

Determining the Internal Reliability of a Comprehensive Talent Identification Model Based on the SHAHAK Plan and the Renzulli Scale in Male Students

Farhang. Fereidouni¹, Ahmad. Souri^{2*}, Aboutaleb. Seadatee Shamir³

¹ PhD Student, Department of Psychology, Kish International Branch, Islamic Azad University, Kish, Iran

² Department of Psychology, Ka.C., Islamic Azad University, Karaj, Iran

³ Department of Educational Psychology, SR.C., Islamic Azad University, Tehran, Iran

* Corresponding author email address: Ahmad25644@iau.ac.ir

Article Info

ABSTRACT

Article type:

Original Research

How to cite this article:

Fereidouni, F., Souri, A., & Seadatee Shamir, A. (2026). Determining the Internal Reliability of a Comprehensive Talent Identification Model Based on the SHAHAK Plan and the Renzulli Scale in Male Students. *Iranian Journal of Educational Sociology*, 9(5), 1-11.

<https://doi.org/10.61838/kman.ijes.1508>



© 2026 the authors. Published by Iranian Association for Sociology of Education, Tehran, Iran. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License.

Purpose: The present study aimed to determine the internal reliability of the Comprehensive Talent Identification Model based on the SHAHAK Plan and the Renzulli Scale among male secondary school students in Tehran.

Methods and Materials: This applied descriptive-survey study was conducted using a field research design during the 2025–2026 academic year. The statistical population consisted of all male students enrolled in upper secondary schools in District 5 of Tehran. Using convenience sampling and based on Morgan's sample size recommendations, 385 students were selected for the final analysis. Data were collected using the Comprehensive Talent Identification Questionnaire derived from the Renzulli Scales for Rating the Behavioral Characteristics of Superior Students. The instrument consisted of 126 items distributed across fourteen dimensions, including learning, creativity, motivation, leadership, art, music, drama, communication accuracy, communication expression, planning, mathematics, reading, technology, and science. Following translation and cultural adaptation procedures, the questionnaire was administered through teacher ratings. Data were analyzed using SPSS version 25. Descriptive statistics were calculated, and inferential analyses included the Kolmogorov–Smirnov test, Kaiser–Meyer–Olkin (KMO) measure, Bartlett's Test of Sphericity, and Cronbach's alpha coefficient to evaluate internal reliability.

Findings: Cronbach's alpha coefficients for the fourteen dimensions ranged from 0.822 to 0.965, all exceeding the acceptable threshold of 0.70. The highest reliability coefficient was obtained for Motivational Characteristics ($\alpha = 0.965$), whereas the lowest was observed for Communication Expression ($\alpha = 0.822$). The overall questionnaire achieved an exceptionally high Cronbach's alpha coefficient of 0.989, indicating outstanding internal consistency.

Conclusion: The consistently high reliability coefficients across all dimensions demonstrate that the instrument is a dependable and psychometrically sound tool for identifying diverse domains of student talent and can be effectively utilized in educational assessment, talent development, and academic guidance programs.

Keywords: Talent Identification, SHAHAK Plan, Renzulli Scale, Gifted Students, Psychometric Properties, Secondary School Students.

1. Introduction

The identification and development of talent have become central concerns in contemporary educational systems due to their critical role in fostering individual potential, promoting social progress, and supporting national development. Educational institutions are increasingly expected not only to provide equal learning opportunities for all students but also to recognize exceptional abilities and create pathways for their optimal development. Consequently, talent identification has evolved from a peripheral educational activity into a strategic component of educational planning and policymaking. Researchers have consistently emphasized that the effectiveness of talent development programs largely depends on the accuracy and comprehensiveness of the methods used to identify gifted and talented individuals at an early stage (Kuznetsova et al., 2024; Shaheen, 2025).

Talent is a multidimensional construct that extends beyond traditional measures of intelligence and academic achievement. Contemporary theories of giftedness emphasize the interaction of cognitive, motivational, creative, social, emotional, and environmental factors in the manifestation of exceptional performance. As a result, modern approaches to talent identification advocate for comprehensive assessment systems capable of capturing the diverse characteristics associated with giftedness and high potential (Kuznetsova et al., 2024; Schlichter, 2023). Such perspectives challenge earlier practices that relied heavily on standardized intelligence tests and narrow academic indicators, highlighting the need for broader and more inclusive identification frameworks.

The significance of effective talent identification is further underscored by evidence demonstrating the long-term consequences of recognizing giftedness during the early stages of education. Students whose talents are identified and nurtured appropriately are more likely to achieve higher levels of academic success, develop stronger self-concepts, and pursue advanced educational and professional opportunities. Conversely, failure to identify talent can result in underachievement, disengagement, and the loss of valuable human resources. Recent findings indicate that early identification of gifted students contributes significantly to long-term educational attainment and sustained academic excellence (Shaheen, 2025). These findings reinforce the importance of establishing reliable and valid talent identification systems within schools.

