

## Design and Validation of an Instrument for Assessing the Professional Priorities of Iraqi Primary School Principals: Evidence of Validity and Reliability Using Second-Order Confirmatory Factor Analysis

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### ABSTRACT

**Purpose:** This study aimed to design and psychometrically validate an instrument for assessing the professional priorities of Iraqi primary school principals.

**Methods and Materials:** This instrument-development study was conducted among 381 public primary school principals selected from all 18 provinces of Iraq during the 2024–2025 academic year. The initial item pool was developed from the conceptual framework derived from the exploratory phase of the study and was refined through expert review. Content validity was evaluated by 12 professors of educational management using the content validity ratio and content validity index. The final questionnaire comprised 56 items distributed across eight dimensions and was rated on a five-point Likert scale. The measurement structure was examined using first-order and second-order confirmatory factor analyses. Convergent validity was assessed using average variance extracted, while construct reliability and internal consistency were evaluated using composite reliability and Cronbach's alpha.

**Findings:** All 56 items loaded significantly on their corresponding first-order factors, with standardized factor loadings ranging from 0.64 to 0.88 and all coefficients significant at  $p < .001$ . The first-order eight-factor model demonstrated satisfactory fit,  $\chi^2/df = 1.50$ , CFI = 0.95, TLI = 0.94, RMSEA = 0.036, and SRMR = 0.041. The second-order model also showed acceptable fit,  $\chi^2/df = 1.52$ , CFI = 0.94, TLI = 0.94, RMSEA = 0.037, and SRMR = 0.044. Standardized second-order loadings ranged from 0.68 to 0.87 and were all statistically significant. Average variance extracted values ranged from 0.52 to 0.68, composite reliability coefficients ranged from 0.88 to 0.94, and Cronbach's alpha coefficients ranged from 0.82 to 0.94. The total scale demonstrated an alpha coefficient of 0.92.

**Conclusion:** The developed questionnaire demonstrated a coherent eight-dimensional and hierarchical structure with satisfactory evidence of content validity, factorial validity, convergent validity, composite reliability, and internal consistency, supporting its use for research, professional assessment, and leadership development among Iraqi primary school principals.

**Keywords:** Professional priorities, primary school principals, instrument development, confirmatory factor analysis, second-order factor analysis, validity, reliability, Iraq.

## 1. Introduction

Educational systems are increasingly expected to respond simultaneously to rapid technological change, shifting social expectations, accountability requirements, workforce-development needs, and demands for equity and educational quality. Within this environment, school leadership has moved beyond the traditional administration of personnel, facilities, schedules, and regulations and has become a multidimensional professional practice involving instructional leadership, strategic decision-making, ethical responsibility, human resource development, stakeholder engagement, organizational learning, and innovation management. Primary school principals occupy a particularly consequential position because the primary stage establishes the foundations of students' cognitive, emotional, social, and behavioral development. Decisions made by principals at this level influence the quality of teaching, teachers' professional commitment, the allocation of resources, the inclusiveness of the school climate, relationships with families, and the school's capacity to identify and address students' developmental and learning needs. The effectiveness of principals therefore depends not only on whether they possess certain managerial competencies, but also on how they prioritize competing professional responsibilities under conditions of limited time, resources, and institutional support. Contemporary discussions of managerial competence emphasize that an effective manager requires an integrated profile combining leadership, communication, planning, technical understanding, ethical judgment, adaptability, and the capacity to translate organizational goals into coordinated action (Zaharov & Kashtanova, 2024). In education, this integrated profile is especially important because managerial decisions have both organizational and pedagogical consequences, and the priorities adopted by principals may determine whether schools function mainly as administrative units or as learning-centered institutions.

The concept of managerial competency has been examined across multiple sectors, and this expanding literature demonstrates that managerial effectiveness cannot be reduced to a single skill or personality characteristic. Competencies are generally understood as interrelated combinations of knowledge, practical capabilities, attitudes, values, communication behaviors, and context-sensitive judgments that enable managers to perform their roles effectively. A practical approach to managerial competency management requires organizations to identify relevant

competencies, translate them into observable behaviors, evaluate existing levels, and design development processes based on demonstrated gaps rather than broad or undifferentiated training programs (Mikla, 2025). Similarly, contemporary conceptualizations of managerial skills distinguish technical, interpersonal, conceptual, strategic, and self-management capabilities while recognizing that the relative importance of each capability varies according to organizational level, institutional purpose, and environmental complexity (López-Fernández & Romero-Fernández, 2025). Meta-synthetic evidence concerning public-sector managers also suggests that managerial competency is a multidimensional construct incorporating strategic, organizational, relational, individual, and ethical components that must be interpreted in relation to the institutional responsibilities of public organizations (Soveidi & Dosti, 2025). Consequently, any attempt to evaluate school principals should avoid relying exclusively on generic managerial frameworks. Instead, measurement must reflect the professional realities of educational leadership and the specific responsibilities that principals are expected to prioritize in primary schools.

The distinction between professional competency and professional priority is theoretically significant. Competency refers to the capacity to perform a function, whereas priority reflects the relative importance assigned to that function when managers organize their attention, decisions, resources, and behavior. A principal may possess several competencies but may not apply them proportionately or in accordance with the most urgent needs of the school. Professional priorities therefore represent the pattern through which managerial capacities are activated and directed. They indicate what principals consider central to their work, which responsibilities receive sustained attention, and how competing demands are ordered in everyday decision-making. Research on managerial competencies in small and medium-sized enterprises has shown that managers' competency profiles can influence organizational direction and the capacity to initiate and sustain productive activity (Ogbara & Chukwunwa, 2025). Other evidence indicates that managerial competencies are associated with the strategic orientation of organizations because managers' capabilities shape how opportunities, constraints, and institutional objectives are interpreted and converted into action (Barrichello et al., 2025). Although schools differ fundamentally from commercial organizations, the underlying principle remains relevant: principals' professional orientations affect which

organizational objectives are emphasized, how resources are distributed, and whether school improvement efforts are reactive, fragmented, or strategically coordinated. Measuring professional priorities can therefore provide information that competency assessments alone may not capture.

The need for context-specific measurement is reinforced by studies demonstrating that managerial competency requirements vary across occupational and organizational settings. Research on logistics managers in defense organizations has emphasized the importance of constructing competency models that correspond to the operational demands, strategic constraints, and specialized responsibilities of a particular sector (Asgari et al., 2025). A strategic competency model developed for senior petrochemical managers likewise illustrates how analytical techniques can be used to identify competency configurations that reflect the priorities and challenges of a specific industry (Nili Ahmadabadi et al., 2025). Studies of project managers in construction have similarly identified distinctive combinations of planning, communication, coordination, risk management, leadership, and digital competencies required to achieve effective project outcomes (Rai et al., 2025). In addition, evidence from the digitalized construction industry suggests that technological transformation alters not only the technical requirements of managerial work but also the competencies needed for collaboration, decision-making, information management, and organizational adaptation (Kissi et al., 2025). These findings indicate that managerial constructs cannot be measured adequately through decontextualized lists of desirable qualities. For Iraqi primary school principals, the relevant professional priorities must be derived from the realities of school governance, instructional responsibility, staff management, student support, community relations, accountability, and educational development within the national context.

Educational organizations possess characteristics that make the identification of professional priorities particularly complex. Schools are formal organizations governed by regulations, but they are also social and pedagogical communities whose success depends on trust, collaboration, professional expertise, and shared values. Principals must implement national and local policies while responding to the needs of teachers, students, parents, supervisors, and surrounding communities. They must maintain administrative order without allowing procedural demands to displace instructional leadership. They must address

immediate operational problems while sustaining long-term school-improvement objectives. Research examining managerial competency from teachers' perspectives has demonstrated that those who work directly within schools may define competent management in terms of observable leadership conduct, communication, fairness, problem-solving, support for teachers, and the capacity to create an effective educational environment (Yargholi et al., 2024). Work specifically addressing the professional leadership competencies of education managers has also highlighted that educational leadership requires a distinct set of capabilities related to professional guidance, organizational coordination, human interaction, and the advancement of educational objectives (Shirkani, 2025). These perspectives support the development of an instrument that evaluates not merely whether principals perform administrative tasks, but how they prioritize the major domains of professional leadership.

