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Methods of Processing Information among Postgraduate Students Specialized in Teaching Methods of History at Iraqi universities

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Abstract
The current research aims to reveal (the information processing methods and their relationship to strategic intelligence among postgraduate students, specializing in Methods of Teaching History at Iraqi Universities) by identifying the following objectives:
The first objective aims to identify the methods of information processing. The second objective aims to find the significance of the statistical differences in the methods of information processing among the research sample according to the variable of gender (male-female).
To achieve the objectives of the research, the researcher constructed a scale of information processing methods based on Schmeck's model (Schmeck, 1981) , which includes (48) items. The researcher verified the psychometric properties of the scale, as the validity was extracted in two ways: (face validity and construct validity). The reliability was extracted by the following methods: Retesting, as the reliability coefficient reached (83%), while the Cronbach's Alpha Reliability Coefficient reached (85%). In order to complete the research objectives, Then the two scales were applied together on the basic research sample of (200) male and female students from Iraqi universities and for the academic years (2019-2020/ 2020-2021/ 2021-2022) who were selected by the Stratified Random Sampling. After processing the data statistically using (Arithmetic Mean, Standard Deviation, and T-Test for One Sample, One-Way Analysis of variance, Pearson Correlation Coefficient, and Regression Analysis) the following results were reached:
• There are information processing methods for postgraduate students specializing in methods of teaching history.
• There is no statistically significant difference on the scale of information processing methods according to gender variables (males / females).
In light of the results, the study reached a number of recommendations and suggestions.

Key words:(Information Processing Methods, Postgraduate Students)

Chapter One

First:The Problem

Today, we live in a world of evolution and openness at all levels of economic, social, political, and cognitive. In view of the enormous technological development and the achievements of science, there is a multiplicity of sources of knowledge and increasing channels of information from which students derive the enormous and varied amount of such information. And this development does not have to be a positive contribution for students. There must be skills to acquire and process this information and the way it is stored in memory and utilized in a similar situation. In recent years, we have seen a growing interest in studying cognitive mental processes that regulate memory, thinking, attention, sensitivity, and remembrance because they affect and are influenced by human performance on the one handand use of language symbols and processing, receiving, and processing of information.
According to Al-Ani and Al-Naimi, 2013, there are a number of challenges facing university institutions in Iraq. Weak funding and increased demand for higher education, as well as weak funding, the quality of curricula and the quality of programmes at the scientific research level, other challenges have been posed by new developments,

contemporary changes in the era of globalization, global competition, and exciting developments in ICT and their impact on university institutions' programmes and disciplines in higher education (Al-Ani and Al-Naimi, 2013:6).

Al-Bayati (2009) confirmed that the majority of teachers are not satisfied at the scientific level of Iraqi universities because of the weak interconnectedness between the curriculum and the labour market, the lack of availability of modern scientific sources, the poor confidence of students in the university degree they receive as they are not competing with international certificates and the difficulty of being recognized internationally, as well as the leniency in awarding university degrees to the lack of job grades for college graduates in general and educational colleges in particular.

These challenges have an influential role to play in weakening students' information processing methods. A new challenge that has emerged in the past three years is the spread of the coronavirus and the resulting effects that have confused students in particular and the world at large. The virus poses a risk to students' educational realities of psychological stress and intellectual and psychological strain on the postgraduate segment of students.

The scientific conference held in 3 March 2012 at the Faculty of Sports Education and sponsored by the Organization of Iraqi Elites and Competencies under the slogan (In order to advance the realities of postgraduate studies), the most important problems facing postgraduate students are the lack of encouragement and the absence of human relations between the student and the professor, which prompts the student to save the subjects in a way that qualifies him to finish the stage. Curricula are not only repetitive, and the evaluation methods used are incompatible with postgraduate studies, The poor cooperation of government departments with the student by providing him with accurate information that serves his research turns his results into distant figures as well as the college's failure to provide printing and photographic equipment in addition to legal and administrative impediments with regard to the admission requirements to the duration of the student's completion and delivery of his letter or thesis, amending admission instructions and granting exceptions and additional seats all this confuses and impedes the course of the study process in addition to the weak Internet service provided to graduate students (Mohammed and Abdul Ghani, 2016:315).

Previous scientific studies and research did not address the relationship between current research variables. The researcher has felt the need for a field scientific study that revealed the relationship between information processing methods and strategic intelligence among postgraduate students. Therefore, the current research problem can be identified by answering the following question: Are there information processing methods for postgraduate students specializing in teaching methods at Iraqi universities?

