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Research Article

The Psychometric Characteristics of the Renzulli Scale of Behavioral Characteristics (3rd Edition) in the Detection of Gifted Students in Jordan

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Abstract

This study aimed at checking the effectiveness of Renzulli Scale for Rating the Behavioral Characteristics (3rd Ed.) of Gifted Students aged from (12–18). In order to achieve the goal, the scale was translated and prepared in its final form. The Sample of the study consisted of (478) students. (304) of them are normal and (174) are gifted. Making sure of reliability of significance of the scale was through content validity where the percentage of the reviewers was between (80 – 100%). Also The factor validity showed that correlation coefficient was high and strong at the same time the concurrent validity was counted between Renzulli Scale for the behavioral characteristics and TONY Test where the correlation coefficient was (0.389). Correlation coefficient between Renzulli Scale and Torrance test (0.475) which is the discrimination index between normal and gifted reached correlation coefficient between the item and the sub domain (0.44 – 0.59). At the same time checking of the significance of the reliability of the scale by reliability of assessors (0.89) in total degree, and Cronbach alpha internal consistence where it reached on the whole degree (0.99). Which means high significant in general.

Keywords:

psychometric, Renzulli Scales for Rating the Behavioral Characteristics, gifted students, adaptation study

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Introduction

Gifted people are a human wealth for human scientific excellence that must be invested appropriately. The process of detecting gifted students, classifying them into gifted and identifying their characteristics as the main entry point for any program aimed at nurturing them and unleashing their energies, and making educational decisions that interest them. The success of any program to educate and nurture gifted students depends to a large extent on the accuracy of the screening process and the integrity of the procedures followed in their selection. Increasing numbers of educators are beginning to talk about the urgent need to uncover talent, and the need to pay attention to provide teachers with the knowledge, experience, time or resources to design an effective program that meets the needs of the gifted. The efficient step of identifying gifted students is the most important. Talent identification is the second dilemma facing teachers in talent detection and the first is the lack of a few talent detection tools (Pfeiffer, 2001).

The recent orientation of gifted education was characterized by attention to the subject of behavioral traits of the gifted and associated needs to study and understand the importance of the test of behavioral traits in the process of identifying and detecting the gifted, and choose specific educational programs for them. Also, the strong relationship between those behavioral traits and their needs and the type of appropriate educational and advisory programs. The optimal situation is to match the elements of strength and weakness with the components of the educational program, which takes into account the needs of the gifted in all fields (Jarwan, 2013).

A number of Arab studies have been conducted to assess the behavioral characteristics of gifted students, including: a list of behavioral characteristics of gifted Saudi children from 3-6 years, prepared by (Al-Jgheman & Abdul Majeed, 2008) and the scale of the behavioral characteristics of basic education, prepared by Al-Daham (2013), and the Sudanese version prepared by (Atallah, 2006) and the battery prepared by Yusra Abboud to detect the gifted in mathematics in kindergarten stage (Abboud & Al-Masmoudi, 2014), and the Shneikat (2010) scale that measures the physical, linguistic, personal, emotional, motor, cognitive and social dimensions, in addition to the interests. Also, the scale of (Attiyat & Al-Salama, 2009), which aims to assess pre-kindergarten behavioral traits in creative areas, psychomotor skills, motivational traits, musical artistic concerns, leadership and social acceptance, and the Jordanian version of the Pride Scale for the detection of gifted in pre-school (Al-Rousan, Albatish, & Qatami., 1990). It is observable from previous studies that it focused on preschool and kindergarten. So, the current study comes to provide a tool for the detection of gifted in school education.

Specialists face problems when diagnosing gifted students, so that we can rule out known measurement errors in the detection of gifted students, whether choosing a student who is not eligible to join the program or does not benefit from joining the program because he does not need it, false Positive, or the second mistake is to drop a really gifted student and denial of access to the services of the Special Program, False Negative, the provision of a tool with semantics and primary criteria reduces these problems, so the present study seeks to provide a tool for the detection of gifted at school stage with semantics, reliability and preliminary performance standards (Al-Oweidi, 2019).

In the Hashemite Kingdom of Jordan, the Ministry of Education uses the Behavioral Criteria as a criterion for identifying gifted students in King Abdullah II Schools of Excellence and Jubilee School. However, the tools and measures related to behavioral traits need to provide indications of reliability, validity, consistency and standards that suit the Jordanian environment. Therefore, the current study seeks to provide a tool for the detection of gifted at the primary and secondary school level.

This category has received the attention of His Majesty King Abdullah II, as he instructed the opening of King Abdullah II schools of excellence in the beginning of the academic year 2001/2002 in Zarqa province and continued the opening of these schools to cover all the governorates of the Kingdom, where the number of schools in 2012/2013 ten schools distributed in ten governorates (Zarqa, Irbid, Salt, Aqaba, Tafilah, Ajloun, Ma'an, Mafraq, Karak & Madaba). It is noted that the basis for nominating students to King Abdullah II schools of excellence according to a set of criteria set by the Ministry as follows: The student has finished the sixth grade J, and the student within 5% of the students with the highest in the basic sixth grade, nomination of the Director, teachers and parents in the nomination criteria, personality and behavioral characteristics of the students (Al-Srour & Al-Oweidi, 2013).

The Talent Programs Department was established as an independent department in 2011 in the Ministry of Education to meet the growing needs of this group of gifted students, as well as to provide the best services. The department offers programs for the resource rooms of gifted students With regard to the Jubilee School, this school is concerned with sponsoring the gifted in Jordan. The Jubilee School uses the following criteria to detect gifted students, outstanding academic achievement in the last five semesters, as the academic excellence of strong indicators of student motivation and willingness to learn and pass the academic readiness test, and measures mathematical, linguistic and logical thinking through a set of tests developed specifically for the purposes of the school, and the personal interview that is inferred from the characteristics and behavioral

characteristics of the studen, such as: leadership, curiosity and the desire for knowledge, learning, creativity and verbal fluency (www.mou.gov.jo)

Literature Review

The definitions are based on behavioral traits, where a number of scholars considered that gifted children show patterns of distinctive traits for them as a category, which serves as a frame of reference for the definition of talent to identify gifted, and these definitions have shown the importance of the teacher as a direct person in dealing with students in the stages of study, who is the most knowledgeable and able to assess the traits of the gifted (Jarwan, 2013).