Instructional leadership is one of the central domains of primary school management because the principal is expected to support teaching quality, monitor educational processes, facilitate teachers' professional learning, and maintain a school-wide focus on student development. Nevertheless, instructional leadership must operate alongside human resource development, administrative organization, community engagement, student equity, innovation, ethics, and strategic planning. A competency model designed for administrative managers in an education department has shown that educational management involves an integrated combination of specialized knowledge, organizational abilities, interpersonal capacities, strategic competencies, and professional values (Khayyati et al., 2025). Research concerned with the design and validation of managers' specific competencies further demonstrates the importance of distinguishing broad, common managerial attributes from role-specific competencies directly connected to the responsibilities of the target managerial population (Kandorani et al., 2025). For school principals, a professionally meaningful instrument must therefore preserve the distinctiveness of multiple dimensions while also recognizing that these dimensions may express a broader overarching orientation toward professional leadership. Such a conception supports the examination of a hierarchical measurement model in which specific professional priorities operate as first-order dimensions under a general second-order construct.

Technological change has added another layer to the professional responsibilities of managers. Digital systems

now influence communication, information storage, staff coordination, professional development, performance monitoring, service provision, and interaction with organizational stakeholders. Managers must be able to use technology appropriately while also addressing the human, ethical, and organizational consequences of digitalization. Research on digital preservation has demonstrated the necessity of bridging managerial and technical competencies, because technical systems cannot be implemented effectively without planning, staff development, resource coordination, governance, and strategic oversight (Ahmad et al., 2025). Theoretical work on technology-mediated communication competence similarly emphasizes that managers must select appropriate communication technologies, adapt messages to digital environments, maintain relational quality, and manage the limitations and opportunities created by mediated interaction (Koponen et al., 2025). In public administration, artificial intelligence-driven human resource management is also reshaping managerial roles by increasing the importance of data interpretation, technological awareness, ethical oversight, adaptability, and organizational resilience (Del Barone et al., 2025). For primary school principals, technology and innovation management may include supporting digital teaching, organizing information, communicating with teachers and families, facilitating access to educational technologies, and ensuring that technological adoption serves pedagogical rather than merely administrative purposes. It should therefore be included as a distinct professional priority rather than treated as an incidental technical skill.

Managerial competencies are also dynamic and require systematic development. Organizational training is most effective when it is aligned with assessed needs and structured around the competencies that managers require in their actual work. A national survey of hospital managers identified competency-development needs that differed across managerial functions and professional backgrounds, demonstrating the value of empirical assessment before designing development initiatives (Liang & Kakemam, 2025). Research on core competency models for improving managerial training systems likewise indicates that training becomes more coherent when it is based on a clearly defined competency framework rather than disconnected courses or generalized professional-development activities (Naimati et al., 2025). Locally customized models of managerial competency development through blended learning further show that training content, delivery methods, organizational

conditions, and occupational requirements must be integrated when attempting to improve managerial performance (Moradi et al., 2025). Virtual training frameworks have also become important for managerial competence development, particularly in organizations where digital services, dispersed work, or rapid change require flexible and technology-supported learning opportunities (Margherita & Braccini, 2025). Within education systems, identifying principals' professional priorities can provide an evidence-based foundation for designing targeted training, mentoring, evaluation, and succession-planning programs. Without a valid instrument, professional development may focus on broadly desirable themes while failing to address the areas principals actually emphasize or neglect.

Evaluation is therefore a central component of managerial development. Training participation alone does not ensure that competencies have been acquired, transferred to the workplace, or incorporated into managerial behavior. Post-training evaluation of development administrators has illustrated the importance of assessing whether managerial learning produces measurable improvements in relevant competency domains (Wijayanti et al., 2024). Similarly, future-oriented research in the manufacturing sector has shown that competency profiles must be updated in response to technological, economic, and organizational changes, because capabilities that were sufficient under previous conditions may not meet emerging managerial demands (Stenger & Jonker, 2024). These findings are directly relevant to school leadership. Educational systems are undergoing changes associated with digital learning, accountability, inclusive education, teacher development, community participation, and evidence-informed decision-making. An instrument for measuring principals' professional priorities should thus serve not only as a descriptive research tool but also as a mechanism for diagnosing development needs, evaluating leadership preparation, comparing professional-priority patterns, and monitoring changes over time.

The measurement of professional priorities requires rigorous instrument-development procedures. A conceptually appealing questionnaire cannot be considered scientifically adequate unless its items represent the intended content domain, its proposed dimensions are supported by empirical data, and its scores demonstrate acceptable reliability. Content validity is essential because expert judgment determines whether the items are necessary, relevant, clear, and representative of the construct. Factorial

validity is equally important because it tests whether the observed responses correspond to the hypothesized latent structure. Convergent validity indicates whether items intended to measure the same dimension share sufficient variance, while internal-consistency and composite-reliability estimates indicate whether the dimensions are measured with adequate precision. The development of competency models in specialized managerial populations has repeatedly involved systematic identification, refinement, validation, and organization of competencies into coherent dimensions (Asgari et al., 2025; Kandorani et al., 2025). However, many competency studies focus primarily on identifying lists or models and provide less emphasis on producing a concise, field-usable instrument supported by several complementary forms of psychometric evidence. The present study addresses this methodological need by integrating content-validity assessment, first-order confirmatory factor analysis, second-order confirmatory factor analysis, convergent validity, composite reliability, and internal-consistency evaluation.

A second-order confirmatory factor model is particularly appropriate when multiple dimensions are theoretically distinct yet assumed to reflect a broader common construct. In the present context, instructional leadership, human resource development, administrative and organizational management, community and parent engagement, student support and educational equity, technology and innovation management, professional ethics and accountability, and strategic planning and school improvement can each be interpreted separately. At the same time, they may collectively represent a general professional-priorities orientation among primary school principals. Testing only a first-order model would establish whether the items correspond to the eight proposed dimensions, but it would not determine whether the correlations among those dimensions can be explained by an overarching factor. Establishing a defensible second-order structure would support both dimension-specific interpretation and the calculation of a total professional-priorities score. This approach is consistent with contemporary competency research that conceptualizes managerial effectiveness as an integrated configuration of mutually reinforcing domains rather than a set of unrelated abilities (Nili Ahmadabadi et al., 2025; Soveidi & Dosti, 2025). It also corresponds with evidence that strategic, relational, digital, technical, and organizational competencies jointly shape managerial performance and organizational resilience (Barrichello et al., 2025; Del Barone et al., 2025).

The Iraqi educational context further strengthens the need for a locally grounded and psychometrically validated instrument. Primary school principals across Iraq work in geographically, socially, and administratively diverse environments, and their schools may differ in staffing, infrastructure, access to technology, community expectations, and developmental needs. An imported competency questionnaire may omit locally meaningful responsibilities, apply unfamiliar terminology, or impose a dimensional structure that does not adequately represent the realities of Iraqi school leadership. At the same time, an instrument based only on local descriptions without rigorous psychometric testing may lack comparability, measurement precision, and construct clarity. The appropriate solution is therefore to combine contextual development with standardized validation. Studies conducted in varied sectors and national settings have consistently shown that managerial competency frameworks must be aligned with organizational conditions while retaining clear definitions and measurable indicators (Kissi et al., 2025; López-Fernández & Romero-Fernández, 2025; Rai et al., 2025). A validated Iraqi instrument can support academic research, principal-selection processes, leadership-development programs, professional self-assessment, policy evaluation, and the identification of areas requiring organizational investment.

The practical value of measuring professional priorities also lies in its capacity to reveal imbalances within the principal's role. Excessive concentration on administrative compliance may reduce attention to instructional improvement, staff development, or student equity. Conversely, strong instructional intentions may fail to produce sustainable improvement when strategic planning, accountability, community engagement, or organizational coordination is weak. Technology initiatives may remain superficial when principals lack the capacity to connect innovation with teaching, communication, and staff readiness. Ethical leadership may be undermined when performance expectations are unclear or resources are distributed inconsistently. A multidimensional instrument makes it possible to identify such patterns and to interpret the principal's role as an interconnected professional system. Current research across public administration, education, industry, construction, and knowledge-intensive services increasingly converges on the conclusion that managerial competence must be strategic, adaptive, technologically informed, relationally effective, and grounded in organizational responsibility (Ahmad et al., 2025; Koponen

et al., 2025; Stenger & Jonker, 2024). For primary education, these requirements must be translated into priorities that are observable, measurable, and relevant to the daily and long-term work of school principals.

