%) participated in the survey during their work hours in the presence of a member of our research team. Employees reported their managers' servant leadership. Managers rated the extent to which each subordinate engaged in creativity and helping behaviors. Due to missing data, the final sample consisted of 378 employee–manager dyads, leading to an effective response rate of 81%.

Among the 378 employees, 35% were male. The majority of them had a graduate degree (45.0%), 28.0% had a bachelor's degree, 2.4% had an associate's degree or some college, 14.3% had a high school diploma, 7.7% did not have a degree, and ten individuals did not indicate their education. The average organizational tenure was 6.80 years (SD = 6.04), average position tenure was 5.43 years (SD = 5.83), and average tenure with their manager was 3.25 years (SD = 3.56).

Measures, Study 2, Sample 2. Employees reported their managers' servant leadership behaviors and managers rated their employees' helping behaviors and creativity, both using scales ranging from 1 = strongly disagree to 7 = strongly agree.

Helping. Helping was measured by 5 items on altruism from Podsakoff et al. (1990). A sample item is "This employee helps others who have been absent." Cronbach's alpha for this measure was .89.

Creativity. We used a 4-item scale from Baer and Oldham (2006) to measure employee creativity. A sample item is "This employee often comes up with creative solutions to problems at work." Cronbach's alpha for this measure was .93.

Servant leadership. We assessed servant leadership using the same SL-28 scale (Liden et al., 2008) of which SL-7 is a subset. Cronbach's alphas for SL-28 and SL-7 were .96 and .87 respectively.

Table 3
Study 2, Sample 1: Means, standard deviations, bivariate correlations, standard error and 95% confidence intervals around the correlations between SL-28, SL-7, OCB-O, OCB-I, and in-role performance.

Variables	Mean	*SD*		1	2	3	4	5
1. SL-28	4.87	1.05		(.96)				
2. SL-7	4.69	1.17	Correlation	.96	(.86)			
			Std. error	.01				
			95% CI lower	.95				
			95% CI upper	.97				
3. OCB-O	5.56	.87	Correlation	.39	.37	(.87)		
			Std. error	.07	.07			
			95% CI lower	.23	.22			
			95% CI upper	.53	.50			
4. OCB-I	5.40	1.34	Correlation	.29	.28	.63	(.89)	
			Std. error	.08	.08	.06		
			95% CI lower	.13	.13	.49		
			95% CI upper	.45	.43	.75		
5. In-role performance	6.05	.83	Correlation	.34	.28	.67	.53	(.90)
			Std. error	.09	.08	.05	.08	
			95% CI lower	.16	.10	.57	.37	
			95% CI upper	.50	.43	.76	.68	

N = 174. All correlations significant ($p < .01$). Bootstrap results are based on 1000 samples. Cronbach alpha is reported in parentheses on the diagonal. SD = standard deviation. CI = confidence interval. SL-28 and SL-7 represent the long and short form servant leadership scales, respectively. OCB-O = organizational citizenship behavior directed toward the organization. OCB-I = organizational citizenship directed toward the leader.

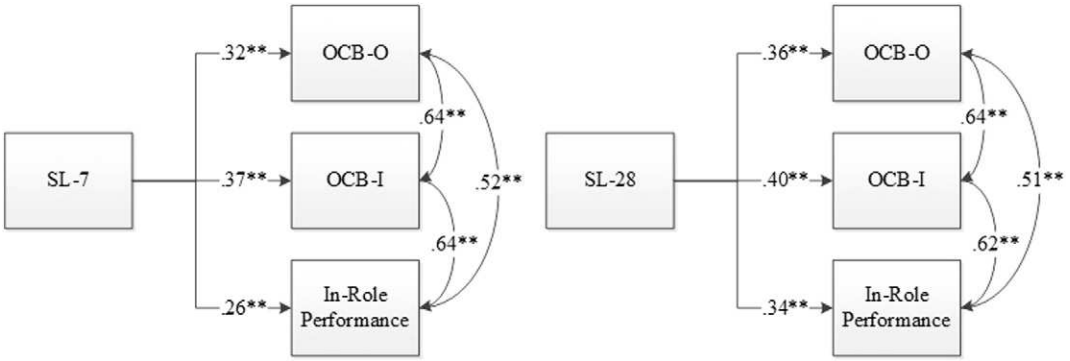

Fig. 1. Study 2, Sample 1: Structural models with unstandardized parameter estimates for both SL-7 and SL-28.

Results: Study 2

Results Study 2, Sample 1

Table 3 contains the bivariate correlations between study variables as well as confidence intervals around those estimates. The correlation between SL-7 and SL-28 is .96. Further, as is shown in Table 3, the bootstrapped 95% confidence intervals (1000 samples) around the correlations of SL-7 and SL-28 with the three study outcome variables overlap substantially; the confidence interval on the difference between the correlations included zero. This indicates no significant differences in the correlations of SL-7 and SL-28 and our outcome variables. Together, these results provide additional evidence of convergent validity for the SL-7 scale.

