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Hybrid thinking among postgraduate students

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ABSTRACT
The current research aims to identify: - Hybrid thinking among postgraduate students 2. The correlation between hybrid thinking among postgraduate students. Statistically significant differences in the correlational relationship of hybrid thinking among postgraduate students according to the gender variable (male - female), specialization (scientific - human) and type of degree (Master - PhD) the appropriate. The sample of the current research consisted of (351) male and female students from postgraduate students at the University of Babylon, and of both genders (male - female). 2023) The scale consists of (29) items distributed over three areas - first, design thinking, which consists of (11) items, secondly, systemic thinking, which consists of (9) items, and lean thinking, which consists of (9) items. And the construct validity, and verifying the scale reliability by two re-selection methods, as the reliability coefficient was (0.74).
The following results were reached
Graduate students enjoy hybrid thinking.
There is a direct correlation between hybrid thinking among graduate students. The differences in the correlation between hybrid thinking according to the gender variable (male - female) were statistically significant in favor of males, and for the variable of specialization (scientific - human) the significance was weak, and for the degree type variable (Master - PhD) It was statistically significant in favor of the Ph.D.
In the light of the research results, the researcher came out with a number of recommendations and suggestions

Keywords: Hybrid thinking , postgraduate students

Chapter one
first ; The Problem of the Research
The concept of thinking has sparked controversy among psychologists and different visions about its patterns and the complexity of its processes, and a number of psychologists in those days have focused their efforts and research on the concept of thinking, as it is like other abstract concepts that are difficult to measure directly, as its names, patterns and descriptions are numerous among psychologists, so they stressed its complexity and difficulty to take note of all its aspects, as we find them talking about multiple thinking patterns separately (Al-Otoum, 214:2010).
The study of Matthew Lipman in the book (Thinking about Education) explained that the issue of emotions is one of the most controversial psychological processes in influencing the thinking process in decision-making, planning and other cognitive processes when an individual fails to know the extent to which emotions and feelings affect the direction of his thoughts (Lipman , 2017:170) .
Individuals strive to achieve a positive self-concept by maintaining or power ening their self-esteem (Tajfe&Tumer, 1978 , 40) .
Containing hybrid thinking to draw successful conclusions to wicked problems by creating more meaningful, human-centered experiences (Gartner:2,2010).
Oliver and others believe that hybrid thinking combines ideas related to all societies and assumptions in a way that corresponds to the future direction in terms of providing a job. Hybrid thinking, as mentioned, serves as a useful way to generate organizational creativity, as the divergent side encourages everything new, while the convergent side includes explorations that will be of value to the organization (Oliver & els , 2, 2014) .

The researcher believes that hybrid thinking may have an impact on postgraduate students , starting with the scientific and educational aspect and even in daily life by organizing their lives and their way of dealing with other individuals.

Fourth: Research Limitations

The current research is determined by the following: -

- Postgraduate students from the specialization (scientific _ humanitarian) and for both genders (males _ females) and the type of certificate(master _ doctorate) at the University of Babylon, for the academic year (2022-2023).

Fifth: Terminology

First: Hybrid Thinking

- Forbes' defines it as (2009): is the conscious temperament of different areas of thinking to discover and develop opportunities never before seen by the status quo (Patnaik: 2009,30)
- Gartner defines it (2010): As a control system with non-trivial and difficult problems of reinvention and innovation within a repetitive and comprehensive strategy of experiences that are culturally meaningful, technically feasible and economically sustainable (Gartner: 2010,13).
- The theoretical definition of hybrid thinking: The researcher relied on the definition (Gartner, 2010) because she adopted Gartner's theory of adopting the scale, on the basis of which the researcher will explain her findings .
- Procedural definition of hybrid thinking: The total degree that the respondent obtains through his response to the items of the hybrid thinking scale adopted by the researcher, which he knew (Gartner,2010)) is a control system with the non-trivial and difficult problems of re-innovating and innovating within a repetitive and comprehensive strategy of experiments that are culturally meaningful, technologically feasible and economically sustainable (Gartner, 2010,13)) .

Chapter Two

Framework and previous studies

The first is hybrid thinking.

INTRODUCTION

Hybrid thinking is the characteristic or characteristic that has the ability to integrate different ways of thinking and move between them, the social impact is very destructive so we urgently need hybrid thinking, that is, we need flexibility and agility to adopt the most efficient way of thinking based on the current situation and its challenges, before going into more details about hybrid thinking, the meaning or term of hybrid thinking must be seen (Bardua,2018:1).