Accordingly, the present study aimed to design and psychometrically test an instrument for assessing the professional priorities of Iraqi primary school principals and to examine its content validity, first-order and second-order factorial validity, convergent validity, composite reliability, and internal consistency.

## 2. Methods and Materials

This instrument-development study was conducted to design and psychometrically evaluate a questionnaire for assessing the professional priorities of primary school principals in Iraq. The methodological process was organized as a sequential instrument-development procedure involving item generation and refinement, expert assessment of content validity, field administration of the questionnaire, evaluation of the measurement structure through confirmatory factor analysis, examination of a hierarchical second-order factor model, and assessment of construct validity and reliability. The central purpose of the study was to operationalize the concept of primary school principals' professional priorities as a measurable multidimensional construct and to provide empirical evidence supporting the use of the developed instrument in educational research, policy development, professional evaluation, and school administration. The conceptual framework and preliminary dimensions of the instrument were derived from the exploratory phase of the broader research project. These dimensions were subsequently translated into observable questionnaire items and subjected to systematic qualitative and quantitative refinement.

The statistical population consisted of all principals of public primary schools across the 18 provinces of Iraq during the 2024–2025 academic year. According to the available administrative records, the population included 4,578 primary school principals. A sample of 381 principals was selected for the field-based psychometric evaluation of the instrument. The selected sample provided an adequate number of observations for estimating the parameters of the proposed confirmatory factor models and evaluating the relationships between the observed items, the eight first-order dimensions, and the overarching second-order construct of professional priorities. Participation involved completing the developed questionnaire after receiving

information about the purpose of the research and the manner in which the collected information would be used. The participants' responses were treated confidentially, and the data were used exclusively for research and instrument-validation purposes.

Before conducting the main statistical analyses, the collected data were screened to ensure their suitability for covariance-based structural analysis. The preliminary screening process included checking the accuracy of data entry, identifying incomplete questionnaires, examining missing responses, reviewing the consistency of response patterns, and detecting questionnaires with potentially careless or implausible response configurations. The distributions of the observed variables were also examined to determine whether the data met the general requirements for confirmatory factor analysis. These preliminary procedures were undertaken to reduce estimation errors, improve the stability of the model parameters, and ensure that the conclusions regarding the validity and reliability of the instrument were based on sufficiently complete and analytically appropriate data.

Data were collected using the Professional Priorities Questionnaire for Primary School Principals, which was developed specifically for the present study. The initial item pool was generated on the basis of the conceptual framework obtained during the exploratory phase of the research. The items were designed to reflect the major professional priorities relevant to the responsibilities, decisions, practices, and developmental needs of primary school principals within the Iraqi educational context. Following several stages of conceptual review and item refinement, the final questionnaire consisted of 56 items organized into eight dimensions. Collectively, these eight dimensions represented the multidimensional structure of professional priorities, while each dimension measured a conceptually distinct aspect of the broader construct.

The questionnaire items were rated on a five-point Likert scale ranging from "strongly disagree" to "strongly agree." Higher scores indicated a stronger endorsement of the professional priority represented by the corresponding item or dimension. During item construction, established principles of questionnaire development were followed. Items were written in clear and comprehensible language and were formulated to measure a single idea. Ambiguous, double-barreled, overly general, and unnecessarily complex statements were avoided. Attention was also given to the contextual appropriateness of the wording so that the items would be understandable and professionally relevant to

primary school principals working in different Iraqi provinces. These procedures were intended to minimize measurement error arising from linguistic ambiguity or inconsistent interpretation.

Content validity was evaluated through a structured expert-review process. A panel of 12 university professors specializing in educational management examined the preliminary items in terms of their necessity, relevance, appropriateness, clarity, and coverage of the intended dimensions. The content validity ratio was calculated to determine whether each item was considered essential for measuring the target construct. The content validity index was also calculated to assess the relevance and appropriateness of each item in relation to its designated dimension. Items identified by the experts as unclear or insufficiently aligned with the conceptual domain were revised. Items demonstrating weak content representation were removed, combined with conceptually similar statements, or substantially rewritten. This iterative process continued until a coherent final version containing 56 items across eight dimensions was obtained. The expert-review stage therefore provided evidence that the questionnaire adequately represented the content domain of the professional priorities of Iraqi primary school principals.

The internal consistency of the questionnaire was evaluated using Cronbach's alpha. The alpha coefficient for the complete 56-item questionnaire was 0.92, indicating a high level of internal consistency. The alpha coefficients for the eight dimensions ranged from 0.81 to 0.94, demonstrating that the items within each dimension measured sufficiently coherent aspects of the corresponding construct. Because Cronbach's alpha is influenced by assumptions concerning item equivalence and may not independently provide a complete evaluation of reliability, it was interpreted together with composite reliability coefficients and evidence obtained from the confirmatory factor analysis. This combined approach allowed the reliability of the instrument to be assessed at both the observed-score and latent-construct levels.

The psychometric properties of the developed instrument were examined through a series of complementary statistical analyses. Descriptive analyses were initially conducted to evaluate the distributions of item responses and identify potential data-quality problems. The measurement structure of the questionnaire was then assessed using confirmatory factor analysis. In the first-order confirmatory factor model, each of the 56 observed items was specified to load on its theoretically corresponding dimension, while the eight

dimensions were treated as correlated latent variables. This analysis was used to determine whether the empirical response patterns supported the hypothesized eight-dimensional structure derived from the conceptual and exploratory phases of the research.

Standardized factor loadings were examined as direct indicators of the strength of the relationships between the items and their corresponding latent dimensions. Factor loadings above 0.60 were regarded as evidence that the items were strong indicators of their designated constructs. The statistical significance, direction, and magnitude of the factor loadings were considered jointly when evaluating item performance. The overall adequacy of the first-order measurement model was assessed using multiple goodness-of-fit indices rather than relying on a single statistic. The evaluation included indices representing absolute fit, incremental fit, and model parsimony. The chi-square statistic and its ratio to the degrees of freedom were considered alongside commonly used fit indices, including the comparative fit index, Tucker-Lewis index, goodness-of-fit index, adjusted goodness-of-fit index, root mean square error of approximation, and standardized root mean square residual. The simultaneous examination of these indices provided a comprehensive assessment of the extent to which the proposed model reproduced the observed covariance matrix.

Following the evaluation of the eight-dimensional first-order model, a second-order confirmatory factor analysis was performed to test the proposed hierarchical structure of the instrument. In this model, the eight professional-priority dimensions were specified as first-order latent factors, while a general professional-priorities construct was specified as a second-order latent factor explaining the shared variance among the eight dimensions. The second-order analysis was conducted to determine whether the dimensions could be interpreted as distinct but related components of a broader overarching construct. The standardized paths from the second-order factor to the eight first-order factors were examined to evaluate the extent to which each dimension contributed to the general construct. The overall fit of the hierarchical model was also evaluated using the same family of goodness-of-fit indices applied to the first-order model. Evidence of acceptable model fit and meaningful second-order loadings was interpreted as support for calculating and interpreting both dimension-specific scores and an overall professional-priorities score.

Convergent validity was assessed using standardized factor loadings and the average variance extracted for each

latent dimension. The average variance extracted indicates the proportion of variance in a set of observed items that is explained by the corresponding latent construct relative to measurement error. Values greater than 0.50 were considered evidence that a construct explained an adequate proportion of the variance in its indicators. The findings showed that the average variance extracted for the dimensions exceeded the recommended threshold of 0.50, thereby supporting the convergent validity of the questionnaire. These results indicated that items assigned to the same dimension shared sufficient common variance and consistently represented the intended professional-priority domain.

Construct reliability was further examined using composite reliability. Unlike Cronbach's alpha, composite reliability incorporates the standardized factor loadings and measurement-error variances estimated within the confirmatory factor model. Composite reliability values above 0.70 were considered acceptable. All eight dimensions produced composite reliability coefficients exceeding this criterion, providing additional evidence of the consistency and stability of the latent constructs. The interpretation of reliability was therefore based on the combined evidence provided by Cronbach's alpha, composite reliability, factor loadings, and the overall measurement structure. This multidimensional evaluation reduced dependence on any single reliability index and strengthened the psychometric conclusions regarding the developed instrument.