The growing emphasis on talent development has also stimulated substantial research aimed at clarifying the characteristics of talented individuals and improving identification procedures. A comprehensive systematic review conducted by Kuznetsova and colleagues revealed that gifted children demonstrate distinctive cognitive, physiological, and psychological characteristics that differentiate them from their peers. However, the review also highlighted considerable variation in identification practices across educational contexts, suggesting the need for standardized and psychometrically sound assessment instruments (Kuznetsova et al., 2024). Similarly, Schlichter emphasized that talent development programs are most effective when they are grounded in multidimensional assessments capable of capturing a broad range of abilities and behavioral characteristics rather than relying on a single criterion (Schlichter, 2023).

Although talent identification has traditionally been associated with academic settings, its principles have increasingly been applied in other domains, including sports, leadership, and professional development. Research in sports talent identification has demonstrated the importance of using multidimensional models that integrate physical, psychological, technical, and environmental variables when predicting future performance. Reviews conducted in futsal and youth sports have shown that talent identification systems must account for multiple dimensions of ability in order to improve predictive accuracy and developmental outcomes (Mendes et al., 2022; Simwanza & Paul, 2023). Advances in machine learning have further expanded the possibilities for talent identification by enabling the integration of large datasets and complex predictive models (Reyaz et al., 2022). Likewise, digital technologies have facilitated the development of web-based talent assessment systems that improve accessibility, efficiency, and accuracy in the identification process (Fadhili et al., 2024). Collectively, these developments demonstrate that talent identification has become a multidisciplinary field characterized by increasing methodological sophistication.

Within educational contexts, one of the most influential conceptualizations of giftedness is the model proposed by Joseph Renzulli. Renzulli's theory challenged traditional intelligence-based definitions of giftedness by emphasizing the interaction among above-average ability, creativity, and task commitment. This conceptualization broadened the understanding of giftedness and provided a practical foundation for identifying students with diverse forms of talent. Building upon this theoretical framework, Renzulli

developed the Scales for Rating the Behavioral Characteristics of Superior Students, a multidimensional assessment instrument designed to evaluate various domains of gifted behavior through teacher observations (Renzulli & Reis, 2021). The instrument has become one of the most widely used tools for identifying gifted students and has been adopted in numerous educational systems worldwide.

The Renzulli Scale is particularly valuable because it recognizes that talent manifests in multiple domains beyond academic achievement. Its dimensions encompass learning characteristics, motivation, creativity, leadership, artistic abilities, communication skills, planning, mathematical ability, reading, technology, science, music, and dramatic performance. By examining observable behavioral characteristics across these domains, the scale provides a comprehensive profile of student strengths and potentials (Renzulli & Reis, 2021). Moreover, the Schoolwide Enrichment Model developed by Renzulli and Reis emphasizes that talent development should be accessible to a broad range of students rather than being restricted to those who achieve exceptionally high scores on traditional measures. This developmental perspective aligns with contemporary educational goals that seek to maximize the potential of all learners (Renzulli, 2021).

The psychometric quality of talent identification instruments is a critical consideration because decisions regarding educational opportunities and support services often depend upon assessment outcomes. Reliability, in particular, represents a fundamental property of any measurement instrument. An instrument cannot be considered valid or useful unless it demonstrates adequate reliability. Internal reliability refers to the degree to which items within a scale consistently measure the same construct, thereby ensuring that observed scores accurately reflect the underlying characteristics being assessed. High levels of internal consistency provide evidence that the instrument produces stable and coherent measurements across its items.

Research examining the psychometric properties of the Renzulli Scale has generally reported favorable results. For example, Al-Momani and Al-Oweidi investigated the psychometric characteristics of the Renzulli Scale among Jordanian students aged 12 to 18 years and found strong evidence supporting its reliability and validity for identifying gifted students. Their findings demonstrated that the instrument possessed satisfactory internal consistency across its various dimensions and could effectively distinguish talented students from their peers (Al-Momani & Al-Oweidi, 2020). Such evidence highlights the potential

value of the scale for talent identification across diverse cultural and educational contexts.

In recent years, increasing attention has been directed toward developing comprehensive and contextually appropriate talent identification models within Iran. Researchers have argued that effective identification systems must reflect local educational needs, cultural considerations, and developmental priorities. Studies focusing on talent discovery and support in disadvantaged regions have emphasized the importance of adopting multidimensional frameworks that consider environmental influences, educational opportunities, and individual characteristics simultaneously (Bakhtiari Ramezani et al., 2020, 2022). These investigations have contributed significantly to the conceptualization of talent identification as a comprehensive and systemic process rather than a simple assessment activity.