The 14th Congress of the World Council for Gifted Children in Barcelona (2001) concluded that talent is a human trait consisting of a general mental capacity, the ability to think creatively, high academic achievement as well as behavioral traits (Subhi, 2002).

Gifted is defined as people who are identified by professionally qualified persons through outstanding abilities and performance, and are provided with educational services and educational programs of their own in achieving achievements at the levels of the individual and society, and those who have a general mental abilities, special academic competence, creative thinking, leadership ability, performing visual arts, and motor abilities (Reis, 2015).

Characteristics of Gifted Students

Educators consider that most non-gifted individuals share the gifted individuals with the same characteristics and enjoyed by both categories, but the degree of clarity of these characteristics to the gifted is stronger based on the appearance of excellence shown in each of their performance and behavior (Maajini, 1996). There are common characteristics of the gifted according to Sternberg cognitive psychologist system;

- Rarity and scarceness in the sense that the gifted has a high level in one of the characteristics and represents a rare process that is difficult to obtain
- Excellence in a particular area
- Productivity: whether in the field of arts, science or literature
- Demonstrability: that is, the gifted is characterized and can be determined in one or more tests and achieve high scientific degrees
- The social value of outstanding performance and excellence: That is, what the gifted reach is of social value and beneficial to society and the nation (Qatami, Zwaini, Qatami, Abu Zaid, Zaza, Matar, Samawi, & Rababa, 2016).

In the field of talking about gifted traits, interested researchers classified these traits into mental traits (cognitive), including: the ability to read early, the ability to

retain information, good memory, the ability to develop language, early abstract thinking, flexible thinking, curiosity, Imagination and discovery, their language proficiency is wide and abundant, the power of observation, the ability to see relationships, the ability to manipulate ideas, motivation and commitment to the task, possesses a free and distinctive imagination, enjoy solving problems and puzzles, enjoy intensive focus, advanced curiosity for those of his age, limitless questions, Preference of independent work, the diversity of interests and hobbies (Al-Sorour, 1989; Al-Sorour, 2010; Jerwan, 2013, Tannous, Rihani & Al-Zboun, 2012, Clark, 2002, Silverman, 2000, Winebrenner 2001).

Emotional traits include emotional maturity, humor, leadership, hypersensitivity to others, ability to interpret emotions, perfectionism, self-awareness, sense of idealism and early justice, and having advanced levels of moral judgment. (Jarwan 2013; Amend, Janet, Gore, Web, 2007).

General traits showed on gifted people such as the ability to deal with the system of symbols, thinking logically, the ability to solve problems, transfer of knowledge to new conditions, possessing creative and artistic abilities, superior flexibility, performing adult roles at home, a strong sense of pride and self-worth, and learning skills. They are able to interpret hints and cues from others, rely on themselves, have unlimited energy, prefer older friends, have the desire to face difficult situations, have the ability to guess well based on the hypotheses, they have the ability to discover similarities and differences and reveal what is biased, they have a tendency and curiosity to search and investigate, possesses a strong internal will (Al-Sorour 2003; Bonner, 2000; Hebert & Reis 1999).

The process of measuring and detecting talent is a complex process, and educators agree on its importance because of its role in helping gifted and gifted children to achieve their self, and develop their own abilities, to reach distinctive and valuable contributions to society, as educators cited that one of the most common methods that contribute to the detection of gifted people is the recognition of mental ability by calculating IQ (by individual or group intelligence tests), then scores for standardized achievement tests, teacher nominations, parent nominations, peer nominations, and more than one test is usually used to detect gifted people.

Hallahan, Kuffaman, and Pullen (2013) point to eight general principles to ensure fairness in talent detection: assessment methods go beyond the narrow concept of talent, use appropriate and separate strategies to uncover talent-related manifestations, use valid and reliable tools, Use tools suitable for disadvantaged environments, as well as consider each child different from the others, the use of several scales and standards, and conduct a case study, in addition to adopting the

disclosure process to the individual needs of students and not to the groups of students that can be served.

Qatami et al., (2016) also have reported about the efficiency of the process of detecting the gifted provided that there are several baselines, including: the detection tools include tests that measure all areas of talent capacity, that the tool is available, a tool that is valid and reliable, and to be applied by qualified experts.

Renzulli Scale of Behavioral Characteristics

Scales for Rating the Behavioral Characteristics of Superior Students (SRBCSS) (Renzulli, Smith, White, Callahan, Hartman, Westberg, Gavin, Reis, Siegle & Sytsma, 2010).

Maajini and Howaidi conducted a study (1995) aimed at detecting the differences between the outstanding and non-gifted students in the intermediate stage in the State of Bahrain. The study sample consisted of (383) male and female students in the three grades in a number of primary schools in Bahrain.The results of the study showed that there are statistically significant differences on all domains of the scale in favor of the outstanding students and that this result was not affected by the factor of different grades.

In a study by Kablan (1995) entitled "Constructing a Scale to Detect Gifted Students at the End of the Compulsory Grades (8th, 9th and 10th)" in Jordan, the study aimed to develop a modified Jordanian version of the Renzulii Scale (1st ed.). The study sample consisted of (752) male and female students in the Amman area. The validity of the content was verified as well as the validity of the factor analysis was conducted for ten domains that were rotated on oblique axes. The results indicated that the ten domains explain (48%) of the variation. The results of the divergent validity also showed that the differences were statistically significant as the statistic value was (p=.965) and the correlative validity with the Raven matrices scale was (t=.840) (0.79) The effectiveness of the measures of the Jordanian environment was reached.

In (1999) Haddad and Al-Sorour conducted a study aimed at knowing the factorial structure of the behavioral characteristics of outstanding students developed for the Jordanian environment, from the point of view of the fifth and eighth primary teachers in public schools. Constructing and developing the "behavioral characteristics model for outstanding students" which consists of (143) traits and verified the validity of the content where (87) items were adopted out of (143). 61.48%) of the total variance of the factorial matrix Doyer orthogonal to the eighth grade has produced (14) factors that explained (58.90%) of the total variation of the factorial matrix.

In a study conducted by Al-Azri (2002) aimed at identifying the behavioral characteristics of outstanding students in secondary schools in the Sultanate of

Oman, the sample reached (331) male and female students. The Renzulli scale of behavioral characteristics of outstanding students was used as a study tool, The results of the study showed that the outstanding students excelled with a number of behavioral characteristics, distributed over the following different domains (learning, motivation, creativity, leadership).