The final judgment concerning the quality of the questionnaire was based on the convergence of evidence obtained from expert content evaluation, item-level factor loadings, overall model-fit indices, the second-order hierarchical structure, average variance extracted, composite reliability, and Cronbach's alpha. The analyses were designed to determine whether the instrument not only exhibited adequate internal consistency but also represented

a theoretically coherent and empirically defensible model of the professional priorities of Iraqi primary school principals. The resulting evidence supported the use of the 56-item, eight-dimensional questionnaire as a reliable and valid measure of both specific professional-priority dimensions and the broader second-order construct of professional priorities.

### 3. Findings and Results

The final sample consisted of 381 public primary school principals selected from the 18 provinces of Iraq. Of the participants, 247 were men (64.8%) and 134 were women (35.2%). The participants' mean age was 43.68 years with a standard deviation of 8.17 years. Regarding age categories, 63 participants (16.5%) were 35 years of age or younger, 161 participants (42.3%) were between 36 and 45 years, 119 participants (31.2%) were between 46 and 55 years, and 38 participants (10.0%) were 56 years of age or older. In terms of educational attainment, 246 principals (64.6%) held a bachelor's degree, 116 principals (30.4%) held a master's degree, and 19 principals (5.0%) held a doctoral degree. The participants had an average of 9.84 years of school-management experience, with a standard deviation of 6.21 years. Fifty-eight principals (15.2%) had fewer than five years of managerial experience, 111 principals (29.1%) had between five and ten years of experience, 102 principals (26.8%) had between 11 and 15 years of experience, and 110 principals (28.9%) had more than 15 years of experience. Furthermore, 235 participants (61.7%) managed schools located in urban areas, whereas 146 participants (38.3%) managed schools located in rural or less densely populated areas. Therefore, the sample included principals with different demographic, educational, professional, and geographical backgrounds and provided adequate heterogeneity for the psychometric examination of the developed instrument.

**Table 1**

*Descriptive Statistics and Content-Validity Evidence for the Dimensions of the Professional Priorities Questionnaire*

| Dimension                                    | Number of items | Mean | Standard deviation | Skewness | Kurtosis | CVR range | CVI range |
|----------------------------------------------|-----------------|------|--------------------|----------|----------|-----------|-----------|
| Instructional Leadership                     | 7               | 4.14 | 0.48               | -0.62    | 0.31     | 0.83-1.00 | 0.92-1.00 |
| Human Resource Development                   | 7               | 3.92 | 0.55               | -0.44    | 0.12     | 0.67-1.00 | 0.83-1.00 |
| Administrative and Organizational Management | 7               | 4.06 | 0.51               | -0.55    | 0.26     | 0.83-1.00 | 0.92-1.00 |
| Community and Parent Engagement              | 7               | 3.74 | 0.63               | -0.31    | -0.18    | 0.67-0.83 | 0.83-0.92 |
| Student Support and Educational Equity       | 7               | 4.18 | 0.46               | -0.68    | 0.47     | 0.83-1.00 | 0.92-1.00 |
| Technology and Innovation Management         | 7               | 3.69 | 0.66               | -0.28    | -0.24    | 0.67-0.83 | 0.83-0.92 |
| Professional Ethics and Accountability       | 7               | 4.32 | 0.43               | -0.81    | 0.69     | 0.83-1.00 | 0.92-1.00 |
| Strategic Planning and School Improvement    | 7               | 4.09 | 0.50               | -0.59    | 0.34     | 0.83-1.00 | 0.92-1.00 |
| Total Professional Priorities Score          | 56              | 4.02 | 0.39               | -0.51    | 0.29     | 0.67-1.00 | 0.83-1.00 |

As presented in Table 1, the mean scores of the eight dimensions ranged from 3.69 to 4.32, indicating that the professional priorities represented by the questionnaire were generally endorsed at moderate-to-high or high levels by the participating primary school principals. Professional Ethics and Accountability obtained the highest mean score, with a mean of 4.32 and a standard deviation of 0.43, followed by Student Support and Educational Equity, with a mean of 4.18 and a standard deviation of 0.46, and Instructional Leadership, with a mean of 4.14 and a standard deviation of 0.48. These findings indicated that ethical conduct, professional responsibility, student welfare, educational equity, and instructional guidance were among the most strongly endorsed professional priorities. Technology and Innovation Management had the lowest mean score, with a mean of 3.69 and a standard deviation of 0.66, followed by Community and Parent Engagement, with a mean of 3.74 and a standard deviation of 0.63. Nevertheless, the means of both dimensions remained above the theoretical midpoint of

the scale, indicating that these areas were also recognized as relevant professional priorities. The total questionnaire score had a mean of 4.02 and a standard deviation of 0.39. The relatively moderate standard deviations indicated that the participants' responses were reasonably concentrated around the dimension means while retaining sufficient variation for covariance-based analysis. The skewness values ranged from  $-0.81$  to  $-0.28$ , and the kurtosis values ranged from  $-0.24$  to  $0.69$ . Because all skewness and kurtosis coefficients were within the conventional range of  $\pm 2$ , no substantial univariate non-normality was observed. The content validity ratio values ranged from 0.67 to 1.00, exceeding the minimum acceptable value for a panel of 12 experts. Similarly, the content validity index values ranged from 0.83 to 1.00, showing that the experts considered the retained items relevant and appropriate for their designated dimensions. Taken together, these findings supported the descriptive adequacy, distributional suitability, and content validity of the final 56-item questionnaire.

**Table 2**

*Standardized Factor Loadings of the Items in the First-Order Confirmatory Factor Model*

| Dimension                                    | Item | Standardized factor loading | Standard error | t value | p      |
|----------------------------------------------|------|-----------------------------|----------------|---------|--------|
| Instructional Leadership                     | Q1   | 0.78                        | 0.041          | 19.02   | < .001 |
| Instructional Leadership                     | Q2   | 0.82                        | 0.039          | 21.03   | < .001 |
| Instructional Leadership                     | Q3   | 0.75                        | 0.044          | 17.05   | < .001 |
| Instructional Leadership                     | Q4   | 0.80                        | 0.040          | 20.00   | < .001 |
| Instructional Leadership                     | Q5   | 0.73                        | 0.047          | 15.53   | < .001 |
| Instructional Leadership                     | Q6   | 0.85                        | 0.038          | 22.37   | < .001 |
| Instructional Leadership                     | Q7   | 0.77                        | 0.043          | 17.91   | < .001 |
| Human Resource Development                   | Q8   | 0.72                        | 0.041          | 17.56   | < .001 |
| Human Resource Development                   | Q9   | 0.76                        | 0.039          | 19.49   | < .001 |
| Human Resource Development                   | Q10  | 0.81                        | 0.044          | 18.41   | < .001 |
| Human Resource Development                   | Q11  | 0.74                        | 0.040          | 18.50   | < .001 |
| Human Resource Development                   | Q12  | 0.79                        | 0.047          | 16.81   | < .001 |
| Human Resource Development                   | Q13  | 0.83                        | 0.038          | 21.84   | < .001 |
| Human Resource Development                   | Q14  | 0.70                        | 0.043          | 16.28   | < .001 |
| Administrative and Organizational Management | Q15  | 0.69                        | 0.041          | 16.83   | < .001 |
| Administrative and Organizational Management | Q16  | 0.74                        | 0.039          | 18.97   | < .001 |
| Administrative and Organizational Management | Q17  | 0.77                        | 0.044          | 17.50   | < .001 |
| Administrative and Organizational Management | Q18  | 0.81                        | 0.040          | 20.25   | < .001 |
| Administrative and Organizational Management | Q19  | 0.72                        | 0.047          | 15.32   | < .001 |
| Administrative and Organizational Management | Q20  | 0.79                        | 0.038          | 20.79   | < .001 |
| Administrative and Organizational Management | Q21  | 0.75                        | 0.043          | 17.44   | < .001 |
| Community and Parent Engagement              | Q22  | 0.65                        | 0.041          | 15.85   | < .001 |
| Community and Parent Engagement              | Q23  | 0.71                        | 0.039          | 18.21   | < .001 |
| Community and Parent Engagement              | Q24  | 0.74                        | 0.044          | 16.82   | < .001 |
| Community and Parent Engagement              | Q25  | 0.78                        | 0.040          | 19.50   | < .001 |
| Community and Parent Engagement              | Q26  | 0.69                        | 0.047          | 14.68   | < .001 |
| Community and Parent Engagement              | Q27  | 0.76                        | 0.038          | 20.00   | < .001 |
| Community and Parent Engagement              | Q28  | 0.72                        | 0.043          | 16.74   | < .001 |
| Student Support and Educational Equity       | Q29  | 0.73                        | 0.041          | 17.80   | < .001 |

