



Construction and validation of a tool for measuring the dimensions of competences of elementary school principals

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ABSTRACT

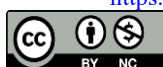
Objective: School managers must possess the skills and abilities required for successful management. In every society, the educational system is considered an important institution. It provides the foundation for intellectual growth and development, as well as for the maturation and realization of human capacities. Therefore, school administrators must possess the necessary skills to successfully carry out this important responsibility. Accordingly, the present research was conducted with the aim of constructing and validating a tool for measuring the dimensions of elementary school principals' competencies.

Method: In terms of purpose, this research is applied, and in terms of data collection, it employs a descriptive-correlational method. The statistical population consisted of all elementary school principals in Tehran. Using cluster sampling based on educational districts and Morgan's table, a sample of 462 people was estimated at each stage. Thus, in two stages, 462 participants were selected in the first stage and 462 in the second stage through random sampling. In the first stage, the data were analyzed using exploratory factor analysis with orthogonal Varimax factor rotation in SPSS 26. In the second stage, the data were analyzed using second-order confirmatory factor analysis through PLS software.

Results: The results showed that the questionnaire designed to assess school administrators' competencies has a seven-factor structure, including: 1- knowledge competence, 2- professional competence, 3- personality traits, 4- executive competence, 5- leadership, 6- communication, and 7- perceptual competence.

Conclusions: Validation of this tool in two stages confirms its validity and reliability for measuring the competencies of managers. Therefore, this questionnaire can be used as a valid tool for identifying and improving the competencies of elementary school managers. Finally, simultaneous attention to the perceptual and communicative dimensions along with knowledge and executive competencies provides the basis for improving the effectiveness of elementary school management.

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Introduction

In the era of globalization and rapid technological advancement, human capital is considered the most important capital of organizations (Armstrong & Taylor, 2023) and the only factor capable of providing a sustainable competitive advantage (Hitt, Chet, & Colella, 2016). Financial and technological resources alone do not constitute an advantage; rather, organizations need talented and capable managers who can compensate for the lack or deficiency of other resources (Khanifar et al., 2020). The knowledge and competence of managers and employees have been identified as the most important competitive advantage of organizations, and the role of human resources has become increasingly important because of their rarity, value, substitutability, and inimitability (Malik, 2022). Today, we are witnessing extensive and successive developments that make the responsibilities and duties of social institutions and organizations increasingly demanding. One institution that is directly affected by these changes and must adapt to them is education (Sammur, Briffa, & Curtis, 2021). Education is the most important institution emerging from society and, at the same time, its creator and developer; its impact on social progress is vital and tangible (Arefnejad, 2017). School management, especially at the critical elementary school stage, plays a key role in the quality of students' education and upbringing (Arjanto, Senduk, & Melati, 2025). A competent principal can provide a foundation for the comprehensive growth of students and teachers by creating a positive environment, providing effective educational leadership, and managing resources effectively.

Among the various organizations officially active in education, the school, as a sensitive social organization, plays an important role in realizing economic, social, and cultural goals. Therefore, it is necessary to research these goals, create and strengthen attractive environments, and ensure the presence of competent managers (Liu, 2021). All members of society spend an important period of their lives at school and are affected by the performance of this organization in different ways (Khanifar et al., 2019). Therefore, schools and their performance, which are influenced by the performance of their human resources, are highly important and socially sensitive (Arefnejad, 2017). The school occupies a special and sensitive position in the educational process. This importance and sensitivity are due to the school's influence on human growth and development as an axis of development. This further emphasizes the role of managers and the importance of their knowledge and competence. Based on the transformational documents of education, the "school," in the twenty-year horizon, is a manifestation of the levels of a good life and a righteous society, a center for providing educational services and opportunities, and a basis for educators' understanding and correction of the situation and the development and improvement of their identities based on the Islamic standard system (Hajbabayi, 2011).

Today, the world is facing an unstable, uncertain, complex, and ambiguous situation, which has resulted in new challenges (Edison, Juhro & Aulia, 2018). On the one hand, these emerging challenges require competent leaders and new leadership qualifications (Assari et al., 2020); on the other hand, emerging paradigms regard attention to educational leadership in schools as one

of the main aspects of progress worldwide (Khanifar et al., 2023). In recent years, schools have faced new and numerous challenges that emphasize the need for changes in management methods (Palamar et al., 2020). One of the most important and fundamental roles in schools is proper management. Good management predicts organizational success and can be more effective than research and development, information technology, or even employee skills. Moreover, because managers' performance in dealing with intra-organizational and extra-organizational problems is particularly important, the need for competent and capable school managers becomes even more necessary (Abaspour et al., 2019). In addition to being an effective executive, a school principal should serve as a valid role model, an agent of cultural change, a talent manager, and a competent planner. In the education system, having capable and competent human capital, especially in elementary school management, can have a significant effect on improving the quantitative and qualitative goals of the education system. The school is the main and actual setting in which educational-system challenges occur and the goals of the system are fulfilled. Addressing forthcoming challenges rationally, as well as effectively resolving educational challenges and obstacles, depends on preparing, developing, and employing expert and experienced personnel who also possess management knowledge (Afsharfar et al., 2019). As Fang (2022) believes, addressing forthcoming challenges in change management requires greater professionalization of school administrators. It is important to discover and identify appropriate methods for selecting competent and capable people for managerial positions in education and training. One of the most effective possible solutions is to make maximum use of the experiences and potential capabilities of human resources in the most sensitive executive positions of the organization, including schools (Palamar et al., 2020). Abaspour et al. (2019) state that modern management emphasizes improving the quality and quantity of executive and educational factors.

Despite the efforts made to improve educational management, problems and inadequacies remain in the selection and appointment of managers, and these issues need to be analyzed and appropriate solutions identified and presented. One of the basic requirements for achieving defined goals and objectives is possessing the competencies needed to implement the strategies and plans formulated in this direction (Assari et al., 2020). When managers' competence is lower than the level required for performance, it creates a gap in management, organizational performance, and the overall competence of managers (Ebrahimi et al., 2020). Research by Khanifar et al. (2023), Li et al. (2020), and Arce et al. (2020) has shown that, given today's turbulent conditions and the constant changes schools face, the development of competencies, capacities, and skills is necessary. A review of managers' development programs has also shown that 69% of managers' development programs are based on the competency model (Khanifar et al., 2020), which makes a standard tool for measuring, identifying, and recognizing the competencies of school managers highly necessary.

Since competencies differ according to the context in which they are applied, from one organization to another, from one country to another, and across different management levels (Dominick, Squires & Cervone, 2021), continuous changes and developments in educational