The study conducted by (Atallah, 2006) aimed at "preparing a Sudanese version from the list of ALECSO "The list of the teachers' grades of the gifted traits in the basic education stage, through verifying the significance of reliability and consistency, and extracting the local standards according to the study differences and the grade level. the sample was (955). The association of items with the total list between (8420, - 3060), and the correlative validity of the list was calculated with the Renzulii scale and reached (0.5950) and reached with the scale of intelligence (0.2940)

Hassan (2007) study aimed to provide a valid tool in the detection of gifted students in Bahrain between the ages of (9) to 12 years), where the sample was applied to (842) students, and participated by the application of teachers (101 males, 134 females). The Behavioral Characteristics Assessment Scale was applied to the gifted students in the domains of (Learning, Creativity, Leadership, Motivation, Arts, Music, Drama, Communication (Accuracy), Communication (Expressionism), Planning) and Measures for Assessing Student Performance after Joining Gifted Student Programs, Torrance Test form (B) for Creative Thinking, and Kuwait Test for Nonverbal Intelligence (2 - TONI). The following results were obtained: The majority of the Behavioral Characteristics Scale of the gifted students had high discriminatory coefficients between the gifted and the non-gifted and the lowest was (0.767). The SRBCSS statements have an acceptable degree of validity of all kinds (constructive validity, formative validity, concurrent validity). The results of the conciliatory validity between the items of the scale and the student's performance after joining the gifted programs indicated that it is a weak relationship and perhaps the weakest after the drama.

Al-Dahmalawi (2009) conducted a study entitled "Standardization of the Behavioral Characterization Scale for the Gifted on a sample of elementary and middle school students in Al-Jouf city, Saudi Arabia, aiming to provide a scale for the detection and identification of their behavioral traits. The researcher used the Behavioral Characteristics Assessment Scale for Gifted Students (SRBCSS) as a study tool, The sample of the study was (200) students The study indicates that the scale has high reliability and consistency, and the items of the scale have a good degree of effectiveness.

In a study conducted by Kadhim, Al-Zubaidi, Hamdan (2015) aimed at identifying the behavioral characteristics of outstanding students for grades five through tenth in Oman, the study sample was (672). The third version of the

Renzulii scale was used to estimate the behavioral characteristics of outstanding students (SRBCSS (III- 2010). The reliability of the tool using the Cronbach's Alpha equation (0.960 - 0.871), high reliability rates. The results based on the mean scores indicated that the top three behavioral traits are leadership, reading, and motivation, and the lowest three traits (communication (expression)), theatrical traits, and musical features).

A study was conducted in Qatar by Bashir and Jaffal (2015) entitled "Rationing of Creativity Standards Renzulli and Torrance" by the Research and Development Department of the Children's Cultural Center. The sample was selected from the fourth to the sixth grade. The results came to confirm the validity and consistency of the domains of the Renzulli scale. : The coefficient of self-validity (0,99) for the following domains: the first domains: educational characteristics, the seventh domain: technical and theatrical abilities, the eighth domain: communication and communicative competencies, the ninth domain: the ability to plan, and the tenth domain: the ability to read. The self-validity coefficient was (0.98) for the following domains: the second domain: creative characteristics, the third domain: the characteristics of perseverance and motivation, the sixth domain: musical abilities, the self-validity coefficient of the eleventh domain: characteristics and technological capabilities was (0.92), while Coefficient of self-validity for the fourth domain: leadership traits was (0.89).

Rogalla (2003) conducted a study aimed at validating the Renzulli Scale of Gifted in Germany in Swiss-speaking schools. The results reached constructive and factorial validity coefficients on four dimensions (learning, creativity, motivation, leadership). reliability coefficients using alpha Cronbach ranged from 0.86 to 0.96.
Pfeiffer & Jarosewich (2007) conducted a study entitled "Sample analysis of new teachers to help them identify gifted students". The gifted assessment scale used the school model based on the multifaceted model of talent. The study sample consisted of (291) males (49%) and 301 females (51%). The age groups were divided into (8) groups from (6 years to 13) Each group comprised 13% of the sample. During the sample selection, the researchers chose to rely on US census statistics and important demographic characteristics such as race, parent education and regional representation, for example 64% of the sample were Caucasian (number 379), (16%). (African American (n= 96), (16%) Spanish (n= 94) and (4%) Asian-American (n= 23), the results show that there are no differences according to age and race on the scale, and that there are differences in favor of females in three scales Out of six: technical ability, motivation, leadership ability.

In a study conducted by Abdulmajid, Jilas and Al-Shaikh (2012), it aimed to identify the effects of educational interventions on models of behavioral characteristics of academically gifted students using SRBCSS. The sample consisted of (33) students. They obtained a grade of "A" in all subjects in a unified national

exam, and (77) students who obtained a grade "A" in all subjects, ranging in age from (15) to 16 years and used the scale of traits by teachers It consists of ten domains: learning, creativity, motivation, leadership, arts, music, skipping The results in the first model showed a significant correlation with teachers' assessments of the behavioral traits of academically gifted students in domains: artistic, musical, drama, and low correlation to their assessments in communication dimensions (expressionism), communication. Accuracy, leadership, motivation, learning, creativity, and planning The second model for students who have obtained A in all subjects showed significant correlation with teacher assessments of the behavioral traits of academically gifted students in domains: communication (expressionism) and communication (accuracy) , leadership, motivation, learning, creativity, planning, whereas low in the domains of drama, arts, and music.

In a study conducted by Bakheit (2015) entitled "Developing a Saudi version for the Scale of Behavioral Characteristics of Outstanding Students," the study was conducted in Riyadh city and the sample consisted of (348) students in the primary stage. Divergent validity between the gifted and non-gifted pointed to the presence of statistically significant differences in favor of the gifted domains of reading, mathematics, science, and technology. The results on the validity of the internal consistency of the correlation coefficient on the four scales ranged between (0.477-0.754) and the correlative validity between the achievement of students 'scores in the subjects of Arabic language, mathematics, science and technology and teachers' estimates. The results of the factorial validity indicated that the analysis on the four dimensions was large and highly significant and the reliability of the Cronbach's Alpha method ranged between (8400, - 0.88) and the reliability of the referees between (0.92 - 0.86). The results of the study showed that the scale has validity and reliability implications for the Saudi environment.