Thinking: The process of thinking or thinking about something, one's thoughts or opinions.

Hybrid: Something that is heterogeneous in origin or composition, combining different people, different ideas and different talents, and combining them to produce something distinctive from any single component (Bell,2011:3).

Characteristics of Hybrid Thinking

Hybrid thinkers must exhibit certain characteristics and attitudes, such as the following:

Creativity

They have the ability to generate inspiring and transformative creative ideas.

They are convinced that a better outcome can be found for any problem.

Experimental

They explore alternatives by “failing” and indirectly looking at the unexpected.

Collaborative

They can work with diverse groups of people and facilitate them at absolutely the levels within the region and outside the region.

Integrative

They do not rely solely on analytical thinking that produces only one option

Visible

they can easily understand or balance contradictions (Gartner,2010:7).

Challenges of Hybrid Thinking

Hybrid thinking currently faces multiple challenges from a theoretical perspective. How do we understand? A Practical Perspective

How do we apply and what impact does it have?

1- Weak acceptance and sometimes competitive behaviors between organization thinkers (thinking systems) and design process thinkers.

The intangible nature of hybrid thinking as a state of mind that makes it difficult to understand

3. Development and implementation.

Lackof critical analysis of hybrid thinking and design thinking leads to poor understanding

for their relationship and similarities and differences to integrate into hybrid thinking.

5-The unclear potential of the role of hybrid thinking in the development of artificial intelligence and its social impact.

Hybrid thinking provides a set of frameworks and tools to adapt and develop the process of hybrid thinking and learn relevant skills.

7- There are no strategies for forward-thinking that have been enabled by hybrid thinking to transform (educational organizations and institutions) (2018:5, Bardua)

Hybrid Thinking Opportunities

Challenges provide new opportunities and in the case of hybrid thinking, its impact can be as follows:

1. Improved ability to cope with complex problems

2- Hybrid thinking makes us learn the basics of the most important disciplines to understand how things work and relate and that enables us to make more informed decisions and ask questions in a better way.

3. Gain greater social impact through the creation of meaningful products, services, organizations and processes

Hybrid thinking combines knowledge and tools across many different domains.

5- Transforming and innovating our educational institutions and learning curricula used in schools and universities. Hybrid thinking teaches us how to deal with any problem and instead of knowing what we can't do or are not good at (2018:6, Bardua)

Theories that explain hybrid thinking

Gartner Theory (Gartner,2010)

Hybrid thinking is an emerging system that integrates more types of thinking such as design thinking with other ways of thinking to obtain successful results for bad problems by participating in the creation of more meaningful and human-centered experiences. When Gartner uses the term hybrid thinking, it refers to jumping between ideas and adapting those ideas to work towards a new goal. Hybrid thinking expands on the types of thinking and design thinking and combines elements of both. Moreover, hybrid thinking requires qualities such as flexibility (where evil problems cannot be solved in Gartner's words), curiosity, and the ability to participate in creating value and meaning by participants in the hybrid thinking process (Ganter,2012:12).

Gartner talked about the need for hybrid thinking. It is a term that we have to use to convey a certain message. It is the result of collecting design thinking, agile thinking and some "old" disciplines such as architecture, strategic planning and business planning. Let's call this process Aand architectural thinking. These disciplines aim to unify business and create a cohesive organization that provides more valuable results to customers in shorter periods of time. The challenge is that the controls themselves do not actually match. Each of these systems encroaches on others, and claims a territory that now feels it will add more value to its long and short "framework" approach. This does nothing to help stakeholders achieve their goals. What we need are individuals and teams who don't think about those spaces, but instead think about a space that blends the good aspects of each of these disciplines into strong outcomes fora stakeholder. This is half the problem with a structural and hierarchical organization, where people are placed in functional boxes where they must stay to deliver their value. However, individuals who can bypass all these functional silos are not classified as a designer, architect, analyst or project manager but rather as afree growth facilitator or efficiency expert. This is the world of hybrid thinking. I think this is the future of work. I have begun to see an organizational vision emerge to try to support this and to bring this kind of organizational change to reality.

