



Validation of a Leadership Self-Efficacy Scale for Educational Leaders

Rhigel A. Tan

* rhigel.tan@unlv.edu

Associate Professor in Residence and Interim Doctor of Nursing Practice Program Director University of Nevada, Las Vegas, USA

Dr. Thelma O. Aldererite

Graduate School Professor, University of the Immaculate Conception, Davao City, Philippines
Cebu City Medical Center College of Nursing, Cebu City, Philippines

ABSTRACT

This study aims to validate a scale that evaluates the leadership self-efficacy among educational leaders. The 92-item scale was developed by group of educational leadership practitioners at a Philippine university headed by Dr. Tan (2025) and was approved for use. To do so, the scale was administered to 200 educational leaders holding different positions. The data obtained were subjected to Exploratory Factor Analysis (EFA) and created a seven-factor model. The factors are set of leadership skills named as Continuous Learning and Professional Growth (Factor 1), Stress Management and Well-being (Factor 2), Communication and Collaboration (Factor 3), Inspirational and Visionary Leadership (Factor 4), Integrity and Ethical Leadership (Factor 5), Adaptability and Resilience (Factor 6), and Mentorship and Empowerment (Factor 7). The model was confirmed utilizing the resulting values of five goodness of fit indices (GFIs) generated by the Confirmatory Factor Analysis (CFA). All GFIs resulted to values falling within the thresholds. These GFIs are already adequate to confirm that the model is relatively good fit. The standardized factor loadings (SFLs) and composite reliability (CR) were also excellent, thus, establishing convergent validity. Also, the estimated average variance extracted of all factors provided evidence of discriminant validity and reliability, respectively. Overall, the study resulted in a valid and reliable 26-item scale that effectively measures leadership self-efficacy among educational leaders.

Keywords: educational leaders; instrumentation; self-efficacy; tool validation

INTRODUCTION

The concept of self-efficacy plays a crucial role in educational leadership, representing an individual's belief in their capacity to lead and foster positive changes within an educational institution (Bergman et al., 2021). Leadership self-efficacy is critical for guiding schools through transformations, especially in times of educational paradigm shifts, technological advancements, and societal changes. Educational leaders with high self-efficacy are better equipped to inspire change, foster collaboration, and implement innovative practices (Yusof, 2023).

However, recent studies indicate a significant challenge in cultivating leadership self-efficacy, as many educational leaders struggle with organizational changes and new teaching methodologies (Weiner, 2009). This issue became particularly evident during the 2020 pandemic, which led to abrupt educational changes that challenged teachers' and leaders' self-efficacy (Pressley & Ha, 2021). Despite the growing awareness of self-efficacy's importance, the implementation of effective leadership behaviors and strategies remains limited, largely due to leaders' struggles with stress management, burnout, and low confidence in their abilities (McBrayer et al., 2020; Abusham, 2018).

Numerous studies have explored the relationship between leadership self-efficacy and leadership effectiveness. For instance, McBrayer et al. (2020) found that strong instructional leadership practices positively influence educational leaders' self-efficacy. Similarly, research in Canada indicated that professional experience and training contribute significantly to the self-efficacy of educational leaders (Bucher, 2010). In China, Lee (2016) highlighted that distributed leadership styles positively impact self-efficacy, especially in inclusive educational settings. These studies emphasize the global relevance of leadership self-efficacy, yet their findings are context-specific and often lack applicability to Filipino educational leaders.

While studies like those in the Philippines (Escobin et al., 2022; Berondo, 2020) have shed light on the challenges faced by local educators, these findings are fragmented and focus mainly on teachers rather than school leaders, leaving a gap in the research on leadership self-efficacy specifically among educational leaders in the Philippines. Moreover, existing tools for measuring self-efficacy, such as the Leadership Self-Efficacy Scale (Bobbio & Manganelli, 2009), have been primarily designed for other cultural and educational contexts, limiting their applicability to Filipino educational leaders.

Despite the growing body of literature on leadership self-efficacy, there remains a lack of comprehensive tools tailored specifically to measure this concept within the unique context of Filipino educational leaders. While prior studies have explored leadership self-efficacy, they have either focused on teachers or generalized the findings to broader leadership contexts. Additionally, existing instruments do not account for the particular challenges and dynamics faced by educational leaders in the Philippines. Therefore, there is a critical need for a valid and reliable instrument that accurately captures the self-efficacy of educational leaders in the Filipino context, addressing issues such as stress management, organizational change, and professional development.