environments make it necessary to pay attention to new competencies in school principals. Attention to new and valid tools for measuring the competencies of school principals in school management and leadership can bring about a transformation in educational management and leadership. In light of the above, and considering the position and importance of managerial competence and meritocracy in developed educational systems and their increasing influence on improving the educational process, teacher performance, and ultimately student productivity, it is necessary to consider and apply this theory in Iranian schools (Mumford et al., 2016). Therefore, as a first step, it is necessary to investigate and study this issue in order to identify the important components of school principals' competence according to the context and educational conditions prevailing in Iranian elementary schools. Subsequently, these identified components can be used as a standard and appropriate tool for measuring principals' competence in schools. Without knowing the components of this theory and scientifically studying them within the educational context of Iranian schools, its implementation may fail, and those involved in the educational process may not be able to benefit from the capabilities of this theory. Although the literature and background of this field are rich, they have not produced a clear and consistent achievement in the construction and validation of tools related to school principals' competence, nor have they provided appropriate guidelines for improving principals' competence. Therefore, the present research addresses the construction and validation of a tool for measuring the dimensions of elementary school principals' competencies. Since principals' competence is essential for human resource development and is highly important for achieving school goals (Salman, Ganie & Saleem, 2020), attention to the construction of competency tools for elementary school principals can contribute to favorable developments in the future of education and school leadership and management. Effective management in elementary schools, as students' first formal experience of the educational system, plays a decisive role in shaping their personality, attitudes, and academic foundations. A competent principal is not only responsible for managing the school's current affairs but also acts as an educational leader, facilitator of the learning process, and creator of a dynamic environment. However, the lack of a clear framework and a standard indigenous tool for identifying and measuring the various dimensions of principals' competencies has become a serious challenge (Arjanto et al., 2025). This gap has caused the processes of selecting, appointing, and evaluating principals to often be based on insufficient and subjective evidence, while professional development programs have also failed to address their actual needs. The lack of a standard and indigenous tool for comprehensively measuring these principals' competencies has therefore challenged accurate assessment, optimal selection, and the design of targeted professional development programs. This research seeks to fill this gap by developing and validating a valid and reliable tool. The education system lacks a clear understanding of the set of knowledge, skills, and attitudes necessary for a successful principal at the critical elementary school level. This has hindered the independent improvement of the quality of school management and, consequently, educational and training advancement. Therefore, designing and validating a scientific instrument that can reliably measure multiple

dimensions of elementary school principals' competencies—from educational leadership and professional ethics to creativity and resource management—is not only a research necessity but also an urgent need for action in the education sector.

Therefore, the current research seeks to answer the following questions:

- What are the dimensions and components of the competencies of elementary school principals?
- Does the tool for measuring the dimensions and components of elementary school principals' competence have the necessary validity?

Theoretical Foundations and Empirical Background

In recent decades, competency-based management has become central to organizations' ability to attract, retain, develop, and upgrade their resources (Ebrahimi, 2019). Investing as much as possible in the competencies, talents, skills, and abilities of the workforce—human capital—is therefore a fundamental and important strategy (Khanifar et al., 2020). The nature of this relationship is expressed by education economists in the form of Diagram 1 below (Rusanivsky et al., 2014).

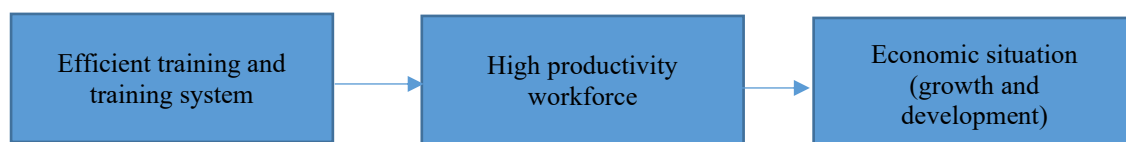


Chart 1. Education and economic development (Rusanivsky et al, 2014).

A successful and effective organization creates and maintains its competitive advantage by developing people's competencies and selecting the right people. On the other hand, the competency approach is highly important for managers' development because it enables them to develop and improve their performance (Carrington, Combe, & Mumford, 2018). According to Fang (2022), the competency model is a descriptive tool for identifying the competencies required to perform a specific role in a job, organization, or industry. Competencies for selection and appointment, promotion, as well as educational development and planning, have produced significant results. Managerial competence can be defined as the knowledge, skills, abilities, and sometimes attitudes and tendencies needed to manage, lead, and guide others. It can also help managers manage people in dynamic and changing service-delivery environments (Cothorn, 2014). Given the necessity and importance of education and its growing role, as well as the vital role of managers in improving the quality of any organization, it is necessary for school managers in Iran to develop competencies in managerial and occupational fields and take fundamental steps in this direction. Based on the existing literature, various definitions of competence have been proposed, and scholars have addressed this issue from different dimensions. A review of some definitions, mainly from prominent experts in this field, is presented in Table 1.

Table 1. Definitions of competency

Row	Researcher	year	definition
1	Cochran	(2009)	Skills, behaviors or characteristics that contribute to success.
2	Lee	(2010)	Skills, knowledge and personality traits are required for successful job performance.
3	Muller & Turner	(2011)	It is any attitude, skill, behavior or other characteristic of human resources that is necessary to perform a job and most importantly that distinguishes superior people from ordinary people.
4	Lucia & Lepsinger	(2015)	A special characteristic in a person that causes his effective or extraordinary performance.
5	Pourezat, Mokhtarianpour & Amini	(2019)	The skills, knowledge, abilities and characteristics that a person needs to perform his job effectively.
6	Santos	(2020)	Competencies are characteristics of knowledge, skills, theoretical models and the like that if used alone or in combination; They lead to successful performance.
7	Ebrahimi et al	(2020)	The set of behavior patterns that are related to work performance and distinguish superior people from ordinary people.
8	Oliveira & Cunha	(2021)	Competence is a collection of knowledge, skills, attributes and behavioral characteristics and personal characteristics.
9	Fang	(2022)	Competence refers to knowledge, abilities, skills, personal characteristics, behaviors and qualifications that are related to organizational goals and play a key role in achieving goals.
10	Khanifar et al.	(2023)	Competence is a combination of basic features connected to each other and includes the use of knowledge, skills and abilities in effective activities.
11	Atencio Bravo, Ramírez Lora & Zappa Berastegui	(2020)	Competence is the ability to deliver, perform tasks with relative ease and with a high level of predictability based on quality at the right time.
12	Heikka, Pitkäniemi & Kettukangas	(2019)	Skills, knowledge, abilities and characteristics needed by a person to do work effectively.
13	Collings & Mellahi	(2009)	Competence is a combination of a person's motivation, abilities, knowledge and skills to ensure excellent performance and beyond his expectations in a given job or situation.
14	McClelland	(1973)	A combination of characteristics, attitudes and values, knowledge and behavioral skills, and any individual characteristic that can reliably be shown to differentiate between excellent and average employees.

The competence of primary school teachers is an integrated and multidimensional set of specialized knowledge, teaching skills, personality traits, and professional attitudes that enable them to act as “fundamental builders of character and students.” This competence goes beyond mastery of the curriculum and includes critical and vital skills such as establishing emotional connections with children, designing creative and engaging learning experiences, managing the classroom in a positive and safe manner, identifying learning and developmental problems in a timely way, and possessing the patience, creativity, and commitment needed to guide students

during the first and most sensitive stage of education and shape their attitudes toward school and learning.

Comparison of the two concepts of competence and qualification: Qualification refers to what a person is capable of doing, whereas competence refers to how it is done. Qualifications refer to a group of skills that are used satisfactorily, while competencies refer to the behaviors demonstrated during competent performance (Riccio, 2010). The difference between the concepts of qualification and competence has been interpreted such that the former describes the tasks and results expected from a job and is mainly used in England for all organizational personnel, not necessarily managers. The latter refers to the internal characteristics of an individual and is a perspective used in America to describe higher performance, especially among managers (Oliveira & Cunha, 2021). This distinction is reflected in Table 2.

Table 2. Comparison of the two concepts of competence and competence (Sayadati, 2019)

description	competences	qualifications
Country type	America	England
Target	Expressing superior performance	Expressing the minimum standard
Focus	person	Job (role)
Explanation	Personal characteristics	Tasks and results
The desired personnel group	Managers	All personnel

Comparing the two concepts of competence and skill: A skill is something that can be learned and strengthened through practice. Competence refers to the way a skill is practiced; any type of skill can become a competency (Ebrahimi, 2019).