In order to compare the criterion-related validity of SL-7 with that of SL-28, we ran two structural equation path models in Mplus (Muthén & Muthén, 2014) using a single-indicator approach. To do this, we specified the path between the observed and latent variable to be the square root of the Cronbach alpha reliability estimate and the error associated with the observed variable to be one minus the Cronbach alpha reliability estimate multiplied by the observed variable's variance. We chose this analysis technique in order to simultaneously test the relationship between servant leadership and our three outcome variables and to compare the parameter weights and the confidence intervals around those estimates using both SL-7 and SL-28. The structural model results are presented in Fig. 1. These models are fully saturated (i.e., just identified, df = 0), therefore we cannot evaluate (comparative) model fit, as the traditional fit statistics for structural models are not meaningful for just identified models. We proceeded with this analysis, because the purpose of our statistical test is not model comparison, for which comparison of fit statistics is necessary, but rather a test of Hypothesis 2, which the path weights and confidence intervals around them provide. This method has three advantages for us over OLS regression: 1) we can evaluate all outcomes simultaneously; 2) measurement error is accounted for; and 3) we use the same statistical method throughout this paper on subsequent samples. The confidence intervals and unstandardized parameter estimates are presented in Table 4. For both SL-7 and SL-28, all paths were significant and positive. Specifically, the unstandardized parameter estimates for SL-7 and OCB-O, OCB-I, and in-role performance were .32, .37, and .26 and the estimates for SL-28 and these outcomes were .36, .40, and .34, respectively. Consistent with Hypothesis 2, Study 2 provides evidence for the criterion-related validity of the SL-7 scale at the individual level.

Results, Study 2, Sample 2

The bivariate correlations between the variables as well as confidence intervals around those estimates are displayed in Table 5. Consistent with Study 2 Sample 1, the correlation between SL-7 and SL-28 is .96. Similar to the results in Study 2 Sample 1, the bootstrapped 95% confidence intervals (1000 samples) around the correlations of SL-7 and SL-28 with the two study outcome variables overlap substantially, providing support for the convergent validity of the SL-7 scale.

Due to the nested structure of the data in this sample (employees nested within managers), we ran two multilevel structural equation models using the single indicator approach in Mplus (Muthén & Muthén, 2014) to compare the criterion-related validity of SL-7 with that of SL-28 and account for rater effects. The multilevel structural model results are presented in Fig. 2. Both models showed satisfactory fit (SL-28: CFI = 1.00, RMSEA = .00, SRMR [within] = .00, SRMR [between] = .04, AIC = 2581.57, $\chi^2_{(2,\ N\ =\ 378)} = .19$; SL-7: CFI = 1.00, RMSEA = .00, SRMR [within] = .00, SRMR [between] = .04, AIC = 2660.50, $\chi^2_{(2,\ N\ =\ 378)} = .12$). The unstandardized parameter estimates for the relationship between SL-7 and helping and SL-7 and creativity were .21 ($p \leq .01$) and .14 ($p \leq .05$), while the estimates for SL-28 and these outcomes were .23 ($p \leq .01$) and .13 ($p \leq .05$), respectively.[1] Supporting Hypothesis 2, these results provide evidence for the criterion-related validity of the SL-7 scale at the individual level with employees from diverse organizations and in an eastern cultural context.

Study 3: convergent and criterion-related validity — group-level evidence

Satisfied with the psychometric properties of the SL-7 subset items selected from the 28 item multidimensional servant leadership scale and the criterion-related validity of the instrument at the individual level, we proceeded to test the convergent and criterion-

[1] We did not present the bootstrapping results as multilevel bootstrapping techniques have yet to be developed and are not available in Mplus.

Table 4
Study 2, Sample 1: Comparison of unstandardized parameter estimates, standard errors, and 95% confidence intervals for SL-7 and SL-28 criterion-related validity.

Variables		Estimate	Std. err.	*p* val	Lower	Upper
OCB-O	SL-28	.36	.07	<.001	.22	.49
	SL-7	.32	.06	<.001	.20	.45
OCB-I	SL-28	.40	.11	<.001	.16	.61
	SL-7	.37	.11	<.001	.16	.56
In-role performance	SL-28	.34	.08	<.001	.15	.48
	SL-7	.26	.08	=.001	.10	.40

Note. N = 174. 95% confidence intervals computed using 1000 bootstrap samples.

related validity of the proposed SL-7 scale versus results obtained with the SL-28 scale at the group level. We used data from a published group-level study that employed the original Liden et al. (2008) SL-28 scale as a composite measure of servant leadership (Hu & Liden, 2011). Analyses described and executed with the SL-28 in the published article was re-run with the SL-7 scale described above. Results using the SL-7 were then compared to the findings from the same analyses reported in the published article that was based on the SL-28. These findings serve to establish a comparative baseline between SL-7 and SL-28, while at the same time provide evidence for the convergent and criterion-related validity of the SL-7 at the group level of analysis.