This study aims to address the gap in measuring leadership self-efficacy among Filipino educational leaders by validating a context-specific instrument. The research will focus on validating a tool that assesses the ability of educational leaders to foster change, navigate challenges, and improve educational outcomes. The novelty of this study lies in its targeted approach to Filipino leaders, considering their unique experiences, challenges, and educational contexts. This research will contribute valuable insights into promoting leadership self-efficacy and, ultimately, improving the effectiveness of leadership in educational settings. By developing a contextualized instrument, this study will provide educational leaders with a practical tool to enhance leadership capabilities and foster a culture of continuous improvement in Philippine education.

METHOD

The Leadership Self-Efficacy Scale for Educational Leaders was initially developed by a group of educational leadership practitioners at a Philippine university. Following its institutional approval in early 2025, the scale was recognized for its content relevance, with expert validation theoretically establishing the appropriateness of the competencies and behaviors reflected in the scale items. As such, the instrument has since been adopted by the university as a tool for assessing the self-efficacy of its educational leaders. However, empirical evidence regarding the scale's psychometric properties specifically, its reliability and other forms of validity such as construct and criterion-related validity, has yet to be formally established.

Thus, the present study aims to establish the psychometric properties of the Leadership Self-Efficacy Scale for Educational Leaders. The scale comprises 96 items that reflect eight core competencies essential to effective educational leadership. Each competency is represented by 10-11 items, which capture specific sub-skills aligned with the broader domain.



These competencies include: Decision-Making and Problem-Solving, Adaptability and Resilience, Communication and Collaboration, Integrity and Ethical Leadership, Mentorship and Empowerment, Inspirational and Visionary Leadership, Stress Management and Well-being, and Continuous Learning and Professional Growth. Respondents rate each item on a four-point Likert scale, ranging from 1 (No Confidence) to 4 (Very High Confidence), indicating their perceived level of self-efficacy in performing each leadership-related task.

The researchers provided both oral and written information to prospective participants, detailing the study's purpose, background, procedures, potential risks or discomforts, confidentiality measures, and expected benefits. Data collection was conducted via an online survey administered through Google Forms between January and March 2025. Before participants could access the questionnaire, the survey included a clear statement that their participation was entirely voluntary, with a small incentive offered. Participants were also informed that they could withdraw from the study at any time without penalty or consequence.

The survey consisted of three main sections: (a) instructions and informed consent; (b) demographic and professional background of the educational leaders; and (c) a self-assessment of their perceived leadership self-efficacy. On average, it took approximately 20 to 30 minutes to complete the survey. To ensure confidentiality and anonymity, participants' responses were securely stored and coded, with no identifying information attached. Data were exported directly into a spreadsheet for analysis, and no alterations, manipulations, or statistical corrections were made prior to the formal data analysis process.

To determine the appropriateness of conducting Exploratory Factor Analysis (EFA), two preliminary tests were conducted: Bartlett's Test of Sphericity (BTS) and the Kaiser–Meyer–Olkin (KMO) Measure of Sampling Adequacy. According to Tabachnick and Fidell (2019), EFA is justified if BTS yields a significant result ($p < 0.05$) and the KMO value exceeds 0.60.

Following these preliminaries, EFA was conducted to identify the underlying factor structure of the scale and assess whether distinct subscales could be established. Principal Component Analysis (PCA) with Varimax rotation was used, along with the scree plot to guide factor retention. Factors with eigenvalues greater than 2.0 were retained, and items were included in a factor if their factor loading was ≥ 0.60 —a threshold chosen for its practical rigor, although Taherdoost et al. (2014) suggest a minimum of 0.50. Reliability was assessed using Cronbach's alpha, with a minimum acceptable threshold of 0.70 for both the full scale and its subscales (Tavakol & Dennick, 2011). All analyses were performed using IBM SPSS Statistics version 25.

Subsequently, Confirmatory Factor Analysis (CFA) was conducted using the maximum likelihood estimation method in IBM SPSS AMOS version 22 to validate the measurement model. Items were retained based on standardized factor loadings ($SFL \geq 0.70$) and t-values (≥ 1.96) (Gefen et al., 2000; Hair Jr. et al., 2014; Kline, 2016). Model fit was evaluated using multiple goodness-of-fit indices (GFIs): Comparative Fit Index ($CFI > 0.90$) (Garson, 2006), Tucker–Lewis Index ($TLI > 0.90$) (Sharma et al., 2005), Root Mean Square Error of Approximation ($RMSEA < 0.08$) (Kenny et al., 2014), Standardized Root Mean Square Residual ($SRMR \leq 0.08$) (Hu & Bentler, 1999), and chi-square/df ratio (< 3.0) (Kline, 1998).

