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Instructional Leadership of Novice Principals: Construction and Validation of Assessment Indicators

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Abstract
This study developed an indicator system of instructional leadership by novice principals to facilitate the assessment of their leadership capabilities. This study employed a survey-based approach consisting of three studies to examine the reliability and validity of the proposed system and explored the perceived importance and actual performance of these indicators. The statistical techniques included expert review, item analysis, exploratory factor analysis, internal consistency reliability analysis, confirmatory factor analysis, cross-validation, measurement invariance analysis, and IPA. The proposed indicator system, consisting of 5 dimensions and 24 specific indicators, demonstrates good reliability and validity for assessing the overall, dimensional, and specific indicators of instructional leadership performance. Highly rated dimensions were enhancing school curriculum and instructional quality as well as creating supportive teaching and learning environments. Developing a vision for teaching and setting goals and tasks was also considered important; however, performance was relatively low.

Keywords: novice principal, instructional leadership, assessment indicator

Introduction

Many studies have been conducted on the impact of mentoring on the professional development of novice principals (Pariente & Tubin, 2021). However, little research has focused on the ongoing evaluation of instructional leadership. The professional competence of novice principals has a significant impact on overall school performance, such as teaching effectiveness, student learning, and overall school performance (Nirit & Dorit, 2024). Novice principals though often face substantial challenges when managing school affairs (Gurr & Drysdale, 2016; Shoho & Barnett, 2010). These challenges include dealing with the legacy of previous principals (Tahir et al., 2024), heavy workloads (Liljenberg & Andersson, 2020; Tahir et al., 2024; Turkoglu & Cansoy, 2020), a lack of leadership knowledge (Miklos, 2009), issues of isolation (Earley & Bubb, 2013), and leading improvement in teaching and learning (Meyer & Patuawa, 2022). To address these challenges, novice principals are expected to establish mechanisms for interaction with teachers and foster strong interpersonal relationships to gain support and trust in their instructional leadership. This in turn helps to create positive teaching values and improve overall instructional effectiveness (Kim & Lee, 2020; Kwan, 2016; Northfield, 2014).

In light of recent large-scale educational reform in Taiwan, principals, especially novice principals, have come under increased pressure. The number of novice principals in elementary and junior high schools is rising rapidly, and a lack of experience in school management engenders a variety of challenges, the most difficult of which is implementing national educational reform. This reform includes implementing the new 12-Year Basic Education program, practicing new curriculum guidelines, conducting competency-based teaching and assessment, and digital learning (Coudenys et al., 2022). That is, novice principals in Taiwan face numerous demands and challenges, requiring them to play multiple leadership roles, such as instructional leadership, which allows novice principals effectively confront various teaching-related issues both within and outside the school, and take appropriate action to address and resolve them (Gomez & Van-Zant, 2006; Portin, 2004).

The process of becoming a principal of public primary and junior high schools in Taiwan involves public selection and a few weeks of training. Most novice principals were previously department heads who primarily handled administrative tasks within their departments but have had limited practical

exposure to instructional leadership theory and practices. Additionally, factors such as a lack of a collaborative and sharing culture within the teaching team, low teacher participation in instructional improvement, and a lack of momentum for instructional innovation and change compound the burden of learning on the job. Thus, a set of performance indicators could serve as a guideline for the effective implementation of instructional leadership by novice principals. This would effectively enhance professional knowledge and competence as well as accelerate their adjustment to the role. Therefore, we propose the following research questions:

1. What are the best indicators of instructional leadership performance by novice principals of primary and junior high schools?
2. What are the reliability and validity of these indicators?
3. How important is each of these indicators and what is the current level of performance by novice principals of primary and junior high schools?