Table 3. Summary of the conducted researches

Row	Researchers	Research year	Summary of the research
1	Lee	(2010)	For high performance, managers need the competencies of progressivism, influence and influence, conceptual thinking, analytical thinking, initiative, self-confidence, interpersonal understanding, information seeking, team work, cooperation and expertise.
2	Muller & Turner	(2011)	Competencies required by top managers of the organization are placed in three categories: mental competencies, managerial competencies, and emotional competencies.
3	Afshari, Honari & Ghafoori	(2014)	The results of this comparative study show that the criteria and indicators for determining the competence of primary school principals in Iran compared to the countries of Japan, Australia and the United States have been determined in a general way and in some cases, such as the existence of a tool to measure the competence of principals, it has been weak.
4	Afsharfar et al.	(2017)	The structure of human resources competencies includes five separate dimensions, i.e. culture and change agent, talent manager, strategy architect, operational executive and business partners.
5	Torkzadeh & Mohammadi	(2015)	The results obtained from this research indicated the validity and reliability of the tools and factors of competencies.

6	Arefnejad	(2017)	The components of work conscience, legality, kindness and order are among the competencies needed by school principals for management.
7	Shabani	(2018)	Decision-making skills, perception skills, personality competencies, professional behavior, teamwork, communication skills, professional ethics, value competencies, human resource management, executive management, knowledge and skills, standardization and management of competencies. They are required for principals of elementary schools.
8	Ebrahimi	(2019)	The general competencies of school principals, middle principals and high education principals are: academic, professional, leadership and management, executive and communication competencies.
9	Khanifar et al.	(2019)	The competencies required by school administrators to be used in the evaluation center are: knowledge and awareness (expertise, experience, current knowledge, knowledge of information technology, knowledge of executive laws, environmental knowledge and knowledge of upstream documents), intelligence and talent (logical intelligence, interpersonal intelligence), cultural intelligence, emotional intelligence, creativity, leadership ability, managerial ability, decision-making power), belief and moral issues (good morals, commitment to society's values, honesty, kindness, responsibility) and personality and physical characteristics (neatness, flexibility, organizational commitment), discipline, criticism and participation, physical and mental health).
10	Dominick, Squires & Cervone	(2019)	In their research, they presented a cognitive model of leadership and its development, which includes three dimensions of goals (setting goals, applying goals, and goal orientation), self (self-efficacy, control center, and self-esteem), and knowledge (different and metacognitive schemas).
11	Abaspour et al.	(2019)	The competencies of school principals have 6 main components. First dimension; Individual competencies include personality and value components. The second dimension; Managerial competencies have two components named human resources and insight and attitude. The third dimension; Scientific and professional competencies are the two components of this dimension, expertise and career.
12	Phillips, & Roper	(2019)	It divides the competencies required for managers into textual competencies, behavioral competencies, and technical competencies.
13	Khsnifar et al.	(2021)	The components of the competence model of school managers are: academic, professional, personality, executive, leadership and communication skills.
14	Fang	(2022)	It divides the competencies needed by managers into basic competencies (critical thinking and communication), key competencies in stability conditions (systemic thinking, predictive competencies, Normative competencies), strategic competencies, and interpersonal competencies.

15	Khanifar et al.	(2023)	The findings indicate the identification of school principals' cognitive competencies in 5 general areas: knowledge, skill, ability, attitude and personality traits.
16	Bouchamma, Basque & Marcotte	(2014)	In their research, they have emphasized two main competencies of education managers, i.e. professional development and self-efficacy beliefs.

Considering the above, it should be noted that, to date, no specialized and comprehensive research has been conducted to construct and validate a tool for measuring the dimensions of school principals' competencies, with an emphasis on elementary school principals. Therefore, it is necessary to examine this issue more closely, because until the tools for measuring the competencies of school principals in the new era are clarified, it is not possible to effectively select and appoint principals, promote meritocracy, support succession, manage talent, or improve decision-making in schools and education (Rui & Liu, 2023). Achieving dynamic, successful, and effective education and addressing existing inefficiencies and challenges requires a fundamental and radical transformation of the educational system. This transformation should involve revisiting and reproducing all effective factors and using talents, their development and retention, opportunities, resources, and facilities to facilitate and accelerate the realization of educational goals (Santos, 2020). In this regard, the purpose of this research was to construct and validate a tool for measuring the dimensions of elementary school principals' competencies. Most tools for measuring competence are general, and most highly valid competency tools are related to managers of non-academic organizations. However, because competence is considered a structure dependent on situation and context, it is reasonable to expect that perceptions of the competencies of elementary school principals may differ significantly across organizational cultures. In addition, although competence is a universal concept and underlying attitudes toward competence are visible to some extent in all societies, different organizational socialization experiences among teachers, managers, and employees affect perceptions of managerial competence.

Although valuable efforts have been made in previous research to identify and list the competencies of school principals, a critical review of this literature reveals that most studies have remained primarily at the theoretical and descriptive level and lack a standardized, valid, and localized tool that can objectively and quantitatively measure these competencies in practice. In other words, the main gap lies in the transition from theory to measurement: existing research has addressed “what” the competencies are but has not provided a tool for “how to measure” them. This deficiency has led to three key issues: first, the impossibility of scientifically selecting principals based on a specific competency profile; second, the inability to accurately assess and purposefully develop the capabilities of serving principals; and third, the creation of a gap between research and practice that has directed managerial decisions toward subjective methods lacking research support. Therefore, the present study, focusing on “tool construction and validation,” directly seeks to fill this practical gap and provide a tool that completes the missing link between theory and practice in educational management.

Method

In the current research, a quantitative method was used in two stages to construct and validate the competence scale of school principals. This research is applied in terms of purpose and is based on a descriptive-correlational method of data collection. The statistical population consisted of all elementary school principals in Tehran. Using cluster sampling based on educational districts and Morgan's table, a sample of 462 people was estimated at each stage. Thus, in two stages, 462 participants were selected in the first stage and, in the second stage, with a time interval of approximately six months from the first stage, 462 participants were selected as samples by random sampling.

The steps of the present research were as follows. First, based on a systematic examination of empirical and theoretical studies on managerial competence, the main and important categories were extracted. Based on this framework, a large number of suitable items were designed, resulting in a total of 57 items. Then, according to the opinions of experts in this field, the face and content validity of the items were assessed. In this process, the extracted categories, together with the items associated with each category, were sent to several prominent experts in educational management and leadership to determine whether each category adequately covered the content of the designed items. After receiving the experts' opinions, the necessary corrections were made, reducing the number of items to 46. Next, the items were designed using a 5-point Likert scale, with 5 representing "totally agree" and 1 representing "completely disagree." In a preliminary (pilot) test, the questionnaire was distributed among a sample of 30 school administrators, and Cronbach's alpha was 0.94. After the initial design, the questionnaire was distributed among 51 public girls' and boys' schools in Tehran. Principals and teachers confirmed its face and content validity.

In the first stage of the research, exploratory factor analysis was performed with a sample of 462 people using SPSS 26 software and the Varimax orthogonal factor rotation method to determine the dimensions and underlying components of managers' competence. This method is one of the most common approaches to factor extraction in exploratory factor analysis (Russell, 2002; quoted from Mina'i, 2007) and is used to summarize large and complex correlation matrices by reducing them to a smaller number of principal components (DeCoster, 1998; Sadrossadat & Mina'i, 2001). Therefore, the basic components of managers' competence included seven factors: 1- personality traits, 2- executive, 3- professional, 4- knowledge, 5- perception, 6- leadership, and 7- communication.

In the second stage, confirmatory factor analysis was conducted on 462 participants using PLS software to measure the psychometric properties of the questionnaire. The results of this stage confirmed the factor structure obtained in the first stage. Finally, to assess the internal consistency of the items, Cronbach's alpha was calculated separately for each of the seven factors and for the questionnaire as a whole, as reported in the table below.