The degree of hybrid thinking needed according to Gartrner for a particular challenge is directly proportional to:

Determine the size of the complex problem being addressed

Scope of transformation, innovation and strategy followed

What is the structured and innovative time in the process of addressing that problem (Gartrner, p4,2010)

Scopes of Hybrid Thinking

- Design Thinking: A methodology that describes the full spectrum of activities Innovation with a client-centric design ethic It is a creative process to solve problems and find opportunities to understand individuals and develop innovative solutions to meet their needs It is also referred to as a human-centered

design approach Any one of the methodologies used when there are intractable problems. We say about the problem that it is intractable and a sample: When the problem is unclear and the solution is completely unknown, there is a tendency to educate designers and other professionals about meme thinking, by teaching design thinking in higher education, from the point of view of knowing the processes and methods used by designers in design, and how designers deal with problems when trying to solve them. (Patnaik, 2009:6).

- Systems Thinking: Thinking that focuses on complex scientific contents through integrated systems in which all the relationships between concepts and topics are clear, which makes the learner able to realize the overall picture of the contents of the systems before him. Therefore, it focuses on the complex whole, which consists of a set of components that are interrelated with each other in reciprocal relations and dynamic in interaction. It is an art and science that links the structure and performance of the structure for the purposes of changing the structure to improve performance (Afana and Nashwan, 6/2004). In simple language, it can be said that systemic thinking is the ability to transform your way of thinking into models (such as mental maps to understand complex relationships, and in simpler language and transform all of the above into elements that can be applied, there are four skills that must be developed to reach systemic thinking for the individual. (Patnaik, 2009:6)

  Agile thinking: A method of focusing on adding real value to time and creating consumer value in a final way, interspersed with a smooth and high flow of jobs and giving to procedures within the organization. Agile thinking is simply about responding to change when a need arises rather than following a predetermined long-term plan.

Previous Studies

Study (Hamel, Sabah Nabaa,2022) (Hybrid thinking and its relationship to cognitive empathy among university teachers in Iraq)

This study aimed to identify the differences in the correlation between hybrid thinking and cognitive empathy among university teachers depending on the gender variable and specialization. And the extent of the contribution of hybrid thinking to cognitive empathy and to achieve the objectives of the study, the researcher built the measure of hybrid thinking according to the theory and definition of (Gartner) (2010, Gartner) after it followed the scientific steps in its construction, and verified the apparent truth, and the construction was verified by the method of retesting, as it reached the reliability coefficient (0.84), while the reliability coefficient of the tool reached the method of alpha-chronbach (0.87), while the cognitive empathy tool adopted the cognitive empathy scale of (David Carso John Mayer) (1998), which was translated by (Al-Alwani) (2021), and verified the apparent truth, and the construction was verified by the method of retesting; The reliability coefficient reached (0.82), while the simultaneous reliability coefficient was reached by the Vaccronbach method (86), and applied to the basic research sample consisted of (30) teaching and teaching in the same random distribution method, and at the University of the second study, and at the second test with two independent uses of the test. Exploratory and confirmatory factor analysis.).The research came up with the following results:

The research sample as a result of their experiences led them to have hybrid thinking. The research sample as a result of the participation of people in the work led to interaction with the feelings of others as a result of the experiences of this person with them. There is a correlation between hybrid thinking and cognitive empathy when teaching university teachers; as a result of the experiences that he goes through, a statistically significant difference has emerged according to the gender variable in favor of males in the relationship between hybrid thinking and cognitive empathy, which means that hybrid thinking and its relationship to cognitive empathy is affected by sex. Also, there was no statistically significant difference according to the specialization variable in the relationship between hybrid thinking and cognitive empathy, which means that hybrid thinking and its relationship to cognitive empathy is not affected by the specialization. The contribution of hybrid thinking with cognitive empathy (23) .

Chapter: III

Research methodology and procedures

This chapter includes a presentation of the research methodology, the procedures followed by the researcher to present the achievement of the objectives of her research, starting from the selection of the appropriate methodology, the description of the community, the method of selecting the sample, the extraction of the psychometric properties of the two scales and the application procedures, as well as the identification of appropriate statistical methods to analyze and process the research data to obtain the results as follows :

First : Research Methodology

The research methodology is the scientific step taken by the researcher to solve a specific problem and that this methodology must be compatible with the problem of research and its objectives, and since the goal of the research is to identify the correlation between hybrid thinking and the multiple facets of identity among

postgraduate students , so the appropriate approach is the descriptive approach as it is not limited to determining the relationships between its elements or between them and educational, social or psychological phenomena, but it goes beyond that and analyzes, compares, interprets and evaluates to reach meaningful generalizations that increase our knowledge of the phenomenon. The descriptive approach is a scientific diagnosis of a phenomenon in a quantitative form with linguistic and mathematical symbols, and the study of the correlation helps to know the type of relationships between variables and their size, from which it is negatively related and from which it is positively linked and from which it is partially or completely related (Epic, 2000: 387) .