Instructional leadership by novice principals

The role of school principals today has shifted from administrative leader to instructional leader, with increased involvement and participation in school teaching performance. The instructional leadership of principals contributes to enhancing school teaching quality, learning outcomes, and overall effectiveness (Shafeeu, 2022). It is essential for school leaders to actively participate in teachers' professional learning, as this not only helps improve teachers' teaching abilities but also increases the leader's ability to carry out core instructional leadership practices. These include observation and supervision, teacher collaborative learning participation, and time allocation for data use (Jenssen & Paulsen, 2022). Strong instructional leadership can create structures that promote teachers' work, thereby strengthening the organization's belief system and facilitating effective student learning (Cravens & Zhao, 2022; Hallinger et al., 2020; Liu et al., 2022).

The instructional leadership of principals is regarded as an important element for school effectiveness (Ikrama et al., 2021) and is strongly correlated with positive school outcomes. Decisive and consistent actions by principals can motivate teachers to improve their teaching practices and maintain teaching quality (Shaked, 2022), affect teachers' collective efficacy and beliefs in student learning outcomes (Karacabey et al., 2022), establish supportive environments,

promote teacher professional growth, ensure the effective learning of students, and foster the cohesion of school members (Gupton, 2003; Leaf & Odhiambo, 2017; Sisman, 2016).

For novice principals, a lack of practical experience in instructional leadership could result in difficulties in managing school instructional issues. Novice principals are expected to understand the teaching needs of their teachers and establish a relationship of trust with them to work together toward improving teaching quality and school performance (Walker & Qian, 2006; Wright et al., 2009). Principals also need to maintain mindfulness, continuously learn, and work with the school community to create a campus environment conducive to teaching and learning (Sackney & Walker, 2006; Viloria & Ramirez, 2021). Thus, novice principals must promptly adapt to their new environment and role, effectively integrate and utilize various teaching resources and school facilities, and actively implement administrative support for teaching. That is, they have to understand and fulfill their leadership roles, strengthen their leadership capabilities, and accumulate practical experience (Crow, 2006; Oplatka & Ben-Or, 2020).

Factors influencing leadership effectiveness include self-referencing, internal support, and external support (Ismail, 2024). Effective mentoring, the introduction of teaching resources, and the establishment of support networks for novice principals can thus aid in increasing the quality of their leadership (Simon et al., 2019). Support networks can comprise their teachers, faculties, and experienced principals. In addition to practical information and skills, this type of support provides a sense of security and belonging. This is particularly important because the influence of former principals can hinder novice principals' adaption to school cultural traditions and rituals, values, and beliefs. As such, potential opposition from school members can create feelings of isolation (Allan & Haiyan, 2006).

Indicators of instructional leadership

The pressure on principals has intensified as policymakers around the world strengthen regulations and expectations to promote educational progress. The main challenges for novice principals include learning the role, establishing and maintaining community relationships, and leading improvements in teaching and learning (Meyer & Patuawa, 2022). Instructional leadership must achieve teaching objectives, improve teaching quality, promote professional development, foster a culture of innovation, and establish supportive teaching and learning

environments (Innocent, 2022; Ping & Hamzah, 2021). These varied and intense demands create a high-pressure working environment for novice principals.

Current research evaluating the quality and performance of instructional leadership has focused on experienced principals; few studies have explored indicator systems to serve as guidelines for novice principals. The *Principal Instructional Leadership Questionnaire* (Akram et al., 2017) investigates principals' views of instructional leadership practices. Its six dimensions include teaching resource provision, maintaining a visible presence, teacher professional development, maximizing teaching time, providing feedback on teaching and learning processes, and curriculum implementation. The *Principal Instructional Leadership Behavior Scale* (Agyeman-Nyarko & Dzakadzie, 2021) covers five domains: promoting in-service training, instructional supervision, supporting mentoring, facilitating cooperation among mentors, and providing induction training. The *Instructional Leadership Self-Efficacy Scale* focuses on five other domains: the development of school goals and vision, collective cultural development, motivating teachers, classroom observation and teacher guidance, and creating a positive and safe learning environment for students (Dami et al., 2022).