Table 4. The results of Cronbach's alpha coefficient of the research questionnaire

Competency components of school principals	alpha coefficient
Knowledge	0.91
Professional	0.93
Personality	0.89

Executive	0.88
Leadership and guidance	0.89
Communication	0.90
Perceptive	0.91
The whole questionnaire	0.94

Results

In the Results section of a quantitative paper, summarize the collected data and the results of any analyses performed on those data relevant to the discourse that is to follow. Report the data in sufficient detail to justify your conclusions. Mention all relevant results, regardless of whether your hypotheses were supported, including results that run counter to expectation; include small effect sizes (or statistically nonsignificant findings) when theory predicts large (or statistically significant) ones. Do not hide uncomfortable results by omission. In the spirit of data sharing, raw data, including study characteristics and individual effect sizes used in a meta-analysis, can be made available as supplemental materials or archived online. However, raw data (and individual scores) generally are not presented in the body of the article because of length considerations. Analyze data and report findings, including effect sizes and confidence intervals or statistical significance levels.

To assess the normality of the data, skewness and kurtosis indices were used. The absolute values of the skewness and kurtosis of the variables should not exceed 2 for the assumption of normality to be established.

Table 5. Skewness and kurtosis test to check the normality of research variables

Variables	Skewness statistic	Standard error of skewness	Skewness statistic	Standard error of skewness
Competence of personality traits	1.273	0.154	1.182	0.304
Executive competence	-0.816	0.155	0.603	0.304
Professional competence	0.531	0.152	-0.183	0.304
Academic competence	0.847	0.151	1.194	0.304
Cognitive competence	0.372	0.152	0.005	0.304
Communication skills	0.361	0.154	0.232	0.304
Perceptual competence	-0.801	0.152	0.111	0.304

As can be seen in Table 5, the absolute values of the skewness and kurtosis of all variables are less than 2. Therefore, the assumption of normality is maintained. In addition, to further ensure the normality of the data, the Kolmogorov-Smirnov statistical test was used, the results of which are reported in Table 6.

Table 6. Skewness and kurtosis test to check the normality of research variables

Variables	KS statistic	Significance level
Competence of personality traits	0.161	0.867
Executive competence	1.948	0.247
Professional competence	1.883	0.392
Academic competence	1.476	0.421
Cognitive competence	0.245	0.756
Communication skills	0.289	0.789
Perceptual competence	0.197	0.824

Since the significance levels of the normality statistics are greater than 0.05 ($P < 0.05$), the distribution of scores has a normal distribution.

Exploratory factor analysis

To investigate the factor structure of the school principals' competence questionnaire, exploratory factor analysis with orthogonal Varimax factor rotation was used. The KMO and Bartlett values, used to assess sampling adequacy and the appropriateness of the correlations among the collected data for exploratory analysis, are reported in Table 7.

Table 7. KMO and Bartlett test results

KMO	0.814
Bartlett's chi-square	2813.471
Degrees of freedom	476
Meaningful	0.001

The results of Table 7 show that the KMO index, with a value of 0.812, is at an acceptable level, as a value of 0.70 or higher is considered sufficient (Mirez, Gamest & Garino, 2013). This indicates that the data and sample are adequate for exploratory factor analysis. The results of Bartlett's test, with a significance level of $p < 0.001$, indicate an appropriate correlation among the variables. A significant Bartlett's test is a requirement for continuing with exploratory factor analysis.

Table 7 reports the items, factor loadings, and extracted factors. It should be noted that items with a factor loading of less than 0.4 or with high factor loadings on more than one factor were removed from the analysis. Regarding factor loadings, Gorsuch (1983) suggested that a factor loading of 0.3 is too small, especially when many variables are included in the analysis, while Stevens (2002) recommended a factor loading of 0.4 as a useful value. Decisions should also be based on sample size. In samples of fewer than 200 cases, values in the range of 0.40 to 0.45 should be considered the lowest limit. In larger samples, 0.40 should be used as the criterion (Meers, Gamest & Garino, 2011). Accordingly, a factor loading of 0.40 was used as the criterion in this research. The total variance extracted for the seven factors is 64.062%, which is a significant amount. According to Table 6, the first factor (characteristics) explains 10.982% of the variance and consists of 9 items. The second factor (professional competence) explains 10.133% of the variance and consists of 7 items. The third factor (leadership competence) explains 10.044% of the variance and consists of 7 items. The fourth factor (communication competence) explains 9.049% of the variance and consists of 7 items. The fifth factor (knowledge competence) explains 8.157% of the variance and consists of 6 items. The sixth factor (executive competence) explains 7.871% of the variance and consists of 6 items. The seventh factor (perceptual competence) explains 7.826% of the variance and consists of 4 items. Item No. 3 of perceptual competence was removed from the analysis because its factor loading was lower than 0.4. These factors explain 63.062% of the variance in total.

Table 8. The results of exploratory factor analysis of the components of the competence questionnaire of elementary school principals

Items	Personality competence	professional competence	Leadership and guidance	communication competence	Knowledge competence	Executive competence	Perceptive competence
Being a role model	0.824						
Responsibility	0.789						
Obligation	0.743						
Participation	0.654						
Learning	0.596						
Perfectionist	0.561						
Selfpromotion	0.511						
Selfmanagement	0.497						
Self Confidence	0.461						
Good behavior		0.748					
Commitment to society's values		0.741					
Honesty and truthfulness		0.722					
Flexibility		0.701					
Patience and kindness		0.678					
Customer Orientation		0.593					
Conflict Management		0.521					
Motivating			0.792				
People development and empowerment			0.783				
Team work and team building			0.757				
Penetration and influence			0.704				
Talent management			0.611				
Succession			0.543				
An inspiration			0.482				
General knowledge of management				0.829			
Current knowledge in the field of educational management				0.798			
Knowledge in the field of education and teaching				0.778			
Environmental knowledge				0/722			
Knowledge of relevant executive laws				0.654			

Information technology knowledge				0.533			
Listening skills					0.819		
Ability to empathize and express feelings					0.772		
Ability to communicate with employees					0.770		
Understanding the views of others					0.692		
Ability to communicate clearly					0.563		
Ability to communicate with school administrators					0.447		
Data management						0.750	
Risk taking						0.775	
Resource management						0.757	
Timely feedback						0.687	
Operational Planning						0.571	
Decision making skills						0.456	
Creativity							0.808
Innovation							0.733
Logical thinking							0.710
Insight							0.614
Special amount	3.081	2.84	2.812	2.546	2.288	2.205	2.183
Variance explained	10.982	1.133	10.044	9.049	8.157	7.781	7.826
Cumulative variance	10.982	21.115	31.159	40.208	48.365	56.236	64.062

According to the factor-analysis process, after determining the factor loadings, items with similar factor loadings, as well as conceptually overlapping items, were removed. Finally, based on the content of the items and their conceptual and logical structure, an appropriate name was assigned to each factor. The items extracted from the initial questionnaire according to the appropriate naming of the factors are as follows:

- Personality traits
- Executive competence
- Professional competence
- Academic competence
- Ability to lead and direct
- Communication competence

- Perceptual competence

Confirmatory factor analysis

In Table 9, the descriptive indices of the research variables (mean and standard deviation) are reported.