Second: The Significant of the research

The university is seen to have an active role in modernizing and advancing society as the inexhaustible spring of infusion of important modern knowledge, values and concepts that dismantle the ties of society's traditional culture in addition to its role in providing all students with the skills, experience and competencies that help them to participate in building, educating and motivating society to rise to the level of developed countries (Al-Aradhi, 2017:67).

Postgraduate studies are one of the most important and prestigious things that universities offer to society and are concerned with the development, development and study of different possibilities. Generally speaking, university education is considered the factory that provides society with manpower. Specialization in postgraduate studies is the factory that produces the thought and science on which the work is based in general, which in turn drives society to advance and progress. As a result of the enormous information revolution and scientific and technological development, today's undergraduate students, especially graduate students, live in changing, renewed and evolving conditions and an overwhelming desire to open up to different cultures in the world. to continue scientific research and verify the use of cognitive and mental abilities in their broadest fields and capacities, because of the challenges posed by ICT, the world is becoming more complex in all aspects of life. As a result, postgraduate students need to meet these challenges by adopting methods of how to help them stabilize the process of organizing knowledge of their experience and knowledge (Al-Shamri, 2015: 2) The need to learn methods and methods by which information is obtained and utilized. This does not result in providing them with effective data on how to read focused, attentive, good listening and a real translation of the information they gain (Jasim, 2017: 3) Therefore, the process of selecting and developing the abilities and abilities of postgraduate students is very important because they will be researchers, academics and teachers in university educational institutions who contribute to the achievement of the goals of higher educational institutions (Mohammed and Abdul Ghani, 2016:315).

Man at all times and times is the first product of information and knowledge, especially at present Science has evolved rapidly and spectacularly so that man can succeed and evolve and keep pace with this development. He must look forward to this new information, how it is obtained, how it is processed and structured in a way that develops his mental abilities and that this information is not a burden on him in the face of problems, whether in the

field of education within the university or directly in the situations of his daily life. (De Bono, 2001:6) .So the main assumption underlying the method of processing information is a better understanding of human mental processes if we view them as a system of inputs and outputs that is the context in which man's mind operates in the process of coding the information and the way it is stored and recovered. Qatami (2007:487) has given the importance of information in an individual's life and the way it is arranged and retrieved, other sciences such as psychology, information technology, health, mass communication and related administrative disciplines are interested in studying and discussing methods of processing information based on the foregoing, there is a conviction among all nations that modern contemporary, civilized, technical and industrial life cannot survive, continue, compete and rise without the existence of the (Muhammad, 2004:103) For this reason, the stakeholders see a focus on how and how an individual addresses the information he receives from the external environment, how it reaches the brain, how it stores the brain, and then transports it, and how to retrieve it in a later complex performance and produce knowledge. (Al-Dimadi, 2003:125) The trend of methods, composition and handling of information appeared in the collection of modern trends associated with the evolution of information theories in the late 1940s and added very important information in the field of psychology and education.

Based on the foregoing, the researcher can explain the significant of the research in the following points:

1 .This research is particularly important research in this field because it addresses a special and prestigious category in society who are graduate students because they will become future academics.

2 .This research was the result of the recommendations of previous literature and studies that confirmed that this category was approached with other variables.

3. The current research is the first to deal with these variables, i.e. methods of processing information in postgraduate students, specializing in the teaching of history in Iraqi universities.

Third:The aims of the research

The current research aims to identify the following:

1 - Methods of processing information in postgraduate students specialize in methods of teaching history.

2 - Statistical differences in the methods of processing information in the sample of research according to the sex variable (male/female).

Fourth: Limits of the study

A " Human Frontiers: Postgraduate Students Teach History.

B. Time Limits: Academic Years (2019-2020, 2020 - 2021, 2021 – 2022).

C. Spatial Boundaries: Iraqi Universities.

D. Substantive limits: (Methods of processing information in postgraduate students).

Fifth : Definitions of the basic terms

❖ ***Methods of Processing Information***

- Abu Jado defines it asan individual's way of receiving, representing, and integrating experiences into cognitive building is used from these mental processes in the experience (Abu Jado, 2003:479).
- Husseindefines it asprocesses performed by the mind, such as a computer, to receive information and to modify its shape and content and then store and recall it at the time of need (Hussein, 2005:146).
- It's defined by Al - Rafwah, as cognitive methods that refer to differences in individuals' distinctive performance in perception, thinking, remembering, solving problems and the way in which an individual interprets and addresses the agitation of the environment. (Al - Rafwah, 2008:200)
- The operational definition: The degree to which the respondent receives the subparagraphs of the researcher's information handling methods.

