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Systemic Thinking And Its Relation To The Episodic Buffer Of University Students

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Abstract

The current research aims to identify: 1- Knowing the level of Systemic thinking among university students. 2- Knowing the level of transverse buffer for university students. 3- Knowing the relationship between coordinating thinking and the occasional condom of university students. 4- Knowing the differences in the relationship between Systemic thinking and the occasional condom of university students according to the gender variable. 5- Knowing the differences in the relationship between coordinating thinking and the occasional dielectric of university students according to the variable of specialization.

Keywords: Systemic Thinking, Episodic buffer

Pensamiento Sistémico Y Su Relación Con El Amortiguador Episódico De Estudiantes Universitarios

Resumen

La investigación actual tiene como objetivo identificar: 1- Conocer el nivel de pensamiento sistémico entre los estudiantes universitarios. 2- Conocer el nivel de amortiguación transversal para estudiantes universitarios. 3- Conocer la relación entre el pensamiento coordinador y el condón ocasional de estudiantes universitarios. 4- Conocer las diferencias en la relación entre el pensamiento sistémico y el condón ocasional de estudiantes universitarios según la variable de género. 5- Conocer las diferencias en la relación entre el pensamiento coordinador y el dieléctrico ocasional de los estudiantes universitarios según la variable de especialización.

Palabras clave: pensamiento sistémico, tampón episódico

Introduction:

To achieve the goals of the research, the researcher built a scale for coordinating thinking in the verbal attitudes method consisting of (22) paragraphs, and adopted a transversal buffer test for the 2016 Al-Mashhadani consisting of (15) paragraphs. A coordinate thinking scale and accidental buffer test was applied to the research sample of (200) students University students are divided equally between males and females, and the data obtained were statistically processed, and the research reached a set of results that the university students have a level of Systemic thinking. This means that the students enjoy an average level of the transverse insulator at a higher level than its normal level, and that there is a real relationship between the two variables, which means that the transverse condom explains the variance of the students' degrees in Systemic thinking, and the current research has reached a set of recommendations and proposals.

Chapter One: Introducing the research:

Research problem:

Thinking is an essential element in the cognitive structure that the individual possesses and is characterized by the social nature and work as a system. The effect is exchanged with the elements of this structure of mental processes. The effect is also exchanged with other aspects of the personality such as the emotional and skill side. Things and phenomena, which

enables him to process information and produce and reproduce knowledge and information objectively (Rizki and others, 2016, 247) (Abu Al-Nasr, 2015,55). Systemic thinking in this sense is the ability to analyze the task, problem or situation in light of the consideration of God. P, which analyzes the year for which the problem, and taking into account the analysis linked to this goal is careful. In other words, the ability to perceive the integrated pattern in which the parts move along with dealing with these parts and analyze them without losing sight of the fact that these parts lie behind a holistic meaning, so the analysis is practiced then under the consideration of the larger overall meaning, and therefore both types of thinking (analytical and structural) They are closely related to each other, and we need to practice them together in a harmonious way if we seek to fully surround any situation or problem we face. The ability to practice analysis and synthesis together is called the ability to “coordinate thinking” and thus, therefore, the process of Systemic thinking is a more complex process. The analytical thinking, it is simply the process of analysis under the clear goal directs the analysis process does not make the situation loses its meaning as a result of the retail and fragmentation imposed by thinking analysis. (Bartlett, 2001, p10)

The current research problem can be summed up in an attempt to answer the following question (What is the nature of the relationship between coordinating thinking and occasional insulators for university students?) research importance:

The current era of psychology is the age of thinking, with an emphasis on the increasing need of the individual to enjoy some form of Systemic thinking, and to experiment with new and atypical methods in solving problems, especially as we live in an accelerated time with many difficulties and challenges facing us, and the importance of the thinking process in its general form. Scientists emphasize its different patterns, including Systemic thinking. (Al-Asadi, 2013,166) since Systemic thinking works according to a pattern, and that each format is in a dynamic relationship with the rest of the formats. In other words, that everything interacts with everything around it, affects it and is affected by it, and we are dealing with everything that we cannot deal with the parts of the situation in a straight manner, but rather we must deal with it in harmony, we must deal with all elements of the situation and know how each of them interact With the other (Razzouki et al., 2016, 246), thus the transverse buffer activates several sources of information at the same time, which helps to form a clear model of the situation and then manipulates it as it deals with the information in

several ways, which makes it different from the vocal ring and the optical panel and reflects them in a manner Storage (Baddely, 2002: 91).

The importance of the current research comes from the importance of the target group in it, which deals with university students, so university students are the group in which the educational and educational process outputs improve and they are the generation that we seek to provide them with the skills and expertise necessary to keep pace with the development and scientific progress because they are the class or category that depends on them to achieve educational goals For any of the societies, and also the novelty of the current research, as it is the first research at the level of Iraq (according to the researcher's knowledge) in the detection of Systemic thinking and its relationship to the transverse insulator of university students, and there can also be a reference that benefits researchers with what it provides from a tool for measuring dissociation Coordination, and thus constitutes a step that facilitates steps for subsequent research in educational and educational institutions.

research goals:

- 1- Knowing the level of Systemic thinking among university students.
- 2- Knowing the level of transverse buffer for university students.