Second : The Research Community

Population of the research community

The identification of the research community is one of the important steps in descriptive research and it requires great accuracy, as it depends on the research procedures, its design and the adequacy of its results (Abdul Momen, 2008, 184). The current research community consists of postgraduate students at the University of Babylon, and for both genders (males – females) and for the specialization (scientific – humanitarian) for the academic year (2022-2023) if the number of postgraduate students (3999) students distributed by sex by (1729) students and by (2270) students and by specialization by (2067) for scientific specializations by (52%) and (1932) for humanitarian specializations by (48%), as the number of males (172) by (43%) and the number of females (2270) by (57%) According to the type of the certificate, postgraduate students of the master's degree (2599) by (65%) and postgraduate students of the doctorate (1400) by (35%) .

Sample of the research

The sample means a group of individuals representing puppies from the original community. They are withdrawn from the original community according to an appropriate scientific method (Al-Mahmoudi,2019:16). In determining the sample size, the researcher relied on the equation (Stephen*) if the number is (351) male and female students (88%). By the number (151) male and their percentage is (43%) and the number (200) female and their percentage is (57%). According to the disciplines, the number of scientific disciplines was (183), (52%), the number of humanitarian disciplines (168) and their percentage is (48%), the number of postgraduate master's students is (228) and their percentage is (65%), and the number of postgraduate doctoral students is (123) and their percentage is (35%). Table (2) shows the research sample distributed according to the fourth numbers:

Research tools

The concept of the research tool is a systematic concept that means the means by which the necessary data are collected to answer the research questions or test its hypotheses (Alassaf, 1995: 100) .

In order to answer the objectives of the current research, the researcher adopted the hybrid thinking scale (Gartner, 2010), and the researcher built a multi-faceted identity scale according to the theory of social identity (Tagville &Turner ,1979).

First: The Hybrid Thinking Scale for Postgraduate students

The measurement of hybrid thinking among postgraduate students requires a scale that meets the scientific conditions. The researcher found only a scale (Gartner,2010), which relied on Gartner's theory (2010) in preparing it to suit the specifications of the current research sample.

Hybrid Thinking Scale Specification for (Gartner,2010):

The Gartner scale (2010) consists of (29) items in its initial form, for which alternatives were developed (always apply to me, often apply to me, sometimes apply to me, rarely apply to me, never apply to it) and that the weights of the answers (1,2,3,4,5) for the positive items and(5,4,3,2,2,1) for the negative items , and due to the fact that the scale was applied to postgraduate students , this required the researcher to customize the scale to suit the Iraqi environment by presenting the scale to a group of arbitrators and specialists in educational and psychological sciences.

Logical analysis of items

The logical analysis is necessary at the beginning of the preparation of the items , because it shows the extent to which the apparent items represent the characteristic that was prepared to measure them (Al-Dahri, Al-Kubaisi,2000:170) and that the best way to ensure the validity of the test is for a number of arbitrators to estimate the extent to which the items achieve the characteristic to be measured. The items of the hybrid thinking scale in the initial form were presented to (30)arbitrators in the educational and psychological sciences Annex (1) to express their views on the validity of the items and the soundness of their formulation and their suitability for the component to which they belong.

To make the scale appropriate for the current research sample, the researcher used a square (Ka), and the results showed that the value of (Ka) calculated for the hybrid thinking scale of (22.00) is higher than the tabular value of (3.84), and that the percentage of arbitrators agree on the validity of the hybrid thinking items among postgraduate students in its initial form amounted to (100%), This means that items (29)are all acceptable.

Experience the clarity of items and instructions

The psychometric literature clarified the need to verify the extent to which the respondent understands the items of the scale and its instructions so that their answers are not random or away from the concept of the paragraph(Faraj ,1980: 160)

For the purpose of knowing the clarity of the instructions of the scale, its items and alternatives , as well as revealing the difficulties facing the respondent to avoid them, the researcher conducted an exploratory experiment and applied the scale in its initial form manually to a sample of (40) students who were tested from the total community in a random way.