Method, Study 3: Hu and Liden (2011)

The initial sample consisted of 95 teams operating in five banks in China. These teams worked in different functional areas, such as accounting, personal finance, corporate finance, credit card, and trust. Two versions of surveys (one for team members and one for upper-level managers) were distributed. Team members provided ratings on their perceptions of servant leadership (28-item scale from Liden et al., 2008; 1 = strongly disagree to 7 = strongly agree; $\alpha = .96$), team potency (7 items from Riggs & Knight, 1994; e.g., "The team I work with has above average ability"; 1 = strongly disagree to 7 = strongly agree; $\alpha = .78$), goal clarity (five items from Sawyer, 1992; e.g., "please rate the degree of clarity felt about my duties and responsibilities"; 1 = very uncertain to 7 = very certain; $\alpha = .87$), and process clarity (five items from Sawyer, 1992; e.g., "please rate the degree of clarity felt about how to divide my time among the tasks required of my job"; 1 = very uncertain to 7 = very certain; $\alpha = .84$). Upper-level managers evaluated the performance (four items adapted from Liden, Wayne, & Stilwell, 1993; e.g., "please rate the overall level of performance that you observe for this team"; 1 = unacceptable to 7 = outstanding; $\alpha = .96$) and OCB (seven items adapted from Smith, Organ, & Near, 1983; e.g., "In general, members of this team help others who have been absent"; 1 = never to 7 = always; $\alpha = .89$) of the teams under their jurisdiction. Participants were allowed to complete their surveys anywhere they preferred and were asked to mail the completed surveys back to the researchers in self-addressed stamped envelopes. In order to ensure a stable membership (Hackman, 2002), only teams with more than six months tenure were included in the analysis. The final effective sample with matched data from upper-level managers and team members comprised 71 teams, with 304 employees and 60 upper-level managers.

Results, Study 3: Hu and Liden (2011)

The means, standard deviations, internal consistency reliabilities, and correlations with correction for attenuation (i.e., disattenuated correlations) are presented in Table 5. Cronbach's alphas were .96 and .90 for the SL-28 and SL-7, respectively. The pattern of correlations remained the same for SL-28 and SL-7.

Table 5
Study 2, Sample 2: Means, standard deviations, bivariate correlations, standard error and 95% confidence intervals around the correlations between SL-28, SL-7, helping, and creativity.

Variables	Mean	*SD*		1	2	3	4	5
1. SL-28	4.94	.93		(.96)				
2. SL-7	4.90	1.03	Correlation	.96**	(.87)			
			Std. error	.01				
			95% CI lower	.95				
			95% CI upper	.97				
3. Helping	5.39	.87	Correlation	.19**	.18**	(.89)		
			Std. error	.07	.07			
			95% CI lower	.07	.06			
			95% CI upper	.32	.31			
4. Creativity	4.88	1.08	Correlation	.11*	.11*	.70**	(.93)	
			Std. error	.06	.06	.04		
			95% CI lower	.003	.001	.62		
			95% CI upper	.22	.22	.76		

Note. N = 378. Bootstrap results are based on 1000 samples. Cronbach alpha is reported in parentheses on the diagonal. *SD* = standard deviation. CI = confidence interval. SL-28 and SL-7 represent the long and short form servant leadership scales, respectively.
* $p < .05$.
** $p < .01$.

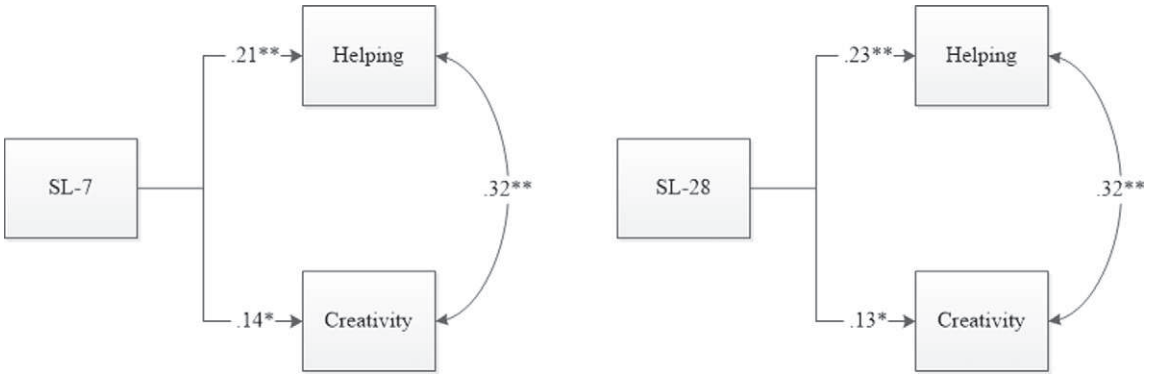

Fig. 2. Study 2, Sample 2: Multilevel structural models with unstandardized parameter estimates for both SL-7 and SL-28.