Research model

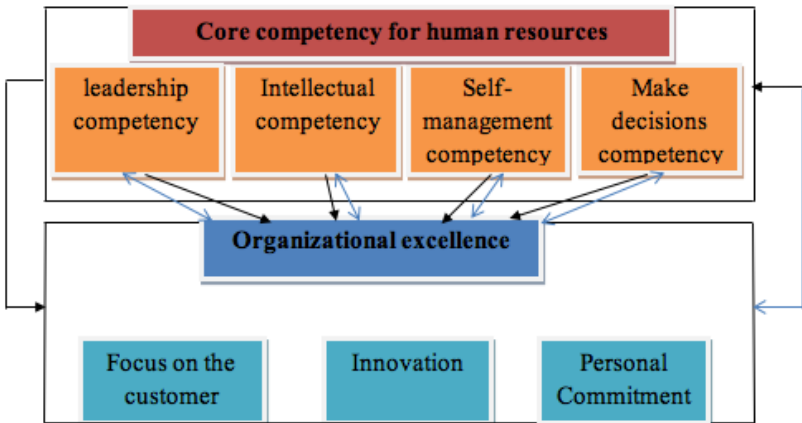


Figure (1) Research model Correlation ↔ Effect ←

consisting of those parts combined after analysis and synthesis.

Systemic thinking: - Refers to it is the thinking that works systematically in everything, and also means everything that interacts with the things around it. (It affects and is affected by it).

He also knows Systemic thinking: - It is a systematic, planned and organized way to exploit the memory mechanisms of many mental activities such as information processing, participation in problem solving, thinking, and decision-making, using the thinking process through analyzing and understanding the nature of the problem carefully, by examining the relationships and interactions between The components that include the existing problem in order to reach a logical solution as efficiently as possible and is based on combining two types of analytical and structural thinking. (Bartlett, 2001, p.3-4)

The definition of the procedural researcher: - It is the degree to which the respondent gets by responding to the scale of Systemic thinking prepared by the researcher.

Transverse buffer (transverse buffer): It is a temporary storage system that is able to combine information from sensory input and audio loop, optical plate and long-term memory and group it in a coherent loop. Baddeley, 2007,148))

Transverse insulator: - It is a system responsible for integrating information from different methods and sources into one, hence an essential component of the central executive as an interface between systems that are specific in scope and long-term memory to generate knowledge. Baddeley, 2000, p200))

The transverse buffer is also known: - It is a intended and limited capacity system which is (the transverse buffer) and it connects between working memory and long-term memory and on the operations that allow the integration of information from the subsystems of other components (Baddely, 1997, p97)

Procedural definition of the researcher: It is the degree to which the respondent obtains by his response to the transversal condom test prepared by the researcher.

Chapter two: theoretical framework

The first axis: - Systemic thinking

Jenkins developed a model that illustrates the mental processes used in Systemic thinking that start from the emergence of a problem or task that the individual is trying to confront or solve, and it has been suggested that Systemic thinking is a supreme mental process that the individual tries to collect the situation dispersal in organized forms, allowing him to find acceptable and logical solutions “distinctively”. Thereby a set of lower processes, which are considered as an operational part of Systemic thinking, are the processes of analysis, composition and mental organiza-

tion of the problem situation or task and that the individual who is able to practice Systemic thinking is the one who was able to be able to do these operations so the first stage of defining the problem begins The task or task that the individual is trying to confront or find solutions to, and what distinguishes him from creative thinking is that the new form is made up of a group of vocabulary that the individual was able to combine in a new formation, and he has defined the stages of the process of Systemic thinking in four stages that are mental processes composed of Systemic thinking and are as Come :

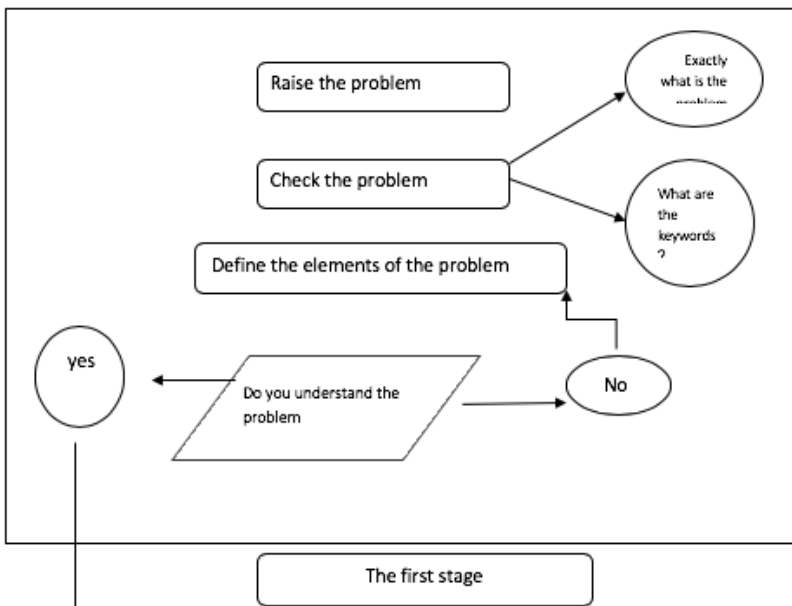
First: Finding and defining the problem: At this stage, the individual defines the elements of the problem and what are the requirements for solving it, organizing the important and most important of them, and is it possible to have elements of solving it or trying to solve it, and this stage is a process of selecting a person through which to understand and formulate the problem clearly, Maintaining its basic elements, and not every period a new element appears that was absent or found as an influencing factor in its nature. (Amer, 2007) indicates that this stage is one of the most important stages of Systemic thinking, as it expresses the basis upon which the individual builds solution assumptions and the starting points for finding solutions.