Table 9. Descriptive indices of research variables

Variable	Average	Standard deviation
Knowledge competence	3.06	0.92
professional competence	3.39	0.87
Personality competence	2.99	1
Executive competence	3.04	0.87
Leadership and guidance	2.87	0.98
Communication competence	2.76	0.86
Perceptive competence	2.85	0.94
Knowledge competence	3.06	0.92

In the current research, the partial least squares (PLS) approach was used for second-order confirmatory factor analysis because of its advantages over the covariance-based approach. Table 10 shows the factor-loading values and t-statistics for assessing the construct validity of the indicators of the research variables.

Table 10. Factor loading values for indicators of research variables

variable (competence)	Item	Factor loading	t statistic	Result
Knowledge	General knowledge of management	0.62	15.204	Indicator confirmation
	Current knowledge in the field of educational management	0.66	10.315	Indicator confirmation
	Knowledge in the field of education and teaching	0.76	32.869	Indicator confirmation
	Environmental knowledge	0.66	15.162	Indicator confirmation
	Knowledge of relevant executive laws	0.79	44.628	Indicator confirmation
	Information technology knowledge	0.76	40.528	Indicator confirmation
professional	Good behavior	0.61	50.751	Indicator confirmation
	Commitment to society's values	0.83	46.656	Indicator confirmation
	Honesty and truthfulness	0.88	76.651	Indicator confirmation
	Flexibility	0.75	33.621	Indicator confirmation
	Patience and kindness	0.70	23.041	Indicator confirmation
	Customer Orientation	0.62	18.237	Indicator confirmation
Personality	Conflict Management	0.68	20.972	Indicator confirmation
	Being a role model	0.69	22.015	Indicator confirmation

	Responsibility	0.75	28.056	Indicator confirmation
	Obligation	0.68	22.656	Indicator confirmation
	Participation	0.69	23.209	Indicator confirmation
	Learning	0.79	44.772	Indicator confirmation
	perfectionist	0.70	20.605	Indicator confirmation
	Self promotion	0.71	21.380	Indicator confirmation
	Self management	0.73	31.871	Indicator confirmation
	Self Confidence	0.68	18.964	Indicator confirmation
Executive	Data management	0.74	22.006	Indicator confirmation
	Risk taking	0.75	22.615	Indicator confirmation
	Resource management	0.83	43.816	Indicator confirmation
	Timely feedback	0.78	48.721	Indicator confirmation
	Operational Planning	0.73	36.630	Indicator confirmation
	Decision making skills	0.65	20.583	Indicator confirmation
Leadership and guidance	Motivating	0.86	20.410	Indicator confirmation
	People development and empowerment	0.74	34.442	Indicator confirmation
	Team work and team building	0.81	45.858	Indicator confirmation
	Penetration and influence	0.83	50.341	Indicator confirmation
	Talent management	0.80	41.358	Indicator confirmation
	Succession	0.84	63.265	Indicator confirmation
	An inspiration	0/81	41.925	Indicator confirmation
Communication	General knowledge of management	0.65	21.235	Indicator confirmation
	Current knowledge in the field of educational management	0.82	49.122	Indicator confirmation
	Knowledge in the field of education and teaching	0.84	85.085	Indicator confirmation
	Environmental knowledge	0.88	104.779	Indicator confirmation
	Knowledge of relevant executive laws	0.78	40.143	Indicator confirmation
	Information technology knowledge	0.68	23.247	Indicator confirmation
	General knowledge of management	0.68	14.971	Indicator confirmation

Perceptive	Creativity	0.83	44.937	Indicator confirmation
	Innovation	0.88	87.680	Indicator confirmation
	Oogical thinking	0.88	55.526	Indicator confirmation
	Insight	0.91	91.274	Indicator confirmation

Based on the results of Table 9, it is clear that the other items have t-values higher than 1.96 and therefore remain in the analysis process. The construct validity analysis, conducted to assess the accuracy and significance of the selected indicators for measuring the constructs, shows that the indicators of the research variables provide suitable factor structures for measuring the dimensions studied in the research model. In addition, the composite reliability index was used to assess reliability, the results of which are shown in Table 10. In structural equation modeling, the composite reliability coefficient is also used, and values higher than 0.7 for each construct indicate appropriate reliability (Nanali & Bernstrin, 1994).

Table 11. Examining the extracted average variance values

Variable	Average extracted variance (AVE)	Acceptable level	Composite reliability	Acceptable level
Knowledge	0.51	0.5	0.86	0.7
professional	0.62	0.5	0.90	0.7
Personality	0.51	0.5	0.90	0.7
Executive	0.56	0.5	0.88	0.7
leadership and guidance	0.62	0.5	0.92	0.7
communication	0.59	0.5	0.91	0.7
Perceptive	0.78	0.5	0.93	0.7

In this research, in addition to convergent validity, divergent validity was also examined. Divergent validity is acceptable when the AVE for each construct is greater than the shared variance between it and the other constructs (i.e., the square of the correlation coefficients between constructs) in the model. This is shown in Table 12.

Table 12. Investigating the square root values of the average variance extracted with correlations

	Knowledge	Perceptive	Executive	communication	leadership and guidance	professional	Personality
Knowledge	0.71						
Perceptive	0.59	0.88					
Executive	0.55	0.58	0.74				
communication	0.54	0.63	0.59	0.76			
leadership and guidance	0.48	0.65	0.62	0.60	0.78		
professional	0.67	0.54	0.50	0.51	0.51	0.78	
Personality	0.63	0.62	0.64	0.54	0.61	0.64	0.71

In the cross-factor-loading method, the degree of correlation between the indicators of a construct and that construct is compared with the degree of correlation between the indicators of that construct and the other constructs. If the correlation between an indicator and another

construct is higher than the correlation between that indicator and its related construct, the divergent validity of the model is questioned. The results are presented in Table 13.

Table 13. Cross factor loadings

	Knowledge	Perceptive	Executive	Communication	Leadership and guidance	professional	Personality
K1	0.621146	0.458428	0.337268	0.366447	0.413133	0.410253	0.464935
K2	0.667771	0.264706	0.306648	0.343111	0.287380	0.428333	0.443020
K3	0.768655	0.476089	0.436003	0.368506	0.311992	0.449596	0.464589
K4	0.667984	0.325098	0.385597	0.259788	0.217687	0.357691	0.229731
K5	0.796102	0.523692	0.412790	0.453029	0.374986	0.594381	0.550857
K6	0.760088	0.459784	0.502574	0.489081	0.451556	0.584515	0.490863
E1	0.416365	0.390205	0.655308	0.361149	0.309176	0.350921	0.380598
E2	0.378457	0.406900	0.736554	0.320445	0.346551	0.312083	0.379635
E3	0.376069	0.445320	0.786025	0.512690	0.447888	0.372514	0.519185
E4	0.371260	0.507896	0.827907	0.427524	0.499728	0.362808	0.504135
E5	0.491532	0.480090	0.756935	0.509133	0.576216	0.424489	0.573404
E6	0.478610	0.413739	0.740436	0.506395	0.571271	0.453701	0.500655
P1	0.525556	0.839358	0.493728	0.539239	0.576333	0.435841	0.489261
P2	0.526396	0.886971	0.579783	0.602175	0.614143	0.510395	0.579439
P3	0.536129	0.887128	0.513142	0.551341	0.545126	0.508228	0.593079
P4	0.517581	0.918507	0.488594	0.555459	0.562265	0.461051	0.540167
C1	0.450178	0.450187	0.362084	0.660956	0.410964	0.388474	0.324606
C2	0.429825	0.469323	0.489125	0.828334	0.545566	0.442709	0.431581
C3	0.483664	0.610533	0.510175	0.846831	0.502102	0.479071	0.502679
C4	0.431494	0.586969	0.517083	0.885955	0.539047	0.472773	0.518505
C5	0.438744	0.486379	0.474973	0.781154	0.465813	0.376835	0.388429
C6	0.325777	0.424819	0.458450	0.681114	0.412245	0.274970	0.353093
C7	0.362071	0.372954	0.374094	0.681741	0.373574	0.332443	0.388229
pr1	0.592171	0.493496	0.443594	0.417890	0.488983	0.815540	0.556559
pr2	0.604964	0.426502	0.405588	0.410972	0.383582	0.836598	0.512799
pr3	0.593492	0.435044	0.400069	0.430806	0.386381	0.864603	0.512739
pr4	0.482796	0.372998	0.278655	0.357673	0.350448	0.757221	0.420694
pr5	0.459481	0.396408	0.360649	0.337899	0.372954	0.702038	0.492405
pr6	0.428511	0.400195	0.379713	0.389905	0.394326	0.625574	0.440356
pr7	0.364926	0.344815	0.424734	0.406700	0.359034	0.684015	0.472322
L&G1	0.341310	0.326816	0.462970	0.388751	0.649734	0.355685	0.441100
L&G2	0.464769	0.476966	0.538490	0.478447	0.744187	0.444814	0.527867
L&G3	0.315027	0.526355	0.448563	0.425290	0.814404	0.367576	0.362781
L&G4	0.393685	0.533254	0.397389	0.497230	0.835994	0.420085	0.448663
L&G5	0.342605	0.486103	0.497258	0.469562	0.806314	0.420019	0.551477