As shown in Table 6, consistent with the original results using SL-28 reported by Hu and Liden (2011), confirmatory factor analysis supports the hypothesized four-factor model wherein SL-7, team potency, goal clarity, and process clarity were treated as four independent factors provided better fit to the data (CFI = .95, SRMR = .08, RMSEA = .09; $\chi^2_{(246)} = 382.81$, $p < .001$) than the alternative three-factor model wherein SL-7 and team potency were two factors and goal and process clarity were combined as a third factor ($\Delta\chi^2_{(3)} = 43.43$, $p < .001$) and the alternative one-factor model with all variables combined ($\Delta\chi^2_{(6)} = 312.56$, $p < .001$). In addition, we followed Fornell and Larcker (1981, p. 46) to calculate the average variance extracted value, $\rho_{vx(\eta)}$ of SL-7 to determine if its convergent and discriminant validity are adequate. According to Fornell and Larcker (1981), if $\rho_{vx(\eta)}$ is greater than .50, it indicates that the variance explained by the construct is greater than the variance due to measurement error and the convergent validity is adequate. At the same time, if $\rho_{vx(\eta)}$ is greater than the covariance between the focal construct and any other related constructs, it suggests adequate discriminant validity of the focal construct. The $\rho_{vx(\eta)}$ value of .63 for servant leadership measured by the SL-7 indicates that the variance caused by measurement error is smaller than the variance explained by the servant leadership construct. These findings offer support for the convergent validity of the SL-7. Furthermore, the $\rho_{vx(\eta)}$ value is greater than the shared variance between servant leadership and other studied constructs (i.e., .44 with goal clarity, .52 with process clarity, and .44 with team potency), meeting Fornell

Table 6
Study 2, Sample 2: Comparison of unstandardized parameter estimates and standard errors.

Variables		Estimate	Std. err.	*p* val
Helping	SL-28	.23	.07	.002
	SL-7	.21	.07	.003
Creativity	SL-28	.13	.07	.052
	SL-7	.14	.06	.032

Note. N = 378.

Table 7
Study 3: Team construct means, standard deviations, and disattenuated correlations.

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Organization 1	.25	.44	–															
2. Organization 2	.24	.43	.31	–														
3. Organization 3	.21	.41	−.30	−.28	–													
4. Organization 4	.20	.40	−.29	−.27	−.26	–												
5. Organization 5	.10	.30	−.18	−.16	−.16	−.15	–											
6. Team mean age	28.10	2.91	.33	−.33	−.23	.32	−.12	–										
7. Organizational tenure	4.78	2.96	.40	−.30	−.37	.35	−.17	.92	–									
8. Mean team tenure	2.99	1.67	.28	−.36	−.21	.31	−.04	.73	.76	–								
9. Goal clarity	5.74	.80	.11	.01	.19	−.03	−.24	−.11	−.24	−.32	(.87)							
10. Process clarity	5.68	.67	.15	−.16	.18	.08	−.33	.15	.05	−.05	.84	(.84)						
11. Team potency	5.23	.61	.55	.01	.07	−.32	−.36	.11	.11	−.16	.39	.37	(.78)					
12. SL-28	4.93	.51	.44	−.01	−.02	−.18	−.23	.29	.27	.08	.22	.13	.68	(.96)				
13. SL-7	4.75	.69	.33	−.04	−.01	−.10	−.30	.31	.28	.08	.29	.16	.63	.84	(.90)			
14. Team performance	5.31	.76	.58	−.22	.11	−.33	−.23	.15	.10	.06	.46	.36	.68	.63	.53	(.96)		
15. Team OCB	4.96	.68	.57	−.04	−.08	.27	−.27	.20	.20	.03	.38	.38	.58	.63	.60	.78	(.89)	
16. task interdependence	4.94	.50	.52	.01	−.18	−.23	−.24	.05	.09	−.01	.45	.45	.64	.53	.49	.67	.93	(.79)

Note. N = 71; Disattenuated correlations were reported. Cronbach alpha is reported in parentheses on the diagonal. SL-28 is the 28-item Liden et al. (2008) servant leadership scale. SL-7 is the 7-item short form proposed in the present research. OCB is organizational citizenship behavior. The uncorrected correlation between SL-7 and SL-28 is .78.

Table 8
Study 3: Confirmatory factor analysis results for hypothesized variables.