❖ ***The Postgraduate Students is defined by:***

- Mohammed states that students who study a postgraduate course are subject to the laws of its university and college (Mohammed, 2007:24).
- Al-Naimi (2006): The person who enrolls in the college's records as a postgraduate student is required to enjoy a bachelor's degree at a rate of at least 65% and pass the competitive examination successfully (Al-Naimi, 2006:5)
- Hassan (1986): He is one of the individuals enrolled in the university for a specific subject of study for a specific period ending with a diploma (higher diploma, master's degree, doctorate) (Al - Hassan, 1986:26).

❖ ***Iraqi universities are defined by:***

- The Shawi (1990) states that they are higher education institution that can be enrolled in from the completion of secondary school because it offers educational and teaching programmes in various theoretical and practical disciplines, often for four years, sometimes lasting up to six years (Al Shawi, 1990:91).
- Greo (2005) is the source of creative scientific thought and the center of creative intellectual radiation for its rich scientific abilities and diverse experiences accumulated over the years through proactive research and development work, including the graduation of highly qualified scientific staff (Greo, 2005:220).
- Al- Zubaidi (2007): It is an educational institution that occupies the top of the educational ladder and accepts its students after completing their studies in general education. It usually sets precise conditions for their admission. The university is concerned with knowledge, communication, dissemination, development, application, and community service and has three basic functions, teaching, scientific research, and community service. (Zubaidi, 2007:10).

Chapter Two
The Previous studies
1. Al Mubarak Study, Suleiman Saeed (2009): Iraq
Information Processes and its relationship to cognitive motivation among students of the Faculty of Basic Education at Mosul University.

This study aimed to learn the relationship between informatics and knowledge motivation among students of the Faculty of Basic Education University of Mosul In order to find out about this relationship, the researcher used a sample of 160 children and students and used the information processing and cognitive motivation scale as tools for measuring research variables. The apparent veracity of the tools was found by presenting them to a panel of experts and the consistency was found in a reapplication method. The data were processed statistically after they were entered into the statistical era program. (Spss) Statistical methods (arithmetic average, Pearson correlation coefficient, T test) were used.
1 .The research sample has a high information processing and knowledge motivation.
2 - There is a positive correlation between informatics and cognitive motivation.
3 - The existence of statistically significant differences in informatics according to the variable of study specialization (scientific - human) and in the interest of scientific specialization.
2 .Abdel Reza Study, Najdat Abd al-Ra 'uf, Baden, Heifa Abdul (2014): Iraq
The Impact of the information processing strategy on the collection of geographical material and the cognitive motivation of female students in the fifth literary grade.
This research aims to learn about the impact of the information processing strategy on the collection of geographical material and the cognitive motivation of fifth - graders.
To verify this, the two researchers selected a partially tuned experimental design for the research groups and Kafa students of the research groups in several variables. The special educational material for the experimentation was the first three chapters of the Natural Geographical Book scheduled for the fifth literary grade. A sample of (**65**) students was selected. The research tools were the selection of the achievement prepared by the researchers. (**50**) Test items by (**42**) Multiple choice type item (**8**) Article test type items and verification of apparent honesty, content and cognitive motivation scale consisting of (**44**) A test item also verified its validity and construction reliability. The experiment continued a full classroom and statistically processed the data. The results showed that the experimental group outweighed the control group's attainment and cognitive motivation.

3 .Karim Study, Safa Khudair (2017): Iraq

Mathematical Information Processing Skills and their relationship to High-ranking Thinking Skills for Students of Mathematics Departments in Faculties of Education.
The present research aims to study the relationship between mathematical information processing skills and high-ranking thinking skills for students of mathematics in the faculties of education and to achieve the goal of research and answer his questions. The research community representing the Faculty of Education for Pure Sciences - Ibn Al-Haytham University of Baghdad and the Faculty of Education of the University of Missionary was identified. (200)

Students from both colleges divided between (107) students and (93) students for the purpose of achieving the research hypotheses. (23) test itemand the second for high-grade thinking skills (27) test item Some of these items are objective and others are article. Statistical analyses were carried out to calculate the ease, difficulty, and excellence factor for each test. The psychometric characteristics of them were ascertained. The responses of the second survey sample were adopted as results of the basic sample so as not to delete any item of the test items during statistical analysis and because the number of students is small and after analysing the results by appropriate statistical means.