The researcher indicated that the instructions of the scale in its current form are clear and understandable by the students, and they did not indicate the need for any modifications or change in the items of the scale.

The time taken to answer the scale was calculated to be between (12-14) minutes with an average time of (13) minutes .

Statistical analysis of the items of the Hybrid Thinking Scale among postgraduate students

Statistical analysis is an important and necessary condition in research procedures, represented by the level of difficulty of the items (Difficulty Level) and the degree of discrimination (Discrimination) between the upper and lower levels in the ability or characteristic measured by the test in the light of a certain internal or external test (Kline,2005, 95;Gregory 2015.145) .

The logical analysis of the items of the scale may be shaded and ambiguous, as it is influenced by the subjective opinions of the arbitrators, as it depends on matching the apparent form of the paragraph in measuring what it was prepared to measure, and therefore the statistical analysis of the paragraph can indicate the extent to which the content of the paragraph represents the phenomenon that it was prepared to measure (Hogan , 2015 ,195) .

Despite the accuracy of statistical analysis and judgments, this does not substitute field experimentation for testing and analyzing the degrees of its vocabulary using statistical methods and determining the relationship between what the items measure and the responses of individuals to them to identify the ambiguous or confusing test vocabulary or that encourages guesswork .

The vocabulary is very difficult or easy, it does not put or reveal individual differences in the characteristic measured by the group reference test or the test and thus does not distinguish between the levels of this characteristic, as well as do not contribute significantly to the validity of the test or the reliability of its scores.

This is useful in improving the test so that each of the test vocabulary contributes positively to what the test measures. Vocabulary analysis also helps statistically to identify the weaknesses that make some vocabulary invalid and keep the vocabulary for the purpose for which the test or scale was used in different evaluation areas and reuse it if required (Urbina, 2014:235).

Hence, the researcher relied on the application of the research tool to the statistical analysis sample of (351) male and female students who were selected by the random stratified method with a proportional method, and then the scale was corrected and the scale was extracted and the following characteristics were extracted:

Calculating the Distinctive Power of Items Hybrid Thinking Scale

The primary objective of calculating the characteristic power of vertebrae is to retain the vertebrae of the examiners and to exclude vertebrae that do not discriminate between the examiners (Ebel & Frisbie, 2009:294).

Distinguishing power is an indicator of the differences between the examiners with high scores and those with low scores in the attribute to be measured. Distinguishing power depends on the method of the two peripheral groups (Groups Contrasted) in which the overall scores of individuals are divided into two categories (the upper group, the lower group), and then finding the coefficient of distinction between the scores of the two groups separately (Gregory ,2015:130) .

The researcher followed the following steps to find the distinguishing power

The measurement tools were applied to the statistical sample of (351) students, and then the researcher corrected the measurement tools.

Order of overall grades from highest grade to lowest grade.

A percentage of (27%) was adopted for the upper group and a percentage of (27%) for the lower group of grades to represent the two peripheral groups, and the statistical analysis sample consisted of (351) male and female students.

The number of students in the upper group (105) and their scores range between (116- 140) and the lower group (105), ranging their scores (78 - 105) for the hybrid thinking scale, as the percentage (27%) makes the two groups the best in terms of size and variation (Irvin & Willam, 2018:122) .
The T.test was applied for two equal samples to test the significance of the differences between the upper group and the lower group for each paragraph. The calculated T-value was considered an indicator of the excellence of each paragraph of the scale by comparing it to the table value of (1.96) at the level of significance (0.05) and the degree of freedom (116). The following results were shown. All the items of the two scales were distinct because the calculated T-value was greater than the table value, as the value of (T) for the hybrid thinking scale ranges between (2.09 - 8.55), so all items are distinct .Distinguishing power in the way of the two peripheral groups of items of the Hybrid Thinking Scale
It is clear from the above table that the calculated values of (T) range between (2.09 - 8.55) when comparing the values of (T) table has a level of significance (0.05) and a degree of freedom (116) and a table value of (1.96) shows that all items are statistically significant .