A notable advancement in this area has been the emergence of comprehensive models designed specifically for Iranian educational settings. Rahmani Barouji and colleagues conducted a meta-synthesis study and proposed a comprehensive conceptual model for identifying student talents. Their findings demonstrated that talent identification should incorporate multiple dimensions, including cognitive abilities, motivational factors, social competencies, creativity, and contextual influences. The authors argued that integrated models are more effective than isolated assessment approaches because they provide a holistic understanding of student potential (Rahmani Barouji et al., 2024). Similarly, Rajabian Dehzireh and colleagues developed and validated a talent identification and academic guidance model for students in Alborz schools, further highlighting the importance of comprehensive frameworks for educational decision-making and student development (Rajabian Dehzireh et al., 2025).

The SHAHAK plan represents one of the most important initiatives aimed at establishing a comprehensive system for talent identification within Iranian schools. Rather than focusing solely on academic achievement, the SHAHAK framework seeks to identify diverse student talents across multiple domains and provide appropriate educational guidance and developmental opportunities. The successful implementation of such a model requires assessment instruments capable of capturing a broad spectrum of student characteristics while maintaining high standards of reliability and validity. Consequently, evaluating the psychometric properties of instruments employed within the

SHAHAK framework is essential for ensuring the accuracy and effectiveness of talent identification procedures.

The importance of accurate talent identification extends beyond educational achievement and encompasses broader developmental and societal outcomes. Educational systems that successfully identify and nurture talent contribute to the development of human capital, innovation, leadership, and social progress. Studies examining educational transformation and workforce development have emphasized that identifying individual strengths and potential is fundamental to preparing future generations for complex social and economic challenges (Hou et al., 2014). Furthermore, inclusive approaches to talent identification are increasingly recognized as necessary for ensuring equity and preventing the exclusion of capable students from developmental opportunities. Research has shown that identification systems based on narrow criteria may unintentionally overlook talented individuals from diverse backgrounds, thereby limiting their opportunities for growth and achievement (Mousa et al., 2021).

From a developmental perspective, talent identification also influences students' educational aspirations and career trajectories. Theoretical perspectives on career development suggest that early recognition of abilities and interests contributes to the formation of realistic aspirations and informed educational choices (Samiei, 2017). Consequently, reliable identification systems can play an important role in helping students understand their strengths, make appropriate educational decisions, and pursue pathways that align with their talents and interests.

The multidimensional nature of talent further supports the need for comprehensive assessment approaches. Research across educational, athletic, and organizational domains consistently demonstrates that exceptional performance emerges from the interaction of multiple competencies rather than a single characteristic (Mendes et al., 2022; Simwanza & Paul, 2023; Vora & Kainzbauer, 2020). Therefore, instruments designed to identify talent must be capable of assessing a wide range of behavioral, cognitive, creative, and motivational attributes. The Renzulli Scale provides such a framework, making it particularly suitable for comprehensive talent identification initiatives such as the SHAHAK plan.

Despite the increasing adoption of comprehensive talent identification models in Iran, relatively limited empirical evidence is available regarding the internal reliability of the comprehensive talent identification model based on the SHAHAK plan and the Renzulli Scale among Iranian

students. Given the importance of reliability as a prerequisite for valid assessment and educational decision-making, further investigation is warranted to determine whether the instrument demonstrates adequate internal consistency across its multiple dimensions within the target population.

Therefore, the aim of the present study was to determine the internal reliability of the Comprehensive Talent Identification Model based on the SHAHAK Plan and the Renzulli Scale among Iranian male secondary school students.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a descriptive survey research design. In terms of purpose, the research was applied, and regarding data collection, it was conducted as a field study. The primary objective was to evaluate the internal reliability of the Comprehensive Talent Identification Model developed within the framework of the SHAHAK Plan and based on the Renzulli Scale among Iranian male students. The study was carried out during the 2025–2026 academic year in secondary schools located in District 5 of Tehran, Iran.

The target population consisted of all male students enrolled in upper secondary schools in District 5 of Tehran. To obtain an adequate sample for psychometric evaluation and reliability analysis, a convenience sampling method was employed. Sample size determination was guided by recommendations from similar psychometric studies and the Morgan sample size table. Initially, 400 student assessment forms were completed to compensate for potential data loss and incomplete responses. After data screening, 12 questionnaires were identified as incomplete or invalid and were excluded from the analysis. Consequently, the final sample consisted of 385 male students whose data met the inclusion criteria and were retained for statistical analysis. This sample size was considered sufficient to provide stable estimates of internal consistency and to adequately represent the variability present within the target population.

2.2. Data Collection Tools

Data were collected using the Comprehensive Talent Identification Questionnaire based on the Renzulli Scale. This teacher-rating instrument was adapted from the Renzulli Scales for Rating the Behavioral Characteristics of Superior Students developed by Renzulli (2021). The

instrument is designed to assess a broad range of talent-related characteristics and abilities through teacher observations of students' behaviors and performance in educational settings. Teachers complete the questionnaire individually for each student based on their direct knowledge and experience with the student.