We drew on these existing scales and previous research on instructional leadership of novice principals (Aravena, 2018; Innocent, 2022; Pariente & Tubin, 2021; Shaked, 2022; Siriparp et al., 2022; Swen, 2020; Viloria & Ramirez, 2021; Zoro et al., 2021) to construct an indicator system for instructional leadership by novice principals. It comprises 30 indicators within 5 dimensions: strengthening professional competence and teaching expertise (e.g., *Novice principals can learn new educational knowledge and leadership skills*), developing teaching vision and goal-setting (e.g., *Novice principals can collaborate with teachers to establish the school's vision and instructional goals*), improving school curriculum and teaching quality (e.g., *Novice principals can support teachers in conducting interdisciplinary teaching*), enhancing teacher professional competence and spirit (e.g., *Novice principals can provide teachers with various professional development opportunities*), and establishing a supportive teaching and learning environment (e.g., *Novice principals can actively introduce resources related to teaching and learning*).

Research method

This study employed a survey-based approach consisting of two pilot tests and one formal online survey. The research team first collected a list of principals who began serving as school leaders in junior high schools and elementary schools across Taiwan in 2024. The study sample included 151 principals in their first year of serving as school leaders, including 48 at the junior high school level and 103 at the elementary level. The survey respondents were teachers from these 151 schools.

Instrument development

This study developed a questionnaire by referencing relevant literature on instructional leadership, with a focus on novice principals. To enhance the accuracy of item semantics and the appropriateness of measurement dimensions, purposive sampling was used to select 20 experts for item review. The recruited experts included 10 university scholars specializing in instructional leadership (7 professors and 3 associate professors) and 10 school administrators (2 junior high school principals, 1 director, 1 section chief, and 1 teacher and 2 elementary school principals, 1 director, 1 section chief, and 1 teacher).

The experts evaluated the questionnaire and provided feedback pertaining to its content validity. The indicators were rated as follows: "appropriate," "appropriate after revision," and "inappropriate." Indicators identified as "inappropriate" by more than five experts were removed, and the remaining indicators underwent revisions based on expert feedback. All of the remaining indicators were retained after adjustments, as shown in Table 1.

The refined questionnaire was used as the basis for developing the first pilot test, which was divided into three sections: 1) Basic Information (e.g., demographics and the highest educational attainment); 2) Instructions for Completion (clarifying key terms, such as ‘novice principal’, and corresponding dimensions); and 3) Indicator Questionnaire Content (30 indicators assessed in terms of their perceived importance and actual performance, resulting in a total of 60 items). All items were positively worded and scored using a five-point Likert scale.

Data analysis

Valid questionnaires from the first pilot test underwent item analysis, exploratory factor analysis, and internal consistency reliability analysis. Valid questionnaires from the second pilot test were then used to examine the reliability and validity of the scale based on item reliability, composite reliability, average variance extracted, convergent validity, discriminant validity, and cross-validation. Finally, valid questionnaires from the formal survey were analyzed in terms of measurement invariance as a function of gender and highest educational level. This analysis employed tests for configural, metric, scalar, and factor covariance invariance. The importance and performance of dimensions and specific indicators within the indicator system was assessed using importance-performance analysis (IPA). All statistical analysis was performed using *SPSS 13.0* for Windows and *AMOS 22.0* statistical software.

Study 1

The first pilot test targeted teachers from 20 randomly-selected schools with 15 questionnaires sent to each school. Among the 300 questionnaires that were initially distributed, 245 questionnaires were returned. Questionnaires of poor response quality (e.g., selecting the same answer for all items or displaying patterned responses) were excluded. This resulted in 238 valid questionnaires, representing a response rate of 79.33%.

Item analysis

Correlation coefficients and discrimination indices were calculated for each item to serve as the basis for item selection. This analysis performed on 238 valid samples included extreme group testing and homogeneity testing. After ranking the total questionnaire scores, we respectively assigned the top 27% and bottom 27% to high- and low-scoring groups. An independent samples t-test was performed, using the extreme groups as the independent variable and individual item scores as the dependent variable. Items with significant score differences between these groups were considered to have strong discriminatory power. The Pearson product-moment correlation coefficient was calculated between each item and the total score of its corresponding sub-dimension (excluding the item's own score) (DeVellis, 2010). Only items with a corrected item-total correlation coefficient of 0.30 or greater were retained.

