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Cognitive interference control in relation with steadfastness of readiness among the students at university

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Abstract

The current research aimed to identify

1. Controlling the cognitive interaction of university students.
2. Preparatory steadfastness among university students.

In order to achieve the objectives of the research, the researcher built a cognitive interaction control scale based on Barclay's theory, which in its final form consists of (20) paragraphs divided into two areas (issue and save responses, stop interactionping responses). The researcher also relied on the (Adult Resilience) scale, which was developed by (Friborg & Martinuss 2003, Friborg & Martinuss), which was built according to the Garmisi theory, after verifying the accuracy of the translation, the scale in its final form consists of (32) items, comprising six components: (Self-awareness, personal (organized) construction style), social competence, family cohesion, sources of social support, awareness of future prediction (planning for the future). The second alternative does not include preparatory steadfastness and is given a degree (1).

Keywords: controlling cognitive interaction, standby endurance, University students.

Research problem

The feeling of the problem of the study stemmed from the researcher's awareness, for the importance of studying the control of cognitive interaction in the university education stage, as it appears at this stage a lot of pressures and academic challenges.

The essence of the learning process is focused on the cognitive processes that mediate between the educational motive and the learner's responses, that is, between stimuli and responses, those processes that occur within the individual and require mental organization such as attention, perception, thinking, planning and decision-making (Abu Riash, 2007: 25). Barkley (2006) confirms that the main cause of attention deficit and deficiency is due to a defect in the process of controlling cognitive interaction (Reck, 2009: 3). The researcher believes that university students face many pressures and academic difficulties, such as feeling afraid of academic failure, and worrying about not being able to achieve their future goals.

Students face various difficulties and obstacles in their academic life, as some of them go through negative situations that they cannot deal with.

While others can deal with these obstacles despite the difficult circumstances they face, such as anxiety about exams and in order for students to overcome these conditions, obstacles must be characterized by steadfastness and readiness so that they can adapt in a positive way with the perceived requirements and pressures of life, overcome these obstacles, difficulties or adapt, and coexist with them in a way that does not affect their academic studies or their health

and psychological state.

These were classified as individuals who have a predisposition to resilience (132 Kutlu & Yavuz, 2016): they are seen as able to achieve positive results despite negative circumstances (1991:18, Alva).

Bandura (1999) also indicated that the low level of competence of individuals in facing and dealing with problems creates tension that hinders the use of cognitive abilities, difficulty paying attention, and causing anxiety, personal impotence, and the possibility of failure; Therefore, students often fail to construct meaningful cognitive representations despite being provided with the necessary information to identify keys to constructing, classifying, and organizing information in a meaningful way; To do what is required of them as best they can (Bandura 1999:).

The Importance of The Research

University education is one of the main pillars on which the progress and growth of society rests, because it is an academic scientific institution that works to develop human resources and the various disciplines necessary for the requirements of comprehensive development in society (Abu Jadu and Nofal, 2007: 41). What characterizes an individual's thinking is the cognitive style that he acquired in the different stages of learning. He works and behaves according to information, and thus his actions are directed (Sumaya, 2009: 5). Hence, the student's role in the educational process has become a processor of information, an organizer, and an employee of his operations. mentality, and his mental skills in a positive and effective manner that leads to learning and achieving the best educational results in the shortest time and least effort (Al-Afoon and Jalil, 2013: 35).

Those concerned in the field of cognitive psychology point out that the information processing process represents an organized and harmonious series of mental activities starting from sensation, passing through perception, then attention, and all other mental activities, and the individual is a system that seeks information and organizes it (Monsell, 1996: 140).

Controlling cognitive interaction is the mental mechanism that the learner refers to when replacing inappropriate knowledge with an appropriate one so that he receives the new information, draws it in his mental system, and processes it by making comparisons with the information he already possesses in memory about the same concept or the same phenomenon and then ends up disabling the latter. On the pretext of their inappropriateness based on a specific reference that is considered a criterion in that, as well as it can be considered as a final place and a function in the learning process, if the relationships between cognitive processes and the mechanisms of activating control appear basic, given that they raise the issue of learning by exclusion (Harnishfeger & Bjorklund 1993: 28-49).