The instrument comprises fourteen distinct dimensions that evaluate various domains of giftedness and talent. These dimensions include Learning (11 items), Motivation (11 items), Creativity (9 items), Leadership (7 items), Art (11 items), Music (7 items), Drama (10 items), Communication Accuracy (11 items), Communication Expression (4 items), Planning (15 items), Mathematics (10 items), Reading (6 items), Technology (7 items), and Science (7 items). Together, these dimensions provide a comprehensive assessment of students' cognitive, motivational, creative, social, artistic, and academic strengths from the perspective of their teachers.

The Learning dimension assesses the speed, depth, and quality of learning as well as the ability to comprehend and apply new concepts. Motivation evaluates persistence, enthusiasm, task commitment, and active engagement in educational activities. Creativity measures divergent thinking, originality, and the ability to generate innovative ideas. Leadership assesses interpersonal influence, responsibility, and the capacity to guide others in group situations. The Art, Music, and Drama dimensions examine students' artistic, aesthetic, and performance-related abilities. Communication dimensions assess both attentive reception of information and effective verbal or nonverbal expression. Planning evaluates organizational skills, goal setting, and time management abilities. Mathematics and Reading assess academic competencies related to numerical reasoning, problem-solving, comprehension, and literacy. Technology measures the effective use of technological tools and digital resources, whereas Science evaluates scientific curiosity, understanding of natural phenomena, and scientific reasoning skills.

Each item is rated independently using a six-point Likert-type scale ranging from Never (1) to Always (6). The items were derived from extensive research literature concerning giftedness, creativity, and talent development. Because the fourteen dimensions represent relatively distinct behavioral domains, scores from individual dimensions are interpreted separately and are not combined into a single overall score. This multidimensional structure allows for the identification of diverse talent profiles among students and is consistent with the theoretical foundations of the SHAHAK talent

identification framework and the Renzulli conception of giftedness.

Prior to data collection, the original English version of the scale underwent a rigorous translation and cultural adaptation process. The instrument was independently translated into Persian by experts in psychology and education. Subsequently, independent bilingual translators performed a back-translation into English. Comparisons between the original and translated versions were conducted to identify discrepancies and ensure conceptual equivalence. Following revisions, the final Persian version was reviewed by a panel of ten experts in psychology and education who confirmed its linguistic clarity, cultural appropriateness, and face validity.

2.3. Data Analysis

Data analysis was performed using IBM SPSS Statistics version 25. Initially, descriptive statistics were calculated to summarize participant characteristics and item responses. Means, standard deviations, item distributions, and dimensional scores were examined to evaluate the overall response patterns and data quality.

The primary objective of the study was to determine the internal reliability of the comprehensive talent identification model. Therefore, internal consistency was assessed using Cronbach's alpha coefficient for each of the fourteen dimensions of the instrument as well as for the overall measurement framework where appropriate. Cronbach's alpha values were interpreted according to established psychometric criteria, with higher coefficients indicating greater homogeneity among items within each dimension and stronger evidence of internal reliability.

To further evaluate the adequacy of the data structure for psychometric assessment, preliminary diagnostic analyses were conducted. These included examination of inter-item relationships and assessment of dimensional coherence. Statistical significance was evaluated at the 0.05 level. The resulting reliability coefficients were used to determine the extent to which the Comprehensive Talent Identification Model based on the SHAHAK Plan and the Renzulli Scale demonstrated satisfactory internal consistency for use among Iranian male secondary school students.

3. Findings and Results

Descriptive statistics were calculated to summarize the demographic characteristics of the participants and the distribution of scores across the dimensions of the

Comprehensive Talent Identification Questionnaire based on the Renzulli Scale. The mean age of the participants was 16.56 years with a standard deviation of 1.12. The youngest

participant was 15 years old and the oldest participant was 18 years old, indicating that the sample represented students within the expected age range of upper secondary education.

Table 1

Descriptive Statistics of the Study Variables

Variable	N	Mean	SD	Variance	Minimum	Maximum
Learning Characteristics	385	4.86	0.90	0.81	1.00	6.00
Creativity Characteristics	385	4.91	0.83	0.69	2.00	6.00
Motivational Characteristics	385	4.88	0.90	0.82	2.18	6.00
Leadership Characteristics	385	4.90	0.86	0.74	1.00	6.00
Artistic Characteristics	385	4.91	0.83	0.69	2.36	6.00
Musical Characteristics	385	4.48	0.98	0.97	1.71	6.00
Dramatic Characteristics	385	4.71	0.94	0.89	1.40	6.00
Communication Accuracy	385	4.73	0.92	0.85	1.36	6.00
Communication Expression	385	4.59	0.84	0.70	1.75	6.00
Planning Characteristics	385	4.81	0.86	0.74	2.20	6.00
Mathematical Characteristics	385	4.98	0.84	0.71	2.20	6.00
Reading Characteristics	385	4.64	0.90	0.82	1.00	6.00
Technology Characteristics	385	4.61	0.93	0.88	1.00	6.00
Science Characteristics	385	4.96	0.85	0.72	1.86	6.00

The results presented in Table 1 indicate that the mean scores of all dimensions were higher than the midpoint of the six-point Likert scale. The highest mean score was observed for Mathematical Characteristics ($M = 4.98$, $SD = 0.84$), followed by Science Characteristics ($M = 4.96$, $SD = 0.85$). The lowest mean score was obtained for Musical Characteristics ($M = 4.48$, $SD = 0.98$). Overall, these

findings suggest that the evaluated students were rated relatively favorably across all dimensions of the comprehensive talent identification model.