Exploratory factor analysis

The Kaiser-Meyer-Olkin (KMO) metric was used to assess sampling adequacy, and Bartlett's test of sphericity was used to evaluate the suitability of items for factor analysis. Bartlett's test of sphericity yielded a significant chi-square value of 11,305.72 ($p < .001$), while the KMO value was 0.97, exceeding the threshold of 0.60. These findings indicated the presence of common factors in the correlation matrix and good suitability for factor analysis. Factor extraction was performed using principal component analysis (PCA) with orthogonal rotation. Exploratory factor analysis identified six items with factor loadings below 0.40 or misalignment with the original factor dimensions (A5, A6, C4, C5, D2, and D3) for removal. The final questionnaire comprised five factors. Factor one: "E: Establishing a supportive teaching and learning environment" (6 items); eigenvalue = 6.49; factor loadings = 0.47 to 0.77; 21.62% of variance explained. Factor two: "B: Developing instructional vision and mission goals" (6 items); eigenvalue = 5.78; factor loadings = 0.54 to 0.63; 19.26% of variance explained. Factor three: "C: Improving school curriculum and instructional quality" (4 items); eigenvalue = 5.64; factor loadings = 0.41 to 0.78; 18.81% of variance explained.
Factor four: "A: Enhancing professional competence and instructional expertise" (4 items); eigenvalue = 4.39; factor loadings = 0.55 to 0.71; 14.65% of variance explained. Factor five: "D: Elevating teachers' professional growth and morale" (4 items); eigenvalue = 3.74; factor loadings = 0.49 to 0.64; 12.45% of variance explained.

After exploratory factor analysis, the final indicator system consisted of five factors with 24 specific indicators. The cumulative explained variance across the five factors was 86.78%. The overall Cronbach's α coefficient for the questionnaire was .988, and the Cronbach's α coefficients for the five dimensions ranged from .933 to .970 (all exceeding 0.70), confirming strong internal consistency.

Study 2

The second pretest targeted teachers from 50 randomly-selected schools with 15 questionnaires sent to each school. Among the 750 questionnaires that were initially distributed, 563 questionnaires were returned. Questionnaires of poor response quality (e.g., selecting the same answer for all items or displaying

patterned responses) were excluded. This resulted in 548 valid questionnaires, representing a response rate of 73.07%.

To meet the requirements of data analysis, the sample was randomly divided into two groups, including a validation sample (N1) with 274 responses and a reliability sample (N2) with 274 responses.

Descriptive statistics

The sample data was characterized using descriptive statistics. For the validation sample (N1), the skewness coefficients ranged from -1.743 to -1.037, and the kurtosis coefficients ranged from 0.712 to 3.368. For the reliability sample (N2), the skewness coefficients ranged from -1.604 to -1.013, and the kurtosis coefficients ranged from 0.472 to 2.717 (see Table 5). In accordance with the standards proposed by Kline (1998), the skewness values fell within ±3 and kurtosis values fell within ±10, indicating that the basic assumption of normal distribution was not violated.

Validation of test model

A comparative analysis of different models was conducted using the validation sample (N1 = 274). The models assessed included the multi-factor orthogonal model, the multi-factor oblique model, and the second-order factor model. In Multi-Factor Orthogonal Model

As shown in Table 1, key fit indices (i.e., χ^2, χ^2/df, RMSEA, CFI, NNFI, SRMR, and GFI) did not meet the required standards. ECVI, AIC, and BIC values were relatively large (11.33, 3092.27, 3280.15), indicating poor model fit. In Multi-Factor Oblique Model, the χ^2 value was significant, but χ^2/df = 2.75, which meets the acceptable standard of less than 3. RMSEA, CFI, NNFI, and SRMR indices all reached ideal levels, while GFI was acceptable. ECVI, AIC, and BIC values were relatively small (2.86, 779.49, 1003.51), indicating a good model fit. In Second-Order Factor Model, the χ^2 value was significant; however, other key indices (i.e., χ^2/df, RMSEA, CFI, NNFI, SRMR, and GFI) all indicated an acceptable model fit. ECVI, AIC, and BIC values (2.92, 798.42, 1000.75) were better than those of the multi-factor orthogonal model but still higher than those of the multi-factor oblique model. Therefore, the multi-factor oblique model was identified as the best-fitting model for validating leadership indicators among novice principals in elementary and junior high schools.