|                                           |     |      |       |       |        |
|-------------------------------------------|-----|------|-------|-------|--------|
| Student Support and Educational Equity    | Q30 | 0.79 | 0.039 | 20.26 | < .001 |
| Student Support and Educational Equity    | Q31 | 0.82 | 0.044 | 18.64 | < .001 |
| Student Support and Educational Equity    | Q32 | 0.76 | 0.040 | 19.00 | < .001 |
| Student Support and Educational Equity    | Q33 | 0.84 | 0.047 | 17.87 | < .001 |
| Student Support and Educational Equity    | Q34 | 0.77 | 0.038 | 20.26 | < .001 |
| Student Support and Educational Equity    | Q35 | 0.71 | 0.043 | 16.51 | < .001 |
| Technology and Innovation Management      | Q36 | 0.64 | 0.041 | 15.61 | < .001 |
| Technology and Innovation Management      | Q37 | 0.70 | 0.039 | 17.95 | < .001 |
| Technology and Innovation Management      | Q38 | 0.75 | 0.044 | 17.05 | < .001 |
| Technology and Innovation Management      | Q39 | 0.81 | 0.040 | 20.25 | < .001 |
| Technology and Innovation Management      | Q40 | 0.68 | 0.047 | 14.47 | < .001 |
| Technology and Innovation Management      | Q41 | 0.77 | 0.038 | 20.26 | < .001 |
| Technology and Innovation Management      | Q42 | 0.73 | 0.043 | 16.98 | < .001 |
| Professional Ethics and Accountability    | Q43 | 0.80 | 0.041 | 19.51 | < .001 |
| Professional Ethics and Accountability    | Q44 | 0.84 | 0.039 | 21.54 | < .001 |
| Professional Ethics and Accountability    | Q45 | 0.86 | 0.044 | 19.55 | < .001 |
| Professional Ethics and Accountability    | Q46 | 0.78 | 0.040 | 19.50 | < .001 |
| Professional Ethics and Accountability    | Q47 | 0.82 | 0.047 | 17.45 | < .001 |
| Professional Ethics and Accountability    | Q48 | 0.88 | 0.038 | 23.16 | < .001 |
| Professional Ethics and Accountability    | Q49 | 0.79 | 0.043 | 18.37 | < .001 |
| Strategic Planning and School Improvement | Q50 | 0.74 | 0.041 | 18.05 | < .001 |
| Strategic Planning and School Improvement | Q51 | 0.78 | 0.039 | 20.00 | < .001 |
| Strategic Planning and School Improvement | Q52 | 0.83 | 0.044 | 18.86 | < .001 |
| Strategic Planning and School Improvement | Q53 | 0.81 | 0.040 | 20.25 | < .001 |
| Strategic Planning and School Improvement | Q54 | 0.76 | 0.047 | 16.17 | < .001 |
| Strategic Planning and School Improvement | Q55 | 0.85 | 0.038 | 22.37 | < .001 |
| Strategic Planning and School Improvement | Q56 | 0.80 | 0.043 | 18.60 | < .001 |

As shown in Table 2, all 56 items had positive and statistically significant standardized factor loadings on their theoretically designated first-order dimensions. The standardized factor loadings ranged from 0.64 to 0.88, and all values exceeded the minimum criterion of 0.60 established for retaining items in the measurement model. The associated *t* values ranged from 14.47 to 23.16, and all item loadings were statistically significant at  $p < .001$ . Within the Instructional Leadership dimension, factor loadings ranged from 0.73 to 0.85, with Q6 producing the strongest loading. The Human Resource Development items had loadings between 0.70 and 0.83, whereas the items measuring Administrative and Organizational Management had loadings between 0.69 and 0.81. The Community and Parent Engagement dimension produced loadings ranging from 0.65 to 0.78. Although this dimension contained some of the comparatively lower factor loadings, all of its items remained above the acceptable threshold and demonstrated statistically significant relationships with their latent factor. The Student Support and Educational Equity items had

standardized loadings ranging from 0.71 to 0.84, indicating strong item representation. Technology and Innovation Management produced factor loadings between 0.64 and 0.81, with Q36 having the lowest loading in the entire instrument and Q39 having the strongest loading within this dimension. Nevertheless, Q36 still met the predetermined retention criterion and therefore remained in the final instrument. The Professional Ethics and Accountability dimension generated the strongest overall loading pattern, with standardized coefficients ranging from 0.78 to 0.88. Q48, with a loading of 0.88, was the strongest indicator among the 56 items. The Strategic Planning and School Improvement items also performed strongly, with loadings ranging from 0.74 to 0.85. The absence of weak, negative, or statistically nonsignificant loadings indicated that each item functioned as an appropriate indicator of its corresponding professional-priority dimension. Accordingly, no item was removed at the confirmatory stage, and the complete 56-item structure was retained for the subsequent second-order confirmatory factor analysis.

**Table 3**

*Goodness-of-Fit Indices for the First-Order and Second-Order Confirmatory Factor Models*

| Fit index                                      | Recommended criterion               | First-order eight-factor model | Second-order hierarchical model | Evaluation |
|------------------------------------------------|-------------------------------------|--------------------------------|---------------------------------|------------|
| Chi-square, $\chi^2$                           | Lower values indicate better fit    | 2186.47                        | 2248.63                         | Acceptable |
| Degrees of freedom, df                         | —                                   | 1456                           | 1476                            | —          |
| p value for $\chi^2$                           | May be significant in large samples | < .001                         | < .001                          | Expected   |
| $\chi^2/df$                                    | < 3.00                              | 1.50                           | 1.52                            | Excellent  |
| Goodness-of-Fit Index, GFI                     | $\geq 0.90$                         | 0.91                           | 0.90                            | Acceptable |
| Adjusted Goodness-of-Fit Index, AGFI           | $\geq 0.85$                         | 0.90                           | 0.89                            | Acceptable |
| Comparative Fit Index, CFI                     | $\geq 0.90$                         | 0.95                           | 0.94                            | Good       |
| Tucker–Lewis Index, TLI                        | $\geq 0.90$                         | 0.94                           | 0.94                            | Good       |
| Incremental Fit Index, IFI                     | $\geq 0.90$                         | 0.95                           | 0.94                            | Good       |
| Normed Fit Index, NFI                          | $\geq 0.90$                         | 0.92                           | 0.91                            | Acceptable |
| Root Mean Square Error of Approximation, RMSEA | $\leq 0.08$                         | 0.036                          | 0.037                           | Excellent  |
| 90% confidence interval for RMSEA              | Upper limit < 0.08                  | 0.033–0.039                    | 0.034–0.040                     | Excellent  |
| Standardized Root Mean Square Residual, SRMR   | $\leq 0.08$                         | 0.041                          | 0.044                           | Excellent  |
| Parsimony Normed Fit Index, PNFI               | $\geq 0.50$                         | 0.82                           | 0.83                            | Good       |
| Parsimony Comparative Fit Index, PCFI          | $\geq 0.50$                         | 0.84                           | 0.85                            | Good       |

Table 3 presents the fit indices obtained for the correlated eight-factor first-order model and the hierarchical second-order model. Although the chi-square statistics were statistically significant for both models, the significance of chi-square was expected because this statistic is highly sensitive to sample size and model complexity, particularly in a model containing 56 observed variables and a sample of 381 participants. Therefore, model adequacy was evaluated through the combined interpretation of absolute, incremental, residual-based, and parsimonious fit indices. For the first-order model, the chi-square-to-degrees-of-freedom ratio was 1.50, which was substantially below the criterion of 3.00 and indicated excellent fit. The GFI and AGFI values were 0.91 and 0.90, respectively, whereas the CFI, TLI, IFI, and NFI values ranged from 0.92 to 0.95. These findings demonstrated that the hypothesized eight-factor model reproduced the observed covariance structure substantially better than an independence model. The RMSEA value was 0.036, with a 90% confidence interval ranging from 0.033 to 0.039, and the SRMR value was

0.041. Both residual-based indices were well below the conservative criterion of 0.05 and therefore indicated a very small discrepancy between the observed and model-implied covariance matrices. The second-order model also demonstrated satisfactory fit, with a chi-square-to-degrees-of-freedom ratio of 1.52, a GFI of 0.90, an AGFI of 0.89, a CFI of 0.94, a TLI of 0.94, an IFI of 0.94, and an NFI of 0.91. The RMSEA was 0.037, with a narrow 90% confidence interval of 0.034 to 0.040, and the SRMR was 0.044. The PNFI and PCFI values for the second-order model were 0.83 and 0.85, respectively, demonstrating strong parsimonious fit. Although the first-order model had marginally higher incremental fit values, the differences between the models were small, and the second-order model provided a more parsimonious theoretical explanation by accounting for the relationships among the eight dimensions through a general professional-priorities factor. Consequently, the fit-index pattern supported both the distinctiveness of the eight first-order dimensions and their organization under a higher-order construct.

