INTERNATIONAL JOURNAL of Industrial Education and Technology

A DEVELOPMENT OF TRAIT INDICATORS FOR SERVANT LEADERSHIP OF TEACHERS IN BASIC EDUCATION SCHOOLS AND VOCATIONAL SCHOOLS UNDER THE MINISTRY OF EDUCATION

Sangutai Moto and Boonchan Sisan*

sangutai.mo@kmitl.ac.th and boonchan.si@kmitl.ac.th*

School of Industrial Education and Technology, King Mongkut's Institute of Technology Ladkrabang, Bangkok 10520 Thailand

*Corresponding author E-mail: boonchan.si@kmitl.ac.th

Received: December 21, 2025 **Revised:** December 25, 2025 **Accepted:** December 30, 2025

Citation reference :
Moto, S., & Sisan, B. (2025). A development of trait indicators for servant leadership of teachers in basic education schools and vocational schools under the ministry of education. **International Journal of Industrial Education and Technology,** *7*(2), 154–165.

ABSTRACT

The study conducted a second-order Confirmatory Factor Analysis (CFA) of servant leadership of teacher in basic education schools and vocational schools under the Ministry of Education, with findings based on empirical data. The sample for this research consisted of 1,200 participants, teacher in basic education schools, and teacher in vocational schools under the Ministry of Education, selected through multi-stage random sampling process. The research instrument was a five-point rating scale questionnaire that underwent content validity verification. The results were analyzed to determine the Item-Objective Congruence (IOC), with values ranging from .80 to 1.0. The item discrimination indices of the questionnaire ranged from .46 to .80, and the reliability analysis, using Cronbach's alpha coefficient, yielded a value of .95. The statistical method used for data analysis was CFA. The study results yielded six trait indicators for servant leadership of teacher in basic education schools and vocational schools under the Ministry of Education of six factors, include: valuing others 3 indicators, developing others 4 indicators, developing communities 4 indicators, demonstrating virtue 5 indicators, supporting leadership 4 indicators, and exercising shared leadership 5 indicators. The results of the examining the Goodness-of-Fit Index of CFA found the model fit indexes based on the empirical data were the Relative Chi-Square. (χ^2/df) = 1.242; RMSEA=0.022; SRMR=0.038; GFI=0.958; CFI=0.995; TLI=0.993; NFI=0.975; IFI=0.995. The factor loadings of six factors were from 0.739 – 0.914 and the reliability was at 0.546 – 0.835, indicating that all factors exhibit strong and acceptable loadings. The overall result of CFA measurement model demonstrates a good level of fit and construct validity.

Keywords: Servant leadership, Trait indicators, Confirmatory factor analysis, Basic education, Vocational education

I. INTRODUCTION

The concept of servant leadership originated from Greenleaf's theory, which posits that "true leadership begins with the intention to serve others" (Greenleaf, 1977, pp. 13–14). Since its introduction, this concept has been expanded and widely accepted as a leadership approach capable of strengthening and sustaining both organizations and society (Spears, 1998, pp. 3–11; Sendjaya & Sarros, 2002, pp. 57–64). Servant leadership has been extensively applied in business, nonprofit sectors, and particularly within educational administration, where leaders characterized by integrity and a commitment to developing others are (Liden et al., 2008, pp. 161–177; Bush, 2011, pp. 17–25).

