The psychometric characteristics of the Jordanian Version from the Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV) for the school stage

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Abstract

This study aimed to identify the characteristics of the psychometric features of the Wechsler Intelligence Scale for Children- Fourth Edition (WISC-IV) on a Jordanian hearing sample to assess mental capacity at the school level. (418) students were part of the study sample. To achieve the objectives of the study, the items of The Validity, reliability. Concurrent Validity with Goodenough- Harris Drawing Test Man (0.946), achievement (0.887), Pearson's correlation coefficient for (Verbal Comprehension Index, VCI) = (0.414-0.824), (Perceptual Reasoning Index, PRI) = (0.734-0.922), (Working Memory Index, WMI)= (0.743-0.930), (Processing Speed Index, PSI) = (0.643-0.954), Correlation coefficients for all subparagraphs between (0.602-0.823), Indications of the stability of the scale were also found in using Cronbach's alpha (0.928), the Test-Retest Reliability method was the coefficient of stability (0.888), reliability of standard are conveyed, Resident Agreement (0.890), Resident stability by Holste method (86.5%). The study recommends measuring and diagnosing students with the (WISC-IV) scale to identify strengths and weaknesses. And make an individual educational plan. Carrying out qualitative studies on the scale sub-tests.

Key words: WISC-4, IQ scale, school stage, verbal and performance tests.

The Wechsler scale of intelligence represents a real revolution in intelligence measurement, because Wechsler's definition of intelligence is due first to the general factor theory, which is still credible, and also to the fact that his classification of intelligence tests divided into verbal and performance tests was convincing for practitioners of psychology (Flanagan, McGrew, Ortiz, 2000).

2. Literature review

Language affects individuals' mental, performance, and social development, and this is demonstrated by the emergence of mental, linguistic,

1. Introduction

Intelligence assessments are an important factor in assessing the person's mental capacity, which gives a diverse understanding of the extent of the ability of the individual to keep pace with his education and to recognize strengths and limitations through his achievement and the extent to which his linguistic, mental and social growth is impacted. Owing to the historical significance of the scale, there are still many researchers interested in studies of the Wechsler scale.

Reasoning.

Gregory (2004) asserts that these sub-tests of the WISC-IV scale scores can give an accurate estimate of an individual regarding his strengths and weaknesses.

Santrock (2002) has indicated that the Wechsler scale not only provides an overall IQ score but also gives indications of sub-intelligence (such as the Verbal Comprehension Index), which allows the examiner to identify areas in which a child is strong or weak.

Through the foregoing, many researchers and residents have used the Wechsler Scale Fourth Edition in many countries, which has also been translated into many languages because of its importance in the detection and diagnosis of mental ability through indications of validity and reliability that justify its use. (Watkins et al., 2013) a study entitled "Construct Validity of the WISC-IV UK with a Large Referred Irish Sample" aimed at identifying a comparison of content validity in applying the Wechsler-4 scale of children's intelligence to an Irish sample. The study sample included (794) children divided into (494) males and (300) females, confirmatory factor analysis was used, and the results showed:

- The test for Wechsler-4 is applicable.
- There are no individual differences between males and females.
- The values of the reliability coefficient (0.63) and the validity coefficient (0.86), showing the validity of applying the scale to Irish children.

and social performance disparities among members of society.

Where intelligence interests psychologists from the Higher Mental Processes and that happens through learning, memory, information, and experience processes (Leahey & Harris, 2001).

Hambleton (2005) also asserts that adaptation is the process of refining elements, concepts, words and expressions so that they are culturally and linguistically equivalent in a target language and culture.

Borsa et al. (2012) also points out that it is a process that requires careful planning regarding the structure of its content, the psychometric properties of the recent version of the instrument, and the validity implications of the target sample.

And (Kaufman et al., 2005) shows that the (WISC-IV) scale is a tool for assessing the cognitive ability of children and youth between the ages of 6 and 17 years. This scale has four major indicators, the Verbal Comprehension Index, the Logical Inference Index, the Working Memory Index, and the Processing Speed Index. These indicators are supported by the Full IQ Scale.

Wechsler (2003) showed that the fourth edition of the scale (WISC-IV) includes (15) tests: Block Design, Similarities, Symbol Search, Cancellation, Digit Span, Vocabulary, Letter-Number Sequencing, Matrix Reasoning, Comprehension, Coding, Picture Completion, Picture Concepts, Information, Arithmetic, Word

Thus, the stability coefficients for the subtests and the overall score were significant.