**Table 4**

*Second-Order Factor Loadings, Convergent Validity, and Reliability of the Questionnaire Dimensions*

| Dimension                                    | Second-order standardized loading | Explained variance, R <sup>2</sup> | Average variance extracted, AVE | Composite reliability, CR | Cronbach's alpha |
|----------------------------------------------|-----------------------------------|------------------------------------|---------------------------------|---------------------------|------------------|
| Instructional Leadership                     | 0.84                              | 0.71                               | 0.62                            | 0.92                      | 0.91             |
| Human Resource Development                   | 0.79                              | 0.62                               | 0.59                            | 0.91                      | 0.89             |
| Administrative and Organizational Management | 0.76                              | 0.58                               | 0.57                            | 0.90                      | 0.88             |
| Community and Parent Engagement              | 0.70                              | 0.49                               | 0.52                            | 0.88                      | 0.84             |
| Student Support and Educational Equity       | 0.81                              | 0.66                               | 0.60                            | 0.91                      | 0.90             |
| Technology and Innovation Management         | 0.68                              | 0.46                               | 0.53                            | 0.89                      | 0.82             |
| Professional Ethics and Accountability       | 0.87                              | 0.76                               | 0.68                            | 0.94                      | 0.94             |
| Strategic Planning and School Improvement    | 0.85                              | 0.72                               | 0.63                            | 0.92                      | 0.92             |
| General Professional Priorities Factor       | —                                 | —                                  | 0.62                            | 0.93                      | 0.92             |

As reported in Table 4, all eight first-order dimensions loaded positively and significantly on the general second-order factor of professional priorities. The standardized second-order loadings ranged from 0.68 to 0.87, demonstrating that each dimension made a meaningful contribution to the overarching construct. Professional Ethics and Accountability had the strongest relationship with the general factor, with a standardized loading of 0.87 and an explained variance of 0.76. This result indicated that approximately 76% of the variance in this dimension was explained by the general professional-priorities construct. Strategic Planning and School Improvement had the second-highest loading of 0.85, followed by Instructional Leadership with a loading of 0.84, Student Support and Educational Equity with a loading of 0.81, Human Resource Development with a loading of 0.79, Administrative and Organizational Management with a loading of 0.76, Community and Parent Engagement with a loading of 0.70, and Technology and Innovation Management with a loading of 0.68. The explained variance coefficients ranged from 0.46 to 0.76. Although Technology and Innovation Management had the lowest second-order loading, its coefficient remained sufficiently strong and statistically significant, confirming that it was a relevant component of

the general professional-priorities construct. The AVE coefficients for the eight dimensions ranged from 0.52 to 0.68 and therefore exceeded the recommended minimum value of 0.50. These findings indicated that each latent dimension explained more than half of the variance in its assigned indicators and provided evidence of convergent validity. The composite reliability coefficients ranged from 0.88 to 0.94, exceeding the criterion of 0.70 for all dimensions. Cronbach's alpha coefficients ranged from 0.82 to 0.94, and the alpha coefficient for the total questionnaire was 0.92. The general second-order factor produced an AVE of 0.62 and a composite reliability coefficient of 0.93, providing further evidence that the eight dimensions consistently represented a broader common construct. The convergence of significant factor loadings, AVE values greater than 0.50, composite reliability coefficients greater than 0.70, and high Cronbach's alpha coefficients demonstrated that the questionnaire possessed satisfactory construct reliability, internal consistency, and convergent validity. These results supported the calculation of both separate scores for the eight professional-priority dimensions and a total score representing the overall professional priorities of Iraqi primary school principals.

Figure 1

Standardized Second-Order Confirmatory Factor Model of the Professional Priorities Questionnaire for Iraqi Primary School Principals

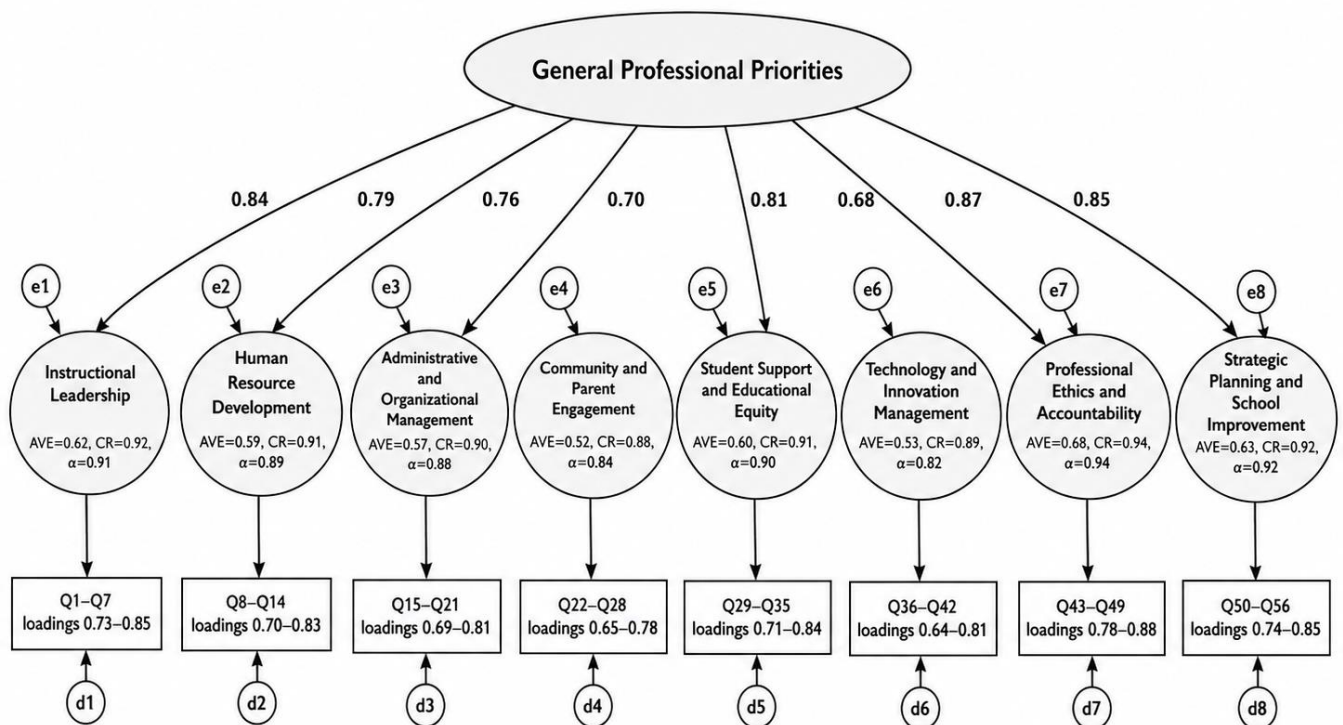


Figure 1 represents the hierarchical measurement structure of the developed questionnaire. In the model, the 56 observed items were organized under eight correlated first-order latent dimensions, and the eight dimensions were subsequently explained by the general second-order factor of professional priorities. The standardized item loadings ranged from 0.64 to 0.88, while the standardized paths from the second-order factor to the first-order dimensions ranged from 0.68 to 0.87. All estimated item-level and dimension-level paths were positive and statistically significant at  $p < .001$ . The strongest second-order path was observed for Professional Ethics and Accountability, followed by Strategic Planning and School Improvement and Instructional Leadership. The comparatively lower paths associated with Technology and Innovation Management and Community and Parent Engagement did not indicate inadequate performance because both remained above commonly accepted thresholds and were supported by satisfactory AVE, composite reliability, and internal-consistency coefficients. The model therefore demonstrated that the dimensions retained their conceptual distinctiveness while sharing sufficient common variance to be represented by a higher-order professional-priorities construct. The acceptable fit indices and significant standardized coefficients confirmed that the proposed second-order

model provided an empirically defensible representation of the relationships among the items, the eight specific dimensions, and the overarching construct. Overall, the findings supported the 56-item questionnaire as a multidimensional and hierarchical instrument with satisfactory evidence of content validity, factorial validity, convergent validity, composite reliability, and internal consistency for assessing the professional priorities of public primary school principals in Iraq.