Model	χ^2	df	$\Delta\chi^2$	Δdf	CFI	SRMR	RMSEA
Model 1. Four-factor[a]	382.81***	246			.95	.08	.09
Model 2. Three-factor[b]	426.24***	249	43.43***	3	.94	.08	.10
Model 3. One-factor[c]	695.37***	252	312.56***	6	.89	.11	.16

Note. N = 71.
CFI = comparative fit index; SRMR = standardized root-mean-square residual; RMSEA = root-mean-square error of approximation.
[a] Goal clarity, process clarity, team potency, and servant leadership as four independent factors.
[b] Goal clarity and process clarity as one combined factor, team potency and servant leadership as two independent factors.
[c] Goal clarity, process clarity, team potency, and servant leadership as one combined factor.
*** $p < .001$.

and Larcker's (1981) discriminant validity criterion. In order to test criterion-related validity of the SL-7 versus the SL-28, hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002) was used, as the upper level leaders who rated team performance and OCB have oversight for multiple teams. Bauer, Preacher, and Gil's (2006) lower-level mediation method was used to test the mediational role of team potency in the model. Details of the analysis method can be found in the original article. Results of the analysis are presented in Tables 7 and 8. Supporting Hypothesis 3, the pattern of significance mirrors the original findings and supports the Hu and Liden (2011) study hypotheses in the same manner as presented in the original article. Specifically, servant leadership measured with the SL-7 scale was positively related to team potency ($\beta = .26$, $p < .05$), which in turn positively related to team performance ($\beta = .45$, $p < .01$) and team OCB ($\beta = .39$, $p < .01$). At the same time, servant leadership remained significantly and positively related to team performance ($\beta = .59$, $p < .01$) and team OCB ($\beta = .43$, $p < .01$), suggesting that team potency partially mediated the relationships between servant leadership and team effectiveness (Table 9). These results are consistent with the results based on servant leadership measured with the SL-28 scale. In addition, the indirect effect was significant for both team performance

Table 9
Study 3: Hierarchical multilevel fixed model analysis results of team potency as a mediator.

	Total effects		Fixed effects		
	X → Y		X → M	M → Y	
	Model 1a	Model 1b	Model 2	Model 3a	Model 3b
Dependent variables	Y: team performance	Y: team OCB		Y: team performance	Y: team OCB
Step 1: control variables					
Organization 1	.82***|.71***	.78***|.68***	.67***|.60**	.52**|.51**	.73**|.71**
Organization 2	.12|.17	.37**|.47**	.13|.10	.02|.03	.12|.11
Organization 3	.41|.45	.36*|.49**	.22|.24	.32|.37	.35|.37
Organization 4	.06|.05	.16|.10	−.09| − .07	−.08| − .07	.17|.18
Team mean age	.08|.11	.01|.06	.05|.05	.01|.02	.01|.02
Organizational tenure	.05|.05	−.01| − .04	−.02| − .02	−.04| − .05	−.01| − .01
Team mean tenure	−.14*| − .16*	−.03| − .04	−.13*| − .10	.08|.08	−.03| − .04
Step 2: independent variables					
Goal clarity	.29** (c)|.24*	.41** (c)|.32**	.31** (a)|.28*	.14 (c′)|.14	.29 (c′)|.26
Process clarity	.14* (c)|.19*	.19** (c)|.19*	.25* (a)|.24*	.01 (c′)|.07	.09 (c′)|.11
Servant leadership	.77*** (c)|.63**	.59** (c)|.54**	.29** (a)|.26*	.63*** (c′)|.59**	.48** (c′)|.43**
Step 3: Mediator					
Team potency				.49** (b)|.45**	.38** (b)|.39**
			X: goal clarity	Estimated var (a_jb_j) = 0.03	Estimated var (a_jb_j) = 0.02
				$E(a_jb_j) = 0.16$	$E(a_jb_j) = 0.12$
				CI = 0.07, 0.24; S.E. = 0.04	CI = 0.03, 0.38; S.E. = 0.07
				$E(a_jb_j + c'_j) = 0.30$	$E(a_jb_j + c'_j) = 0.41$
				CI = 0.13, 0.46; S.E. = 0.09	CI = 0.14, 0.69; S.E. = 0.14
			X: process clarity	Estimated var (a_jb_j) = 0.02	Estimated var (a_jb_j) = 0.01
				$E(a_jb_j) = 0.10$	$E(a_jb_j) = 0.10$
				CI = 0.01, 0.21; S.E. = 0.06	CI = 0.01, 0.21; S.E. = 0.05
				$E(a_jb_j + c'_j) = 0.19$	$E(a_jb_j + c'_j) = 0.19$
				CI = 0.05, 0.43; S.E. = 0.12	CI = 0.04, 0.41; S.E. = 0.05
			X: servant leadership	Estimated var (a_jb_j) = 0.01	Estimated var (a_jb_j) = 0.01
				$E(a_jb_j) = 0.15$	$E(a_jb_j) = 0.12$
				CI = 0.01, 0.29; S.E. = 0.07	CI = 0.01, 0.25; S.E. = 0.07
				$E(a_jb_j + c'_j) = 0.78$	$E(a_jb_j + c'_j) = 0.60$
				CI = 0.48, 0.77; S.E. = 0.15	CI = 0.32, 0.87; S.E. = 0.14