Following the presentation of the previous studies, the following study is consistent with the studies of (Maajini and Howaidi, 1995), (Kablan, 1995), (Al-Sorour, 1996) and (Al-Azri, 2002) with regard to their use of the scale, the age range covered by the studies, and the instrument addressed. Also previous studies which measure the behavioral traits assessment scale Renzulii is somewhat consistent with the current study except that the current study uses the third edition of the scale.

This study is also consistent with the study of (Bashir & Jaffal, 2015) and (Zubaidi, Kazem & Hamdan, 2014) and Rogalla (2003) study and study (Bakheit, 2015) in terms of the goal of rationing the scale and the use of the study tool, that is the Renzulii scale of behavioral traits (third edition). What distinguishes the current study is to verify the validity and reliability of the third edition of the Renzulii scale of behavioral traits.

The Scale designed to reveal the behavioral traits of outstanding students from kindergarten through twelfth grade, can be applied individually, and may be collective by teachers, and developed in the light of Renzulli definition of talent, and this is a revised version of the first scale that consisted of (76) items, and the third version consists of (126) items distributed unevenly on (14) domains, and domains are: Learning traits distributed to (11) items, creativity traits distributed on (9) items, motivation traits distributed to (11) items, the leadership traits that are divided into (7) items, the technical traits are divided into (11) items, the musical traits are divided into (7) items, Dramatic traits are divided into (10) items, Communication traits (accuracy) are divided into (11) items, Communication traits (Expression) are divided into (4) items, Planning traits are divided into (15) items, Mathematics traits are divided into (10) items, traits of reading are divided into (6) items, traits of technology are divided into (7) items, traits of science are divided into (7) items.

The scale is answered by the teacher, with a six-point rating (never, very rarely, rarely, sometimes, often, always), and grades are given respectively: (6,5,4,3,2,1). The scale items have a high score of validitiy. The reliability coefficient according to Alpa Cronbach's is ranging between (0.77 -0.91) in its original version.

Speaking about the scale, In 1990, Karen Westberg reformulated four gender-neutral domains, obtained high reliability and compared to teacher nominations, and was published in 2002. The scale includes the following domains: learning, creativity, motivation, leadership, arts, music, drama , Communication, communication (expression), planning (Renzulli et al., 2010).

In the modified version, four domains were added to the family of traits: reading, science, mathematics, and technology, and these dimensions obtained the coefficient of relaibility of Cronbach's Alpha.

The Behavioral Traits Assessment Scale to identify gifted distributed over 14 domains has been developed over the following areas: Learning, Motivation, Leadership, Creativity, Arts, Music, Planning, Communication (Accuracy), Communication (Expressionism), Drama, Reading, Technology, Science, Mathematics (Renzulli, et al, 2010).

Each sub-scale has its own unique characteristics, and the tool can be used for research purposes because it has good psychometric properties, in addition to the ease of application of the tool.Teachers must be trained in this tool, so that the teacher can recognize the behavioral characteristics of gifted students. The users of the tool analyze the students' responses for each domain of the scale separately, and do not give a total score on the scale of traits so that the strengths of students do not disappear (Renzulli, et al., 2010). Renzulli & Reis, Gavin, Sytsma (2009) developed the Behavioral Characterization Scale (SRBCSS) by adding four new

domains: reading, science, math, and technology to 726 public school students enrolled in the program. The study included students from grades four through six and distributed the tool to 140 primary schools throughout the United States. The content validity was assessed. The opinion of a team of experts in the education of gifted and outstanding on the scale was taken. In the second stage, the opinion of a team of experts in the content of the subject matter was taken. As the results of the study pointed to the construct validity where the correlation coefficient alpha (0.95) that is significant at (0.01) significance level. The correlation coefficients for the four factors were calculated (0.96, 0.95, 0.97, 0.96), respectively. It was the strongest in the mathematics domain (0.731), the weakest in the technology domain (0.453). The correlative validity between achievement scores and teacher ratings was calculated on the Behavioral Characteristics Rating Scale (SRBCSS) of the students and the relationship was strong.

Problem of Study

We note from the above the efforts in the field of gifted care, and the adoption of behavioral traits of the gifted as a key criteria in the process of selecting the gifted, and the lack of tools for the detection of gifted in the Jordanian environment based on behavioral traits, and have the charactereistics of valdiity, reliability ans consistency, taking into account the age group included in these schools (middle and secondary). In addition, raising the awareness of gifted school teachers about these features has positive results for this category and benefits the movement of measurement and diagnosis of gifted people in Jordan. Therefore, the present study investigates the relaibility, validity and consistency of the Renzulii scale in detecting gifted students in Jordan.

The present study aims to verification of the significance of the validity of the Jordanian version of Renzulli scale of behavioral traits (third edition) in the detection of gifted for the age group of 12-18 years.

Verification of the significance of the reliability of the Jordanian version of Renzulli scale of behavioral traits (third edition) in the detection of gifted for the age group of 12-18 years

The main question in the study is the following

- What are the psychometric characteristics of the Renzulii Scale of Behavioral Characteristics (3rd ed.) in detecting gifted students in Jordan?

This question is subdivided into the following sub-questions:

- What are the validity indications of the Jordanian version of the Renulii Scale of Behavioral Characteristics (3rd ed.) in the detection of gifted expressed in terms of content validity, divergent validity, and concurrent validity?

- What are the indications of the reliability of the Jordanian version of the Renzulii Scale of Behavioral Characteristics (3rd ed.) in the detection of the gifted expressed in the method of jury panel reliability, and the internal consistency in the two methods of the Cronbach's Alpha equation?

Methodology

Research Model

A descriptive approach was used to achieve the purpose of this study. Descriptive research aims to describe specific phenomena, events or things, collect facts and information, and notes about them, describe their own circumstances, and report their status as it exists. In fact, descriptive research does not stop at the limit of the description or descriptive diagnosis, it also concerned with a report. It should be the things and phenomena that the research deals with certain values or criteria and the suggestion of steps or methods that can be followed to get them to the image that they should be in these standards or values (Al-Tal, Al-Batsh & Abu Zaina, 2007).