Servant leaders function as moral exemplars within organizations. Through their compassion, honesty, generosity, and attentiveness to the needs of their followers, such leaders cultivate trust and voluntary cooperation without relying on control or coercion. This perspective corresponds with the findings of Wong et al. (2007, p. 9), who reported that servant leaders are able to create positive organizational climates that foster collaboration, moral-based decision-making, empathy, and long-term professional development. These attributes have contributed to the growing recognition of servant leader development as an essential focus in educational administration research. Although the core principles of servant leadership are broadly acknowledged, scholars differ in their definitions of its characteristics and components. Some researchers synthesize concepts from extensive bodies of literature to establish their own frameworks, whereas others adhere to foundational perspectives offered by influential theorists. For instance, Thompson (2005, p. 47) examined servant leadership among school administrators and identified at least ten key factors, including listening, empathy, maintenance, awareness, conceptualization, vision, and community development. Similarly, Bowman (2005, pp. 257–260) extended the concept of servant leadership to the role of teachers, emphasizing that these attributes can be enacted through teachers' everyday practices in classrooms and learning communities. Together, these perspectives illustrate that servant leadership encompasses not only compassion but also strategic thinking and the capacity to effect meaningful change. Similarly, Laub (2004, pp. 4–5) proposed six components of servant leadership: valuing others, developing others, demonstrating morality, providing leadership, sharing leadership power, and building organizational community. These dimensions have become widely utilized in leadership research due to their systematic structure and direct relevance to human capital development within organizations. Despite numerous efforts to conceptualize and define servant leadership, a notable gap persists in the development of valid and reliable indicators (Liden et al., 2008, pp. 161–177). This issue is particularly evident in the Thai context, where comprehensive studies on measuring servant leadership among teachers and educational administrators at both basic and vocational levels remain limited (Sisan, 2017, p. 863). The absence of contextually appropriate indicators presents challenges for systematically assessing and developing leadership practices within Thai educational institutions.

Given the distinct administrative structures, organizational culture, and expectations of parents, administrators, teachers, and other stakeholders within the Thai education system, adopting existing measurement tools from other countries may not be suitable. Thus, it is essential to develop assessment instruments that align with the cultural context and organizational dynamics of Thai education. Instruments that are psychometrically validated and contextually relevant can more accurately evaluate the leadership characteristics of teachers and administrators, thereby supporting more effective approaches to professional development.

Accordingly, this research aims to develop and validate indicators of servant leadership for use in educational institutions at both basic and vocational levels under the Ministry of Education. This effort seeks to produce a systematic assessment tool for evaluating teacher leadership and to provide a foundational database for advancing teacher professional development and improving institutional quality over the long term. The resulting instrument is expected to address the existing knowledge gap regarding servant leadership in the Thai context and serve as a basis for future research on educational leadership.

II. LITERATURE REVIEW

This research examines the concept of servant leadership from Laub (2004, pp. 4-5), which states that a servant leader is a leader with a sense of service, vision and work goals, understanding and guidelines for work. In addition, a servant leader is a good role model that supports and develops followers and the organization more than themselves. Laub's concept states that servant leadership consists of six components: valuing others, developing others, developing communities, demonstrating virtue, supporting leadership, and exercising shared leadership. In addition, Sisan (2017, p. 863) examined a confirmatory factor analysis (CFA) model of servant leadership among school directors under the Office of the Vocational Education Commission in Thailand, incorporating all six components of servant leadership and providing a CFA-based validation of the construct in the Thai educational context. Therefore, the components of servant leadership remain effective across different contexts and are well aligned with the Thai educational context, as they reflect cultural values emphasizing care, moral integrity, and collective responsibility.

In this study, the researcher used the conceptual framework to develop indicators of servant leadership characteristics of teachers in basic education institutions and vocational education institutions under the Ministry of Education, which consists of six components: 1) valuing others, 2) developing others, 3) developing communities, 4) demonstrating virtue, 5) supporting leadership, and 6) exercising shared leadership.

III. RESEARCH METHODOLOGY

The purpose of the research was to conduct a development of trait indicators for servant leadership of teacher in basic education schools and vocational schools under the Ministry of Education.

A. Participants

The research sample consisted of 1,200 participants, consisting of teachers in basic education schools and teachers in vocational schools. The sample size was determined according to the criteria set by Tabachnick and Fidell (2012, p. 618), who suggested that a sample size of 500 or more for CFA is considered excellent, particularly for complex models, to ensure stable parameter estimates, adequate statistical power, and reliable model fit evaluation. The multi-stage sampling process was carried out as follows: 1) Stratified random sampling was used, dividing the sample by school type, namely basic schools and vocational schools under the Ministry of Education. Then, the sample proportion was determined to be consistent with the proportion of each school type, selecting 600 samples per school type, resulting in a total sample of 1,200 (Creswell, 2014, pp. 158–161).