Table 1

Analysis of competing model fit

Fit index Model	χ2 (*df*)	χ^2/df	RMSE A	CFI	NNFI	SRMR	GFI	ECVI	AIC	BIC
Uncorrelated factors model	2988.269 (248)	12.05	0.20	0.73	0.70	0.68	0.54	11.33	3092.27	3280.15
Correlated factors model	655.492 (238)	2.75	0.80	0.96	0.95	0.02	0.82	2.86	779.49	1003.51
Hierarchical model	686.417 (244)	2.81	0.81	0.96	0.95	0.02	0.81	2.92	798.42	1000.75

Confirmatory factor analysis

Bagozzi and Yi (1988) suggested that for a validation model to be considered reliable, the reliability of individual observed variables should exceed .50, such that the squared multiple correlations (SMC) exceed 0.50. The SMC values in this study ranged from .71 to .90, indicating that the variance explained by each item exceeded the variance due to error, thereby confirming the reliability of all of the individual items in the questionnaire. Composite reliability (CR) and average variance extracted (AVE) were used as criteria in assessing reliability at the factor level. According to Bagozzi and Yi (1988), the ideal thresholds for CR and AVE are > 0.60 and > 0.50, respectively.

The composite reliability values and AVE for the five dimensions were as follows: A: Enhancing Professional and Teaching Competence (.949; .822), B: Developing Teaching Vision and Task Goals (.972; .852), C: Improving School Curriculum and Teaching Quality (.938; .792), D: Promoting Teacher Professionalism and Morale (.951; .829), and E: Establishing a Supportive Teaching and Learning Environment (.958; .793). All of these values met conventional standards.

Convergent and Discriminant Validity

In assessing convergent validity, all standardized factor loadings (λ) of measurement indicators and the corresponding latent variables ranged from .85 to .95, which met the minimum standard (> 0.70) proposed by Bagozzi and Yi (1988). Anderson and Gerbing (1988) posited that the convergent validity of a measurement model could be assessed in terms of the significance of factor

loadings based on confirmatory factor analysis. Essentially, if all factor loadings in a factor model reach the level of significance (.05), then the model demonstrates convergent validity. Our analysis revealed that all factor loadings were significant, indicating convergent validity. In other words, the measurement items associated with each of the five factors measure the same construct.

In accordance with the recommendations of Anderson and Gerbing (1988), this study used pairwise comparisons between factors for the analysis of discriminant validity. We first constrained the correlation between two factors to 1 (restricted model), freely estimated the correlation between the two factors (unrestricted model), and then compared the χ^2 difference ($\Delta\chi^2$) between the two models. As long as the unrestricted model showed a significantly low χ^2 value, then the two factors can be said to represent distinct constructs (i.e., discriminant validity).

We also examined the 95% confidence interval of the correlation coefficient between the two factors. As long as the confidence interval did not include 1, this provided further evidence of discriminant validity. The $\Delta\chi^2$ values for the pairwise comparisons of the five factors ranged from 5.2 to 127.9, with a $\Delta df = 1$ (difference in degrees of freedom), all reaching significant levels. Moreover, the 95% confidence intervals for the correlation coefficients between all five factors did not include 1. These results indicate that the validation model in this study demonstrates good discriminant validity, which means that the five factors represent five distinct constructs.