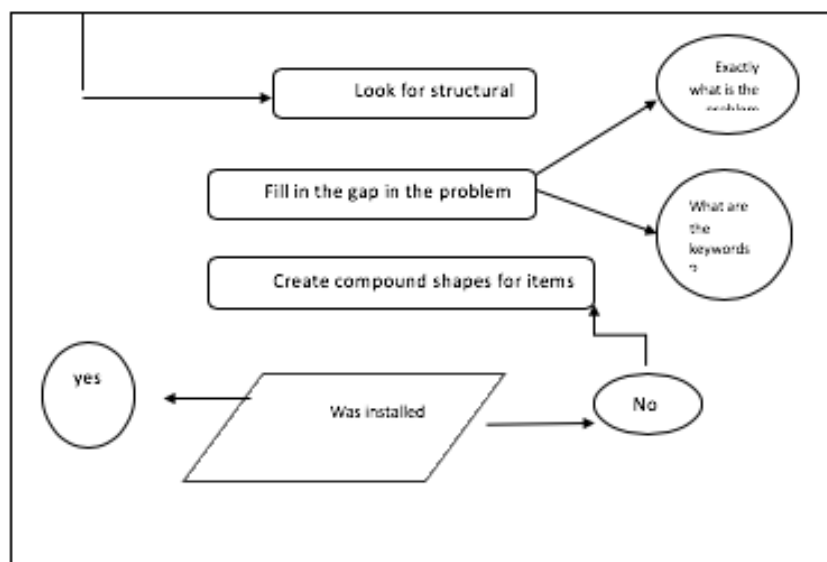
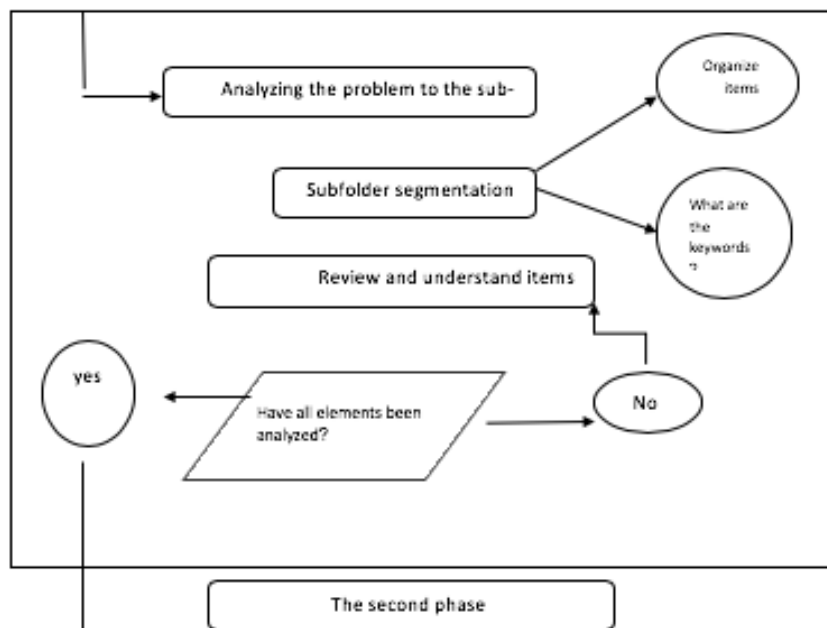
Second: The analysis of the constituent elements of the problem: “the ability to analyze” is defined as the mental ability that enables the individual to carefully examine facts, ideas, solutions, things, and situations, and break them down into their parts, or divide them into their components, and this stage in which the individual begins to dismantle the elements that It has already been defined in the first stage of Systemic thinking, which is defining the problem, so the analysis stage depends on what has already been effectively identified for the problem, so it is distinguished from the formation of cognitive branches of the systems arranged in the first stage, which is the stage of accurate understanding of the constituent elements of the problem and its division into its sub-components, a That was considered the basis of ambiguity in solving this problem, as it is a dispersed and dispersed stage of what is ambiguous in the elements of the problem and in this sense, which leads - as we indicated - to an understanding of the sub-parts of the situation. 2001, p12), Stand fast logic Ltd) (Amer, 2007.10)