(SOUAN, 2017) conducted a study entitled "Determining The Reliability And Validity Of The Adapted Wechsler Intelligence Scale-Fourth Edition (WISC-IV) For Libyan Children And Adolescents" This study aimed to translate and adapt the Wechsler scale of intelligence in Libya. The sample comprised (210) children and adolescents between the ages of (6 and 15) years (age 6-7: n = 42; age 8-9: n = 42; age 10-11: n = 42; age 12-13. : N = 42; age 14-15: n = 42). They selected a stratified random sample according to age and gender. The results showed that the reliability indices were (Split-Half = 0.95, Test-Retest = 0.81, and Alpha Cronbach = 0.92). The results also showed that the validity indices were (0.93, 0.90, 0.86, and 0.86) for the verbal comprehension index, the verbal inference index, and the working memory index. And processing speed index respectively. The results showed they extracted two factors, the (VCI) index and (PSI). Discriminate Validity by age also showed that FSIQ scores increased with age. And that the mean scores (IQs) of the total intelligence rate (FSIQ) were (99.91) for the total sample.

Each of (Watkins, Smith, 2013) conducted a study entitled "Long-Term Stability of the Wechsler Intelligence Scale for Children — Fourth Edition," the study sample included (344)

(Dang, et al., 2011) also conducted a study titled "Adaptation of Wechsler Intelligence Scale for Children-IV (WISC-IV) for Vietnam". The study aimed to adapt the Wechsler test in primary schools in Vietnam. The study sample included primary school children for the age group (6-11) years and the results of the study. The study showed:
- That the reliability coefficients are high, reaching (0.55-0.86) for the sub-journals, and the overall score of the scale is (0.78).
- The validity coefficients are also high (0.66 - 0.79) for the sub-tests, and (0.77) for the overall score.
In doing so, the results demonstrated the validity of the Wechsler test of primary child intelligence in Vietnam.

And each of (Ryan, et al., 2010) conducted a study entitled "Stability of the WISCIV in a Sample of Elementary and Middle School Children" that aimed to reveal the stability coefficients of the Wechsler Scale -4 of children's intelligence by checking the stability parameter through the method of the Test-Retest in a sample of primary and middle school children in America, and the sample included (43) primary and middle school students for the age group (16-15) years, the study used the correlation coefficient to retest, and the results showed:
- The reliability coefficients for the sub-tests ranged (0.26-0.84), while the total score for the test was (0.88).

students from the second to the fifth grade who had learned the English language. The (WISC-IV) scale was applied in the English language, and then the same scale (WISC-IV) applied to the same students in the Spanish language, and then the achievement scale (WIAT-2) was applied for Concurrent Validity. This research will help psychologists to define the most accurate language with which to assess students who speak English as a foreign language by looking at the levels of English and Spanish proficiency. The results showed to:

- The stability indications of the Test-Retest method for subtests: (VCI = 0.93), (PRI = 0.89), (WMI = 0.89), (0.86 = PSI), and (FSIQ = 0.93).

-The indications of Concurrent Validity and Achievement (0.87).

The current study is distinguished from previous studies in that it sought to verify the psychometric properties of the Wechsler-4 scale of children's intelligence for the school stage. It has indications of the validity and reliability of the scale that justify its use in the Jordanian environment.

3. Research Questions

The study answers the following questions:

What are the indications of the validity and reliability of the Wechsler-4 scale of children's intelligence for the school stage on a Jordanian sample of primary school students?

students from America, and the results showed:

- The reliability of the Test-Retest method with an interval of (2.84) and the stability coefficients for each dimension ranged from (VCI = 0.72, PSI = 0.76, WMI = 0.66, PSI = 0.65, and FSIQ = 0.82).

(Canivez, Watkins, Good, James, James, 2017) conducted a study entitled "Construct validity of the Wechsler Intelligence Scale for Children–Fourth UK Edition with a referred Irish sample: Wechsler and Cattell–Horn–Carroll model comparisons with 15 subtests." It aimed to verify the indications of construct validity for the British Wechsler Version scale. The study sample included (245) Irish children. Results showed:

- There are no statistically significant differences between the four intelligence factors.