Chapter Three

Firstly: Research Methodologyand procedures

The researcher, in this research, has followed a descriptive approach, suiting him to study the correlations between variables and reveal differences between them. The importance of associative research is reflected in its ability to address many educational problems by measuring the relationship between several variables simultaneously and the advantages of correlative descriptive studies, which are the basis of predictive studies and do not require large samples. Moreover, it does not specify the existence of causal relationships between variables (Atiyah, 2009:160 - 161).

Secondly: Research Population

The research community means a systematic and scientific term intended for anyone who applies or circulates the results of the research, whether individuals, groups, books, or school buildings. (Assaf, 2009:91).

The research population determines the specialization of history teaching methods in Iraqi universities for the academic years (2019-2020, 2020-2021, 2021-2022). The number of students in the research population is (200) disaggregated by sex is male and female, with **111** male students and **89** female students.

Thirdly: Research Sample

Sources indicate that there are no codified rules for determining sample size to be acceptable in all situations. (Saeed, 1990:125) In descriptive studies, 20% of members of a relatively small society are recommended (a few hundred), 10% for a large society (a few thousand) and 5% for a very large society (Tens of Thousands) (Al-Mahmoudi, 2019:165), and as the current study society consists of (200) The researcher selected a percentage (40%) of the total research community as the primary sample for the application. The researcher selected the sample of the research in a random caste method according to the predetermined ratio.

Fourthly:: Research Tools

To achieve the research objectives, the researcher has built a scale of methods of processing information based on previous literature and studies (Allen & Yan, 1979)

The process of preparing or building any scale must go through a set of basic steps:

a. " Determine the concept to be measured.

b. Identifying key areas of the concept.

c. Drafting subparagraphs for each area.

d. Means used to analyze items.

Eh. Measurement Cyclometric Indicators (Allen & Yan, 1979:118).

A: Determine the concept to be measured (definition of the concept of methods of processing information).

The researcher reviewed a number of relevant studies and moral research and the relationship to the methods of processing information in order to prepare the appropriate tool for measuring the methods of processing information, such as the study (Al-Tai ', 2003), the study (Al-Mubarak, 2009), the study (Khadir, 2017) and the study (Al-Fatlawi, 2018).

Since the researcher relied on Schmeck's model of learning methods (Schmeck, 1981) as a theoretical framework for processing current research, the researcher enumerated the scale according to this model and defined the theoretical concept of information processing methods known by Schmeck, 1981): It is the process that involves organizing and dealing with a range of activities within the brain that individuals prefer to do.

b. Identifying key areas of the concept.

The researcher built a scale of information processing methods on the (Schmeck, 1981) scale of learning methods as an image of information processing methods and consists of (62) a specific item with four methods (in-depth processing method, methodological study method, retention method, expanded and detailed processing method).

c. Drafting subparagraphs for each area.

By drafting the items of the Information Handling Methods Scale, the researcher has adopted the following steps:

1 .The researcher learned about previous literature and studies such as the study (Tai 'i, 2003), the study (Al-Mubarak, 2009), the study (Khadir, 2017), the study (Al-Fatlawi, 2018) and the study (Bjokluad, et. al, 1992) and study (Andressen & waters, 1989).

2. The book of (Cognitive Education and New Information Processing Strategies, Writing, Al-Afoon and Galilee, 2013), and book (New Information Processing, Writing, Trainer and Marzano, 2018 Translation by the Arab Bureau of Education for Gulf States, Arwa Bint Ali Al-Duij).
3 .Take advantage of the following scales:
A: Al-Badran scale (2000) is composed of (62) items and (4) main areas.
B: Al-Tai Scale (2003), which contains (76) items (4) main axes.
C: Keating & Bobbitt (1978)
D: Entwistle & Tait (1994) is composed of (52) items (3) main areas.
Based on the foregoing, the researcher drafted the items of the Measurement of Methods of Processing Information and defined each area as expressive and consistent with the nature of the society to which the measure would be applied.
By drafting (**54**) items covering all areas has been drafted in the reporting language of (**15**) items for first area, (**14**) items for second area, (**13**) items for third area and (**12**) items for fourth area, with the number of positive itmes (**27**) and the number of negative items (**27**).