#### 4. Discussion and Conclusion

The present study was conducted to design and psychometrically evaluate an instrument for measuring the professional priorities of Iraqi primary school principals. The findings provided convergent evidence that the developed 56-item questionnaire, organized into eight dimensions, possessed satisfactory content validity, factorial validity, convergent validity, composite reliability, and internal consistency. The descriptive results showed that the participants generally assigned high importance to the professional domains represented in the questionnaire, with the total professional-priorities score exceeding the theoretical midpoint of the scale. Professional Ethics and Accountability obtained the highest mean, followed by Student Support and Educational Equity, Instructional

Leadership, and Strategic Planning and School Improvement. In contrast, Technology and Innovation Management and Community and Parent Engagement received comparatively lower mean scores, although both remained above the scale midpoint. This pattern suggests that Iraqi primary school principals place their strongest emphasis on ethical responsibility, student welfare, educational fairness, instructional quality, and school improvement, while technology-related leadership and external stakeholder engagement may not yet occupy an equally central position in their professional orientations. Such a result is theoretically plausible because public-school principals often operate within highly regulated administrative structures in which accountability, compliance, student protection, and continuity of educational services are immediate and visible responsibilities. Contemporary leadership frameworks likewise emphasize that modern managerial effectiveness requires ethical judgment, responsibility, strategic orientation, and an integrated profile of interpersonal and organizational competencies (Zaharov & Kashtanova, 2024). The strong prioritization of ethics and accountability is also compatible with public-sector competency models in which integrity, responsibility, transparency, and commitment to institutional objectives are treated as core characteristics of effective managers (Soveidi & Dosti, 2025).

The content-validity results demonstrated that the retained items adequately represented the intended construct domains. The content validity ratio values ranged from 0.67 to 1.00, while the content validity index values ranged from 0.83 to 1.00. These coefficients showed that the panel of educational-management experts regarded the items as necessary, relevant, and appropriately aligned with their respective dimensions. The expert-review process also resulted in the revision, integration, or removal of weaker statements before the final administration of the questionnaire. This stage was important because the professional responsibilities of school principals cannot be represented adequately through generic managerial statements that disregard the pedagogical, social, ethical, and administrative features of educational organizations. The finding is consistent with research demonstrating that competency instruments should be constructed around the specific responsibilities and environmental conditions of the target managerial group. For example, the development of a competency model for education-department administrative managers showed that educational-management

competencies require contextually appropriate combinations of organizational, professional, interpersonal, strategic, and value-based components (Khayyati et al., 2025). Similarly, the design and validation of models of managers' specific competencies has emphasized the necessity of moving beyond broad lists of managerial characteristics toward role-specific and empirically defensible dimensions (Kandorani et al., 2025). The satisfactory CVR and CVI values in the present study therefore indicate that the questionnaire achieved adequate representativeness before the examination of its statistical structure.

The first-order confirmatory factor analysis supported the proposed eight-dimensional measurement model. All 56 items loaded significantly on their theoretically corresponding dimensions, with standardized factor loadings ranging from 0.64 to 0.88. All loadings exceeded the predetermined minimum criterion of 0.60, and no item required removal during the confirmatory stage. The positive and significant loadings indicated that the observed items functioned as effective indicators of their respective latent variables. The strongest item-level loading was observed within Professional Ethics and Accountability, while some of the comparatively lower loadings were found within Technology and Innovation Management and Community and Parent Engagement. Nevertheless, even the lowest coefficients remained acceptable, demonstrating that these items contributed meaningfully to the dimensions they were designed to measure. This finding corresponds with practical approaches to managerial competency assessment, which emphasize that competencies should be expressed through observable and measurable indicators rather than abstract labels alone (Mikla, 2025). It also supports the broader view that managerial skills comprise distinguishable but interrelated technical, interpersonal, conceptual, communication, and strategic abilities that must be represented through multiple indicators (López-Fernández & Romero-Fernández, 2025). The retention of all 56 items suggests that the exploratory conceptual framework was successfully translated into a stable measurement structure.

The model-fit results provided further evidence for the adequacy of the first-order structure. The ratio of chi-square to degrees of freedom was 1.50, the comparative fit index was 0.95, the Tucker–Lewis index was 0.94, and the incremental fit index was 0.95. In addition, the root mean square error of approximation was 0.036 and the standardized root mean square residual was 0.041. These values indicated that the hypothesized eight-factor model reproduced the observed covariance structure with a small

level of residual discrepancy. Although the chi-square statistic was significant, this outcome was expected because chi-square is sensitive to sample size and the complexity of models containing a large number of observed variables. The overall pattern of absolute, incremental, residual, and parsimonious fit indices was therefore more informative than the chi-square significance test considered in isolation. The satisfactory fit of the first-order model supports the conclusion that the professional priorities of primary school principals are multidimensional and cannot be represented adequately by a single undifferentiated score. This interpretation is consistent with studies in other managerial contexts showing that effective managerial performance depends on coordinated competency domains rather than one dominant capability. Research on construction project managers, for instance, has identified a combination of planning, technical, communication, leadership, coordination, and risk-management competencies (Rai et al., 2025). Research conducted in digitalized project environments has likewise shown that technological transformation increases the need for integrated digital, relational, decision-making, and project-governance capabilities (Kissi et al., 2025). The current results extend this multidimensional logic to primary-school leadership.

The second-order confirmatory factor analysis showed that the eight dimensions could also be organized under a broader general factor of professional priorities. The second-order loadings ranged from 0.68 to 0.87 and were all statistically significant. Professional Ethics and Accountability had the strongest relationship with the higher-order construct, followed by Strategic Planning and School Improvement, Instructional Leadership, and Student Support and Educational Equity. Technology and Innovation Management had the lowest second-order loading, followed by Community and Parent Engagement, but both coefficients remained substantial. The second-order model also demonstrated satisfactory fit, with a chi-square-to-degrees-of-freedom ratio of 1.52, a comparative fit index of 0.94, a Tucker–Lewis index of 0.94, an RMSEA of 0.037, and an SRMR of 0.044. The relatively minor decline in fit compared with the correlated first-order model was expected because the second-order model imposed a more parsimonious explanation on the relationships among the dimensions. The acceptable fit of this hierarchical model indicates that the dimensions retain their conceptual distinctiveness while also sharing sufficient variance to represent a general professional orientation. Therefore, the questionnaire can support both dimension-level

interpretations and the calculation of an overall professional-priorities score.

The hierarchical structure identified in the present study aligns with contemporary competency research in which managerial performance is conceptualized as an integrated configuration of strategic, relational, professional, technological, and organizational capabilities. A strategic competency model developed for senior petrochemical managers demonstrated that multiple competency domains can be grouped into higher-level configurations reflecting the overall strategic capacity of managers (Nili Ahmadabadi et al., 2025). Meta-synthetic research on public managers has similarly found that managerial competency consists of several interconnected dimensions representing individual, organizational, relational, ethical, and strategic requirements (Soveidi & Dosti, 2025). The present second-order model reflects the same general principle while applying it to educational leadership. A primary school principal's professional priorities are not a collection of unrelated preferences; rather, they constitute a coherent leadership orientation through which ethical responsibility, instructional direction, staff development, administration, community relationships, equity, innovation, and improvement planning are coordinated. The strong higher-order loading of Professional Ethics and Accountability suggests that the general construct is anchored particularly firmly in responsible and principled leadership. This result also corresponds with teacher-based conceptualizations of managerial competency, in which fairness, trust, communication, support, professional conduct, and responsible decision-making are central indicators of effective school management (Yargholi et al., 2024).