- The arithmetic mean of the index (VCI = 89.57), the index (89.00 = PRI), the index (86.40 = WMI), the index (92.45 = PSI), and (87.07 = FSIQ).

As for the study (Kopelman, 2016) entitled "Assessing English language learners: when to use the English WISC-IV versus the Spanish WISC-IV." This study aimed to determine the most languages that psychologists could use to evaluate students who learned English while speaking English. In the Spanish language, the sample included (84) Spanish-speaking

plans.

-Raising interest in measuring mental ability in hearing individuals. And locate intelligence on the Standard Normal Distribution of mental ability.

5. Study limitations

- The results are calculated by the indications of validity and reliability available in the Jordanian Variant of the Wechsler Intelligence Scale.
- The extent to which the sample of the study reflects the population of the study.

6. The methodology of the study and the procedures

6.1. Method of study

The researcher used the Descriptive Approach for its suitability for the current study, as this study aims to verify the psychometric properties of the WISC-IV scale.

6.2. The sample of study

The study population comprised students distributed in the schools spread in the Hashemite Kingdom of Jordan (north, middle, and south), where the number of schools reached (1607) governmental schools, and the number of schools were distributed in the northern region (2), the central region (6) and the southern region (3). The study sample included students in the age group (6 - 16,11) years, their number (n = 418). The stratified random method from the study population selected them.

Frequencies and percentages were used to describe the study sample individuals. And Table (1) shows that:

The following sub-questions emerge from the study problem which deals with psychometric properties:

1- What are the indications for the Validity of the Wechsler-4 scale of children's intelligence for the school stage on a Jordanian sample of primary school students?

2- What are the indications of the Reliability of the Wechsler -4 scale of children's intelligence for the school stage on a Jordanian sample of primary school students?

3- Are there statistically significant differences ($\alpha = 0.05$) in performance on the subtests of the Wechsler -4 Scale of Children's Intelligence for the school stage on a Jordanian sample of primary school students?

4. Study Significant

First: theoretical importance:
- Submitting a Jordanian Version of the Wechsler-4 scale for elementary school students.
- The scarcity of recent Jordanian studies that dealt with the Wechsler -4 scale for the basic school stage.

Second: The practical importance: Where this study represents:
-Preparing a Jordanian Version for the Wechsler-4 scale for primary school students.
-Helping researchers and teachers benefit from the results.
- Employing the results of the measurement and diagnosis process on the scale in preparing educational

Table (1) Distribution of study sample individuals

	Frequencies	Percentage
Students	418	100.0

Table (1) shows that (100%) of the study sample individuals are students.

Table (2) Distribution of the study sample individuals according to the gender variable (n = 418)

Gender	Frequencies	Percentage
Male	228	54.5%
female	190	45.5%
Total	418	100.0%

Table (2) shows that the number of the study sample reached (418) students, as the percentage of males was (54.5%), and the female group represented (45.5%).

Information, Arithmetic, Word Reasoning. (Wechsler, 2003).

Divided into four sub-measures:

1. (Verbal Comprehension Index, VCI) scale includes the following sub-tests: (Similarities, Vocabulary, Comprehension, Information, and Word Reasoning).

2. (Perceptual Reasoning Index, PRI) scale includes the following sub-tests: (Block Design, Picture Completion, Matrix Reasoning, and Picture Concepts).

3. (Working Memory Index, WMI) scale includes the following sub-tests: (Digit Span, Letter-Number Sequencing, and Arithmetic).

4. (Processing Speed Index, PSI) scale includes the following sub-tests: (Coding, Symbol Search, and Cancellation).