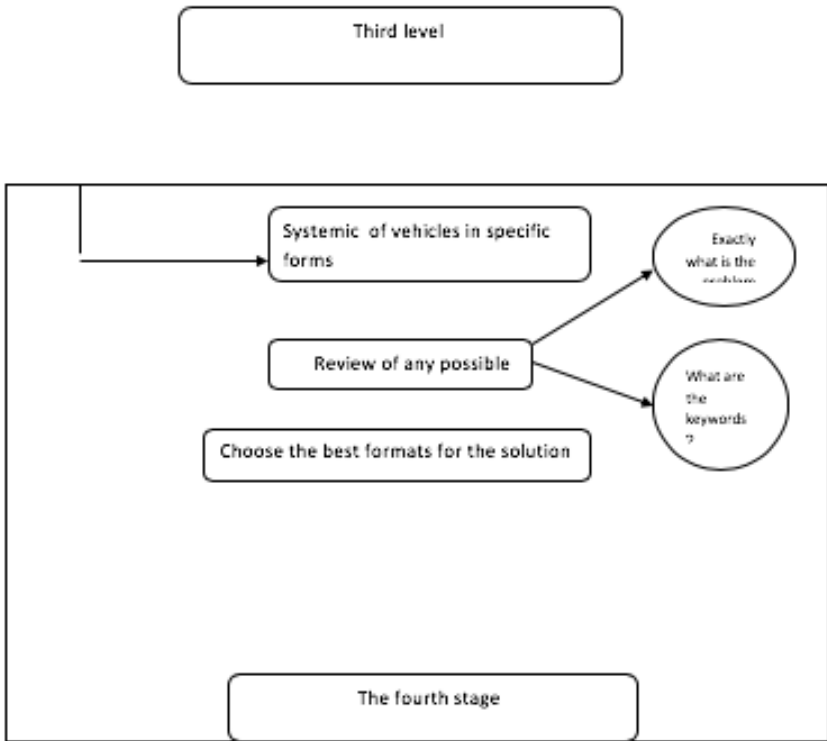
Third: Installing the elements in experimental forms (assumptions) to solve the problem: When an individual can analyze the components of the problem and dispersing them to the sub-components that constitute them, the role of syntax comes with what is present in the problem and what is pres-

ent with the individual in his cognitive structure, and the formation of new faculties understood by the individual are related In solving the problem in forms that may be a solution to the problem, at this stage the individual searches for the deficiency in the form of the constituent elements of the problem that resulted when analyzed in the cognitive structure of the individual, so that colleges are composed of two elements that are stimuli of the problem and the cognitive reserve of the individual that already exists with the individual from experiences and together P information is directly linked or not to solve the problem. Fourth: The intellectual Systemic for solving the problem: The previous stage of Systemic thinking is the epistemological formation of the problem in the form of epistemic connections between the elements of the problem and the experiences and knowledge that exist for the individual. The individual from overcoming the problem and solving it or facing the task, as the organizational linking of elements in the compounds of the group is fragmented by way of analysis and complementary of experiences and knowledge through composition showing non-primary forms which are not creative but are coordinated and collected from the initial elements, they are a compilation of what was installed In colleges, it represents an optimal solution to an individual's problem or mission (John & Brian, 2013, p56

The researcher proposes a model for Systemic thinking







Systemic thinking as a cognitive ability and mental process: -

Systemic thinking represents the ability to analyze the task, problem or situation in light of taking into account the general goal for which the problem is analyzed and taking into account the link with this goal accurately and in other words that the ability to perceive the integrated pattern in which the parts move with dealing with these parts and analyze them without losing sight of the fact These parts have a holistic meaning behind them, then the analysis is practiced in light of the greater meaning, and therefore the thinking process is a more complex process than analytical thinking, it is simply a process of analysis under a clear goal that directs the analysis process and does not make the situation lose its meaning as a result of fragmentation imposed by the thinking Lilly. We also find that Systemic thinking is related to two types of analytical and structural thinking, so if the analysis process enables us to divide what is complex into what is partial and what is complex to what is simple, it works to divide the situation into precise or detailed parts to find the appropriate solution

to the problem (Tarman, 2005.8)

The advantages of Systemic thinking: -

1- Its dependence on both analytical and synthetic thinking and combining them together.

2- It is characterized by its use of three components, which are the analysis, and through which it determines the elements of the theme or topic being contemplated and analyzed, then classification and requires classification of similar elements within groups in order to return them to the style to which they belong. The composition is represented by knowing the common side or subject common across each group and classifying them Under each group belonging to it.

3- JENKINS added a fourth component, which is the process, which begins after analysis, classification and installation, the process stage, which is the follow-up of the procedures that end with the implementation and follow-up of the process and monitoring its progress (, Amer, 2005,8

The second axis: - Episodic buffer

The Baddeley model (1986) in working memory is a new attempt to address the role of memory in performing cognitive tasks. He believes that this memory consists of three main components that are involved together to keep information and mental processes active until the required task is performed, and he considers that each component of These three components are responsible for the implementation and processing of information, but ultimately they work together to carry out the task (Zagol and Zagol, 2011, 60). Badley has developed a fourth model of working memory called (transverse buffer) This new component that Badley added has a great importance in memory work and that through :

1- Speed and long-term memory access

2- Merging information from other systems into one experiment

3- The small amount outside of the storage capacity does not depend on the cognitive nature of entering information. (201 BADDLY, 2000)

The functions of Episodic buffer : -

1- It has the ability to retrieve information from the long memory and the working memory of its two branches (visual and auditory) and compare them together to reach new information that has a new meaning to be sent to for storing in the long memory (Baddeley, 2002, 91)

2- It works to integrate information coming from long memory stores about language, grammar, adding meanings, connotations and syntax to enhance short verbal memory in the vocal circle, as remembering and retrieving lists of unfamiliar words is more difficult than remembering fa-

miliar words, and it also merges information from different sources using Specific strategies to format the memory. (Baddeley, 2007, 31)

3- The ability to provide additional storage capacity for memory, by fragmenting and giving meaning to information, if someone is asked to remember a set of words he may be able to remember (5-6) words, but if the information is meaningful and linked together to be a sentence Useful, the recall is greater, and this means that the transverse buffer increases the working memory capacity by linking the new information coming to the working memory with the information in the long memory (Baddeley, 2007, 148)

Chapter three: Research methodology and procedures

This chapter includes a detailed description of the procedures that the researcher followed in determining the research community and selecting the sample, as well as research tools where the researcher built a measure of Systemic thinking, adopting the scale of the transverse insulator and checking the psychometric indicators of the research tools that were used to achieve the goals of the research and what follows describes these procedures.