Lastly, convergent and discriminant validity were assessed. Evidence of convergent validity was supported by SFL values and composite reliability ($CR \geq 0.70$) (Gefen et al., 2000). Discriminant validity was established when the average variance extracted (AVE) for each construct exceeded the squared correlations between any pair of constructs (Hair Jr. et al., 2014).

RESULT AND DISCUSSION

Exploratory Factor Analysis

The Kaiser–Meyer–Olkin (KMO) Measure of Sampling Adequacy yielded a value of 0.628, surpassing the acceptable threshold of 0.60. This result indicates that the sample size was adequate for conducting factor analysis. Additionally, Bartlett’s Test of Sphericity was highly significant ($p < 0.001$), confirming that the correlation matrix was suitable for factor analysis. Collectively, these results supported the appropriateness of proceeding with Exploratory Factor Analysis (EFA).

The EFA of the scale identified seven factors, which explained 66.9% of the variance in the data. The first factor accounted for 13.1% of the total variance and loaded 15 items. The criterion loading and communality values of items loading in this factor, respectively, range from 0.526-0.770 and 0.663 to 0.778. The second factor explained 11.5% of the total variance and loaded 10 items. The criterion loading and communality values of items loading in this factor, respectively, range from 0.639 to 0.787 and 0.578 to 0.740. The third factor accounted for 10.6% of the total variance and loaded 9 items. The criterion loading and communality values of items loading in this factor, respectively, range from 0.521 to 0.717 and 0.526 to 0.790. The fourth factor accounted for 9.9% of the total variance and loaded 8 items. The criterion loading and communality values of items loading in this factor, respectively, range from 0.508 to 0.780 and 0.656 to 0.766. The fifth factor accounted for 9.1% of the total variance and loaded 5 items. The criterion loading and communality values of items loading in this factor, respectively, range from 0.511 to 0.812 and 0.662 to 0.844. The sixth factor accounted for 6.9% of the total variance and loaded 5 items. The criterion loading and communality values of items loading in this factor, respectively, range from 0.503 to 0.711 and 0.592 to 0.729. The seventh factor accounted for 5.8% of the total variance and loaded 5 items. The criterion loading and communality values of items loading in this factor, respectively, range from 0.532 to 0.617 and 0.696 to 0.653.

These results indicate a well-defined multidimensional structure within the scale, with each factor meeting acceptable thresholds for both factor loadings and communalities, thereby supporting the scale’s construct validity.

Confirmatory Factor Analysis

The analysis of factor load estimation was done on each observed variable using its resulting SFL before testing the overall model-data fit.

Table 1. Factor load estimation results from the final model

<i>Factor</i>	<i>Factor Name</i>	<i>Factor Loading range</i>
1	Continuous Learning and Professional Growth	0.70- 0.81
2	Stress Management and Well-being	0.64 - 0.86
3	Communication and Collaboration	0.63- 0.77
4	Inspirational and Visionary Leadership	0.73- 0.80
5	Integrity and Ethical Leadership	0.75- 0.92
6	Adaptability and Resilience	0.75-0.81
7	Mentorship and Empowerment	0.73 - 0.83

Table 1 shows the results of factor load estimation of the model of which all SFL values

are greater than 0.6. In summary, there is no offending estimate observed in the factor load estimation results. This justifies the analysis of the overall model data fit of the scale.

Overall Model Fit

There were five GFIs examined to determine the overall model fit of the CFA results: CFI, TLI, SRMR, RMSEA, and chi-square/ df ratio as indicated in Fig. 1. The CFI value of this sample, 0.945, is above 0.9. Meanwhile, the TLI is 0.932, which is above 0.9. As to the SRMR, the observed value of 0.008 is less than the margin of 0.08. The chi-square/df ratio resulted to 1.613. This resulting value is below the minimum criteria. Lastly, the RMSEA resulted to 0.058, which is below 0.08 cut-off. These five model fit indices suggest a good fit to the seven-factor model.