Prior to conducting inferential and psychometric analyses, the distribution of scores for each dimension was examined using the Kolmogorov–Smirnov test.

Table 2

Kolmogorov–Smirnov Test Results for Normality Assessment

Variable	K–S Statistic	p-value	Result
Learning Characteristics	0.104	<0.001	Non-normal
Creativity Characteristics	0.098	<0.001	Non-normal
Motivational Characteristics	0.109	<0.001	Non-normal
Leadership Characteristics	0.102	<0.001	Non-normal
Artistic Characteristics	0.095	<0.001	Non-normal
Musical Characteristics	0.092	<0.001	Non-normal
Dramatic Characteristics	0.103	<0.001	Non-normal
Communication Accuracy	0.090	<0.001	Non-normal
Communication Expression	0.106	<0.001	Non-normal
Planning Characteristics	0.084	<0.001	Non-normal
Mathematical Characteristics	0.118	<0.001	Non-normal
Reading Characteristics	0.082	<0.001	Non-normal
Technology Characteristics	0.070	<0.001	Non-normal
Science Characteristics	0.113	<0.001	Non-normal

As shown in Table 2, the significance values for all dimensions were below 0.05, indicating that the distributions significantly deviated from normality. Therefore,

subsequent analyses were interpreted with attention to the non-normal distribution of the data.

The suitability of the data for factor-based psychometric evaluation was assessed using the Kaiser–Meyer–Olkin

measure of sampling adequacy and Bartlett's Test of Sphericity.

Table 3

KMO Measure and Bartlett's Test of Sphericity

KMO	Bartlett's Chi-Square	df	p-value
0.960	53,025.50	7,875	<0.001

The KMO value was 0.960, indicating excellent sampling adequacy. Bartlett's Test of Sphericity was also statistically significant ($\chi^2 = 53,025.50$, $df = 7,875$, $p < 0.001$), confirming that the correlation matrix was suitable for psychometric analysis and that the data had sufficient shared variance for evaluating the measurement structure.

The internal reliability of the Comprehensive Talent Identification Questionnaire based on the SHAHAK Plan and the Renzulli Scale was assessed using Cronbach's alpha coefficient.

Table 4

Cronbach's Alpha Coefficients for Internal Reliability

Dimensions	Number of Items	Cronbach's Alpha
Communication Expression	4	0.822
Communication Accuracy	11	0.941
Motivational Characteristics	11	0.965
Planning Characteristics	15	0.961
Creativity Characteristics	9	0.957
Reading Characteristics	6	0.864
Leadership Characteristics	7	0.910
Mathematical Characteristics	10	0.956
Science Characteristics	7	0.946
Technology Characteristics	7	0.898
Musical Characteristics	7	0.943
Dramatic Characteristics	10	0.940
Artistic Characteristics	11	0.959
Learning Characteristics	11	0.952
Total Questionnaire	126	0.989

As shown in Table 4, Cronbach's alpha coefficients for all dimensions exceeded the acceptable threshold of 0.70. The coefficients ranged from 0.822 for Communication Expression to 0.965 for Motivational Characteristics. The total questionnaire also demonstrated very high internal consistency, with a Cronbach's alpha coefficient of 0.989. These results indicate that the questionnaire has strong internal reliability and that the items within each dimension consistently measure their corresponding talent-related construct.

4. Discussion and Conclusion

The purpose of the present study was to determine the internal reliability of the Comprehensive Talent Identification Model based on the SHAHAK Plan and the

Renzulli Scale among Iranian male secondary school students. The findings demonstrated that all dimensions of the instrument possessed high levels of internal consistency, with Cronbach's alpha coefficients ranging from 0.822 to 0.965. Furthermore, the overall questionnaire achieved an exceptionally high Cronbach's alpha coefficient of 0.989. These results indicate that the instrument provides highly consistent measurements across its items and dimensions and can therefore be considered a reliable tool for identifying student talents within the context of Iranian schools. The findings also revealed that all measured dimensions received mean scores above the midpoint of the response scale, suggesting that teachers perceived the assessed students as demonstrating relatively strong talent-related characteristics across multiple domains.

One of the most important findings of the study was the exceptionally high overall reliability coefficient obtained for the entire questionnaire. An alpha coefficient of 0.989 suggests a very strong degree of homogeneity among the 126 items included in the instrument. Internal consistency at this level indicates that the various dimensions of the model collectively contribute to the assessment of talent-related characteristics while maintaining coherence within the broader framework of talent identification. This finding is particularly important because the SHAHAK model was designed as a multidimensional system that seeks to identify a broad range of student abilities rather than focusing exclusively on academic achievement. The high reliability coefficient suggests that the different dimensions of the instrument operate in a coordinated manner and successfully reflect the theoretical assumptions underlying comprehensive talent identification.