Internal coherence
The veracity of the items is evidence of the ability of those items to measure the same concept measured by the scale (Abdullah ,2014:97). Through the method, it is possible to know whether each paragraph of the scale is on the same path as the scale and this can be verified by finding the correlation between each of the
The method of linking the vertebra to the overall degree of the hybrid thinking scale
This type of correlation method is done by finding the correlation between the score of the examinees on the basis of each paragraph of the scale and their overall scores when they respond to all items of the scale, this is done by keeping items with a high correlation coefficient and deleting items with a low correlation coefficient (Gregorg,2015:142-143).
In order to know the extent to which the scores in each paragraph of the scale are related to the total score, a correlation coefficient (Pearson) has been used because the two variables are related, that is, the scores of the test items (1,2,3,4,5) and the last (total score) are related, so the Pearson correlation coefficient is used, and it appeared that the values of the correlation coefficients between the scores of the items and the total score of the hybrid thinking scale may range between () and when compared to the tabular value (0.098) at a level of significance (0.05) and a degree of freedom(349)It appears that all the items of the scale are statistically significant.
The method of degree correlation with the field to which the hybrid thinking scale belongs
It is done by finding the correlation between the scores of each paragraph of the scale and the overall score of the field to which those items belong, where the Pearson correlation coefficient was used.
Field correlation method with the overall score of the hybrid thinking scale
The main objective of this method is to find the correlation between the scores of the individuals examined on each field and the overall score of the hybrid thinking scale. Pearson correlation coefficient was used and the results appeared.

Psychometric Features of the Scale
A- Validity
The validity of the scale : The types of validity of the scale were verified in this research by the following methods:

Face Validity
The apparent validity of the scale is verified by presenting its items to a group of arbitrators and specialists in the educational and psychological sciences to judge the validity of these items in measuring the concept. The apparent validity aims to know the extent to which the content of the test or scale has achieved the measured phenomenon and expresses the organized analysis of the real content of the scale. The apparent validity is less important for the different types of validity, because it tries to identify the extent to which the test is measured for the purpose for which it was prepared. The apparent validity of the scale has been verified by presenting it to experts and arbitrators and taking their views on the validity of the items and instructions of the scale (Maloney& Michael,1976,67) .

Construct validity
This type of validity is often called the validity of the concept or the validity of the hypothetical composition, because it depends on empirically verifying the extent to which the scores of the scale match the measured property (Faraj,1981:313).
(Reliability): Reliability is one of the basic conditions that must be met in educational and psychological standards, reliability means consistency in results , the measure that has reliability is the measure that gives the same results when re-applied , and reliability means accuracy in the test (Ebel ,1972:412) .

There are many ways to calculate reliability , including reapplying the scale to the same test from applying it once (Murad and Suleiman ,2002:359).
The reliability of the hybrid thinking scale has been found by

Retest(test - Re-Test)
This method is applied based on the application of the test twice to the sample members themselves, under similar conditions and with an interval of no more than (8)days, and then the value of the Pearson correlation coefficient (pearson) is calculated between the scores of individuals in the first and second test, as the correlation coefficient indicates the reliability of this test and expresses the reliability of performance in the two applications, and this indicates the reliability of the results, so the reliability coefficient is called the reliability coefficient, this type is one of the simplest methods used to determine the reliability coefficient (Mahasna: 2013,125).
To verify the reliability of the hybrid thinking scale in this way, the researcher applied the scale to the reliability sample of (351) students of both genders (males – females). After a period of time of (18) days for the first application, the test was again reapplied to the same sample. The researcher used the Pearson correlation coefficient to know the correlation coefficient between the scores of the sample members on the first and second applications to calculate reliability , if the reliability in this way is (0.82), and this value for the reliability coefficient is good (Allam , 2000: 119) .

The internal consistency method using the Cronbach method
This method is one of the methods that relate to internal consistency to calculate the reliability coefficient. It depends on the consistency in the performance of individuals on the test from one paragraph to another. It does not need to apply the test more than once or divide the test into two equal halves, or divide it into a large number of parts so that each part consists of one paragraph of the test items . The greater the consistency between the items , the greater the reliability of the test as a whole. There are many methods or equation used to calculate the internal consistency coefficient, including the Koder-Richardson equation 20 (KR-20), and the Cronbach Alpha equation (Ismail ,78-79: 2004).
The researcher used the Cronbach alpha coefficient to verify the reliability of the hybrid thinking scale by internal consistency in the highest grades of the sample of (351) students from all disciplines, and the value of the reliability coefficient in this way was (0.86), and this value of the reliability coefficient is good (Allam , 2000: 119).