Note. N = 71. X = goal clarity/process clarity; M = team potency; Y = team performance/team OCB; CI = confidence interval; S.E. = standard error. Number on the left of each cell is based on results with SL-28; numbers on the right of each cell is based on results with SL-7.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

Table 10
Study 3: Hierarchical multilevel analysis results of the moderating role of servant leadership in the relationship between goal and process clarity and team potency.

Variable	Team potency		
	Model 1	Model 2	Model 3
Step 1: control variables			
Organization 1, γ_{10}	.88***	.57**|.60**	.56**|.59**
Organization 2, γ_{20}	.39	.19|.20	.16|.16
Organization 3, γ_{30}	.52*	.33|.25	.35|.24
Organization 4, γ_{40}	−.10	−.16|−.07	−.15|−.03
Team mean age, γ_{50}	.03	0|.05	0|.05
Organizational tenure, γ_{60}	.06	.05|.02	.06|.05
Team mean tenure, γ_{70}	.16**	.11*|.10	.14|.08
Step 2: independent variables			
Goal clarity, γ_{80}		.20|.28*	.04|.10
Process clarity, γ_{90}		.16|.14	.09|.08
Servant leadership, γ_{100}		.40**|.36**	.46**|.38**
Step 3: Moderator			
Goal clarity * servant leadership, γ_{110}			.52**|.47**
Process clarity * servant leadership, γ_{120}			.27*|.30*
$R^2_{within\text{-}group}$	.15	.17|.17	.21|.22
$R^2_{between\text{-}group}$	.18	.58|.47	.74|.65
R^2_{total}[a]	.13	.29|.26	.36|.34
$\Delta R^2_{within\text{-}group}$		.02|.02	.04|.05
$\Delta R^2_{between\text{-}group}$		.40|.29	.16|.18
ΔR^2_{total}		.16|.13	.07|.08

Note. N = 71. Number on the left of each cell is based on results with SL-28; numbers on the right of each cell is based on results with SL-7.
[a] $R^2_{total} = R^2_{within\text{-}group} * (1 - ICC1) + R^2_{between\text{-}group} * ICC1$. ICC1 indicates the proportion of variance in the outcome variable that resides between groups. ICC1 for team potency as the outcome is .29.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

as the outcome (95% CI = [.01, .29], excluding zero) and for team OCB as the outcome (95% CI = [.01, .25], excluding zero). Finally, the nature of the interactions remains unchanged from Hu and Liden (Table 10). That is, in Fig. 3, we found that goal clarity and team potency are positively related when servant leadership is higher ($\beta = .43$, $p < .01$) and became negative when servant leadership is lower ($\beta = -.22$, $p < .05$). In Fig. 4, process clarity was more positively related to team potency when servant leadership is higher ($\beta = .29$, $p < .01$) than when it is lower ($\beta = -.12$, *ns*). This evidence supports the criterion-related validity of the SL-7 scale and demonstrates it to be comparable to SL-28 at the group level of analysis.

Discussion

The current investigation provides strong support for the use of the SL-7 scale as an alternative to the SL-28 scale when researchers are interested in investigating servant leadership as a composite or global variable. Three independent student samples demonstrated SL-7's reliability, factor structure, and convergent validity to be commensurate with the SL-28 composite measure. Convergent validity was further demonstrated with correlations ranging from .89 to .97 between the SL-7 and Ehrhart's (2004) 14-item and van Dierendonck and Nuijten's (2011) 30-item servant leadership scales. In Study 2, two samples from 11 organizations were

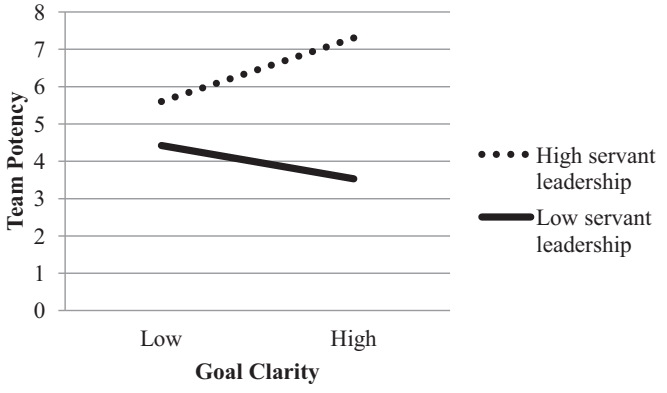

Fig. 3. Study 3: Interaction between goal clarity and servant leadership on team potency. *Note.* For the interaction with SL7, the slope for the relationship between goal clarity and team potency in high servant leadership condition is .43, $p < .01$; the slope for the low servant leadership condition is −.22, $p < .05$.