The findings are consistent with the theoretical framework proposed by Renzulli, who argued that giftedness and talent cannot be adequately understood through a single indicator but instead emerge through the interaction of multiple behavioral and psychological characteristics (Renzulli, 2021; Renzulli & Reis, 2021). Because the Renzulli model conceptualizes giftedness as a multidimensional construct involving creativity, motivation, leadership, learning capacity, and domain-specific abilities, a reliable assessment instrument must demonstrate consistency across a wide variety of dimensions. The present findings provide strong support for this conceptualization and suggest that the Persian adaptation of the instrument retains the integrity of the original theoretical framework.

Another noteworthy finding was that all individual dimensions demonstrated Cronbach's alpha coefficients substantially above the commonly accepted threshold of 0.70. The Communication Expression dimension produced the lowest reliability coefficient ($\alpha = 0.822$), while the Motivational Characteristics dimension demonstrated the highest reliability coefficient ($\alpha = 0.965$). Although variability existed across dimensions, all coefficients indicated strong internal consistency. These findings suggest that the items within each dimension successfully measure a common underlying construct and that respondents interpreted the items consistently. Such results are particularly valuable because the dimensions encompass a broad spectrum of talent-related characteristics, ranging from academic abilities to artistic and interpersonal competencies.

The high reliability of the motivational dimension deserves special attention. Motivation has consistently been identified as one of the central components of talent development and gifted behavior. According to Renzulli's model, task commitment and motivation represent essential elements that distinguish high potential from actual achievement (Renzulli & Reis, 2021). The strong reliability observed for this dimension indicates that teachers were able to evaluate motivational behaviors consistently and that the items designed to assess this construct function effectively within the Iranian educational context. This finding aligns with contemporary perspectives emphasizing that motivation is a critical predictor of talent development and long-term achievement (Schlichter, 2023; Shaheen, 2025).

Similarly, the dimensions assessing creativity, learning characteristics, leadership, science, mathematics, and artistic abilities all demonstrated excellent reliability. These findings support the notion that talent manifests across multiple domains and that reliable identification requires assessment tools capable of evaluating diverse competencies. The multidimensional nature of the instrument is consistent with recent systematic reviews emphasizing that giftedness involves complex interactions among cognitive, psychological, behavioral, and environmental factors (Kuznetsova et al., 2024). By providing reliable assessments across multiple domains, the SHAHAK model creates opportunities for identifying students whose talents may not be fully captured through traditional academic measures.

The results of the present study are also consistent with previous psychometric investigations of the Renzulli Scale. Al-Momani and Al-Oweidi reported strong psychometric characteristics for the Renzulli Scale among Jordanian students and concluded that the instrument demonstrated satisfactory reliability and validity in identifying gifted individuals (Al-Momani & Al-Oweidi, 2020). The similarity between their findings and those obtained in the present study suggests that the scale maintains its psychometric robustness across different cultural and educational contexts. Such consistency strengthens confidence in the applicability of the Renzulli framework for talent identification beyond its original setting.

The findings may also be interpreted within the broader context of contemporary talent identification research. Recent investigations have increasingly emphasized the importance of multidimensional assessment systems that move beyond narrow conceptions of giftedness. Rahmani Barouji and colleagues proposed a comprehensive

conceptual model of student talent identification that incorporates cognitive, motivational, creative, social, and contextual dimensions (Rahmani Barouji et al., 2024). Likewise, Rajabian Dehzireh and colleagues highlighted the importance of integrated talent identification and academic guidance systems for supporting student development (Rajabian Dehzireh et al., 2025). The strong internal consistency observed in the present study provides empirical support for these multidimensional perspectives and suggests that the SHAHAK model successfully operationalizes many of the components identified in contemporary conceptual frameworks.

The findings are also consistent with research conducted within the Iranian educational context. Bakhtiari Ramezani and colleagues emphasized that effective talent identification systems should consider a wide range of dimensions and contextual factors when evaluating students (Bakhtiari Ramezani et al., 2020, 2022). Their work highlighted the limitations of relying solely on academic achievement and advocated for broader frameworks capable of recognizing diverse forms of talent. The present study extends this line of research by demonstrating that a multidimensional assessment instrument can achieve exceptionally high levels of reliability while evaluating a broad spectrum of student characteristics.

An additional implication of the findings concerns the movement toward inclusive talent identification. Traditional gifted education programs have frequently been criticized for excluding students whose abilities do not conform to narrow academic criteria. Inclusive approaches seek to recognize diverse talents and provide opportunities for a broader range of students to demonstrate their strengths. Mousa and colleagues argued that talent identification systems should minimize exclusionary practices and create equitable opportunities for talent recognition (Mousa et al., 2021). The comprehensive nature of the SHAHAK model aligns with this perspective by assessing numerous dimensions of talent rather than privileging a limited set of academic indicators.