B. Variables

The variables are the dimensions of servant leadership, as shown in figure 1, and include: 1) valuing others, 2) developing others, 3) developing communities, 4) demonstrating virtue, 5) supporting leadership, and 6) exercising shared leadership.

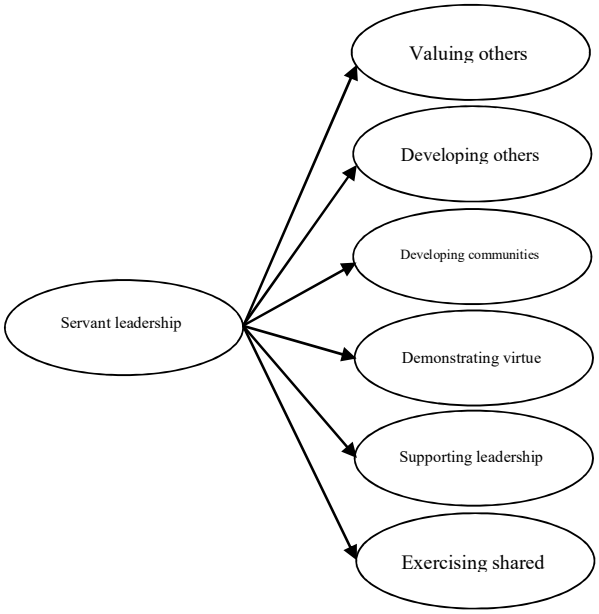


Figure 1: The dimensions of servant leadership

C. Research instrument

This study employed quantitative research methodology to examine the level of servant leadership of trait indicators of teacher in basic education schools and vocational schools under the Ministry of Education. The researcher developed a questionnaire based on the conceptual framework derived from a review of the literature, which was subsequently validated by five experts to assess content validity. The results were analyzed to determine the IOC, with values ranging from .8 to 1.0 for the questionnaire items used in this research (Rovinelli & Hambleton, 1977, pp. 49–60). The questionnaire was then piloted with 30 participants (A try-out group) including namely teacher in basic education schools and vocational schools under the Ministry of Education who were not part of the main research sample. The data were analyzed for discriminatory power using Pearson's simple correlation method by calculating the item-total correlation. The analysis revealed discrimination values ranged from .46 to .80, meeting the established criteria (Ebel, 1976, p. 128). Reliability analysis using Cronbach's alpha coefficient yielded an overall reliability of .95 (Cronbach, 1951, pp. 297–334).

The research questionnaire was administered through an online platform using google forms. The research instrument was a structured questionnaire employing a five-point Likert scale, with response options ranging from 5 (Strongly agree) to 1 (Strongly disagree) (Likert, 1932, pp. 1–55).The procedure for constructing a research questionnaire is presented in Figure 2.