Participants

This study included two groups of individuals all non-gifted students enrolled in the Jordanian Ministry of Education schools, which are between the ages of (12-18), corresponding to grades (seventh – eighth) (ninth - tenth) (the first secondary - the second secondary) and their number was (528159) (www. moe.gov.jo., 2018) All gifted students enrolled in King Abdullah II Schools of Excellence and students of the Jubilee School for the academic year 2017/2018, between the ages of (12-18), corresponding to the following grades (seventh – eighth) (ninth - tenth) (the first secondary - the second secondary) and their number was (www. moe.gov.jo., 2018)

Initial Sample

The scale was applied to a sample of non-gifted and gifted students by their teachers (n=25) of whom (15 non-gifted, 10 gifted) in order to ascertain the language of the items and understand the items by respondents. Refereed teachers noted the clarity of the wording.

The Pilot Sample

The scale was applied to a sample of non-gifted and gifted students by their teachers (n=50) of whom (25 non-gifted, 25 gifted). The purpose of the sample was to verify the validity and initial reliability, in preparation for applying the scale to the final sample.

The Final Sample

The final sample of the study population was selected by a random clustered sampling ratio of1: 2: 3 according to the population density of the regions of the

Hashemite Kingdom of Jordan (Central, North, South), representing non-gifted and gifted students (n = 478) of whom (304 non-gifted and 174 gifted). The scale was administered to the sample of the study by their teachers, where the number of teachers who evaluated non-gifted students (283) teachers, (165) teachers for the gifted students.

Data Collection Tools

This study adopted three tools to answer its questions:

- Renzulli scale of behavioral traits in gifted detection (3rd ed)
- Tony's measure of mental abilities
- Torrance Scale for Creativity

Study Tool 1: Renzulli Scale of Behavioral Trait

The validity of the scale in its original version

The scale has its original version with a high degree of validity, and items have a high ability to distinguish, where the validity has been verified by:

- Validity of the content: The scale was submitted to (60) experts in gifted education to examine the relationship between the items and the domains to which the item belongs and the rate of agreement reached (70%). The content validity of the following domains was obtained: Reading, Mathematics, Science and Technology, where specialists conducted a comprehensive review of the theoretical literature related to the behavioral traits of gifted students in the four fields, and a list of the most frequent traits of the gifted was found. The agreement reached 80%.
- Construct Validity: The internal construct validity was applied to the four domains (learning, creativity, leadership, motivation).
- Concurrent validity: Concurrent validity was conducted between the Renzulii scale (third edition) of the behavioral traits of domains (reading, mathematics, science, technology) and the achievement of students' scores, it ranged from 0.54 to 0.73

Indications of the Reliability of the Scale in Its Original Version

There were significance indicators about the reliability of the scale in its original version represented by calculating the reliability by the Cronbach's Alpha coefficients, which ranged from (0.77 to 0.91). The Cronbach's Alpha coefficient was calculated for the four scales derived from the factor analysis. Creativity, motivation, and leadership ranged from (0.91, 084, 0.90, 0.87) respectively. The alpha coefficient of the tool as a whole was 0.97. These coefficients gave strong support to the internal consistency of the tool. The reliability significance indicators was calculated using the jury members method. Pearson's correlation

coefficients were conducted between them, it was (0.50) and this correlation is described as statistically significant.

The Cronbach's Alpha coefficient was calculated for the domains of mathematics, reading, science and technology and ranged respectively (0.97- 0.96- 0.94- 0.95) which indicate a high reliability.

Procedures to Correct the Scale in Its Original Version

Items of the scale for each student are answered by the referees in the following terms (never, very rarely, rarely, sometimes, frequently, always) and grades are given as follows: (6,5,4,3,2,1) as applicable to the student From the performance, the items' marks are then combined and the domains are given a total mark that is described as high or low.

Indications of verifying the validity and reliability of the scale in its Jordanian version

The Effectiveness of the Scale Items on the Pilot Sample

To verify the effectiveness of the items before administering the scale to the main sample The scale will be administered to a pilot sample of (50) students. The researcher calculated the correlation coefficient between the items and the domain to which it belongs (discrimination factor), which is known as (construct validity) and the results showed that the values of discrimination factors According to the results of the Renzulii Scale of Behavioral traits, the third edition, which was calculated based on the pilot sample, ranged between (0.95 - 0.65). The items in all sub-domains of the scale had good and high discrimination factors (above 0.39 - 0.40). Based on these results, no items of the scale was modified or deleted according to the first experiment of the items of the scale on the pilot sample.

Significance indicators of the content validity of the Jordanian version of the scale :A final version of the scale has been prepared and presented to (10) jury members of professors and specialists in the field of educational psychology and special education. Appendix (3) shows the names of the jury members. based on their observations, some of the items having similar content were modified. The referees agreement reached 80%, and Appendix (4) shows the versions of the scale before and after judging.

Indications of reliability: Reliability was calculated on the pilot sample in two ways:

Internal Consistency (Cronbach Alpha)

Reliability coefficients were calculated in this way based on the Cronbach Alpha equation, the results showed that the sub-domains of the scale consisted of the reliability coefficients between (0.92 - 0.98), where the highest reliability coefficient for the planning trait domain and the mathematics trait domain was (0.98), and the

lowest for the domain of communication (expressive) (0.91), which is generally high reliability coefficients.

Internal Consistency (Split-half Method)

Reliability coefficients were calculated in this way by dividing the scale and its sub-domains into two halves, then the correlation coefficient between the two halves was calculated and corrected using the Cronbach Alpha equation. The reliability coefficients were between (0.87 - 0.97), where the highest reliability coefficient for the domain of science traits and mathematics traits was (0.97), and the lowest for the domain of communication traits (expressionism) (0.87). The results confirm the calculation of the reliability of the Cronbach Alpha equation that the scale has high reliability.

Study Tool 2: Non-verbal Intelligence Test (TONI-4)

The scale was used in this study for the purposes of concurrent validity, and the scale (Al-Sunainy, 2015) developed on the Jordanian environment was used. The scale consists of (60) items focusing attention in constructing the items of the scale on the problem-solving method and is a major component of intelligence, and each item of the scale contains one or more of the following characteristics, shape, location, direction, rotation, continuity, shading, size and motion. The most difficult items contain more than one trait. Whereas the the easiest contain only one or two, used to identify the mental capacity of illiterate, culturally disadvantaged, deaf, hearing difficulties, speech difficulties, and confinement, as individuals are classified according to their mental abilities to mentally superior and mentally handicapped (Al-Sunainy, 2015).