First: Research methodology:

The researcher used the descriptive approach in the current research, which is one of the methods of scientific research as it depends on the study of the phenomenon as it is in reality and a description of the facts related to it accurately and quantitatively and qualitatively expressed, the quantitative expression gives us a numerical description to clarify the amount of this phenomenon or its size and the degree of its correlation with phenomena The other, and the qualitative expression describes the phenomenon to us and explains its characteristics and description, an explanatory description (Obeidat et al., 1998: 271).

Second: Research procedures:

Research community: the community means ((population: the total group universal set)) from the elements that the researcher seeks to generalize on the results related to the studied problem (Odeh and Malkawi, 1992: 159), and the current research community is represented by Baghdad University students from various disciplines and from both The two sexes for the morning study and the academic year (2014-2015), and the researcher conducted exclusively for the vocabulary of the study community, so it became clear that the total number of students is (11233) male and female students from the faculties of the Iraqi University, the initial morning study, by (4861) males (43%), and (6372) were females (57%), and Table

(1) illustrates this

Table (1) Research Society

Their percentage	The total	female	male	the college
0.18	2014	617	1397	education
0.23	2615	2615	--	Girls education
0.24	2766	1489	1277	Literature
0.11	1217	316	901	Islamic sciences
0.10	1084	472	612	management and economy
0.05	534	230	304	Engineering
0.03	366	254	112	dentist
0.06	637	379	258	Medicine
1.00	11233	6372	4861	Total
1.00		0.57	0.43	Their percentage

Second: The research sample: The sample means a partial group that represents the elements of society with the best representation, so that the researcher is able to generalize its results to the study community, and that the possibility of generalizing the results depends on the degree of representation of the sample to the community (Odeh and Malkawi, 1992: 160) and the table (2) Explain it

Table (2) of the research sample

Their percentage	The total	female	male	the college
0.18	72	41	31	education
0.23	92	92	--	Girls education
0.24	96	55	41	Literature
0.11	44	25	19	Islamic sciences
0.10	40	23	17	management

				and economy
0.05	20	11	9	Engineering
0.03	12	7	5	dentist
0.06	24	14	10	Medicine
1.00	400	268	132	Total
1.00		0.67	0.33	Their percentage

Third: Research tools: To achieve the goals of the current research, the researcher used the Systemic thinking scale and for the purpose of verifying the goals of the current research, the researcher did the following:

Steps to prepare a Systemic thinking scale. The scale numbers went through the following steps:

- 1- Theoretical premises for building the scale (the theoretical model) after the researcher has reviewed the literature and studies
- 2- Procedures for building the scale (defining the definition and formulating the paragraphs in the first form)
- 3- Prepare the scale instructions and the answer sheet
- 4- Correction key for gauge (perforated key)
- 5- Logical analysis of paragraphs

Honesty (validity of scale)

1- Virtual Validity: (Face Validity): apparent honesty is the external form of the scale and its general appearance and means that the scale appears to be true and measures what was prepared for its measurement, which is the first step of honesty and its meanings, as this type of honesty is shown by an initial examination of the content of the test, i.e. looking at the paragraphs that This includes testing and knowing what appears to measure and then matching that with the behavioral function that the test aims to measure (Khatab, 2004: 124), and that the best way to achieve this type of honesty is for a number of experts and specialists to assess the extent to which the paragraphs of the scale represent the property to be measured, and have been achieved The researcher investigated this by presenting the measure of thinking My Systemic in its initial form on a group of professors of education and psychology in universities (Baghdad, Al-Mustansiriya, and the Iraqi University, and based on the previous steps, the researcher prepared a measure of Systemic thinking consisting of (23) paragraphs.

On a group of experts specialized in education and psychology to verify its suitability in measuring (Systemic thinking) and its suitability for the sample under study and table (3) illustrates this

Table (3)

Arbitrator's validity (apparent honesty) for the scale of Systemic thinking

Agreement rate	No.	Arbitrators	items
%100	12	Valid	-12-11-10-8-7-6-5-4-3-2-1
	0	Invalid	23-21-20-19-17-16-14-13
%91	11	Valid	22-18-15-9
	1	Invalid	

6- Clarity of instructions (exploratory experience)

For the purpose of ascertaining the clarity of the Systemic thinking scale, the clarity of its instructions, and the calculation of the response time, it was applied to a sample of (30) male and female students from the College of Education for Pure Sciences, Ibn Al-Haytham, and it was found:

1- The paragraphs of the scale and its instructions are understandable and clear.

2- The time taken to complete the scale is (10) minutes.