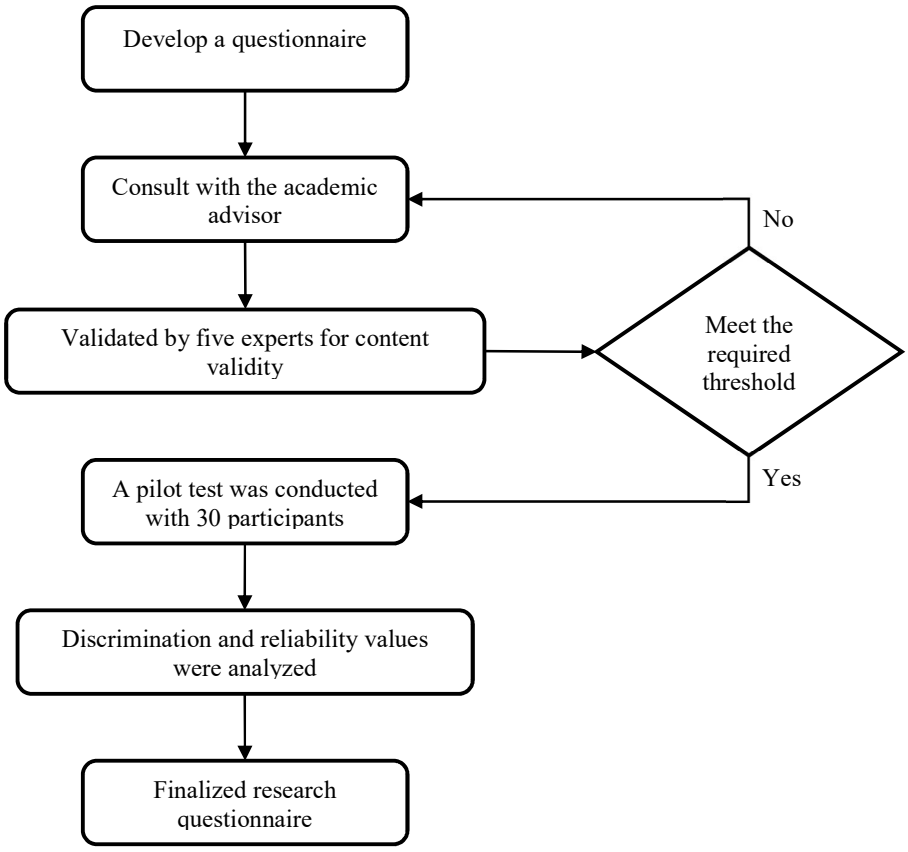


Figure 2: The procedure for constructing a research questionnaire

D. Data analysis

The researcher analyzed data using Jeffreys's Amazing Statistics Program (JASP) to process the data, calculate means, standard deviations, and perform second-order CFA toexamine constuct validity. Model fit was evaluated using multiple goodness-of-fit indices with reference to the criteria suggested by Hair et al. (2010, pp. 639-644), including χ^2/df (< 3.00), RMSEA (≤ 0.08), SRMR (≤ 0.08), and incremental fit indices (GFI, CFI, TLI, NFI, and IFI ≥ 0.90).

IV. RESULTS

Prior to analysis, the researcher verified preliminary assumptions for analyzing variable relationships, including examination of the Kaiser-Meyer-Olkin measure (KMO) to assess the suitability of the entire dataset for analysis. According to Hair et al. (2010, p. 104), the KMO value should exceed .5. The KMO value obtained from this analysis was .957. Additionally, Bartlett's Test of Sphericity was conducted to examine the overall relationships among variables, which, according to goodness-of-fit criteria, must be statistically significant (p-value < .05), indicating that the variables are sufficiently correlated to proceed with factor analysis.

The examination of the Goodness-of-Fit Index using CFA indicated that the model demonstrated an acceptable fit to the empirical data (Relative Chi-Square = 1.242, RMSEA = .022, CFI = .99, NFI = .98, SRMR = .038, RFI = .97, IFI = .99, and GFI = .96 (Sisan, 2017, p. 863). As shown in Table 1, these results indicate congruence of the second-order CFA measurement model for organizational resilience variables with the empirical data.