Alternatives Answer

The Likert method is one of the most popular methods in the field of building psychological tests and measurements.
The scale consists of five alternatives (always, often, rarely, ever). In order to gain the respondent's overall degree in the scale, the weights of alternatives (5-4-3-2-1) were for positive items, and (1-2-3-4-5) for negative items.

The Validity of scale areas and Items

To verify the reliability of the tool, it is necessary to present it to a group of experts and competent experts with expertise, so-called arbitrators' opinions. (Age and Others, 2010:207) For the purpose of verification, items (Information Processing Methods Measure) Supplement (**4**), The researcher presented the tool in its preliminary form to a group of the competent arbitrators (**22**) competent to ascertain the validity of items and the extent to which they represent the quality to be measured, the language and scientific correctness of their formulation, and the accuracy of their clarity to the extent that they reflect the measurement of the methods of processing information . The researcher asked them to express their views and to give observations on the validity and reliability of the items to the area in which they were drawn up and to give any amendments they deemed appropriate to the item or field. After arbitration, the researcher took the notes of the arbitrators and experts and adopted the value Standard calculated to delete and modify items and when balancing the **Chi**^{2} values calculated at the high tabular value (**84 ,3**) at the level of indication (**05 ,0**) and degree of freedom (**1**) after calculation of value **Chi**^{2}experts' opinions Show us that there are and there are anumber of Tweet items (**10**) items, (**4**) items were added, and the items proposed by the experts were amended to number (**7**) items, thus making the number of items of the scale after the experts' opinions (**48**) a items instead of (**54**) an equally distributed items in the same areas.

Preparing Measurement Instructions

To ensure the success of the scale in achieving the goals for which it is set, the researcher must develop clear instructions that guide researchers on how to answer the items in the scale. and give an example that illustrates this, and demonstrate the importance of research and the service it can provide to society and to stimulate research and encourage it to participate in research by answering all items of the scale, adequate guarantees for research on the confidentiality of his answer and the failure to show his name and make sure to choose the right time and place to distribute the scale to researchers (Al-Attiyah, 2009:220).

Sample of clarity of instructions (Exploratory Experience)

The researcher has applied the exploratory application to a sample of postgraduate students specializing in the teaching methods of history and the purpose thereof. (Know their understanding of the scale items, clarity of instructions and alternatives to answering them, and know the time taken) Apply the scale electronically to a reconnaissance sample of (20) Student on 16/11/2021 All the items of the scale were found to be understandable and clear, as no one asked, and the time taken by students to answer ranged from (22 - 28) minutes average (24) minutes, as shown in the following formula (480 ÷ 20 = 24).

Statistical Analysis of the Items

Statistical analysis is defined as the dismantling of data, facts and information associated with a particular phenomenon or topic and is also defined as the division of the object into its parts or the isolation of its elements

from each other. It is necessary for each scientific research whatever its subject matter and is often linked to the process of analysis in comparison with a view to reaching acceptable generalizations and conclusions about the phenomenon or situation in question. (Al-Khatib, 2009: 80-81) and statistical analysis set of statistical procedures by which information is processed in a way that gives meaning to that information and facilitates the organization, summarization and description of observations and also helps determine the extent of confidence that enables the conclusion of those phenomena in the research sample (Al Husseini, 2013:134) Statistical analysis is a fundamental requirement for the construction and preparation of metrics because it accurately reveals the cytometric characteristics of the instrument's vertebrae and their relevance or sincerity, resulting in the selection of items with distinctive characteristics and the exclusion of items with unmarked characteristics (1972:491 Ebel & Frisbie).

Statistical Analysis Sample

The researcher has applied the research tool (Measurement of Methods of Processing Information) to the statistical analysis sample of postgraduate students specializing in methods of teaching history to calculate the psychometric characteristics of the research tool's items for the preparatory and research phases of the 100 master's/doctoral students of 50% of the macro research community.