Cross-Validation

Cross-validation analysis was performed using a second group of samples as a validity sample (N2 = 274). We implemented a strict strategy in which all parameters — including factor loadings and latent variable covariances — were constrained to be equal across both samples. For overall fit, the parameter values in the validation sample (N1 = 274) were set to be the same as those in the reliability sample (N2 = 274). This approach involved fully replicating the model defined in N1 and testing whether the factor loadings and latent variable covariances remained identical in N2.

To assess model equivalence, we compared the minimum fit function χ^2 (MFFχ^2) of two strategies: lenient and strict. The lenient strategy involved an unrestricted model, where factor loadings and latent variable covariances were

freely estimated. The strict strategy involved a constrained model, where all parameters were held equal between the two samples. A χ^2 difference test was conducted to compare these models. As shown in Table 2, the MFFχ^2 values were 1452.20 for the lenient strategy and 1485.80 for the strict strategy, with a difference of 33.60 ($\Delta df = 34$, not statistically significant).

Since the χ^2 difference did not reach the level of significance, the results support cross-validation. Under the lenient strategy, the reliability sample (N2 = 274) contributed a χ^2 value of 796.71, accounting for 54.86% of the total model fit. Under the strict strategy, the reliability sample contributed a χ^2 value of 869.94, accounting for 58.55% of the total model fit. The contribution of the reliability sample to the overall model was not substantially higher than that of the validation sample.

These findings confirm that the validation model successfully achieved cross-validation, demonstrating that it is generalizable to different groups within the same population.

Table 2
Cross-Validation of model

Strategy	Overall model fit MFFχ^2 (*df*)	△MFFχ^2	Contribution to χ^2	
			MFFχ^2 (*df*)	χ^2
Loose replication	1452.20 (476)	33.60 (34)	796.71 (238)	54.86%
Tight replication	1485.80(510)		869.94 (272)	58.55%

Study 3

A final formal survey was conducted with teachers from 60 randomly-selected schools with 15 questionnaires sent to each school. Among the 900 questionnaires that were initially distributed, 675 questionnaires were returned. Among these, 655 were identified as valid, representing an effective response rate of 72.78%. Table 3 presents the analysis of gender invariance. In a comparison of the metric invariance model with the configural invariance model, the χ^2 difference was 78.018 with 24 degrees of freedom and a significance level of $p = .000 < .05$. The difference in CFI between the two models was -0.002, which is smaller than the 0.01 threshold recommended by Cheung and Rensvold (2002),

indicating that metric invariance is supported by the empirical data. These findings confirm metric invariance across genders.

In a comparison of the scalar invariance model with the metric invariance model, the χ^2 difference was 47.833 with 10 degrees of freedom and a significance level of $p = .000 < .05$. The difference in CFI between the two models was -0.002, which is again smaller than the 0.01 threshold, indicating that scalar invariance is supported. These results confirm that scalar invariance across genders is upheld.

In a comparison of the factor covariance invariance model with the scalar invariance model, the χ^2 difference was 75.923 with 28 degrees of freedom and a significance level. The difference in CFI between the two models was 0.002, which is below the 0.01 threshold, confirming that factor covariance invariance is supported by the empirical data. Overall, these results indicate that factor covariance invariance across genders is supported.

Table 3

Model Fit Statistics for Test of Measurement Invariance

Model	$\chi^2(df)$	CFI	$\Delta\chi^2$	Δdf	p	ΔCFI
M1. Configural invariance	1721.954（476）	0.945	—	—	—	—
M2. Metric invariance	1799.972（500）	0.943	78.018	24	.000	-.002
M3. Scalar invariance	1847.805（510）	0.941	47.833	10	.000	-.002
M4. Factor variance-covariance invariance	1923.728（538）	0.939	75.923	28	.000	-.002