L&G6	0.470434	0.568180	0.531790	0.537753	0.849274	0.447663	0.550151
L&G6	0.470434	0.568180	0.531790	0.537753	0.849274	0.447663	0.550151
L&G7	0.363833	0.646552	0.558805	0.536298	0.814668	0.393888	0.489762
Per s1	0.484238	0.541641	0.414814	0.490867	0.521776	0.511194	0.693687
Per s2	0.535100	0.469162	0.457769	0.447194	0.415692	0.538814	0.755756
Per s3	0.413763	0.430154	0.385941	0.409637	0.404852	0.431196	0.687413
Per s4	0.415336	0.439273	0.314810	0.361084	0.434730	0.444094	0.695524
Per s5	0.568424	0.505372	0.483462	0.366706	0.413076	0.537347	0.797705
Per s6	0.401921	0.384180	0.490353	0.317967	0.382955	0.406738	0.701028
Per s7	0.392390	0.442068	0.540044	0.422630	0.463764	0.429218	0.709521
Per s8	0.450781	0.456989	0.507807	0.364873	0.518777	0.447112	0.735300
Per s9	0.388666	0.348426	0.560825	0.324892	0.402248	0.400632	0.687328

Because, in the current research, each of the components of knowledge, professional, personality, executive, leadership and guidance, communication, and perception functions as an indicator of the competence of primary school principals, second-order factor analysis was used to test the measurement model and the validity of the components of knowledge, professional, personality, executive, leadership and guidance, communication, and perceptual competence. Table 14 shows the factor-loading values and t-statistics for the indicators of each construct.

Table 14. Factor loading values for indicators of each structure in the form of measurement model

Structure	Competence	Factor load	t statistic	Result
Competencies of school principals	Knowledge	0.78	33.71	confirmation
	professional	0.78	32.02	confirmation
	Personality	0.84	50.72	confirmation
	Executive	0.79	37.03	confirmation
	leadership and guidance	0.81	40.98	confirmation
	Communication	0.79	30.55	confirmation
	Perceptive	0.81	48.02	confirmation

Based on the results of Table 14, it is clear that all indicators of the studied constructs have t-values higher than 1.96. Therefore, the construct-validity analysis, conducted to assess the accuracy and significance of the selected indicators for measuring the constructs, shows that the indicators of each construct provide suitable factor structures for measuring the dimensions studied in the research model.

The theoretical model and research hypotheses can be tested in the PLS method by examining the path coefficients (factor loadings) and R² values (Sayedabaszadeh et al., 2011). The bootstrap method, with 500 subsamples, was also used to calculate t-statistic values and

determine the significance of factor loadings. Factor loadings are used to determine the contribution of each predictor variable in explaining the variance of the criterion variable, while R² values indicate the variance of the criterion variable explained by the predictor variables. In addition, Stone-Geisser's Q² coefficient was used to assess the ability to predict dependent variables from independent variables. Positive values of this coefficient indicate predictive ability (Vinzi, Henseler & Wang, 2010). Regarding explained variance, R² values of 0.67, 0.33, and 0.19 in the PLS model are considered significant, moderate, and weak, respectively (Sayedabaszadeh et al., 2011). According to these criteria, the results of Table 11 show that the explained variance of knowledge (78%), professional (78%), personality traits (84%), executive competencies (89%), communication (79%), and perceptual competence (81%) are all significant. The positive Q² values for all variables also show that these variables have a significant effect on the competence of school administrators.

Table 15. The results of second-order confirmatory factor analysis of school principals' competency model

Structure	R ²	Q ²
Knowledge competence	0.60	0.305
professional competence	0.61	0.35
Personality competence	0.72	0.370
Executive competence	0.63	0.352
leadership and guidance	0.65	0.406
communication competence	0.62	0.371
Perceptive competence	0.66	0.516