5. Full-Scale IQ (FSIQ) standard and includes tests: (VCI, PRI, WMI, PSI).
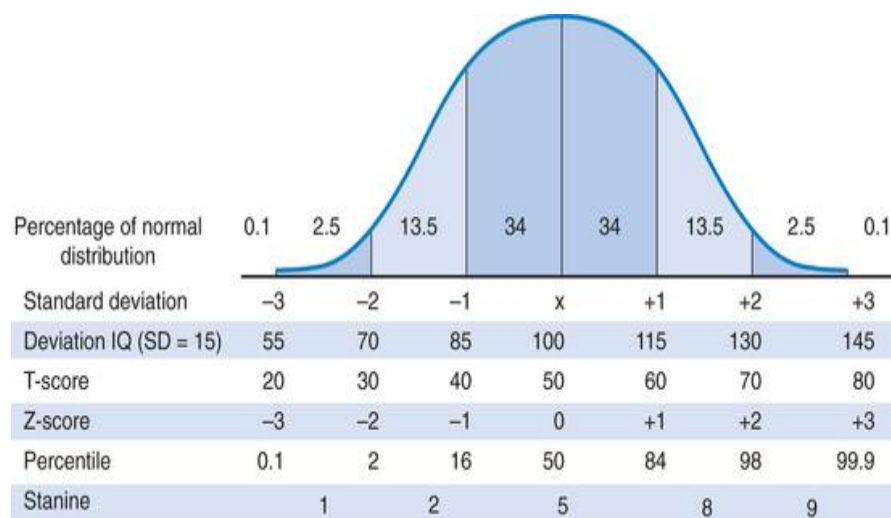
6.3. The study tool

The Wechsler Children's Intelligence Scale (WISC-4), which (Abu Drei, 2017) performed Standardization A Jordanian Version for Deaf Via Sign Language.

Standard Description: The fourth version of the Wechsler Children's Intelligence Scale appeared in the year (2003) by (Williams, Weiss, Rothes, 2003). Evidence of validity, reliability, and standards was available in its primary form. The scale comprises 15 sub-tests:

 - Block Design, Similarities, Digit Span, Picture Concepts, Coding, Vocabulary, Letter-Number Sequencing, Matrix Reasoning, Comprehension, Symbol Search, Picture Completion, Cancellation,

IQ distribution over the normal distribution curve:

Percentage of normal distribution	0.1	2.5	13.5	34	34	13.5	2.5	0.1
Standard deviation	−3	−2	−1	x	+1	+2	+3	
Deviation IQ (SD = 15)	55	70	85	100	115	130	145	
T-score	20	30	40	50	60	70	80	
Z-score	−3	−2	−1	0	+1	+2	+3	
Percentile	0.1	2	16	50	84	98	99.9	
Stanine		1	2	5	8	9		

- From 55 to 70: Mild Intellectual Disability.
- From 70 to 85: Learning Disability.
- From 85 to 115: Normal.
- From 115 to 130: Gifted.

- From 130 - 145: Deaf with Talent.
- From 145 - and over: Genius.
-Special education specialists, number (7), for the application.
-Appointing a team coordinator to save time and procedures to bring students from the classroom, as she on:
* Bringing a list of students' names at the school, this includes (name, date of birth, class).
* Identify males/females for a sample application in each school.
* Calculating the student's age (year, month, and day) before bringing him to the application team.
* Follow up with the work team for any inquiries.
* Communicate with the school administration.

6.4. Research procedures

Prepared the Jordanian Version from the Wechsler-4 scale according to the following steps:

First: got written permission from the publisher to use the Wechsler-4 scale. The researcher traveled to Lebanon (Beirut) to sign the agreement to use the scale.

Second: Preparing a preliminary Jordanian version in the Arabic language from the scale.

- viewed the scale tools according to the culture of Jordan.

-printed the scale tools to suit the Jordanian environment.

Third: The training team comprised (8) individuals:

Results for the first question: What are the indications for the Validity of the Wechsler-4 scale of children's intelligence for the school stage on a Jordanian sample of primary school students?

By validating the scale and defining the construct validity for sub-tests of the scale, the psychometric properties of the WISC-4 Scale have been validated. The findings are given below:

Content Validity: The Jordanian Version scale was presented to (21) arbitrators, who comprise (9) professors in special education, at the University of Jordan and Al-Balqa Applied University, to express their views on the validity of the content, and to know the appropriateness of the linguistic wording, the relevance of the paragraph to the dimension, and its relevance to the environment Jordanian, as the percentage of agreement reached (80%).

Concurrent Validity: I calculated A correlation coefficient between performance on the current scale and Goodenough-Harris. Drawing Test and Achievement (n = 30).

- The Wechsler-4 scale was applied in the Jordanian Version and the Goodenough-Harris scale applied to a man's drawing in the Jordanian Version on a sample comprising (n = 30): The correlation coefficients were extracted between performance on the Wechsler scale and Goodenough-Harris. Drawing Test, where the value of the correlation coefficient was (0.946) in statistical significance less than (0.01).

* Recording and counting a sample that was applied daily to private statements with the researcher.