Importance-Performance analysis

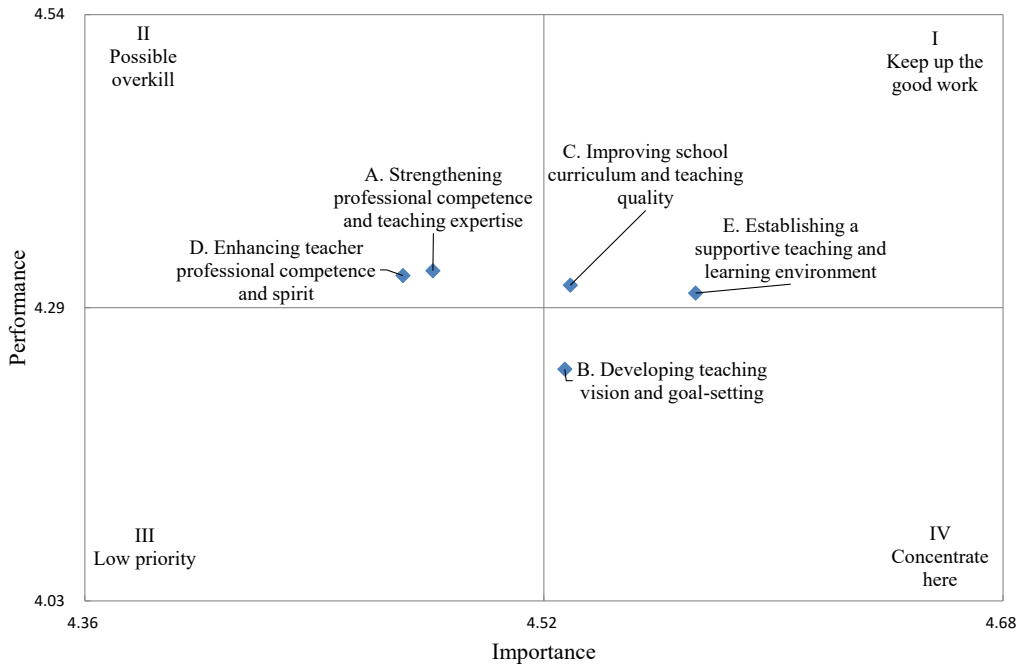
Importance-Performance Analysis (IPA) based on descriptive and comparative analysis is widely used in the field of education (Lai & Denholm, 2024). According to our IPA results, the dimensions "Improving School Curriculum and Teaching Quality" and "Establishing a Supportive Teaching and Learning Environment" were classified under Quadrant I (high importance and high practical value). The dimensions "Enhancing Professional and Teaching Competence" and "Promoting Teacher Professionalism and Morale" fell within Quadrant II (moderate importance but high practical value). Since these areas are already performing well, further emphasis may not be necessary.

None of the dimensions fell within Quadrant III (low importance and low practical value). However, the dimension "Developing Teaching Vision and Task

Goals" was placed in Quadrant IV (high importance but low practical value), indicating a need for strategic adjustments to enhance performance in this area. The IPA results for each dimension are presented in Figure 1.

Figure 1

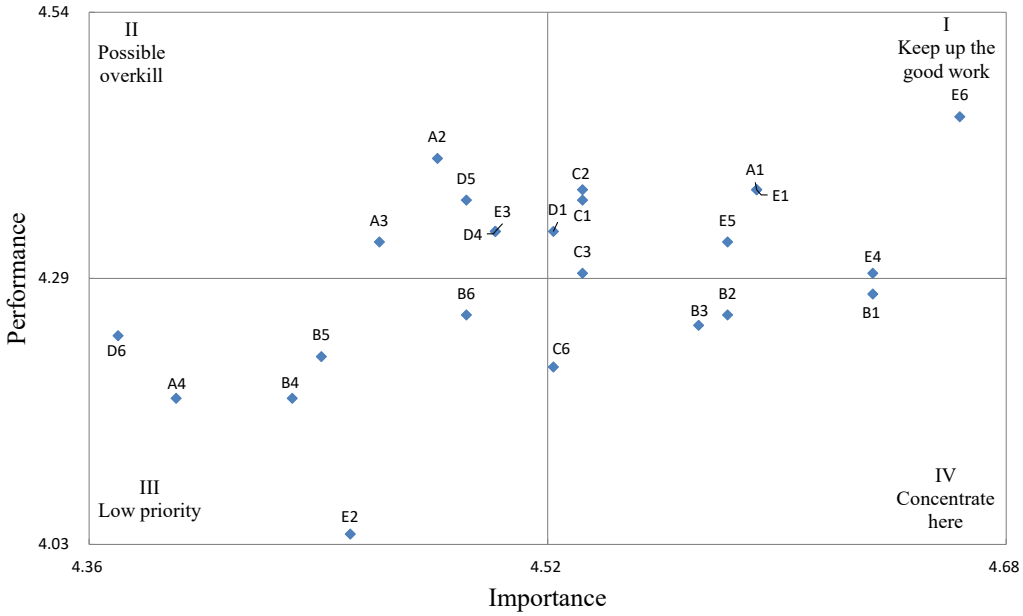
IPA results for Dimensions of Instructional Leadership by Novice Principals