Through this exploratory procedure, preliminary verification was made of the validity of the Systemic thinking scale

7- Statistical analysis of scale paragraphs

Statistical Analysis Sample

A random sample from the research community whose size reached 200 pulled equally from each college, according to gender, as shown in the following table:

Table (4)

Sample statistical analysis of the Systemic thinking scale

The total	female	male	the college
30	15	15	education
20	20	--	Girls education
30	15	15	Literature
30	15	15	Islamic sciences
30	15	15	management and economy
20	10	10	Engineering
20	10	10	dentist
20	10	10	Medicine
200	110	90	Total

The psychometric properties of the Systemic thinking scale:

The discriminatory strength of the paragraph: - Withdrawing two groups, upper and lower, by 57 individuals for each group, and the difference between their grades was calculated on each paragraph using the t.test test, and the results of the T-test showed that all the paragraphs are indicative except for the fourth paragraph, as the tabular T-value reached (2.000) at the level of The significance (0.05) and the degree of freedom (106) are smaller than all values except for the fourth paragraph whose calculated T value (1.43) is removed from the scale and the scale becomes 22 paragraphs, as shown in the table

Table (5)

T-test results for the power of discerning Systemic paragraphs

Significant at (0.05)	t value	items	Significant at (0.05)	t value	items
Function	4.55	13	Function	2.49	1
Function	6.29	14	Function	4.73	2
Function	4.38	15	Function	2.85	3
Function	6.88	16	Not significant	1.43	4
Function	9.32	17	Function	7.67	5
Function	4.44	18	Function	3.58	6
Function	2.49	19	Function	4.55	7
Function	3.56	20	Function	9.39	8
Function	2.11	21	Function	3.49	9
Function	3.93	22	Function	5.55	10
Function	2.77	23	Function	2.81	11
			Function	5.92	12

Disclosure of the global structure of the Systemic thinking scale (global honesty)

The researcher used the global analysis using the basic components method to verify that the scale paragraphs all measure Systemic thinking and are saturated with the same concept all of them. The criterion, except for paragraph (22 - 15) where their saturation coefficient was (0.11 - 0.18), and the researcher deleted them from the scale so that the scale becomes 20 paragraphs, as shown in Table (6).

Table (6)

The results of the global analysis of the scale of Systemic thinking

Saturation indication	Parameter coefficient of the paragraph	item	Saturation indication	Parameter coefficient of the paragraph	item
0.30			0.30		
Function	0.39	12	Function	0.33	1
Function	0.53	13	Function	0.45	2
Function	0.61	14	Function	0.69	3
Not significant	0.11	15	Function	0.67	4
Function	0.49	16	Function	0.62	5
Function	0.47	17	Function	0.37	6
Function	0.64	18	Function	0.44	7
Function	0.72	19	Function	0.40	8
Function	0.63	20	Function	0.53	9
Function	0.31	21	Function	0.63	10
Not significant	0.18	22	Function	0.32	11
23.530			Total variance		
5.6231			Latent root		

Reliability: Reliability

Consistency is one of the basic concepts in any educational and psychological test (Faraj, 1980, 331). Consistency means measurement accuracy and is statistically defined as the ratio of true variance to total variance (Odeh, 2001, 345). The researcher extracted the stability of the measure of Systemic thinking in two ways: -

A: Testing and retesting: The stability coefficient extracted in this way is an indication of stability in results over time, and it gives the same results if the scale is re-applied to the same group of individuals after a period of time (El Shayeb, 2012, 105). The test was re-applied to the designated sample (100 students) after (14) days had passed since the date on which the first test was applied. Then the Pearson correlation coefficient was calculated between the scores in the two applications and the correlation coefficient value was (0.78). It turns out that the correlation coefficients are a function at the significance level (0.05).

B: Stability by the method of analyzing bilateral variance (without interaction) for Hwitt and Table (7) illustrates this

Table (7)

Binary contrast analysis (without interaction) for Hoyt

Stability value	Average squares	Degree of free	Sum of squares	Source of contrast
0.80	2.43	99	240.72	Between individuals
	8.62	19	163.89	Between the vertebrae
	0.49	1881	919.42	The rest

Second: The transverse condom test The researcher adopted Al-Mashhadani test (2016) and followed the previous procedures that the researcher followed to follow a specific theoretical logic in collecting the paragraphs and presenting them to the arbitrators (apparent honesty) and Table (8) shows that

Table No. (8)

The arbitrators certified (apparent honesty) to test the transverse insulator

Agreement rate	No.	Arbitrators	items
%100	12	Valid	-13-12-11-10-8-6-5-4-3-2-1
	0	Invalid	15
%91	11	Valid	7-15
	1	Invalid	

The psychometric properties of the transverse dielectric test: Paragraph Relationship with the Total Degree: - The researcher used the real point-bound correlation coefficient to measure the relationship of the paragraph with the overall score of the test and Table No. (9) shows the values of the correlation coefficients.

Table No. (9)

The real point-bound correlation coefficient

Their significance (0.05) at	Link value	item	Their significance (0.05) at	Link value	item
Function	0.41	9	Function	0.60	1
Function	0.33	10	Function	0.69	2
Function	0.48	11	Function	0.48	3
Function	0.58	12	Function	0.71	4
Function	0.72	13	Function	0.63	5
Function	0.44	14	Function	0.38	6
Function	0.49	15	Function	0.77	7
			Function	0.46	8

Stability: Stability has been calculated in two ways: -

First: By re-test method and its value (0.77).