The strong second-order loadings for Strategic Planning and School Improvement and Instructional Leadership also emphasize the developmental orientation of the general construct. Effective school leadership requires more than maintaining routine operations; principals must define priorities, coordinate resources, support teachers, monitor progress, and guide the school toward improved educational outcomes. Research on professional leadership competency among education managers has similarly identified educational guidance, organizational direction, professional interaction, and developmental leadership as key aspects of managerial effectiveness (Shirkani, 2025). The present findings indicate that Iraqi primary school principals' professional priorities are structured around both immediate responsibilities and longer-term improvement goals. The high mean score for Instructional Leadership further

suggests that principals recognize teaching and learning as central components of their role. This is important because administrative demands can sometimes cause school leaders to devote disproportionate attention to procedural compliance while neglecting the instructional core of the school. By incorporating instructional leadership and strategic improvement as separate but strongly related dimensions, the developed questionnaire can identify whether principals maintain an appropriate balance between daily administration and sustained educational development.

The comparatively lower mean and second-order loading for Technology and Innovation Management deserve particular attention. This result does not indicate that technology is unimportant; rather, it may suggest that digital leadership has not yet become fully integrated into the professional identity and routine responsibilities of all participating principals. Differences in infrastructure, access to equipment, staff digital readiness, technical support, and organizational policies may affect how strongly principals prioritize innovation. Research on managerial and technical competencies in digital preservation has shown that technology-related effectiveness depends on integrating technical understanding with planning, human resource development, governance, and training (Ahmad et al., 2025). Likewise, technology-mediated communication competence requires managers to choose appropriate media, adapt their communication practices, preserve relational quality, and manage digital constraints (Koponen et al., 2025). In public administration, artificial intelligence-based human resource management has further increased the importance of digital awareness, data-supported decision-making, ethical oversight, and organizational resilience (Del Barone et al., 2025). Therefore, the relatively lower position of Technology and Innovation Management in the current results may identify an important area for the future development of Iraqi school leadership rather than a peripheral or dispensable dimension.

Community and Parent Engagement also received a comparatively lower mean and second-order loading. This pattern may reflect the continued dominance of internally focused administrative and instructional responsibilities in principals' work. It may also be associated with variations in community participation, school-family communication structures, principals' autonomy, or the perceived authority of parents in school decision-making. Nevertheless, the dimension demonstrated acceptable item loadings, average variance extracted, composite reliability, and internal consistency, confirming that it constitutes a valid component

of professional priorities. Managerial research has consistently shown that organizational effectiveness depends partly on communication, stakeholder coordination, and the ability to create productive relationships beyond the immediate managerial hierarchy. Studies of managerial competencies in small and medium-sized enterprises have found that relational and organizational capabilities contribute to strategic direction and organizational development (Barrichello et al., 2025; Ogbara & Chukwunwa, 2025). Although schools are not commercial enterprises, they similarly depend on sustained relationships with families and communities. The inclusion of this dimension enables the questionnaire to detect whether principals regard community engagement as a core leadership responsibility or as a secondary activity.

The findings also supported the convergent validity and construct reliability of all dimensions. The average variance extracted values ranged from 0.52 to 0.68 and exceeded the recommended threshold of 0.50, demonstrating that each construct explained more than half of the variance in its indicators. Composite reliability values ranged from 0.88 to 0.94, while Cronbach's alpha coefficients ranged from 0.82 to 0.94. The total questionnaire achieved an alpha coefficient of 0.92, and the general second-order factor produced a composite reliability value of 0.93. The convergence of AVE, CR, and alpha results indicates that the dimensions were measured with a high level of consistency and that the interpretation of reliability was not dependent on a single coefficient. This approach is consistent with competency-development research emphasizing the need for valid diagnostic systems before training needs can be identified or managerial-development programs can be planned. A national survey of hospital managers demonstrated that competency needs differ across professional and managerial groups and therefore require structured empirical assessment (Liang & Kakemam, 2025). Similarly, competency-based training models have shown that managerial development is more effective when it is connected to clearly specified and measurable competency domains (Naimati et al., 2025).

The practical significance of the instrument is also supported by research on managerial training and development. Locally customized blended-learning models indicate that professional-development initiatives should be aligned with the actual competency requirements of managers and with the institutional environment in which those competencies are applied (Moradi et al., 2025). Virtual training frameworks likewise show that digital learning can contribute to managerial competence when the training

design is connected to organizational change, work responsibilities, and practical application (Margherita & Braccini, 2025). Furthermore, post-training evaluation is necessary to determine whether development programs produce meaningful changes in managerial capability rather than merely documenting participation (Wijayanti et al., 2024). The questionnaire developed in the present study can contribute to these processes by establishing baseline professional-priority profiles, identifying comparatively weak dimensions, guiding the content of training programs, and evaluating changes after professional-development interventions. This function is particularly important because the future competency requirements of managers are continually changing in response to technological development, workforce transformation, accountability pressures, and evolving organizational expectations (Stenger & Jonker, 2024).

Overall, the findings indicate that the Professional Priorities Questionnaire for Iraqi Primary School Principals is supported by a coherent theoretical and empirical structure. The instrument successfully distinguishes eight professional domains while also representing them through an overarching second-order factor. The strongest role of ethics, accountability, strategic improvement, instructional leadership, and student equity suggests that the general construct reflects a professionally responsible and educationally focused conception of school leadership. The inclusion of human resource development, organizational administration, community engagement, and technology management ensures that the instrument also captures the relational, operational, and adaptive components of the principal's role. This multidimensional and hierarchical structure is consistent with broader research showing that managerial competence requires an integrated combination of professional, strategic, technical, interpersonal, and organizational skills (López-Fernández & Romero-Fernández, 2025; Mikla, 2025). Accordingly, the instrument can be considered a psychometrically defensible measure for research, assessment, leadership development, and educational planning within the Iraqi primary-school context.

The study had several limitations that should be considered when interpreting its findings. First, the data were obtained through a self-report questionnaire, and the participants' responses may have been influenced by social desirability, professional self-presentation, or differences in the interpretation of desirable managerial behavior. Second, although the sample included principals from all 18

provinces of Iraq, the use of a single national sample does not establish that the measurement parameters are identical across gender, province, urban and rural settings, years of managerial experience, or school size. Third, the cross-sectional design assessed the questionnaire at one point in time and therefore did not provide evidence regarding test-retest reliability or the temporal stability of professional-priority scores. Fourth, the instrument focused on principals' reported priorities rather than direct observations of managerial behavior or external evaluations by teachers, supervisors, parents, and students. Fifth, the study evaluated content validity, factorial validity, convergent validity, composite reliability, and internal consistency, but did not directly examine criterion-related validity, predictive validity, or discriminant validity using external leadership and school-performance indicators.

Future studies should replicate the factor structure in independent samples of Iraqi primary school principals and use cross-validation procedures to determine whether the first-order and second-order models remain stable. Measurement invariance should be examined across gender, geographical regions, urban and rural schools, educational qualifications, and levels of managerial experience. Longitudinal studies are recommended to evaluate test-retest reliability and determine whether professional priorities change following policy reforms, leadership training, technological development, or shifts in school conditions. Researchers should also compare principals' self-reports with teacher ratings, supervisor evaluations, parent assessments, and observational measures of leadership behavior. The predictive validity of the questionnaire could be examined by relating its dimensions to teacher commitment, school climate, instructional quality, student engagement, organizational learning, and school-improvement outcomes. Additional studies may also investigate whether shorter versions of the questionnaire can retain acceptable psychometric properties and whether the instrument can be adapted validly for secondary-school principals, private-school leaders, and education-department administrators.

Educational authorities can use the questionnaire as a diagnostic instrument in principal selection, leadership assessment, professional development, and school-improvement planning. Dimension-specific scores should be used to identify individual and system-level strengths and development needs rather than to produce a single evaluative ranking of principals. Training programs can be designed around lower-scoring areas, particularly technology and

innovation management, community and parent engagement, strategic planning, and human resource development, while maintaining the strong emphasis on ethical accountability, instructional leadership, student support, and educational equity. The instrument may also be administered before and after leadership-development programs to assess changes in professional priorities and evaluate program effectiveness. Provincial education offices can aggregate the results to identify regional needs, allocate training resources, and develop differentiated support for principals working under diverse conditions. To reduce self-report bias, the questionnaire should ideally be combined with interviews, performance evidence, stakeholder feedback, and direct indicators of school functioning.

### Authors' Contributions

Authors equally contributed to this article.

### Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

### Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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### Declaration of Interest

The authors report no conflict of interest.

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### Ethical Considerations

All procedures performed in studies involving human participants were under the ethical standards of the institutional and, or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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