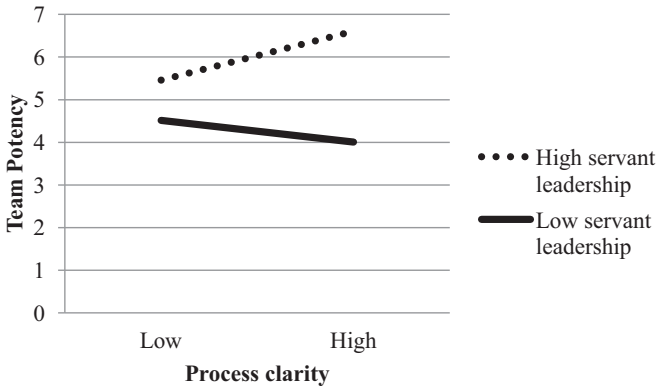

Fig. 4. Study 3: Interaction between process clarity and servant leadership on team potency. *Note*. For the interaction with SL7, the slope for the relationship between process clarity and team potency in high servant leadership condition is .29, $p < .01$; the slope for the low servant leadership condition is −.12, $p > .05$.

used to establish criterion-related (concurrent) validity at the individual level of analysis. In order to establish criterion-related validity at the group level, data from a published servant leadership study were re-analyzed with SL-7 as the measure of servant leadership and results were compared with those published in the original article using the SL-28 measure. In the analyzed datasets, the patterns of significance and results were unchanged with regard to study hypotheses and nearly unchanged overall between the SL-7 and SL-28.

Implications for servant leadership theory

In order for a theory to be useful, it must be testable (Whetten, 1989), and in order for meaningful tests to be conducted, valid measurement is essential. Although van Dierendonck identified the measures by Liden et al. (2008) and van Dierendonck and Nuijten (2011) as the only servant leadership measures meeting this requirement due to the rigorous procedures that were used in developing them, these scales have 28 and 30 items, respectively. Clearly, in order to be more widely usable, a concise scale intended to assess global servant leadership is needed to expedite theory testing on servant leadership. We feel that the SL-7 provides such a measurement tool for enhancing servant leadership theory testing.

Greenleaf's (1970) essay on servant leadership, while seminal, was an expression of a leadership philosophy rather than a leadership theory. Indeed, it reads more akin to a Socratic dialogue than a scientific discussion of theory and hypotheses. Greenleaf was reflecting on his career, informed by his own experience and thoughtful reflection on the condition of society as he saw it in the U.S. in the 1960's. His original essay argued that serving others should not only coexist with leadership and productivity but is integral to them. While the foundation of servant leadership theory was laid with Graham's (1991) insightful discussion of servant leadership and presentation of case studies, her work can be seen as an appeal to develop and test theory, rather than a development of theory per se. One challenge that may have prevented a more rapid adoption of the servant leadership construct and development of theory by researchers was the lack of a clear definition provided by Greenleaf himself. As van Dierendonck (2011) notes, a plethora of servant leadership models with various dimensions filled this vacuum, adding to the difficulty that researchers face when developing servant leadership theory. However, in recent years, scholars have made significant progress in laying the groundwork for servant leadership theory (for a review see Liden, Panaccio, Meuser, Hu, & Wayne, 2014). With the psychometrically sound SL-28 for assessing servant leadership dimensions (Liden et al., 2008), as well as the concise SL-7 scale presented in the current study for efficiently measuring global servant leadership, servant leadership is poised to become a prominent theory of leadership.

Strengths, limitations, and suggestions for future research

A strength of the current investigation is the assessment of the new 7-item servant leadership scale (SL-7) employing six independent samples to assess its reliability and validity at both the individual and group levels. Another strength of the present study is the use of multicultural data, with data collected in the U.S., China, and Singapore. Despite this strength, it would be useful to expand the data collection using the SL-7 to countries in other parts of the world.

A potential weakness is that the original SL-28 scale was developed using U.S. samples exclusively, which may limit its generalizability. Although van Dierendonck and Nuijten's (2011) scale, which we demonstrated in the current investigation to be highly correlated with the SL-7, was developed in the Netherlands, to increase the likelihood that all items capture global relevance we recommend that future scale development efforts include samples from culturally diverse countries (Liden, 2012). Specifically, when the goal is to develop theories and corresponding measures that generalize across national borders, the standard practice of developing scales in the U.S. and subsequently translating them for use in other countries should be abandoned. We should note that although there is great value in developing theory and measures that transcend national borders, we are not arguing that there is not a place for studies of indigenous practices or cultural artifacts. It is possible though, with the internet and dramatic

increases in the number of people traveling internationally, that such regional differences over time may deem indigenous research to be less relevant.