Second: - The Alpha Cronbach method: - It is the method of calculating the correlation between two random samples from the vocabulary derived from a comprehensive range of vocabulary that represents the vocabulary of each of the two samples (Allam, 2000, 166) and the value of the Alpha Cronbach was (0.84).

Statistical means

1- Alfa Formula Formula for Stability Extraction

2- The real point-basilrel correlation coefficient

3- Retesting.

4- Pearson correlation coefficient.

5- T-test for one sample

6- Anomalous test

the fourth chapter

research results

The first goal: to know the level of Systemic thinking among university students

The researcher used the T test for one sample, by inferring the difference between the sample mean arithmetic of (33.85) with a standard deviation (7.66) and the hypothetical mean of the society of (40),

and the results showed that the calculated t value of (8.225) is greater than the tabular T value of (1.96) at the significance level (0.05) and the degree of freedom (399). Thus, the differences between the two mediums are real differences and in favor of the hypothetical average, and this means a low level of Systemic thinking among university students, since university students have a level of Systemic thinking by 61%, despite This ratio, however, is not a function of the normal level of the wave With 66% of the table (10) shows that

Table No. (10)

The level of Systemic thinking among university students

Significance level 0.05	value t	t value calculated	Hypothetical mean	standard deviation	SM A	sample	variable
Function	1.96	-8.225	40	7.66	36.85	400	Systemic thinking

The second goal: to identify the level of Episodic buffer for university students

The researcher used the T-test for one sample by comparing the sample mean of (8.17) with a standard deviation (3.66) with the hypothetical average of the community to which it belongs and (7.5). The results showed a real difference between the two averages, as the calculated T value reached (3.661) which is greater than the tabular T value of (1.96) at the significance level (0.05) and the degree of freedom (399) and the difference was in favor of the average sample, and this means that university students practice the transverse condom process and this level is 55%, which means that students enjoy an average level of transverse condom at a level higher than its normal and adult level It is 50%, and Table No. (11) illustrates this

Table No. (11)

Level of Episodic buffer for university students

Significance level 0.05	value table	t value calculate	Hypothetical mean	standard deviation	SMA	sample	variable
Function	1.96	-8.225	40	7.66	36.85	400	Episodic buffer

The third goal: to identify the relationship between coordinating thinking and casual insulation for university students

The researcher used the Pearson correlation coefficient to identify the relationship between Systemic thinking and transverse isolation, and the critical value of the Pearson correlation coefficient indication for the relationship between the two variables was adopted, as the calculated correlation value between the two variables reached (0.29) which is greater than the critical value of the Pearson correlation coefficient of (0.018) At the significance level (0.05) and the degree of freedom (398), this means that there is a real relationship between the two variables, which means that the occasional buffer explains the difference in students' degrees in Systemic thinking by 8.5% and what remains due to other factors. And Table No. (11) clarifies this

Table No. (12)

It clarifies the relationship between coordinating thinking and accidental insulation for university students

Significance level 0.05	The critical value	Correlation coefficient	sample	Variables
Function	0.081	0.29	400	Systemic thinking Episodic buffer

Fourth Objective: To identify the differences in the relationship between coordinating thinking and casual insulation among university students according to the gender variable

The researcher used the Z-test to identify the relationship between the two variables if the students' grades differed according to the gender (male - female). The crosstalk value of 0.96 at the significance level (0.05) and table No. (13)

Table No. (13)

It clarifies the differences in the relationship between coordinating thinking and casual condom for university students according to the gender variable

Episodic buffer	Systemic thinking	No.	Value z		Significance level 0.05
			calculate	table	
male	0.362	132	1.68	1.96	Not Function
female	0.195	268			

Fifth Objective: To identify the differences in the relationship between coordinating thinking and accidental insulation for university students according to the variable of specialization:

The researcher used the Z-test to identify the significance of the difference in the relationship between Systemic thinking and the occasional insulator with the difference of students' specialization (scientific - human), as the value of the link for students from the scientific specialization was 0.721 and the value of the link for students from the human specialization was 0.410, and the results showed a real difference in the nature of the relationship Systemic thinking and accidental buffer if the student's specialization differs, as the calculated z-value reached 3.347, which is greater than the tabular z-value of 1.96 at the significance level of 0.05, this means that the cross-buffer is related to Systemic thinking more among university students than the scientific specialization and the correlation decreases Between them if the students are of a human major. And Table No. (14) clarifies this

Table No. (14)

It clarifies the differences in the relationship between coordinating thinking and accidental insulators for university students according to the variable of specialization

Episodic buffer	Systemic thinking	No.	Value z		Significance level 0.05
			calculate	table	
scientific	0.721	56	3.347	1.96	Function
Humanitarian	0.410	344			

Interpretation and discussion of results:

The results showed that the university students have a level of Systemic thinking, and the results also showed that the university students practice the process of transverse insulator and this level is 55%, which means that students enjoy an average level of transverse insulator at a level higher than its normal level of 50%, and there is a real relationship Between the two variables, which means that the transverse buffer explains the variance of the students' degrees in Systemic thinking by 8.5% and what remains due to other factors, the absence of a difference in the nature of the relationship between Systemic thinking and the transverse buffer if the students' gender varied as the calculated z-value of the difference indication reached 1.68 It is smaller than The tabular Z value of 0.96 is at the significance level (0.05), which means that the transverse buffer is more closely related to Systemic thinking among university students than the scientific specialization and the link between them decreases if the students are from the human specialization.