Table 1: Summary of fit indices

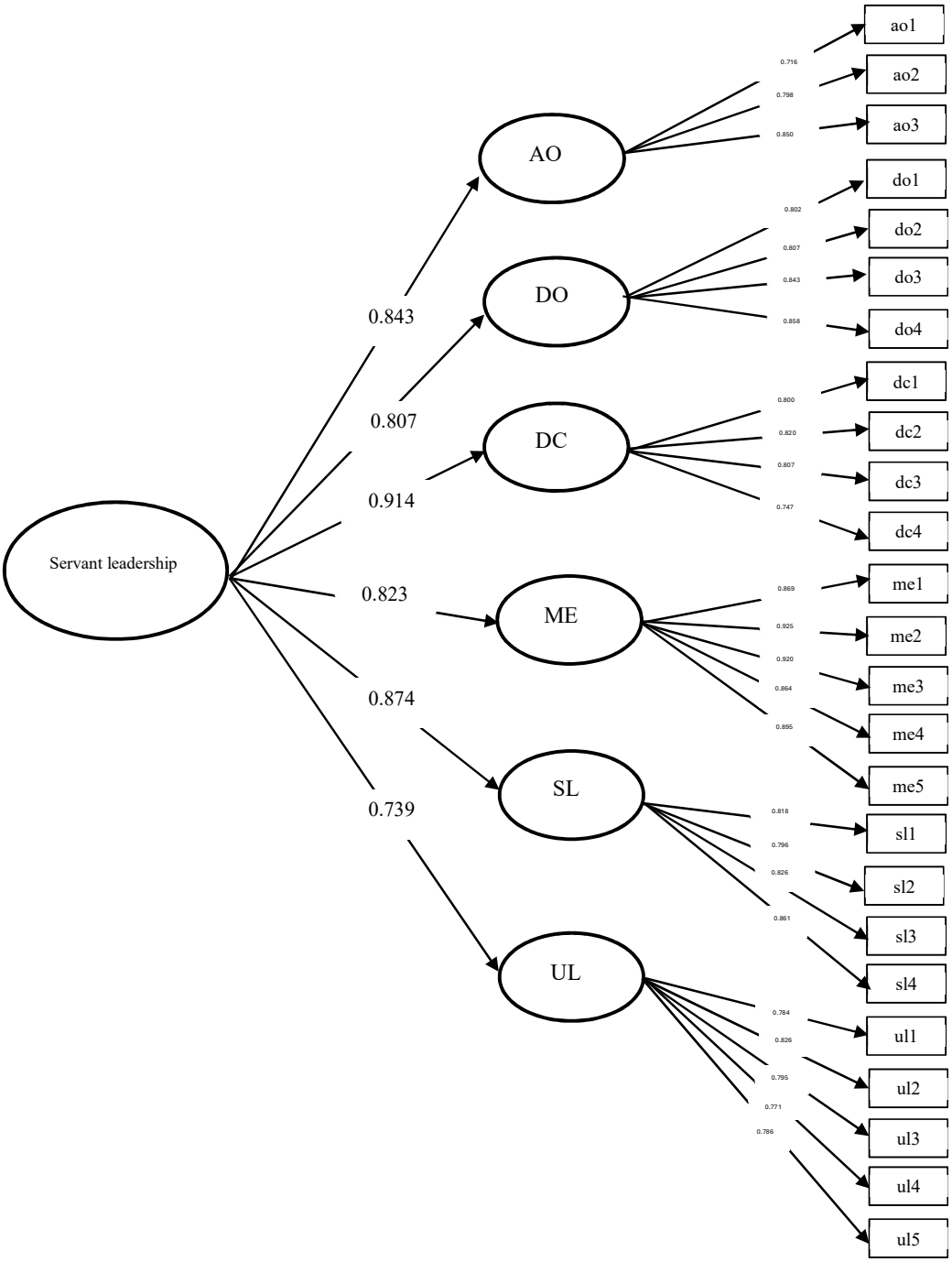
Index name	Index value	Accepted value	Status
χ^2/df	1.242	<2	Fit
RMSEA	.022	<.05	Fit
GFI	.95	>.90	Fit
CFI	.99	>.95	Fit
NFI	.98	>.95	Fit
SRMR	.038	<.08	Fit
RFI	.97	0 – 1	Fit
IFI	.99	>.90	Fit

The results of the data analysis revealed that trait indicators for servant leadership of teacher in basic education schools and vocational schools under the Ministry of Education comprises six main factors: include: valuing others(3 indicators), developing others(4 indicators), developing communities(4 indicators), demonstrating virtue(5 indicators), supporting leadership (4 indicators), and exercising shared leadership(5 indicators). The findings from the second-order CFA of servant leadership of teacher in basic education schools and vocational schools under the Ministry of Education indicate that all factor loadings exceeded the threshold value of .30 (Hair et al., 2010, p. 116). The factor loadings for the six latent constructs ranged from .73 to .91, with corresponding reliability coefficients ranging from .55 to .84.