- According to the following steps:

1- The sample of students (n = 418). The time for correcting the scale ranged (30) minutes to correct and collect marks and verify the marks.

Fourth: The researcher prepared (10) bags of the Wechsler-4 intelligence scale, including all the tools necessary to apply the scale.

Fifth: it divided the work into several stages according to the study sample:

1- The sample of students (n = 418), where the number of the team was (n = 7), including the researcher.

2- The time ranged from:

* 8:00 AM to 2:00 PM (application period in the school).

* 4 pm until 7 pm (correction period).

* The application period for all samples (n = 418) is (60) days without official holidays.

To achieve the objectives of the study, it took the following measures:

1- It applied the scale to the Pilot Study (n = 50) to verify the extent of the linguistic wording, application, and correction procedures for the scale in the Jordanian Version.

2- The modified Jordanian Version scale applied to a sample of students (n = 418).

1- Processed the data statistically according to the methods mentioned in the study.

2- Indicators of validity and reliability were obtained from the Wechsler-4 scale.

7. The Results

The following methods verified the indications of validity and reliability:

the sample members was used by Varimax method, and the number of sub-factors was determined by four, to be equal to those that make up the original scale (in its original form), and Table (3) shows the number of sub-tests and the amount of variance explained for each test from the exams: First: Construct Validity implications of the Jordanian Version from Wechsler-4 scale:

- The Wechsler Scale -4 was applied in the Jordanian Version, and the general achievement scale was applied to the age group (6-16.11) years: To identify Concurrent Validity, the correlation coefficients between the Wechsler scale of achievement were extracted, where the value of the correlation coefficient was (0.887) in terms of A statistic less than (0.01), showing the Concurrent Validity of the two measures.

Construct Validity: Principle Component Analysis of the scores of

Table (3) Construct Validity Scores for Scale (n = 418)

Factors	Eigen Value	% of variance	% Cumulative
Verbal Comprehension Index,VCI	2,834	70.843	70.843
Perceptual Reasoning Index, PRI	0.463	11.566	82.409
Working Memory Index, WMI	0.374	9.340	91.750
Processing Speed Index,PSI	0.330	8.250	100.00

It is clear from Table (3) that the Eigenvalue of the sample ranged between (2.834 - 0.330), and that the first factor explained (70.843%) of the total variance of the study tool, and the second factor came to explain (11.566%) of the total variance. Also, (9.34%) of the test was interpreted through the third factor, and finally, the fourth factor came to explain (8,250%) of the total variance of the test, and that what was interpreted amounted to (100%). It also found indications about the Construct Validity of the scale and extracted the correlation coefficients between the sub-tests of the scale, and the results showed that the correlation coefficients ranged between (0.414 - 0.824) and were statistically significant at a level (0.01) or less, and Table (4) illustrates that:

Table (4) Correlation coefficients between sub-tests of the scale (n = 418)

Subtest		Blo Des ign	Simil arities	Dig Spa n	Lett Con cept s Co din g	Voc abul ary	Lett Nu mber Seq uen cing	Mat rix Re aso n	Co mp ren sio n	Pic tur e Se arc h Co mp leti on	Can cell ation	Info rma tion	Aud Wo enc Re as on ing
Design Design Correlation	Correlatio n	1	**711	1^08	6^5 6^9	5^9	5^7 9^2	8^*1	9^4	9^6 9^4	8^0	9^8	1^*1 2^*7
	Sig (2-tailed)		.000	0^00	0^00 0^00	0^00	0^00 0^00	0^00	0^00	0^00 0^00	0^00	0^00	0^00 0^00
	N		418	418	418 418	8^1	8^1 418	8^1	8^1	8^1 8^1	8^1	418	418 8^1