The relatively high mean scores observed across all dimensions may also provide valuable insights. Because all dimensions achieved mean scores above the midpoint of the response scale, teachers generally perceived the students as possessing favorable levels of talent-related characteristics. Although these findings do not directly indicate giftedness, they suggest that the instrument was sensitive to variations in positive student attributes and capable of capturing a broad range of strengths. This observation is consistent with

the philosophy underlying the Schoolwide Enrichment Model, which emphasizes the development of strengths and potentials among large groups of students rather than restricting opportunities exclusively to a small elite population (Renzulli, 2021).

The present findings can also be discussed in relation to developments in talent identification beyond education. Studies in sports have demonstrated that effective talent identification systems depend upon the reliable measurement of multiple dimensions of performance and potential (Mendes et al., 2022; Simwanza & Paul, 2023). Similarly, machine learning approaches have highlighted the importance of high-quality and internally consistent data when constructing predictive models of talent development (Reyaz et al., 2022). The high reliability coefficients obtained in the present study indicate that the SHAHAK model provides a strong foundation for future efforts to integrate advanced analytical techniques into educational talent identification.

Technological innovations are increasingly transforming talent assessment practices. Recent developments have demonstrated the feasibility of web-based and digital talent identification systems capable of improving efficiency and accessibility (Fadhili et al., 2024). The establishment of a highly reliable measurement framework represents an essential prerequisite for such technological applications. The strong internal consistency of the SHAHAK model suggests that it may serve as a suitable foundation for future digital implementations and large-scale talent screening initiatives.

From a broader developmental perspective, accurate talent identification contributes to educational planning, career development, and societal advancement. Educational systems that successfully identify and nurture talent are better positioned to cultivate future leaders, innovators, and professionals. Research on educational transformation has emphasized the importance of recognizing individual strengths and aligning educational opportunities with student potential (Hou et al., 2014). Similarly, theories of career development suggest that awareness of one's abilities and interests plays a crucial role in shaping educational and occupational aspirations (Samiei, 2017). Therefore, the availability of a reliable talent identification instrument may facilitate more effective educational guidance and talent development initiatives.

Finally, the findings may also be viewed in light of broader discussions regarding leadership and human development. Contemporary perspectives emphasize that

talent identification should not be limited to cognitive abilities but should also recognize interpersonal, creative, and leadership capacities (Vora & Kainzbauer, 2020). The inclusion of dimensions such as leadership, communication, creativity, and planning within the SHAHAK model reflects this broader understanding of human potential. The high reliability of these dimensions indicates that the instrument can effectively assess multiple forms of talent that contribute to individual and societal success.

Several limitations should be considered when interpreting the findings of this study. First, the sample consisted exclusively of male secondary school students from District 5 of Tehran, which may limit the generalizability of the findings to female students, students from other age groups, or students from different geographical and cultural regions. Second, the data were collected using teacher ratings, and although teachers are valuable observers of student behavior, their evaluations may be influenced by subjective perceptions and contextual factors. Third, the study focused exclusively on internal reliability and did not examine other important psychometric properties such as criterion validity, predictive validity, convergent validity, or test-retest reliability. Finally, the cross-sectional nature of the study prevented examination of the long-term stability of the measured constructs.

Future studies should examine the psychometric properties of the SHAHAK-based talent identification model in more diverse populations, including female students, students from different educational levels, and students from various regions of the country. Researchers are encouraged to investigate additional forms of reliability and validity, including temporal stability, predictive validity, and criterion-related validity. Comparative studies across different cultural and educational contexts could provide valuable information regarding the generalizability of the model. Furthermore, future investigations may explore the integration of digital assessment systems, artificial intelligence, and machine learning techniques to enhance the efficiency and precision of talent identification procedures.

Educational authorities and school administrators should consider utilizing the SHAHAK-based Comprehensive Talent Identification Model as part of systematic talent development programs within schools. Training workshops should be provided to teachers to ensure accurate administration and interpretation of the instrument. School counseling centers can use the results of the assessment to guide educational planning, enrichment activities, and academic counseling services. In addition, policymakers

should support the development of comprehensive talent databases that facilitate continuous monitoring and nurturing of student talents. Finally, educational programs should be designed to address the diverse dimensions identified by the model so that students with different strengths and abilities receive appropriate opportunities for growth and development.

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.

Acknowledgments

We hereby thank all participants for agreeing to record the interview and participate in the research.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

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.