The Significance of the Validity of the Scale in Its Jordanian Version

The concurrent validity indicators were achieved with the Raven scale, and the concurrent validity significance indicators of the scale with the Raven matrices was (0.829) on the Jordanian environment (Al-Sunaini, 2015).

Indications of the Reliability of the Scale in Its Jordanian Version

It has high reliability and validity coefficients, with reliability coefficients using the Cronbach's Alpha coefficient between (0.91 - 0.81), as well as the coefficient of equivalence of domains was (0.866) for the total sample (Al-Sunaini, 2015)

Study Tool 3: Torrance Tests for Creative Thinking

The Torrance Scale was used in this study for concurrent validity purposes. To achieve the objective of the study, the scale constructed by (Shanti, 1983) developed on the Jordanian environment was used.

The significance indicators of validity and reliability of the scale in its Jordanian version were obtained through the study of Shanti (1983), which aimed to find the

validity and reliability of Torrance tests for creative thinking - a modified version of the Jordanian environment.

The Significance Indicators of the Validity of the Scale in Its Jordanian Version

The correlation coefficients between the total scores of the test on the image were verbal with the scores obtained by students in the lists of teachers' grades (0,703) while the correlation coefficients in the form of the scores (6750), which are statistically significant (Shanti, 1983)

The Significance Indicators of the Reliability of the Scale in its Jordanian Version

The coefficients of the test consistency ranged from (0.294 to 0.736), and the coefficient of reliability of the total degree of creativity in the verbal form was (0,704) whereas the formal image (0,666) which is statistically significant (Shanti, 1983)

Procedures for Developing the Jordanian Version of the Renzulli Scale in Detecting the Gifted (Third Edition)

- The scale was purchased from the publisher with the aim of standardizing it on the Jordanian environment.
- The initial image of the scale was prepared by localizing the scale and presenting it in its English and Arabized versions to two specialists in the field of Arabic and English to give their comments about the initial version of the scale, and they had some observations in translation and drafting that were taken in considration.
- After the preparation of the initial version of the scale, it was presented to (10) jury members of professors and specialists in the field of educational psychology and special education. Based on their observations, the language of some items has been amended.
- An official letter was obtained from the University of Islamic Sciences for official approval of the field application in the Kingdom
- The tool was administered to the participants of the pilot sample. Validity and reliability coefficients were calculated.
- A letter from the Ministry of Education was addressed to all the directorates of education in the Kingdom.
- An official letter has been received from the directorates of education where the study will be performed in their following schools on the participants of the final sample so that it is addressed to the principals of the schools for the purposes of application.

- Schools were selected from each educational district for application and at this stage the study tool was distributed and administered by the researcher personally in most schools.
- Evaluating teachers (class educators and teachers of specialization) were hired, after the researcher explained how to administer and instructions to be taken into account when administering for each examiner so that each teacher assessed no more than (5) students for the purposes of accuracy in the assessment. Specific criteria have been taken for the accuracy of judgment, including: the number of years of experience of the teacher between (5-24) years and the educational level of the learner (higher diploma and above), and that the age of teachers between (28-50) years.
- An examiner with a doctorate degree in special education was hired after the researcher explained how to administer for the examiner to perform the administration in the province of Tafila.
- A total of 600 copies of the scale were distributed, and the number of the retriever was (478) questionnaires, due to the reasons for examiners (referees) of no desire to participate, or their preoccupation with other work, especially teachers in government schools. Their high school assignments make it difficult for teachers to perform other tasks.

What are the validity indicators of the Jordanian version of the Renzulli Scale of Behavioral traits (3rd ed.) in the detection of gifted people, expressed in terms of content validity, divergent validity, and concurrent validity?

To verify the validity of the scale, several indicators were extracted. The results achieved with respect to the indicators of validity are as follows:

What are the validity indicators of the Jordanian version of the Renzulii Scale of Behavioral traits (3rd ed.) in the detection of gifted people, expressed in terms of content validity, divergent validity, and concurrent validity?

To verify the validity of the scale, several indicators were extracted. The results achieved with respect to the indicators of validity are as follows:

a) Content validity: A final version of the scale was prepared and submitted to 10 jury members of professors and specialists in the field of educational psychology and special education.On the basis of their observations, some items with the same content have been amended, and the language of some items has been amended.

b) Internal structure validity: The validity of the internal structure and value of the coefficients of the items were verified by calculating the correlation coefficient between the items and the sub-domains to which it belongs. Table (1) shows the correlation coefficients between the items and the domains

Table (1) Indications of the internal structure validity of the of items of Renzulli scale of behavioral traits (Third edition) (n = 478).

What are the validtiy indicators of the Jordanian version of the Renzulii Scale of Behavioral traits (3rd ed.) in the detection of gifted people, expressed in terms of content validity, divergent validity, and concurrent validity?

To verify the validity of the scale, several indicators were extracted. The results achieved with respect to the indicators of validity are as follows:

Table 1.
Corelations between Items and Subdomain

Item number	Sub-domains									
	Learning traits	Creativity	Motivation	Leadership	Artistic	Musical	Theateric	Communication (accuracy)	Communication (expressionism)	
1	0.87	0.88	0.84	0.88	0.80	0.84	0.80	0.87	0.88	
2	0.88	0.88	0.70	0.90	0.86	0.90	0.89	0.89	0.89	
3	0.88	0.90	0.86	0.93	0.87	0.90	0.89	0.89	0.90	
4	0.89	0.90	0.86	0.93	0.85	0.90	0.90	0.91	0.92	
5	0.84	0.92	0.87	0.90	0.89	0.87	0.88	0.91		
6	0.86	0.88	0.87	0.92	0.90	0.89	0.88	0.90		
7	0.88	0.93	0.85	0.88	0.85	0.90	0.83	0.91		
8	0.89	0.91	0.88		0.88		0.89	0.91		
9	0.88	0.86	0.87		0.88		0.89	0.90		
10	0.90		0.87		0.86		0.76	0.91		
11	0.88		0.75		0.86			0.83		
12										
13										
14										
15										

What are the validtiy indicators of the Jordanian version of the Renzulii Scale of Behavioral traits (3rd ed.) in the detection of gifted people, expressed interms of content validity, divergent validity, and concurrent validity?