The Discriminatory Power of Items (Extremist Groups)

The discriminatory powerof items defines anitem's ability to correctly distinguish between individuals who possess the characteristic or characteristic and individuals who do not (Zwane, 2014:8)

There is a strong correlation between the discriminatory power of the items and the accuracy of the instrument in measuring what it was designed for (Ghiselli & et al., 1981:185) In order to calculate the distinctive power of the items, the researcher used the following steps:

- Order the form downwards from the highest to the lowest for the 100 sample of excellence after finding the total of each form.
- Placing a score for each substitute before each item of the scale and according to the alternatives prepared. (Odeh, 2014, 277)
- Determining the specific ratio of the upper (27%) and lower (27%) groups. The number of forms in the light of this (54) ratio for the two groups and for each (27) group is a form, thus obtaining the best picture in terms of size and variation (Dulaimi and Mahdawi, 2005:80)
- Using the T-test to find the T-values of two separate samples between the upper and lower extremist groups for each item and the purpose of calculating discriminatory force is to maintain the items that distinguish between the upper and lower groups and to exclude the spaces that do not distinguish between the two groups, and therefore all items were distinct because their calculated value is greater than the tabular value and exaggeration (2.006) and to the degree of freedom (52) this indicates that it is a statistical function (Odeh, 2014, 277).

Scale psychometric properties:

1. The validity of the tool

The tool is genuinely intended as the results collected or achieved using that tool, and the research tool is told to be valid if you measure what we want to measure and we don't see something else that is different than what we want, and the overall validity is to measure what you are designed to measure. (Shajiri and Zahiri, 2022:296), and validity is the most important characteristic of any test, so any test must certainly be valid. The researcher verified validity by:

A: Face Validity

Face validity is defined as the component’s judgment of the instrument's measurement of the measured trait, the compatibility of arbitrators, and the test is valid if it indicates the conduct it measures. (Al-Najjar, 2010:289). The researcher verified the face validity of the measurement of methods of processing information by presenting it as a preliminary version to a group of experts and arbitrators specializing in educational and psychological sciences to assess the appropriateness and validity of the scale's items, instructions, and alternatives as evidenced in the table (8) page (95).

B: Construct Validity

When certain concepts are wanted to be measured, they usually resort to this kind of validity. (Al-Dhamin, 2007:114), and construction concepts is a measure of the scale’s components of factors (Key elements) that is, the scale's ability to detect the adjective or trait measured against any particular behavioral phenomenon (Seeni, 2010:420) The researcher carried out the following procedures to verify the validity of the construction:

A: The relationship between an item degree to the overall scale

The researcher has used the Pearson correlation Coefficient to extract the correlation coefficient between the degree of the item and the overall degree of the scale to verify the strength of the item correlation with the scale, and all

Scale transactions are statistically, because they are greater than the tabulated value of 0.194 at an indicative level (0.05) and a degree of freedom (98).

B: The relationship between the degree of the items to the overall scale of the field:

The total score for each of the 100 analysis sample forms was calculated according to each area of the scale, and then the Pearson correlation factor was calculated between the individual scores of the sample at each item and the total degree of the area in which it existed. All correlation transactions were found to be a statistical function when compared to the high tabulated value (0.194) with an indicative level (0.05) and a degree of freedom (98).

C: Field Degree Relationship to the Overall Scale:

This type of validity was achieved by using the Pearson correlation coefficient to extract the correlation between each area of information processing and the scale's overall score, and all correlation transactions were found to be statistically relevant when compared to the tabular value (0.194) at an indicative level (0.05) and to a degree of freedom (98).

2. Reliability

Reliability is defined as the extent to which the mark is free of irregular measurement errors, i.e. the extent to which the test measures the true amount of the trait it aims to measure. Test scores are fixed if the test measures a particular trait consistently in the varying circumstances that may lead to measurement errors. reliability or accuracy in this sense means consistency. (Al-Najjar, 2010:296) reliability also means that the test gives the same results if it is returned on the same sample or group of individuals (Abdul Rahman, 2008:177).

To find the reliability of the scale of methods of processing information, the researcher relied on two methods:

A: Test-Retest Method

This method means that personality traits and trends enjoyed by educated individuals tend to survive for a long period of time. This is the statement in psychometric language that the ability or continuity of the test means giving consistent results by repeating and applying it over a different period. This is done by re-applying the test or scale to the respondents themselves within an appropriate period and then calculating the coefficient of association between the two applications and calling the coefficient of stability calculated in this way the coefficient of stability. (Stability of test results through two tests over a certain period) Adams 1964 determines the appropriate duration between the application of the test and its return. (Adams, 1964:85) The researcher has applied the scale to a sample that numbered (50) Students and students after (12) days, the scale was reapplied on the same sample after the completion of the application. The coefficient of association between students was calculated in the first application and the second application as the coefficient of association (83), and this value for the reliability factor is good.