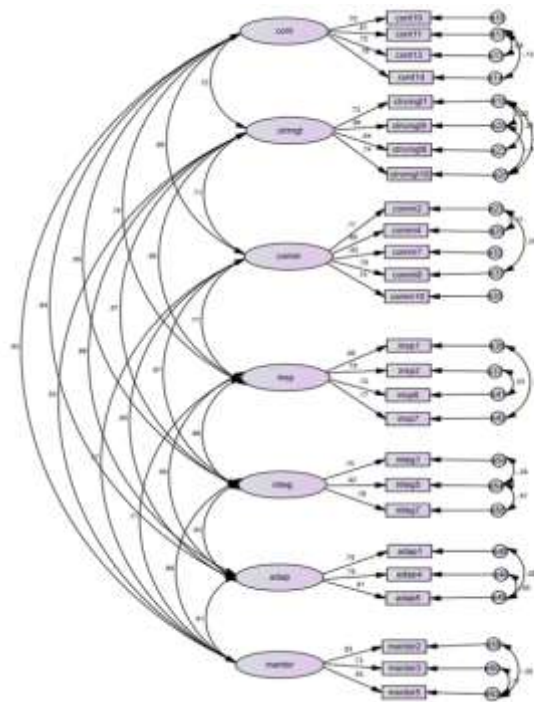


Figure 1. Results of the CFA of the scale.

Convergent Validity

Five indices establish the overall model-data fit, leading to the evaluation of the convergent validity of the scale. Figure 1 shows the CFA results, which provide evidence of the convergent validity. It can be noted that the factor loadings of all items are above 0.6. Further evidence of convergent validity is the resulting composite reliability (CR) values ranging from 0.78 to 0.93. These values indicate a high inherent consistency of all items in the scale.

Discriminant Validity

For good discriminant validity, the AVE of one factor should be greater than any correlation coefficients between the factors. In the event that any factor has smaller AVE over correlation coefficients, it suggests that the factors are correlated or do not measure well-separated latent concepts. In the present study, Table 3 shows the squared correlation of each factor versus the AVE of a particular factor as evidence of scale's discriminant validity. It is indicated that all estimated AVE values are greater than the squared correlation of other factors where they are compared, suggesting that the factors are not associated with one another.

Table 2. Discriminant validity of the 26-item scale.

Constructs	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
Factor 1	1.00						
Factor 2	0.576	1.00					
Factor 3	0.621	0.557	1.00				
Factor 4	0.689	0.612	0.715	1.00			
Factor 5	0.615	0.478	0.584	0.593	1.00		
Factor 6	0.507	0.672	0.660	0.578	0.504	1.00	
Factor 7	0.714	0.483	0.635	0.690	0.633	0.518	1.00
√AVE	0.778	0.773	0.835	0.798	0.820	0.740	0.785

<i>Fit Indices</i>	<i>Criterion Cut-off by Hair</i>	<i>Actual Results</i>
CMIN/DF	<i>Less than 3.0</i>	<i>1.613</i>
CFI (Comparative Fit Index)	<i>above 0.90</i>	<i>0.945</i>
TLI (Tucker-Lewis Index)	<i>above 0.90</i>	<i>0.932</i>
IFI (Incremental Fit Index)	<i>above 0.90</i>	<i>0.946</i>
RMSEA (Root Mean Square Error of Approximation)	<i>Below 0.08</i>	<i>0.058</i>
SRMR (Standardized Root Mean Square Residual)	<i>Below 0.08</i>	<i>0.008</i>

Conclusion

The Exploratory Factor Analysis (EFA) organized the items in the Leadership Self-Efficacy Scale into seven distinct factors, namely: Continuous Learning and Professional Growth, Stress Management and Well-being, Communication and Collaboration, Inspirational and Visionary Leadership, Integrity and Ethical Leadership, Adaptability and Resilience, and Mentorship and Empowerment. These factors reflect the core competencies expected of effective educational leaders. The structure identified through EFA was further supported by Confirmatory Factor Analysis (CFA), which demonstrated strong model fit. The goodness-of-fit indices (GFIs) yielded values well within recommended thresholds: Comparative Fit Index (CFI) = 0.945, Tucker–Lewis Index (TLI) = 0.932, Standardized Root Mean Square Residual (SRMR) = 0.008, Chi-square/df ratio = 1.613, and Root Mean Square Error of Approximation (RMSEA) = 0.058. These results confirm the adequacy of the model and its alignment with the empirical data.

In addition to model fit, the scale demonstrated strong psychometric properties. Evidence of convergent validity was established through high standardized factor loadings and composite reliability (CR), both exceeding the threshold value of 0.70. Likewise, discriminant validity was confirmed, as the Average Variance Extracted (AVE) for each factor was greater than the squared correlations between constructs, indicating that the factors are conceptually distinct.

Overall, the developed instrument is a valid and reliable Likert-type scale for assessing the self-efficacy of educational leaders. It holds practical value for human resource management offices (HRMOs) in evaluating leadership trainees and can also serve as a self-assessment tool for current leaders seeking to understand and improve their leadership capabilities. Looking forward, future studies may explore the applicability of this instrument

in international contexts to assess leadership self-efficacy across diverse educational systems.

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