The results of the Measurement Model analysis of trait servant leadership of teacher in basic education schools and vocational schools under the Ministry of Education found that the factor loadings of six factors were from 0.739 – 0.914, the reliability was at 0.546 – 0.835. Valuing Others has factor loadings of indicators from 0.716 – 0.850, the reliability was at 0.512 – 0.723. Developing Others has factor loadings of indicators from 0.802 – 0.858, the reliability was at 0.643 – 0.736. Developing Community has factor loadings of indicators from 0.747 – 0.820, the reliability was at 0.558 – 0.673. Moral Expressions has factor loadings of indicators from 0.864 – 0.925, the reliability was at 0.747 – 0.856. Supporting Leadership has factor loadings of indicators from 0.796 – 0.861, the reliability was at 0.669 – 0.742. Using Leadership Together has factor loadings of indicators from 0.771 – 0.826, the reliability was at 0.593 – 0.682. The detailed results of the data analysis are presented in Table 2 and Figure 3.

Table 2: Result of the measurement model analysis of trait servant leader of teacher in basic education schools and vocational schools under the Ministry of Education

Servant leader	Factor Loading SD estimation	SD.error	z-value	R^2
Valuing Others (VO)	**0.843**	**0.022**	**38.91**	**0.711**
X1 Respect for others' opinion	0.716	0.027	26.71	0.512
X2 Respect for others' decision	0.798	0.022	36.32	0.637
X3 Understanding of the others	0.850	0.020	42.68	0.723
Developing Others (DO)	**0.807**	**0.021**	**37.99**	**0.652**
X4 Developing ability of the others	0.802	0.020	41.01	0.643
X5 Developing personalities of the others	0.807	0.019	41.91	0.651
X6 Developing working skills of the others	0.843	0.016	51.74	0.711
X7 Developing minds of the others	0.858	0.015	55.80	0.736
Developing Community (DC)	**0.914**	**0.015**	**60.78**	**0.835**
X8 Making reliability and faith for community	0.800	0.021	38.48	0.640
X9 Solving problems and conflicts	0.820	0.019	42.18	0.673
X10 Making attitude of mind participation	0.807	0.020	41.01	0.650
X11 Supporting community and team	0.747	0.024	31.62	0.558
Moral Expressions (ME)	**0.823**	**0.018**	**44.99**	**0.677**
X12 Supporting morality of the others	0.869	0.013	66.55	0.755
X13 Accepting opinion of the others with morality	0.925	0.010	97.11	0.856
X14 Being good model continuously	0.920	0.012	78.17	0.846
X15 Honoring the others	0.864	0.013	65.43	0.747
X16 Sacrificing for the others	0.895	0.011	84.82	0.801
Supporting Leadership (SL)	**0.874**	**0.017**	**51.31**	**0.764**
X17 Making the others hopeful	0.818	0.019	42.20	0.669
X18 Positive thinking	0.796	0.020	40.18	0.633
X19 Motivation	0.826	0.017	47.26	0.683
X20 Making good personnel	0.861	0.015	57.55	0.742
Using Leadership Together (UL)	**0.739**	**0.025**	**29.29**	**0.546**
X21 Trusting and honoring colleagues	0.784	0.021	36.65	0.615
X22 Making proud of honoring others	0.826	0.017	47.62	0.682
X23 Being willful to develop the others to be leader in the future	0.795	0.021	38.55	0.631
X24 Being good leader and follower	0.771	0.021	36.42	0.593
X25 Supporting the personnel's working	0.786	0.020	39.14	0.618
χ^2/df =1.242; RMSEA=0.022; SRMR=0.038; GFI=0.958; CFI=0.995; TLI=0.993; NFI=0.975; IFI=0.995.				



χ^2 =268.260; df = 216; p-value=0.009; RMSEA=0.022

Figure 3: Results of the second confirmatory factor model analysis of servant leader of teacher in basic education schools and vocational schools under the Ministry of Education

The measurement model assessment was conducted through CFA, as presented in Table 3. The reliability analysis employed Cronbach's alpha coefficient (α), which should exceed .7, Composite Reliability (CR), which should exceed .6, and Average Variance Extracted (AVE), which should exceed .5 (Hair et al., 2010, p. 91). The Cronbach's alpha values obtained were in the range of .854 – .961, CR values were in the range of .804 – .971, and AVE values were in the range of .625 – .805. This indicated that reliability levels vary across constructs, with some demonstrating only moderate reliability and others showing good reliability and acceptable convergent validity.