To verify the validity of the scale, several indicators were extracted. The results achieved with respect to the indicators of validity are as follows:

Table 2.
Means and SDs an t-Test in Renzulli Total Score

Respondent	N	Mean	Standard deviation	T value	Df	Sig
Non-gifted	304	387.06	49.69	1.27	477	0.00
Gifted	175	521.61	65.88			

What are the validtiy indicators of the Jordanian version of the Renzulii Scale of Behavioral traits (3rd ed.) in the detection of gifted people, expressed in terms of content validity, divergent validity, and concurrent validity?

To verify the validity of the scale, several indicators were extracted. The results achieved with respect to the indicators of validity are as follows:

Table 3.
Differences between the Scores of Non-gifted Students and Gifted Students on the Renzulli Scale of Behavioral Traits

Respond	N	Mean	Standard deviation	T value	Df	Sig
Non-gifted	304	387.06	49.69	1.27	77	0.00
Gifted	175	521.60	65.88			

It is clear from table (3), there are statistically significant differences between the scores of non-gifted students and gifted students on the Renzulii scale of behavioral traits, where the value of T (11.27), a statistically significant at the level of significance ($\alpha = 0.05$), and these differences were in favor of students The average number of gifted students was (521.60), and for non-gifted students (387.06).

Table (4) shows the results of differences between non-gifted and gifted students in the sub-domains of the scale.

Table (4): Means and Standard Deviations of Non-gifted and Gifted Students on the Sub-domains of the Renzulli Scale of Behavioral traits (Third Edition) (n = 478)

Table 4.
Differences between Non-gifted and Gifted Students in the Sub-domains of the Scale

Sub-domains	Respondent	N	Mean	Standard deviation
Learning traits	Non-gifted	304	34.38	13.91
	gifted	174	46.78	5.69
	Total	478	38.89	13.05
Creativity	non-gifted	304	26.11	12.62
	gifted	174	36.90	8.58
	total	478	30.04	12.45
motivation	non-gifted	304	34.73	13.71
	gifted	174	46.26	6.21
	total	478	38.93	12.82
Leadership	non-gifted	304	24.37	9.37
	gifted	174	31.03	3.44
	Total	478	26.79	8.39
Artistic	Non-gifted	304	33.25	13.56
	Gifted	174	43.83	9.40
	Total	478	37.10	13.22
Musical	non-gifted	304	18.85	9.11
	Gifted	174	25.92	7.69
	Total	478	21.42	9.26
Theateric	Non-gifted	304	30.29	12.62
	Gifted	174	39.14	9.36
	Total	478	33.51	12.29
Communication	Non-gifted	304	34.37	14.35
	Gifted	174	46.78	7.17
	Total	478	38.88	13.61
Expressionism	Non-gifted	304	12.40	5.36
	Gifted	174	16.66	3.16
	Total	478	13.95	5.10
Planning	Non-gifted	304	45.94	19.67
	Gifted	174	63.11	10.62
	Total	478	52.19	18.84
Mathematics	Non-gifted	304	30.70	12.90
	Gifted	174	43.67	7.10
	Total	478	35.42	12.77
Reading	Non-gifted	304	19.27	8.03
	Gifted	174	24.13	5.57
	Total	478	21.04	7.60
Technology	Non-gifted	304	20.92	10.12
	Gifted	174	28.94	5.17

	Total	478	23.84	9.47
Science	Non-gifted	304	21.49	9.94
	Gifted	174	28.86	6.55
	Total	478	24.17	9.53

It is clear from Table (4) that there are significant differences between the scores of non-gifted students and gifted students on all sub-domains of the Renzulli Scale of Behavioral Characteristics (third edition), and to determine whether these differences are statistically significant was the analysis of multivariate variance dependent (MANOVA), the following is a presentation For these results:

The results showed that there were statistically significant differences between the mean scores of the non-gifted students and the gifted students on the Renzulii scale for behavioral traits, where the value of t was (11.27), which is statistically significant at the level of significance ($\alpha = 0.05$). These differences were in favor of the gifted students as the mean score of gifted students was (521.60), and (387.06) for the non-gifted students. In addition, there were apparent differences between the scores of non-gifted and gifted students on all sub-domains of the Renzulii Behavioral Scale (3rd edition), and to determine whether these differences were statistically significant, a dependent multivariate variance analysis (MANOVA).

The results showed that there were statistically significant differences between the average score of the non-gifted students and the gifted students in the sub-domains of the Renzulli Scale of Behavioral Characteristics (the third edition), where the value of the Hotelling's Trace (0.44), and the value of P (14.43), which is statistically significant at the level of significance ($\alpha = 0.05$). These differences were in all sub-dimensions of the Renzulii Scale of Behavioral Characteristics (third edition). It was in all sub-domains in favor of gifted students, demonstrating the ability of the scale to distinguish between gifted and non-gifted students and its effectiveness in detecting gifted students.

Concurrent Validity

To verify the concurrent validity of the scale, Tony's Intelligence Test and Torrance Test for Creativity were administered to (30) students. The Renzulli Scale of Behavioral Characteristics (3rd Edition) was administered to them. the following is a presentation of these results:

Tony's Test: The results indicated that there was a statistically significant correlation between the students' scores on the Tony test and the sub-score of learning domain from the Renzulli Scale of Behavioral Characteristics (the third edition), where the correlation coefficient value was (0.412). The correlations were positive, i.e., an increase in the Tony's test led to an increase in the scores on the Renzulli scale of behavioral traits (3rd ed.)

Torrance Test

The results indicated that there was a statistically significant correlation between the scores on the Torrance test and the sub-domain of creativity of the Renzulii scale of behavioral traits (third edition) where the correlation coefficient value was (0.562). In all cases, the correlation was positive, ie, an increase in the score on the Torrance test leads to an increase in the scores on the Renzulii scale of behavioral traits (3rd ed.).

Results of Second Problem of Study

What are the indications of the reliability of the Jordanian version of the Renzulli Scale of Behavioral Characteristics "Third Edition" in the detection of gifted people, expressed in a way of reliability of the estimators and internal consistency using the Cronbach's Alpha equation?

Reliability of the Estimators

In order to verify the reliability of the estimator's method, two of the estimators were asked to fill the scale for 25 students separately. The method of internal consistency with the Cronbach's Alpha equation on the total sample of (478) students, Table 4 shows the results of the significance of the reliability of the scale.