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Similarities	Correlation	1													
	Sig. (2-tailed)														
	N	418	418	418	418	81	81	418	81	81	81	81	418	418	81
Span	Correlation		**.712**	1												
	Sig. (2-tailed)		.000													
	N	418	418	418	418	81	81	418	81	81	81	81	418	418	81
Concepts	Correlation		**.719**		1											
	Sig. (2-tailed)		.000													
	N	418	418	418	418	81	81	418	81	81	81	81	418	418	81
Coding	Correlation		**.647**			1										
	Sig. (2-tailed)		.000													
	N	418	418	418	418	81	81	418	81	81	81	81	418	418	81
Vocabulary	Correlation		**.855**				1									
	Sig. (2-tailed)		.000													
	N	418	418	418	418	81	81	418	81	81	81	81	418	418	81
Number-Sequencing	Correlation		**.721**					1								
	Sig. (2-tailed)		.000													
	N	418	418	418	418	81	81	418	81	81	81	81	418	418	81
Matrix Reasoning	Correlation		**.737**						1							
	Sig. (2-tailed)		.000													
	N	418	418	418	418	81	81	418	81	81	81	81	418	418	81
Comprehension	Correlation		**.794**							1						
	Sig. (2-tailed)		.000													
	N	418	418	418	418	81	81	418	81	81	81	81	418	418	81
Search	Correlation		**.579**								1					
	Sig. (2-tailed)		.000													
	N	418	418	418	418	81	81	418	81	81	81	81	418	418	81
Completion	Correlation		**.615**									1				
	Sig. (2-tailed)		.000													
	N	418	418	418	418	81	81	418	81	81	81	81	418	418	81
Cancellation	Correlation		**.657**										1			
	Sig. (2-tailed)		.000													
	N	418	418	418	418	81	81	418	81	81	81	81	418	418	81
Information	Correlation		**.824**											1		
	Sig. (2-tailed)		.000													
	N	418	418	418	418	81	81	418	81	81	81	81	418	418	81
Arithmetic	Correlation		**.758**												1	
	Sig. (2-tailed)		.000													
	N	418	418	418	418	81	81	418	81	81	81	81	418	418	81
Word Reasoning	Correlation		**.778**													1
	Sig. (2-tailed)		.000													
	N	418	418	418	418	81	81	418	81	81	81	81	418	418	81

**. Correlation is significant at the 0.01 level (2-tailed).

of intelligence for children in school for the age group of (6-16.11) years, the correlation coefficients ranged between (0.602-0.823), which shows that all the sub-paragraphs measure the same property and belong to intelligence A function at the level of significance (0.01) or less.

Results related to the second question: What are the indications of the Reliability of the Wechsler -4 scale of children's intelligence for the school stage on a Jordanian sample of primary school students?

I arrived at the Reliability significance of the scale in the Jordanian Version by the following methods for a sample (n = 30):
1- Test Re-Test method.
2- Alpha Cronbach method.
3- The residents' agreement.

1- Reliability Test Re-test method:

Reliability implications of the Test Re-test study tool:

To calculate Reliability, the Wechsler scale - 4, the researcher used the Test-Retest method, applying the scale to (30) hearing students, and applying the scale to them with a two-week time difference between the two times, and the researcher used to calculate Reliability Pearson Correlation, and the Reliability Factor values for subtests and the overall degree of intelligence As in Table (5):

What is the effectiveness of the sub-paragraphs of the Wechsler-4 Scale of Children's Intelligence on a Jordanian sample of elementary school students?

The values of the Pearson Correlation coefficients were extracted, where it was found that the sub-paragraphs (VCI) of the Wechsler Scale - 4 of children's intelligence belong to what was measured, where the correlation coefficients were statistically significant at the level of significance (0.01) or less and the values ranged between (0.705 - 0.882), Which shows the effectiveness of the sub-paragraphs.

The results of the Pearson Correlation coefficients confirmed that the sub-paragraphs (PRI) were statistically significant correlation coefficients at the level of significance (0.01) or less, and the correlation coefficients ranged between (0.734 - 0.922), which shows the effectiveness of sub-paragraphs. As for the sub-items (WMI), it achieved a statistically significant correlation at the level of significance (0.01) or less, as the correlation coefficients for the items of this test ranged between (0.743-0.930).Regarding the effectiveness of the paragraphs (PSI), the results showed the achievement of this effect and the belonging of the paragraphs to this test, where the correlation coefficients ranged between (0.643 - 0.954).As for all the sub-paragraphs, which contribute to the effectiveness of the Wechsler-4 scale

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Table (5) Results of Reliability Transactions using Test Re-test Method (n = 30)

Sub-intelligence	Test Re-test Method (n = 30)
VCI	0.851
PRI	0.721
WMI	0.847
PSI	0.918
Total IQ	0.888

The Reliability Coefficient value for the Test Re-test method was (0.888), and these Reliability Coefficient values are acceptable for this study.