Fourth : Statistical indicators of the hybrid thinking scale
The researcher found the statistical indicators of the hybrid thinking scale to know the proximity of the distribution of degrees to the normal distribution, which is a criterion for judging the real representation of the sample to society, and then the possibility of generalizing the results, and therefore the statistical indicators of the scale were extracted on the statistical analysis sample of (351) .
It is clear from the statistical indicators of the hybrid thinking scale that it was close to the moderate distribution, which gives an indication of the representation of the sample to the community and the possibility of generalizing the results, as the value of abnormality reached (-0.55386), which is close to the standard value of abnormality of the moderate distribution, while the value of torsion amounted to (-0.44326), and thus the torsion is described as symmetry, because it falls within the range of the moderate distribution (Awda and Al-Khalili,2000: 97).
The measure of central tendency (mean , median , mode) was similar in degrees .

Evaluating the Hybrid Thinking Scale among Postgraduate students in its Final Form
The researcher adopted the hybrid thinking scale, and its items were presented to a group of arbitrators and specialists, and its graded alternatives to answer are (3.2.1), and when corrected, the grades (1,2,3,4,5) are given to the positive items and (5,4,3,2,1) to the negative items . As shown in the logical analysis of the items , the scale obtained (29) paragraph acceptance and acceptance of the items of the scale, and thus the hybrid thinking scale is ready for application to the research sample.

Chapter IV
This chapter includes a presentation of the findings of the research mechanism, in accordance with the objectives set forth in the first chapter, and their discussion and interpretation, as well as the conclusions of the mechanism, and the proposals and recommendations, as follows:

First : Presenting and interpreting the results

First Objective: To identify the hybrid thinking of postgraduate students

The hybrid thinking scale was applied to a sample of postgraduate students , and after correcting it and making the appropriate statistical analysis, the results showed that the arithmetic mean of grades (110.60) with a standard deviation of (13.853) and a hypothetical mean of (81) degrees, and to examine the statistical significance of the differences between both the achieved arithmetic mean and the hypothetical mean, the test (T) was used for one sample and the results appeared. The calculated value (T) of(39.519) is greater than the tabular T value of (1.96), and at the level of significance (0.05) and the degree of freedom (350). This means that the apparent differences between the arithmetic mean of the sample and the hypothetical mean are statistically significant as shown. The researcher interprets this result through her work as one of the postgraduate students . They have the ability to think hybrid of all three types through their information, experiences, style, and diverse experiences that they gain through contact with the students and their scientific seminars and discussions that help them to manage their daily lives in the best way possible.

This result can be explained in light of Gartner's (Gartnere,2010) adopted theory that hybrid thinking is an emerging system that integrates the most type of thinking, design thinking, with other ways of thinking to obtain successful results for problems by participating in the creation of more meaningful experiences that focus on ideas and the adaptation of those ideas to work towards a new goal (Gaetnere, 2010,4).

CONCLUSIONS

In light of the researcher's findings through the analysis and discussion of the data, the researcher concluded the following:

1. Postgraduate students , as a result of the experiences they have gone through, have a hybrid mindset.
2. Postgraduate students as a result of their participation in scientific conferences and seminars and accompanying the teaching staff at work led to their interaction with the feelings of other people as a result of the experiences this person goes through with them.

RECOMMENDATIONS

In the light of the results and their discussion, the researcher reached a number of recommendations:

1. Give the concept of hybrid thinking appropriate attention from officials when selecting employees in state institutions
2. Paying attention to the factors that contribute to increasing hybrid thinking among postgraduate students in order to improve their performance level and increase their scientific productivity.
3. Work to pay attention to the hybrid thinking of postgraduate students by organizing scientific seminars or guidance sessions to train them to deal properly with the requirements of their lives .

SUGGESTION

1. Identify the relationship between hybrid thinking and the multiple facets of identity in other samples (university teachers, middle school teachers, middle school teachers).
2. Conducting a study that includes the relationship of systemic thinking, design thinking, agile thinking, active productive thinking and its relationship to some variables.
3. Conducting a study on hybrid thinking and the relationship with personal authority among university students.

   Conducting a study on hybrid thinking and its relationship to the emotional integration of middle school teachers

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