Table 5.

Estimation reliability Coefficients for Renzulli Behavioral Scale (3rd ed.) (N = 25)

Number	Sub-domains	Estimators' Reliability	Internal consistency
1	Learning traits	0.71	0.97
2	Creativity	0.91	0.97
3	Motivation	0.67	0.96
4	Leadership	0.87	0.96
5	Artistic	0.72	0.97
6	Musical	0.60	0.95
7	Theateristic	0.80	0.96
8	Communication (accuracy)	0.77	0.97
9	Communication (expressionism)	0.84	0.92
10	Planning	0.78	0.98
11	Mathematics	0.80	0.94
12	Reaing	0.67	0.96
13	Technology	0.66	0.91
14	Science	0.72	0.97
Total degree		0.89	0.99

It is clear from Table 5 that the reliability coefficient for the overall degree of Renzulii scale was (0.89) and the sub-domains that make up the scale ranged from (0.91 - 0.60), where the highest stability coefficient for the domain of creativity

(0.91) and the lowest The domain of musical traits (0.60) is acceptable and good reliability coefficients.

It is clear from Table (4) that the reliability coefficient of the total degree calculated by the method of internal consistency based on the Cronach's Alpha equation of the Renzulli scale was (0.99) and the subdomains that make up the scale ranged from (0.91 - 0.98), where the highest reliability coefficient for planning traits domain (0.98) and lowest for technology traits domain (0.91) which are generally high reliability coefficients.

Discussion and Conclusion

This chapter includes a discussion of the results of the study presented in chapter IV and the interpretation of these results in addition to comparing them with the results of previous studies, as well as a review of the most important results of the study, and review the recommendations of the study.The results will be reviewed according to the sequence of questions of this study.

Discussion of the findings on the first question:

What are the validtiy indicators of the Jordanian version of the Renzulii Scale of Behavioral traits (3rd ed.) in the detection of gifted people, expressed in terms of content validity, divergent validity, and concurrent validity?

The results related to the content validity indicated that the Jordanian version of the scale have a content validity, which was represented by constructing the primary version after the translation of the items from English to Arabic and reviewed by the jury members (n = 10), and the rate of jury members agreement was high, and then Adjustments were made to get the final version of the scale, where the final version of the scale consisted of (14) domains, and (126) items distributed over all domains in an unequal way. The results of the validity of the content concurred with the study of (Maajniti and Howaidi, 1995), (Kablan, 1995), (Hassan, 2007), and (Renzulli, Reis, Gavin, siegle and sytsma, 2009).

The validity of the internal structure was verified by calculating the correlation coefficient between the items and the sub-domains to which it belongs. The results of this study are in agreement with (Maajini and Howaidi, 1990), (Azri, 2002), (Hasan, 2007), (Bashir and Jaffal, 2015), (Kablan, 1995, Sahin, Feyzull, 2013) and (Bakheit, 2015) The researchers referred the ability of the scale to distinguish between the non-gifted and the gifted towhat was reported in the educational literature regarding the availability of common traits and characteristics of the gifted and non-gifted people that the degree of clarity and repetition of these features is more apparent in the gifted, and the researchers adopted precise procedures in the process of rationing, Especially the estimator teacher, including the nature of his specialization (scientific and humanities specialties), and the

extent of his experience, the extent of his knowledge of the student. In addition to giving the estimators sufficient time to the evaluation process.

The results in relation to the divergent validity indicated the ability of the items of the scale to distinguish between non-gifted and gifted students, where the differences in favor of gifted students were statistically significant at the level of significance ($\alpha = 0.05$). It is noteworthy that all sub-domains in favor of gifted students, which shows the ability of the scale in distinguishing between non-gifted and gifted and its effectiveness in the detection of gifted.

The results also indicated a significant correlation between the students' scores on the Tony score for the total score with the Renzulii scale of behavioral traits (third edition). The results also indicated a statistically significant correlation between the scores of the Students on Torrance tests for the whole tests on the Renzulii scale of behavioral traits (3rd ed.). The results also indicated a statistically significant correlation between the students' scores on the Torrance tests for the total tests on the Renzulii scale of behavioral traits (3rd ed.). It also agreed with the study (Kablan, 1995), the study of (Haddad and Al-Sorour, 1996), the study of (Renzulli, Hemdan, AL-Zubaidi, Kazem, 2014) and the study of (Rogalla, 2003).

As for the concurrent validity indicators, this was verified by calculating the Pearson correlation coefficient between the total score of the scale and the score on the sub-domains with both the Tony Intelligence Test and the Torrance Test.

The concurrent validity indicator correlation values between Renzulii scale for behavioral traits for the detection of gifted and students' scores on Tony's test were (0.389) that is statistically significant.

The results indicated that the correlations were positive, i.e., the increase on the Tony scale leads to an increase in the scores of the Renzulli scale of behavioral traits. The study agreed with (Kablan, 1995), (Hassan, 2007) and (Bashir and Jaffal.,2015).

The results showed concurrent validity indications between Torrance tests and the total score of Renzulii scale of behavioral traits (third edition) where the correlation coefficient value was statistically significant, and the value of correlation coefficients was statistically significant between the Renzulii scale of behavioral traits (third edition) and the total score on the Torrance test. It was a proportional positive correlation.

The results of this study are consistent with those of (Hassan, 2007). The researchers attributed the availability of high validity indications to the scale that the author built this copy as a result of long years of work with gifted and has compiled these features as a result of scientific research lasted for nearly (40) years, so the scale examined of what was intended to measure.

The results indicated that the scale had acceptable reliability coefficients in terms of reliability between the estimators and the internal consistency (Cronbach's

Alpha equation) of the Renzulli scale of behavioral traits in the detection of gifted (third edition) with high reliability coefficients on the total score. The researcher attributed the high correlation coefficients to the high degree of validity. The results of the study are consistent with those of (Qabalan, 1995, Atallah, 2006, Hassan, 2007, Bashir and Jaffal, 2015 and Rogalla, 2003). Which indicated that the scale had high reliability in the Alpha Cronbach method.

Based on the results of the current study, the researchers recommend to Use the scale as a tool to detect gifted according to age group, and Conduct other studies to verify the effectiveness of the scale with other scales such as Raven scales. And - Standardize the study on larger samples and achieve performance standards, Training teachers to detect gifted students according to the scale of behavioral traits.

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