2- Reliability implications of the study tool using the Cronbach Alpha Test:

I extracted reliability coefficients using the Cronbach alpha test, and Table (6) shows the test results:

Table (6) Reliability coefficients results using Cronbach's alpha test (n = 418)

Sub-intelligence	Cronbach alpha Method (n = 418)
VCI	0.905
PRI	0.915
WMI	0.920
PSI	0.940
Total IQ	0.928

significance (0.01) or less, which confirms the stability of the evaluators. When extracting the evaluators' stability values for the sample according to the Holsti method, I found that the number of decisions agreed upon by the correctors is 135 out of 156 decisions (units), and the application of the Holsti equation is:

135 x 2 = 270 = 86.5%

156 + 156 312

It appears from the equation that the Reliability score is (86.5%), and the used measuring instrument is applicable (n = 30).

Table (6) shows that the values of the Cronbach alpha coefficient for the sub-tests of the scale ranged between (0.905 - 0.940) and the value of the total score of the scale was (0.928), which are acceptable values for the current study.

3- Stability coefficients using the resident agreement method (n = 30):

The results of the stability coefficients were extracted by extracting the Pearson Correlation coefficient, where the value of the correlation coefficient between residents was (0.890), which is a significant value at the level of

differences (α = 0.05) in performance on the subtests of the Wechsler -4 Scale of Children's Intelligence for the school stage on a Jordanian sample of primary school students?

The arithmetic means and standard deviations were extracted and the results are:

Table (7): The arithmetic means and standard deviations to identify differences in performance on the subtests of the Wechsler Scale - 4 for the intelligence of children in the school stage among students (n = 418)

Some studies believe that "if a consensus of 70 to 80% is achieved, the results are acceptable," and that the percentage of the agreement shows the extent of the stability of the analysis. If the agreement percentage is less than 70%, it is considered low, but if the agreement is 85% or more, the stability of the analysis is It has high, and the stability of the analysis is considered acceptable if the agreement ranges between 70-75%.

Results related to the third question: Are there statistically significant

Factors	Number	Arithmetic mean	standard deviation
Verbal Comprehension Index,VCI	418	107.80	12.13
Perceptual Reasoning Index, PRI	418	104.49	13.81
Working Memory Index, WMI	418	107.96	11.56
Processing Speed Index,PSI	418	103.18	13.32
Full-Scale IQ, FSIQ	418	106.51	12.38

8. Discussion

Discussion of the results of the first question: What are the indications for the Validity of the Wechsler-4 scale of children's intelligence for the school stage on a Jordanian sample of primary school students?

The results of the study showed that there are indications of the validity of the Wechsler-4 scale for the intelligence of children in the school

Table (7) shows that there are no apparent differences between the arithmetic averages in performance on the sub-tests of the Wechsler Scale - 4 for the intelligence of children in the school stage. Where the value of arithmetic mean (VCI = 107.80), (PRI = 104.49), (WMI = 107.96), (PSI = 103.18), and overall intelligence (FSIQ = 106.51), the level of intelligence is above the normal limit on the normal distribution curve that Average (100).

it encourages its use in the Jordanian environment. And that the results of the current study showed that there is a correlation between the paragraphs and the sub-degree and the overall degree, and the indications of validity varied well, and this shows that the scale has a good effectiveness of the paragraphs.

Discussion of the second question: What are the indications of the Reliability of the Wechsler -4 scale of children's intelligence for the school stage on a Jordanian sample of primary school students?

The results of the study showed that the scale has high-Reliability indications, whether on the overall score or on the sub-scales, as the results of calculating Reliability coefficients by Cronbach Alpha method (0.928), and by Test Re-test method, the stability factor was (0.888), and the resident agreement was (0.890) and stability Residents according to the Holsti method (86.5%). Thus, Reliability Coefficients by any of the above methods are acceptable and good. The results agreed with the original study of the scale by David Wechsler, as the Reliability coefficients ranged in the original sample (0.90).