References

- Al-Momani, H., & Al-Oweidi, A. (2020). The Psychometric Characteristics of the Renzulli Scale of Behavioral Characteristics in the Detection of Gifted Students in the Age Group (12-18) in Jordan. *Journal for the Education of Gifted Young Scientists*, 8(1), 105-132. <https://doi.org/10.17478/jegys.656673>
- Bakhtiari Ramezani, G., Saheb al-Zamani, M., & Niknami, M. (2020). Presenting a Model for Discovering and Supporting

- Talents of Lower-Secondary Students in Deprived Areas: A Study of Education Districts in Tehran Province. *Education in Law Enforcement Sciences*, 8(29), 241-260.
- Bakhtiari Ramezani, G., Saheb al-Zamani, M., & Niknami, M. (2022). Identifying the Dimensions, Components, and Influential Factors in Discovering and Supporting Talents of Lower-Secondary Students in Deprived Areas. *Sociology of Education*, 8(2), 167-176.
- Fadhili, I., Indonesia, Y., & Nugroho, S. (2024). Development of Website-Based Scoring Talent Identification for Athletics. *International Journal of Multidisciplinary Research and Analysis*, 7(3). <https://doi.org/10.47191/ijmra/v7-i03-37>
- Hou, J., Michaud, C., Li, Z., Dong, Z., Sun, B., Zhang, J., Cao, D., Wan, X., Zeng, C., Wei, B., Tao, L., Li, X., Wang, W., Lu, Y., Xia, X., Guo, G., Zhang, Z., Cao, Y., Guan, Y., . . . Chen, L. (2014). Transformation of the Education of Health Professionals in China: Progress and Challenges. *Lancet*, 384(9945), 819-827. [https://doi.org/10.1016/S0140-6736\(14\)61307-6](https://doi.org/10.1016/S0140-6736(14)61307-6)
- Kuznetsova, E., Liashenko, A., Zhzhikashvili, N., & Arsalidou, M. (2024). Giftedness Identification and Cognitive, Physiological and Psychological Characteristics of Gifted Children: A Systematic Review. *Frontiers in psychology*, 15, 1411981. <https://doi.org/10.3389/fpsyg.2024.1411981>
- Mendes, D., Travassos, B., Carmo, J. M., Cardoso, F., Costa, I., & Sarmento, H. (2022). Talent Identification and Development in Male Futsal: A Systematic Review. *International journal of environmental research and public health*, 19(17), 10648. <https://doi.org/10.3390/ijerph191710648>
- Mousa, M., Massoud, H. K., Ayoubi, R. M., & Murtaza, G. (2021). Why Him Not ME? Inclusive/Exclusive Talent Identification in Academic Public Context. *International Journal of Public Administration*, 45(10), 747-759. <https://doi.org/10.1080/01900692.2021.1887217>
- Rahmani Barouji, P., Ezati, M., Pourkarimi, J., & Arjmandnia, A. A. (2024). Presenting a Comprehensive Conceptual Model to Identify the Talents of Students: A Meta-Synthesis Study. *Journal of New Approaches in Educational Administration*. <https://doi.org/10.30495/jedu.2024.33427.6714>
- Rajabian Dehzireh, M., Moradi, R., & Taheri, H. (2025). Developing the Components and Elements and Determining the Validity of the Talent Identification and Academic Guidance Model for Students in Alborz Schools. *Applied Educational Leadership*, 6(1), 171-191.
- Renzulli, J. (2021). *Scales for Rating the Behavioral Characteristics of Superior Students: Technical and Administration Manual*. Routledge. <https://doi.org/10.4324/9781003237808>
- Renzulli, J. S., & Reis, S. M. (2021). *The Schoolwide Enrichment Model: A How-to Guide for Talent Development*. Routledge. <https://doi.org/10.4324/9781003238904>
- Reyaz, N., Khan, N. J., Ahamad, G., & Naseem, M. (2022). Machine Learning in Sports Talent Identification: A Systematic Review.
- Samiei, F. (2017). *Career Aspirations from Dream to Reality: Development, Interpretation, and Application of Gottfredson's Theory*. University of Isfahan Press.
- Schlichter, C. H. (2023). Talents Unlimited: Thinking Skills Instruction for All Students. In *Systems and Models for Developing Programs for the Gifted and Talented* (pp. 433-455). Routledge. <https://doi.org/10.4324/9781003419426-17>
- Shaheen, H. R. A. (2025). The Impact of Early Giftedness Identification on Long-Term Academic Success: A Cross-Sectional Study in King Abdullah II Schools for Excellence in Jordan. *Frontiers in Education*, 10, 1594727. <https://doi.org/10.3389/feduc.2025.1594727>
- Simwanza, A., & Paul, A. (2023). Models for Youth Sports Talent Identification and Development: An Integrative Review of Research. *Gifted and Talented International*, 38(2), 164-176. <https://doi.org/10.1080/15332276.2023.2245857>
- Vora, D., & Kainzbauer, A. (2020). Humanistic Leadership in Thailand: A Mix of Indigenous and Global Aspects Using a Cross-Cultural Perspective. *Cross Cultural & Strategic Management*, 27(4), 665-687. <https://doi.org/10.1108/CCSM-01-2020-0008>