First: Conclusions

In light of the research results, the following can be concluded:

1. University students have a level of Systemic thinking.
2. It means that students enjoy an average level of Episodic buffer at a higher level than normal.
3. The existence of a real relationship between the two variables, which means that the transverse buffer explains the variance of students' grades in Systemic thinking.
4. There is no difference in the nature of the relationship between

Systemic thinking and accidental insulation if the students' gender differs.

5. The transverse insulator is more related to Systemic thinking among university students than the scientific specialization, and the link between them decreases if the students are from the human specialization.

Second: - Recommendations in light of the results of the current research, the researcher recommends the following:

1 - Working on developing scientific curricula in a way that achieves development and growth in students' thinking, especially Systemic thinking.

2- Encouraging researchers to research different types of thinking and their theorems, to set a framework for studying thinking systematically.

Third: The proposals

1- The university curricula include activities and training in skills and strategies for developing Systemic thinking.

2. Conducting similar studies for the current research on other samples of students, and comparing its results with the results of the current research.

Sources:-

Ayman, Amer (2007) Analytical Thinking, Capacity, Skills and Method, Publisher, Center for Graduate Studies Development, Cairo - Egypt.

- Abu Al-Nasr, Medhat Mohamed (2015), The Power of Focus and Memory Improvement, The Arab Group for Training and Publishing, Cairo, Egypt, 1st Edition.

Rizki and others (2016) Thinking and its patterns, Part 4, Dar Al-Kutub Al-Alami

Odeh, Ahmad (1993) Measurement and Evaluation in the Teaching Process. Second edition, Dar Al-Amal for Publishing and Distribution, Irbid, Jordan.

Obaidat, Muhammad Hashem and others (1998): scientific research, its concept and tools, Arab Renaissance House, Beirut.

Return, Ahmed Suleiman, and Malkawi, Fathi Hassan. (1992). Fundamentals of Scientific Research in Education and Humanities, 1st

edition, Jordan: Al-Kinani Library.

_____, and Al-Khalili, Khalil Yousef. (1998). Statistics for the researcher in Education and Humanities, 1st edition, Amman: Dar Al-Fikr for publication and distribution.

Al-Shayeb, Abdul Hafiz. (2012). The foundations of educational research, 2nd edition, Jordan: Wael Publishing House.

Allam, Salah Al-Din Mahmoud (2006). Educational and psychological tests and standards, 1st edition, Amman: Dar Al-Fikr for publication and distribution.

Allam, Salahuddin Mahmoud. (2000) Educational and Psychological Measurement and Evaluation, Its Basics, Applications, and Contemporary Guidance, First Edition, Dar Al-Fikr Al-Arabi Cairo.

The Imam, Mustafa Mahmoud and others (1990) Calendar and Measurement, Dar Al-Hekma, Baghdad, Iraq.

Ferguson, George (1991) Statistical Analysis in Education and Psychology, translation by Hana Al-Okaili, Al-Mustansiriya University, Baghdad.

Faraj, Safwat (1980): Psychological Measurement, 1st edition, Dar Al-Fikr Al-Arabi, Cairo.

- Khatib, Ali Maher, (2004): Measurement and Evaluation in Educational and Social Sciences, 4th edition, The Anglo Egyptian Library, Cairo, Egypt.

Al-Zahir, Zakaria Muhammad, (1999): Principles of Measurement and Evaluation in Education, 1st edition, Dar Al Thaqa Library, Amman, Jordan.

Al-Asadi, Abbas Hanoun Muhanna, 2013 Cognitive Psychology, First Edition, Al-Adala Press, Baghdad, Iraq.

- Zaghoul, Rafie Abu Al-Nasr, and Zaghoul, Emad Abdel Rahim (2015), cognitive psychology, 1st edition, Dar Al-Shorouk

- Amer (Ayman), (2005), Analytical thinking, Pathways to Higher Education Project.

Center for Advancement of Postgraduate Studies and Research in Engineering Sciences,

Bartlett G.,(2001). Systematic thinking, The interactional conference of thinking.

- Betsinger, A., Cross, J., DeFiore, (1994), Problem solving and metacognition
Perceptual-and-Motor-Skills, Vol. 78, (3,pt 2) pp 1072- 1074
Faculty of Engineering - Cairo University (CAPSCU)
- Baddeley ,A.D.(2000) .The Episodic Buffer: A New Component Of Working memory ? Trends in Cognitive Sciences ,4,417-423
- -Baddeley ,A.D.(2002) .Working memory ,thought ,and action .New York :Oxford University Press.
- Baddeley ,A.D.(2007) .Working memory ,thought ,and action .New York :Oxford University Press
- baddeley , Alan d . European sychologyit ,vol 7 (2) jun 2002- 97.
- Stanely, G. & Hopkins, K . (1972). Educational & Psychological Measurement and Evaluation, New Jersey: prentice Hall .
- Oxford, Rebecca.(1989).The Role of Styles And Strategies in Second Language , ERIC Digest. New York: Oxford University press
- Moss,P.A.(1994):Can there be Validity without Reliability Educa- tion Researcher, U.S.A.
- (Standfast logic Ltd, (2001), Analytical thinking, ELECTRONIC DICTIONARY)
- Tarman,H,F,(2005) cognitive model for adapter interfaces
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