- The results agree with the results of the study (Dang et al., 2011) that the Reliability coefficients are high, reaching between (0.55-0.86) for the sub-domains. The results also agree with (Ryan et al., 2010) that the total score of the test (0.88). The results agreed with (SOUAN, 2017) that the

stage on a Jordanian sample in measuring mental ability, where indications were reached on the validity of the scale represented by Content Validity (80%) and Construct Validity through correlation coefficients between (0.414 - 0.824), and Concurrent Validity with Goodenough-Harris. Drawing Test (0.946) and Achievement (0.887). I also got indicators for Construct Validity for tests and Pearson Correlation (VCI = 0.414-0.824), (PRI = 0.734-0.922), (WMI = 0.743-0.930) and (PSI = 0.643-0.954), and the results of the study also showed that the sub-paragraphs of each of the IQ tests, represented by (VCI, PRI, PSI, and WMI), where the correlation coefficients were statistically significant at the level of (0.01) or less, which shows the effectiveness of the paragraphs. The correlation coefficients for all sub-paragraphs ranged between (0.602-0.823).

- The results agree with the results of the study (Watkins et al., 2013) that the indications for validity were (0.86). The results agreed with (SOUAN, 2017) that the validity indexes were high. The results agreed with (Kopelman, 2016) that the indications of Concurrent Validity and Achievement were (0.87).

- The results differed with the results of the study (Dang et al., 2011), which showed Validity coefficients (0.66-0.79) for the subtests, as it reached a total score (0.77).

The researcher explains: In the results, this shows the validity of the scale, as

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Scale of Children's Intelligence for the school stage on a Jordanian sample of primary school students?

The results of the study showed that there were no apparent differences between the arithmetic averages in performance on the subtests of the Wechsler Scale-4 for the intelligence of children in the primary school stage. The mean value was (VCI = 107.80), (PRI = 104.49), (WMI = 107.96), (PSI = 103.18), and total intelligence (FSIQ = 106.51).

- The results differed with each of the (Gary, Marley, Rebecca, Kate, Trevor, 2017) studies that (VCI = 89.57), (PRI = 89.00), (WMI = 86.40), and (PSI = 92.45), and (FSIQ = 87.07). The results also differed with the results of the study (SOUAN, 2017), as the IQ was (FSIQ = 99.91), which is less than the average (100). The results differed with each of the studies (Marley, Sharise, Kasey, Maria, Teresa, 2006) that the arithmetic averages of the sub-tests were: VCI = 95.8, PRI = 95.7, WMI = 93.8, PSI = 94.1 and FSIQ = 93.8.

The researcher explains: The arithmetic averages of intelligence were less than the average (100) in the normal distribution curve of the studies, which are also within the normal limits of mental ability, as the Jordanian Version scale has arithmetic averages higher than the average (100) in the sub-tests of the Wechsler-4 scale.

indications of Reliability using the Cronbach alpha method = (0.92). The results also agreed with (Kopelman, 2016) that the indications of Reliability through the Re-Test for subtests: (VCI = 0.93), (WMI = 0.89), (PSI = 0.86), and (FSIQ = 0.93).

- The results differed with the results of the study (Watkins et al., 2013) that values the Reliability Coefficient (0.63). The results also differed from (Dang et al., 2011) that the total score of the scale was (0.78). Also, the results differed from (Ryan et al., 2010) that the Reliability coefficients for sub-tests ranged between (0.26-0.84). The results differed with (SOUAN, 2017) that significance of Reliability by Re-test = (0.81). Also, the results differed with (Watkins, Smith, 2013) that the Reliability coefficients for the retest method for each of the indicators: (VCI = 0.72, PRI = 0.76, WMI = 0.66, PSI = 0.65, and FSIQ = 0.82). Also, the results differed with (Kopelman, 2016) indicating Reliability through Re-test of the index (PRI = 0.89).

Therefore, it can be explained considering this study and its agreement with the results of the study and to achieve good Reliability coefficients, thus showing that the scale has Reliability implications that encourage its use in the Jordanian environment.

Discussion of the third question: Are there statistically significant differences ($\alpha = 0.05$) in performance on the subtests of the Wechsler -4

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9. Recommendations

9.1. Educational recommendations

1- Training school counselors in using the Wechsler-4 scale

2- Measuring and diagnosing students using the Wechsler Scale -4 to identify strengths and weaknesses and to conduct an individualized educational plan.

9.2. Research Recommendations

1- Conducting more studies and research related to developing intelligence tests related to cultures.

2- Conducting studies related to the skills of examiners who use the Wechsler-4 scale, which may affect the validity and Reliability indications of the scale.

3- Conducting studies on the degradation factor of the Wechsler -4 scale.

4- Conducting qualitative studies on sub-tests of the scale.

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