Table 3: Results of the measurement model

Construct	α	CR	AVE
Valuing Others (VO)	.854	.804	.630
Developing Others (DO)	.903	.880	.683
Developing Community (DC)	.880	.853	.630
Moral Expressions (ME)	.952	.956	.805
Supporting Leadership (SL)	.899	.882	.677
Using Leadership Together (UL)	.896	.885	.625

V. CONCLUSION AND DISCUSSION

The research of the Measurement Model of trait servant leadership of teacher in basic education schools and vocational schools under the Ministry of Education found that the factor loadings of six factors were from 0.739 – 0.914, the reliability was at 0.546 – 0.835. Valuing Others has factor loadings of indicators from 0.716 – 0.850, the reliability was at 0.512 – 0.723. Developing Others has factor loadings of indicators from 0.802 – 0.858, the reliability was at 0.643 – 0.736. Developing Community has factor loadings of indicators from 0.747 – 0.820, the reliability was at 0.558 – 0.673. Moral Expressions has factor loadings of indicators from 0.864 – 0.925, the reliability was at 0.747 – 0.856. Supporting Leadership has factor loadings of indicators from 0.796 – 0.861, the reliability was at 0.669 – 0.742. Using Leadership Together has factor loadings of indicators from 0.771 – 0.826, the reliability was at 0.593 – 0.682. Therefore, the developed trait indicators of servant leadership among teachers in basic education and vocational schools under the Ministry of Education demonstrated good reliability and acceptable convergent validity. The researcher specified the indicator of the six factors from many researches. Then, there was analysis of content accuracy by experts to examine the reliability of the instrument and finally found the acceptable. Prior to data collection, the variables within each factor were ensured to be measurable. Relevant documents were systematically reviewed and examined to identify appropriate and effective indicators. After collecting information, that information must be analyzed to measure accuracy or the variable, or indicators used to measure the variable, or indicators used to measure the variable, there must be consideration of factor loading in the matrix LX or LY. Factor loading must be high and have statistical significance, z-value is more than 1.960 (Diamantopoulos et al., 2000, p. 85). Moreover, there must be CR and AVE (Hair et al., 2010, p. 91). The reliability of latent variable should be more than 0.600 (CR≥0.600) and mean of variance of latent variable should be more than 0.500 (AVE≥0.50) The analysis result of factor Valuing Others, CR is at 0.804 and AVE is at 0.630.

The analysis result of the factor Developing Others, CR is at 0.880 and AVE is at 0.683. The analysis result of the factor Developing Community, CR is at 0.853 and AVE is at 0.630. The analysis result of the factor Moral Expressions, CR is at 0.956 and AVE is at 0.805. The analysis result of the factor Supporting Leadership, CR is at 0.882 and AVE is at 0.677. The analysis result of the factor Using Leadership Together, CR is at 0.885 and AVE is at 0.625 It showed that all factors passed the criteria. To design this research, there was specification of sample used in the research by probability. Then, the sample groups are from multi-stage random sampling. Hence, it is able to reflect the Goodness-of-Fit (GoF) index in CFA.

Reason that supports my result were the developmental issues in servant leadership, such as the challenges facing empirical investigation and measurement, and the changes that are occurring in current thinking about the servant leadership approach. (Gregory et al., 2004, pp. 359-361) The results produced five servant leadership factors—altruistic calling, emotional healing, persuasive mapping, wisdom, and organizational stewardship—with significant relations to transformational leadership, leader- member exchange, extra effort, satisfaction, and organizational effectiveness. Strong factor structures and good performance in all validity criteria indicate that the instrument offers useful for future research (Barbuto et al., 2006, p. 300). The current developmental stage of the servant leadership movement is explored in order to provide some useful signposts for future research directions (Sendjaya et al., 2002, p. 57). Also Brien N. Smith, Ray V. Montagno, Tatiana N. Kuzmenko suggested that servant leadership leads to a spiritual generative culture, while transformational leadership leads to an empowered dynamic culture. The paper also addresses contextual factors which might make one or the other models more appropriate for organizational objectives (Smith et al., 2004, p. 86) and Robert F. Russell found that the servant leadership theory and extrapolate applications of the values in leadership literature led to three aspects of servant leadership: trust; valuing others; and empowerment. Leader values may be the underlying factors that separate servant leaders from all other leadership types (Russell, 2001, p. 76). Consistent with previous servant leadership research, (Farling et al., 1999, p. 51) found that a servant leadership model is based on five key variables: vision, influence, credibility, trust, and service, as identified in both academic and popular literature.