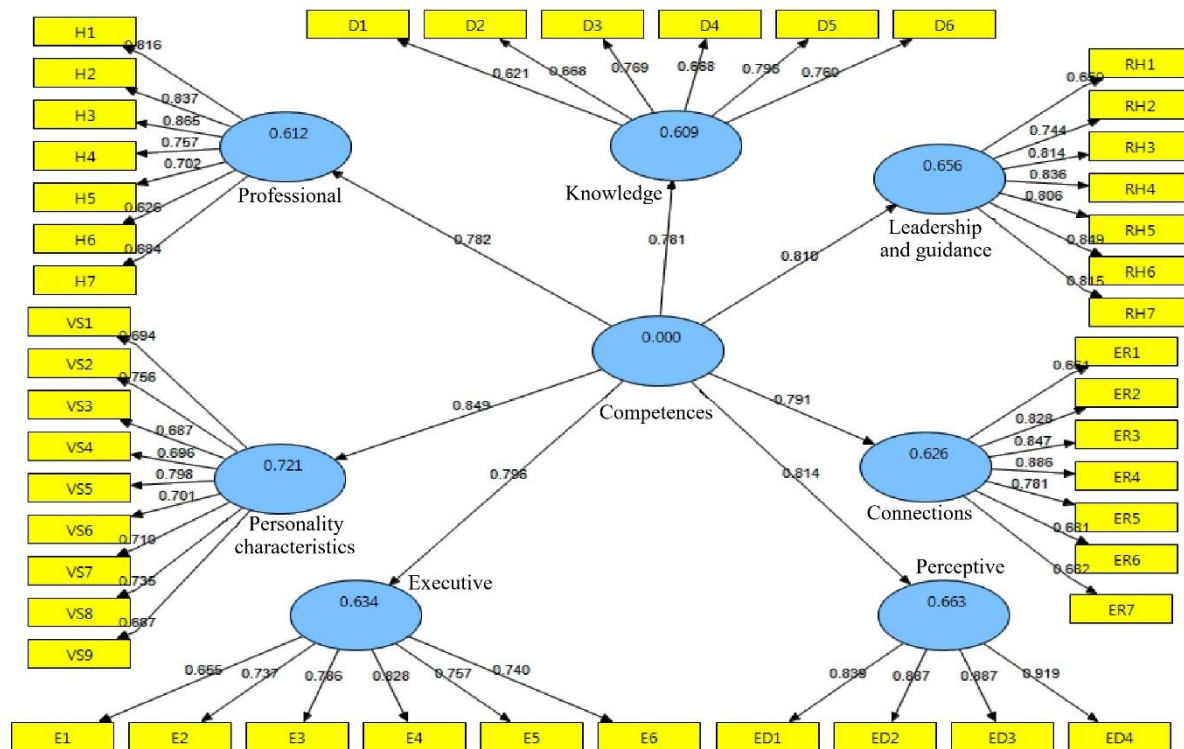


Figure 1. The tested model of the second order of the research

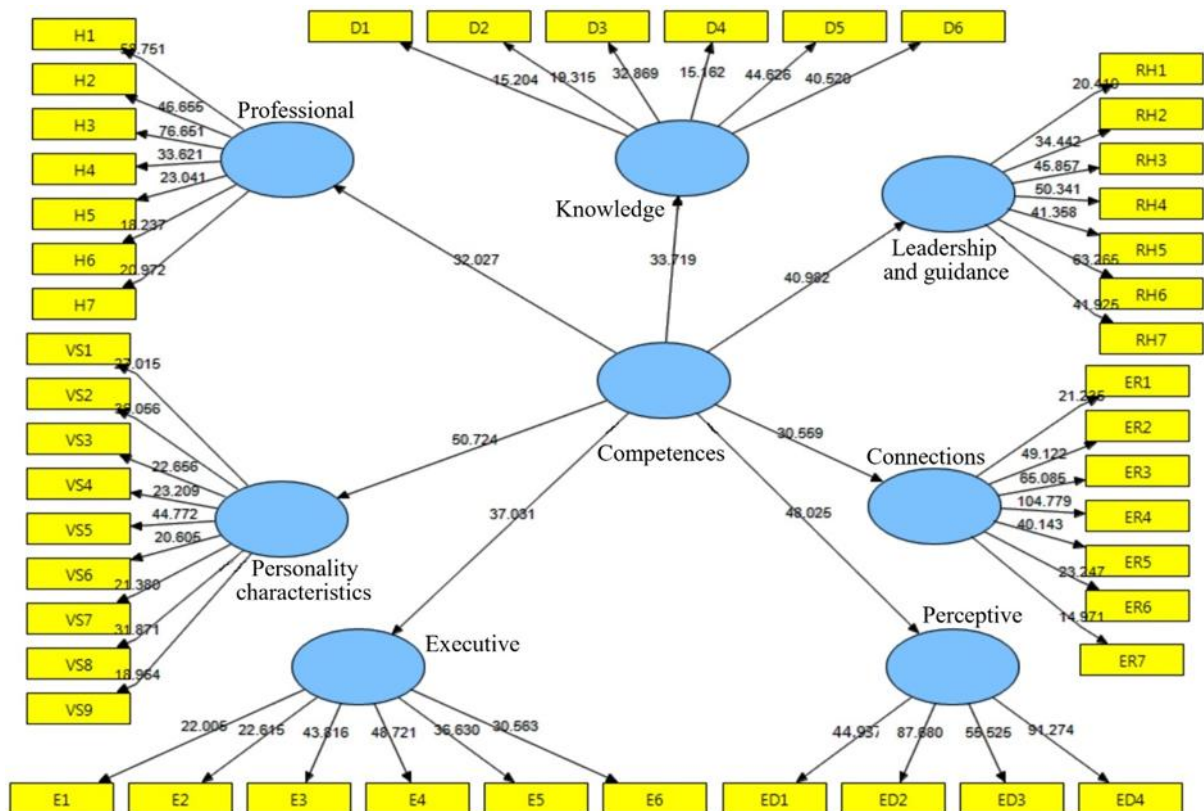


Figure 2. T-coefficients of the tested research model

As shown in Figure 2, the t coefficients of all paths are higher than 2.58, indicating that all paths are significant at the 0.01 level. It should be noted that none of the markers were excluded from the analysis.

Finally, to demonstrate the validity of the findings of the research model, the fit indices of the structural equation model were examined using the partial least squares method. The overall model fit index in PLS is the GOF index, which can be used to assess the validity or overall quality of the PLS model. This index also functions similarly to the fit indices of LISREL and ranges from zero to one, with values close to one indicating an appropriate model fit (Ringel, 2006). The index examines the overall predictive ability of the model and whether the tested model was successful in predicting the endogenous variables (Sayedabbaszadeh et al., 2013). In the present study, the absolute GOF fit index was 0.61 for the tested model, and this value indicates an appropriate fit of the tested model.

Table 16 reports the ranking of the indicators according to their factor loadings. The factors of personality characteristics, leadership and guidance, perceptual, executive, communication, professional, and knowledge have the greatest influence. Among the other factors, the most important are personality, leadership and guidance, perceptual, executive, communication, professional, and knowledge characteristics.

Table 16. Ranking of variables based on factor loadings

variable	Factor load
Personality characteristics	0.84

Leadership and guidance	0.81
perceptive	0.81
executive	0.79
connections	0.79
professional	0.78
knowledge	0.78

Conclusions

Education is a highly complex and sensitive issue, and the stability and sustainability of a society largely depend on the efficiency and effectiveness of its educational system. If the educational system can properly fulfill its mission of personal and social development, it can provide a favorable environment for cultural, economic, political, and social growth in society (Fang, 2022). A substantial part of the complexity and sensitivity of the education system arises from the actions and behavior of education managers and school managers. One of the challenges of human resource management in organizations, especially in education, is how to select and promote managers. In this regard, the assessment-center process is used as a guideline for the effective evaluation and development of competencies under conditions similar to the work environment (Vazhir, 2016). The purpose of this research was to construct and validate a scale for measuring the competencies of elementary school principals. For this purpose, the questionnaire and its components were designed according to the background and theoretical foundations of the research and were then standardized. The results of developing and validating this tool do not merely lead to the creation of another questionnaire; they provide a practical response to one of the long-standing challenges of the education system. Achieving a valid tool for measuring administrators' competence completes the "missing link between theory and practice" in school management (Qurratu et al., 2023). This makes objective evaluation, scientific selection, and the design of targeted professional development programs possible and paves the way for a fundamental transformation in the quality of educational management. Therefore, analyzing and explaining the findings of this research is a necessary step toward exploiting this new capacity and drawing a roadmap for the future. The designed questionnaire was implemented in two stages, using two different samples at two different times. In the first stage, exploratory factor analysis was performed, and the results showed that the competencies of elementary school principals in the target sample include seven main components: characteristics, leadership and guidance, perceptual, executive, communication, professional, and knowledge. At this stage, the questionnaire included 45 items that had appropriate loadings on the factors. To assess its psychometric properties, including validity and reliability, the questionnaire was administered to another sample in the second stage. The results of the second-order confirmatory factor analysis showed that the seven factors obtained for measuring distributed leadership have appropriate validity and reliability, and the tested model showed a very good fit according to various indicators. Based on this, the final questionnaire included seven components and 45 items to measure them. These items and their related components are listed in Table 6. The results showed that the dimensions and indicators of the competency tool for elementary school principals are:

Knowledge competence (general knowledge of management, current knowledge in the field of educational management, knowledge in the field of education and teaching, environmental knowledge, knowledge of relevant executive laws, and knowledge of information technology); the findings of this research are consistent with the findings of Lee (2010), Ekrami & Houshyar (2017), Fang (2022), and Khanifar et al. (2023). Professional competence (good morals, adherence to values, honesty and truthfulness, flexibility, kindness, and customer orientation); personality traits (being a role model, responsibility, commitment, participation, learning, perfectionism, self-improvement, self-management, and self-confidence); the findings of this research are consistent with those of Arefnejad (2017) and Ekrami & Houshyar (2017). Executive competence (information management, risk-taking, resource management, timely feedback, operational planning, and decision-making skills) is consistent with the findings of Ebrahimi (2019), Dominick, Squires & Cervone (2019), Abaspour et al. (2019), and Khsnifar et al. (2021). Leadership and guidance competence (motivation, people development and empowerment, teamwork and team building, influence and influence, talent management, succession, and inspiration); Lee (2010), Muller & Turner (2011), Afshari, Honari & Ghafoori (2014), Shabani (2018), Khanifar et al. (2023), and Bouchamma, Basque & Marcotte (2014) also emphasized the importance of leadership and guidance competence for school administrators. Communication skills (listening skills, ethics and good behavior, ability to communicate with employees, understanding and comprehending others' points of view, ability to communicate clearly and openly, ability to communicate with school administrators, and ability to interact with parents), which are consistent with the research findings of Afsharfar et al. (2017), Ekrami and Houshyar (2017), Ebrahimi (2019), and Abaspour et al. (2019). Cognitive competence (creativity, innovation, logical thinking, and insight). The results of this research are consistent with the findings of Lee (2010), Ebrahimi (2019), Dominick, Squires & Cervone (2019), Abaspour et al. (2019), and Khsnifar et al. (2021).

In order to prepare the current generation for life in the future, education must respond to demands arising from new conditions and adapt to them by understanding the spirit of the times and the needs emerging from them. Given the accumulation of global and national issues and the constantly dynamic and changing environment, education and training must coordinate with the movement of today's generation by formulating logical and realistic strategies. One source of school inefficiency can be found in weaknesses in the recruitment, selection, appointment, and promotion of managers, because the qualifications on which managers are selected are not clearly defined, and in many cases, subjective preferences and relationships have increased this ambiguity. If school principals are selected using comprehensive, up-to-date, and appropriate tools, possess sufficient knowledge and skills, and establish mutual communication with their subordinates by understanding all the necessary and effective factors in creating a suitable educational environment, then, by raising employee morale and creating work motivation and activity, they will be able to realize school goals while using fewer resources, achieving better quality, and increasing educational productivity (Khanifar et al., 2019). In line with the above, it should be acknowledged that, theoretically, the factor structure obtained in the questionnaire

designed in the present research has strong support and is consistent with empirical research and theoretical studies in the fields of management and competence. Also, in the research conducted by Sammut, Briffa, and Curtis (2021), the authors showed that the conceptual foundation and basic framework for the study of distributed leadership include the components of perspective, employee growth (professional development), supervision, leadership-team characteristics, support, and democracy.

Today, organizations have recognized that, in order to achieve success in a complex global world and ensure durability and survival in the business environment, they need the best talents and abilities because people's personal abilities and capabilities are important factors in achieving success (Shahsahebi, Darabi, & Hamidian, 2020). Managers with greater ability are becoming increasingly important in organizations because organizations will face growing competitive challenges in the future and will need more competent and effective managers to manage these challenges. Applying this model, its dimensions, components, and indicators in the appointment and selection of education managers and school principals in the country enables them to assess their status in terms of selecting and appointing competent managers and to use the model as a compass for scientific development. It can support a change from a lack of meritocracy toward talent-management planning and merit-based selection.

Many of today's schools aspire to experience the functions of effective schools, and numerous studies also show that most existing schools suffer from a significant degree of ineffectiveness, an issue that has considerable consequences for students (Ebrahimi, 2019). A worthy school thought leader can effectively help teachers and students achieve school goals through reflective and thoughtful actions. Today, inappropriate management, together with a lack of experience and weak scientific management skills, has created problems for educational systems. The existence of assessment centers within the education organization that select, appoint, and promote managers with basic competencies is therefore one of the necessities of the country's education system. As Stark (Heikka et al., 2019) states, management, change, and reform in educational systems should be carried out in accordance with developments, and such change can be supported by using an assessment center that helps the education system meet society's needs. Developing skills and talent can also provide a basis for retaining talented people in the organization. The human capital that individuals contribute to an organization is divided into two areas: value and uniqueness.

In conclusion, this research, by providing a valid tool for mapping managerial competencies, represents only the beginning of a systematic movement. The future horizon can be envisioned as a school system in which managers are selected and trained not on the basis of their background or relationships but on the basis of a competency profile measured by this tool. This forward-looking perspective promises the realization of a smart, justice-oriented, and development-oriented educational system in which every manager is an informed and competent helmsman capable of guiding tomorrow's generation, and every school becomes a center for cultivating creative and responsible citizens.

Based on the results of this research, the following solutions are presented to move toward meritocracy in the selection of elementary school principals. It is necessary to redefine the role of the school principal and the conditions for selecting school principals in order to achieve an effective educational system. Senior managers of the Ministry of Education can use the results of this research to change the pattern of selecting elementary school principals and apply the concepts and components of the final tool developed in this study. Based on the results of the present research, officials, planners, and personnel responsible for selecting school principals and vice-principals should choose the most qualified candidates and, in their selection, consider managerial competencies, scientific and specialized competencies, and individual merits. To improve managers' competencies, educational-system officials should continuously hold specialized training workshops to develop their various competencies so that, while increasing managerial competencies, their job and organizational performance will also improve. The list of competencies obtained in this research should be used at all stages of recruitment, selection, and employment of education managers. The tool developed in this research can be used to measure the competency level of human resources and identify the strengths and weaknesses of each individual. Given the successful validation of this tool, it is suggested that the Education Organization use it seriously in three areas: first, as a standard criterion in the process of "selection and appointment" of school principals; second, as a tool for "periodic performance evaluation" of serving principals and identification of their strengths and weaknesses; and third, as a basis for "needs assessment and the design of specific training courses" for principals' professional development. It is also suggested that future researchers implement this tool widely at different levels and in longitudinal studies and examine the role of these competencies in improving school performance and students' academic achievement.

Therefore, it is suggested that future research should address the construction of a tool to evaluate the competencies of secondary school principals and education staff managers; examine the status of the dimensions and components of educational managers' competencies among school managers and middle- and higher-education managers in the country; conduct longitudinal studies on the knowledge and educational needs assessment of managers and policymakers in the educational system in the fields of human resource management, managerial competencies, and assessment centers; examine and explain the reasons for the ineffectiveness of the recruitment and selection system for education managers in Iran; and identify and present a model for more effective recruitment and selection based on meritocracy. Given the foundational nature of this research, future researchers should conduct external validation of this instrument by implementing it more broadly at the national level and in different sociocultural contexts. Longitudinal studies should also investigate whether principals with higher competency profiles actually lead to improvements in objective indicators of school performance, such as student academic achievement or teacher satisfaction. In addition, developing a qualitative model to explore more deeply the lived experiences of competent principals and identify objective examples of their behaviors in real-world situations could greatly enrich understanding of this construct. Finally, developing and validating a short form

of this questionnaire for situations in which time is a limiting factor could expand its applicability.

Despite the researcher's efforts to ensure a high level of accuracy in the research methodology, this study has limitations and problems, which are mentioned below. The results of this research, conducted in the aforementioned statistical population (education), cannot be generalized to other educational, service, and cultural organizations, or even to other educational centers in the country and around the world. Data collection in this research was conducted using a questionnaire, and participants reported their own data, which may be associated with response bias in the research.

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Declaration of Generative AI and AI-assisted technologies in the writing process

In this article, Google's artificial intelligence was used to edit the English file of the article (correctly writing English verbs and sentences)..

Conflict of interest

The author declare no conflict of interest.

Data availability statement

Data available on request from the author..

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