Our IPA results led to the following categorizations: Quadrant I (A1, C1, C2, C3, D1, E1, E4, E5, and E6), Quadrant II (A2, A3, D4, D5, and E3), Quadrant III (A4, B4, B5, B6, D6, and E2), and Quadrant IV (B1, B2, B3, and C6). The IPA results for all specific indicators are shown in Figure 2.

Figure 2

IPA Results for Indicators of Instructional Leadership by Novice Principals



Discussion and Suggestions

This study developed a system of indicators to facilitate the assessment of leadership capabilities among novice principals of public elementary and junior high schools. The system was subjected to a comprehensive assessment and revision process, including an expert review, item analysis, exploratory factor analysis, internal consistency reliability analysis, confirmatory factor analysis, cross-validation, and measurement invariance analysis. The final system included 5 dimensions with 24 specific indicators. IPA results revealed that the "Development of Teaching Vision and Goal Setting" dimension is considered important but of limited practical value, indicating the need to adjust methods to improve performance. Moreover, 4 specific indicators within the system—B1, B2, B3, and C6—were identified as highly important but of limited practical value. These findings align with the reports of Innocent (2022) and Agu and Okoli (2021) who found that instructional leadership demonstrated by the school principals include developing a teaching vision and educational goals, guiding teachers to understand and achieve teaching objectives, involving teachers in school curriculum planning, helping teachers effectively improve curriculum

implementation, and promoting teachers' professional development.

Principals' instructional leadership should also focus on leading members to achieve teaching goals, improving curriculum and teaching quality, promoting professional development, fostering teamwork and innovation, and establishing supportive teaching and learning environments (Agu & Okoli, 2021; Zuckerman & O'Shea, 2021). When principals participate in instructional leadership practices, it strengthens classroom teaching and student learning, particularly in how they manage the school's instructional programs (Manaseh, 2016). Principals' instructional leadership is considered the main driving force for school teaching improvement. When principals engage in instructional leadership, if they focus on improving teachers' teaching abilities and enhancing teaching practices, they will contribute to improving teaching quality and student learning performance (Liu et al., 2022). By maintaining a positive and supportive attitude toward leadership, delegating authority, and collaborating with school members, they can increase job satisfaction, enhance instructional leadership, and improve relationships within the school (Liljenberg & Andersson, 2020).

The proposed indicator system demonstrated good reliability and validity for assessing the overall, dimensional, and specific indicators of instructional leadership performance as well as the continuous monitoring of newly-appointed principals. Further revisions will be required to improve dimensions and specific indicators with limited practical applicability. Respondents expressed a belief that novice principals should actively participate in workshops and training sessions on instructional leadership to enhance their professional capabilities in formulating a teaching vision and goal setting. These efforts should also facilitate collaboration with teachers in establishing instructional goals and developing curricula, while providing guidance in developing teaching skills. Participants also highlighted that newly-appointed principals should consider the needs of instructors as well as their suggestions when developing recognition mechanisms.

In the future, researchers could use the proposed indicator system as a template for the development of an instructional leadership scale or to explore the implementation of instructional leadership programs. Future studies could also examine the relationships between instructional leadership and teaching practices or student learning outcomes.

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