AKNOWLEDGEMENT

The researcher wishes to express sincere gratitude to the Research Fund of King Mongkut's Institute of Technology Ladkrabang for providing the research grant (Contract No. KREF045703) that enabled the successful completion of this study. Appreciation is also extended to the experts who kindly assisted in reviewing the questionnaire and offered valuable suggestions to improve the content validity of the items, thereby significantly benefiting the data collection process. Finally, the researcher thanks all the respondents for their cooperation and time in completing the questionnaire, which allowed for a comprehensive statistical analysis in this study.

REFERENCES

Barbuto, J. E., Jr., & Wheeler, D. W. (2006). Scale development and construct clarification of servant leadership. *Group & Organization Management, 31*(3), 300–326.

Bowman, R. F. (2005). Teacher as servant leader. *The Clearing House*, 78(6), 257–260.

Bush, T. (2011). *Theories of educational leadership and management* (4th ed.). Sage.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 6(3), 297–334. https://doi.org/10.1007/BF02310555.

Ebel, R. L. (1967). The relation of item discrimination to test reliability. *Journal of Educational Measurement, 4*(3), 125–128.

Farling, M. L., Stone, A. G., & Winston, B. E. (1999). Servant leadership: Setting the stage for empirical research. *Journal of Leadership Studies, 6*(1–2), 49–72.

Greenleaf, R. K. (1977). *Servant leadership: A journey into the nature of legitimate power and greatness*. Paulist Press.

Gregory, S. A., Russell, R. F., & Patterson, K. (2004). Transformational versus servant leadership: A difference in leader focus. *Leadership & Organization Development Journal, 25*(4), 349–361.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2010). *Multivariate data analysis.* Pearson Education.

Laub, J. (2004, August). Defining servant leadership: A recommended typology for servant leadership studies. In *Proceedings of the Servant Leadership Research Roundtable.*

Liden, R. C., Wayne, S. J., Zhao, H., & Henderson, D. (2008). Servant leadership: Development of a multidimensional measure and multi-level assessment. *The Leadership Quarterly*, 19(2), 161–177.

Likert, R. (1932). A technique for the measurement of attitudes. Archives of Psychology, 22(140), 1–55.

Rovinelli, R. J., & Hambleton, R. K. (1977). On the use of content specialists in the assessment of criterion-referenced test item validity. Dutch Journal of Educational Measurement, 2, 49–60.

Russell, R. F. (2001). The role of values in servant leadership. Leadership & Organization Development Journal, 22(2), 76–84.

Sendjaya, S., & Sarros, J. C. (2002). Servant leadership: Its origin, development, and application in organizations. *Journal of Leadership & Organizational Studies, 9*(2), 57–64.

Sisan, B. (2017). A confirmatory factor analysis model of servant leadership of school directors under the Office of the Vocational Education Commission in Thailand. *TEM Journal, 6*(4), 862–867.

Smith, B. N., Montagno, R. V., & Kuzmenko, T. N. (2004). Transformational and servant leadership: Content and contextual comparisons. *Journal of Leadership & Organizational Studies, 10*(4), 80–91.

Spears, L. C. (1998). *Insights on leadership: Service, stewardship, spirit, and servant leadership*. Wiley.

Thompson, C. H. (2005). *The public school superintendent and servant leadership* (Doctoral dissertation, Edgewood College).

Wong, P. T. P., & Davey, M. A. (2007, August). Best practice in servant leadership. Paper presented at the Servant Leadership Roundtable, Regent University.

The content, as well as the use of language in the article, is the responsibility of the author.