Although the use of student samples is often seen as a limitation (Henry, 2008; Peterson, 2001; Sears, 1986) due to range restriction, experience base, and generalizability concerns, reduced external validity may not extend to all psychological phenomenon (e.g., Clara, Coz, & Enns, 2003; Wiecko, 2010). The work experience present in our undergraduate and graduate student samples, as well as the psychometric similarity of SL-7 between the undergraduate and graduate student populations, provide confidence in the veridicality of the student results. A limiting factor of the samples in Study 2 is that the sample sizes did not provide adequate power to conduct the CFAs at the item level. A limitation of the group-level sample in Study 3 is the restriction to the banking industry. Further, as Smith et al. (2000) observe, correlating a subset of items with a larger set administered at the same time may upwardly bias the correlation. Ideally, the short form scale would be collected at a different time or elsewhere in the survey. We do not view this as a major limitation, especially given that instead of assuming the outcome-related validity of the SL-7 based on results of the full 28-item scale, we directly tested the criterion-related validity of the SL-7 in conformance with the recommendations of Smith et al. (2000). We also conformed with Smith et al.'s (2000) suggestion that short scales should retain coverage of the entire 7-factor content domain (also see Credé et al., 2012 and Johnson et al., 2011).

Given the strong support we found for the SL-7 scale, we encourage researchers to develop comprehensive models on the antecedents and/or outcomes of servant leadership. The shorter servant leadership scale allows for these larger models, which should result in studies with greater incremental contributions to what we know about this form of leadership. The SL-7 scale may also allow for additional leadership behaviors to be measured (such as transformational leadership) so that the unique contributions of servant leadership in explaining outcomes are further demonstrated.

Practical implications

Researchers studying servant leadership can make use of SL-7, the shortest of servant leadership measures to date (van Dierendonck, 2011). This reduces servant leadership measurement by 21 items when compared to the original SL-28 measure (Liden et al., 2008) and by 7 items when compared to Ehrhart's (2004) 14-item measure, the heretofore shortest servant leadership scale. This has obvious positive consequences for reducing respondent fatigue and recognizing that organizational participants' time is at a premium within organizations not interested in the dimensions of servant leadership exercised by their managers. Also, the use of SL-7 has demonstrated strong psychometric properties versus ad hoc combinations of SL items that may severely compromise validity (Bono & McNamara, 2011; Keller & Dansereau, 2001; Smith et al., 2000). Specifically, the SL-7 approximates the domain of the construct as all seven dimensions of the SL-28 are contained, with one item from each dimension. Finally, the small decreases in reliability and validity from the SL-28 to the SL-7 are negligible, making the time savings associated with asking respondents to complete 21 fewer items well worth it if the goal is to assess global servant leadership (Smith et al., 2000).

Although each of the 7 dimensions of the original SL-28 are represented in the SL-7, it is important to consider that as with any short version of a scale, reducing the number of items limits the extent to which the domain of the construct is captured (Credé et al., 2012; Smith et al., 2000). For example, the item included in the SL-7 to capture the *emotional healing* dimension, "I would seek help from my manager if I had a personal problem," does not directly address the manager's concern for the follower's well-being, even though this is part of the definition of this dimension and is captured by another item that directly mentions the leader's concern for the follower's well-being. Despite the fact that all 4 items making up the *emotional healing* dimension are positively correlated, we can only assume that a follower would not seek a manager's help with a personal problem unless that follower felt that the manager cared about her well-being. This example points to the limitation of any short version of a scale in capturing the full domain of each dimension. Therefore, if researchers desire full coverage of the domain of each dimension, the full scale should be used. Although the current investigation provides substantial evidence for the success of the SL-7 in capturing the essence of the SL-28, the SL-7 does not serve as a replacement for the SL-28 for research in which the dimensions are to be analyzed separately or when it is essential for the domain of the construct to be fully included in the measure.

Summary and conclusion

Substantial progress has been made toward developing servant leadership theory over the past decade. Research may be further enhanced with the psychometrically sound SL-7 scale introduced in the current investigation. Two undergraduate samples, a graduate sample, and three organizational samples from the U.S., China, and Singapore, provide strong evidence for the validity of the SL-7. Across these samples, the correlation between the SL-7 and SL-28 averaged .90, reliabilities for the SL-7 remained above .80 in all samples, and criterion-related validities (tested only in the organizational samples) for the SL-7 were high and very similar to those produced by the SL-28. In sum, the SL-7 has much to offer to future researchers interested in measuring global servant leadership.

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