B: Cronbach Alpha Equation

This equation is used to find reliability for tests with objective and non-objective items. This method confirms the positive level of homogeneity of responses across items because it depends on the calculation of the correlations between the grades of the items because each item of the test is based on itself and this equation is used to attach the reliability of the test. (Al-Shajiri, Al-Zahiri, 2022:289) To achieve reliability in this way, the researcher applied the Cronbach Alphacoefficient to a sample of 50 students and a total constant coefficient (85%).

The description of the scale in its final form

The researcher has built a finalized information processing scale consisting of (48) items distributed across four main methods (in-depth processing, methodological study, scientific fact retention, detailed and expanded processing) that were higher (240) than lower (48), and hypothetical (144).

Statistical indicators

Statistical indicators are defined as a description of the life characteristics of a particular phenomenon in a specific place, place, and time. These indicators may be in the form of a percentage, rate, or absolute figure, and are used to evaluate plans, decision-making and development programmes. These indicators are clear and accurate in measuring the change in phenomenon at the study stage, comparability, and interpretation (Jacobite, 2013:212).

Statistical Means

To achieve the objectives of the current research, the researcher used the following statistical methods through the statistical program SPSS:

1. **Chi- Square:** To extract the statistical connotation of the expert agreement on the validity of the measurements of information processing methods and strategic intelligence.
2. **Person Correlation Coefficient:**It is used to find the following:

A: The degree of the item relates to the overall degree of the scale.
B: The degree of the item relates to the overall degree of the field.
C: The field degree relates to the scale's overall degree.

D: Finding a coefficient of reliability.
E: Finding the correlation between variables.
3.**The Alpha Cronbachs equation:** to calculate the reliability factor.
A: T-test for two independent samples of equal number to extract the discriminatory power of the two - scale items.
B. T-test for two separate, uneven samples to verify the significance of statistical differences by sex variable.
4. The coefficient of Skewness, Kurtosis, standard error, Arithmetic mean, , and Mode to know the nature of the moderate distribution of the answers of the research sample.
5 .One sample T-test: To verify the sample's level of ownership of information processing methods and strategic intelligence.
6.The uniform test (Z-test) indicates the difference in the coefficients according to the sex variable.
7. Multiple Regression Analysis: To learn how information processing methods contribute to strategic intelligence.

Chapter Four

Presentation and Interpretation of the Results

- **The first aim: To Learn About Information Processing Methods**

To achieve this aim, the average calculation of the research sample scores has been extracted. (80) Students of the Information Processing Methods Scale, with average arithmetic value (176.813) degree with standard deviation (20.556), and when testing the morale of the difference between the calculated average of the sample's score and the hypothetical average of the measure of value. (144 degrees) Using a single sample T test, it was found that the calculated T value was equal to (14.278) When balanced against the tabular T value of 1.99 at an indicative level (0.05) and a degree of freedom (79) The calculated T value has been found to be greater than the tabular T value, i.e. there is a morally significant difference between the sample's calculation average and the hypothetical average of the scale in favour of the calculation average and a table (27) shows this.

Table (27) Test results (T-test) to test the difference between the computational average and the hypothetical average to identify the methods of processing information in the research sample

The Sample	The arithmetic mean of the sample	Standard Deviation	The hypothetical mean of the scale	Degree of freedom	T- value		Indication level 0.05
					computed	Tabulated	
80	176.813	20.556	144	79	14.278	1.99	Statistical function

To identify the differences between each area of the research sample's information processing methods, the calculative average, standard deviation and calculated and tabular T value were extracted as shown in Table (28):

Table (28) (T-test) results to test the difference between the computational average and the hypothetical average to identify each area of information processing methods in research.

Methods	**The Sample**	**The arithmetic mean of the sample**	**Standard Deviation**	**The hypothetical mean of the scale**	**Degree of freedom**	**T- value**		**Indicatio level 0.0**
						computed	**Tabulated**	
In-depth processing	80	43.40	5.75	36	79	11.517	1.99	Statistica functio
Methodological Study	80	44.96	6.40	36	79	12.531	1.99	Statistica functio
Retention of scientific facts	80	43.90	6.34	36	79	11.149	1.99	Statistica functio
Detailed and expanded processing	80	44.66	6.47	36	79	11.974	1.99	Statistica functio

The following table (28) shows:

1. In-depth processing: Calculated average (43.40) and standard deviation (5.75) and calculated T (11.517) were higher than the tabular value of 1.99, which is a statistical function in favour of the arithmetic average because the calculated T value is greater than the tabular T value.
2. In methodological study method , the mean score is (44.96) and standard deviation (6.40), while calculated T (12.531) were higher than tabular T (1.99), a statistical function in favour of computational average because calculated T is greater than the calculated value
3. In method of retaining Scientific facts , the mean scores is (43.90) and standard deviation (6.34), while calculated T (11.149) is higher than tabular T (1.99), is a statistical function in favour of calculated average because calculated T is greater than tabular T.
4. 4 - In-depth and expanded processing method, the mean scores is (44.66) and standard deviation (6.47), while calculated T (11.974) is higher than tabular T (1.99), a statistical function in favour of calculated average because calculated T value is greater than tabular T value.

This result is attributable to: postgraduate students at this school level have mental abilities and knowledge skills through different experiences, including with respect to previous school experiences, including with respect to life experiences and accompanying social, economic and political challenges that require special mechanisms to process information, (Kent, 1993) indicates that the information processing mechanisms can take several paths, including serial information processing methods, parallel information processing methods, and other methods that work to identify target triggers. The researcher believes that the research sample can link new experiences with previous experiences and arrange them for knowledge building and leverage them into new situations. (Ozbel, 1968) with meaningful learning ((an individual has mental composition of educational experiences and when he goes through new experiences, this helps to bring new information into the above structure. As a result, this structure is remodeled by integrating new information into an integral part of it. Learning is a series of mental restructuring that changes with each new learning) (Al-Askari and Others, 2012:171), which he emphasized (Schmeck, 1983) that the students with information processing techniques are able to take advantage of past and new experiences they experience in life situations, to take advantage of them in addressing many of the perceived and abstract physical interconnections that are positively reflected in long-term memory, retaining information for as long as possible and retrieving it when exposed to new triggers, and this result is consistent with the study (Al-Tai, 2003).

- **The second aim: To find the significance of statistical differences in the methods of processing information in the research sample according to the sex variable (male - female)**

It is clear from table **(29)** that there is no statistically different at the level **(0.05)** in the scale of methods of processing information according to the sex variable (**Female, Male**) in the research sample, with average male scores. **(176.864),** with a standard deviation of **19,123**, and average female scores **(176,750)** with a standard deviation of **176,750.(22.459),** the calculated T value **(0.024)** was lower than the tabular T value **(1.99)** at an indicative level **(0.05)** and a degree of freedom **(78).**

Table (29) Test Results Indicative Differences between Average Research Sample Scores for Methods of Processing Information by Sex (Male - Female)

Sex	The arithmetic mean of the sample	Standard Deviation	The hypothetical mean of the scale	Degree of freedom	T- value		Indication level 0.05
					computed	Tabulated	
Male	44	176.864	19.123	78	0.024	1.99	Not statistically significant
Female	36	176.750	22.459				

This result is attributable to the fact that male and female research samples are subjected to the same curriculum in its various components. (Course, Professor, Strategies and Teaching Methods, Material Factors) reduced differences between males and females and thus reflected the use of research sample mechanisms to process information in a close manner between males and females in terms of the distinction of dealing with excitement, coding and processing information with cognitive construction, retention and retrieval when needed. (Al-Mubarak, 2009) Both sexes have the ability to use their cognitive and mental information to deal with the new thrills they experience by analyzing, interpreting, organizing, and linking knowledge stored with long - term memory.

Firstly: Conclusions

- The research sample has information processing methods because students at this school stage have mental abilities and knowledge skills through different experiences.
- There are no differences between students and students in their possession of information processing methods because males and females are subjected to the same curriculum in its various components that have reduced differences between them and thus reflected in the research sample's use of close information processing mechanisms.

Secondly: Recommendations

- Presentation of the content of postgraduate curricula in a way that involves developing students' methods of processing information by training them in multiple methods of receiving information in such a way as to allow them to be represented, coded, and retained and thus facilitate the processing process.
- Providing an appropriate environment for methods of processing information that in turn contributes to the development of students and improves their scientific performance and methods of processing information because the environment whenever it is calm and convenient contributes to increasing their motivation (internal/external) trends.
- Interest in codifying and testing the methods of processing information on the Iraqi environment and the Arab environment in general.

Thirdly: Suggestions

- Putting the criteria for postgraduate students' tests based on the methods of processing information to determine whether they possess it.
- Designing of a training programme for pedagogical practitioners based on methods of processing information and its impact on the development of students' different skills.

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