Our society, with all its different categories and segments, is facing changing life circumstances, and it is currently in dire need of changing its reality to resist all challenges and difficulties. These difficulties and challenges affect the personality of the individual, his ability to adapt, and face the difficulties. Building, and proving itself, and this requires steadfastness, and an optimistic view of life. (Abdul-Saheb and Muhammad, 2017: 351), and there has recently been a lot of interest in positive aspects, and for all groups, thinkers in the human sciences are trying to understand the ways that lead to a harmonious life (Seligman & Csikszentmihalyi, 2000: 5-14).

Preparatory steadfastness, one of these manifestations, is one of the building blocks that protect individuals and enable them to face sources of pressures, tensions, and difficulties (Steen, Brooks, 2011:29).

One of the factors that protect individuals from tensions is preparedness steadfastness, which is the positive ability to rise again, and because of the increasing responsibilities, we note that the individual who enjoys steadfastness finds different ways to solve problems and search for various opportunities (273-289 Paterson & Seligman, 2004):.

Psychologically resilient individuals are characterized by flexibility in the face of adversity, and they emerge from it in a positive way (Hegazy, 2005: 334).

Garmezy (1994) stated that steadfastness is an insight that individuals accumulate in facing challenges and pressures, and it is skills and abilities, and it is an investment of individual energies to adapt to the requirements of life (Abdul-Fattah and Abd Al-Gawad, 2013: 279).

Research goals

The current research aims to identify

The first goal: controlling the cognitive interaction of university students.

The second goal: the preparatory resilience of university students.

The third goal: the correlation between controlling cognitive interaction and preparatory resilience among university students.

Research limits:

The current research is limited to students of Wasit University, morning studies, of both sexes (males - females), and specialization (scientific - human) for the academic year (2021-2022).

Limit of the Terms

First: Adjusting the cognitive interaction: -

Theoretical definition of cognitive interaction control, the researcher relied on the definition of (Barkley, 1997) as a theoretical definition of cognitive interaction control in this research due to its adoption of his theory in building the cognitive interaction control measure.

- Barkley (1997, Barkley): that it protects thinking from distraction, and preserves and protects desired responses (goal-orientation) from deterioration through the continuation of issuing appropriate responses and preserving them from the interaction of extraneous stimuli and interaction with other undesirable responses and stopping the interactionping responses that would Obstruction of correct responses (182: 1997 Barkley).

Second: Endurance:

Theoretical definition of standby resilience

The researcher adopted the definition of Garmezy et al. (1984, Garmezy et. al,) as a theoretical definition of preparatory endurance, for adopting his theory in this research.

Garmezy (1994): It is the individual's ability to efficiently overcome adversity and face

challenges in order to reach a successful adaptation to stressful life events (GARMEZY, 1994:426))

Friborg et al. (Friborg *et al*.,2003): The individual's ability to deal efficiently with challenges and stresses in order to adapt positively to stressful life events (Friborg *et al*., 2003: 65-76).

Chapter Two

Theoretical framework:

First: Cognitive interaction control

Barkely Theory (Barkely, 1997): Barclay believes that the individual, as a result of the growth process, transforms his behavior from external control to control through mental representations - that is, internal control - and thus the behavior turns into behavior that we can control more than the control of others. Control (Wang *et al*., 2012: 1454).

Barclay emphasized that the discipline includes the following components:

1. Controlling the prepotent dominant responses inhibition: the responses that were previously associated with the presence of reinforcement that helped to manifest and strengthen them, and this type of control aims to create the ability to delay or postpone those responses.
2. Interruption control: It is related to the postponement of the decision to continue the current response and the current procedure, and the interruption or disruption of the growing response that proves to be wrong.
3. Interaction control: It works to protect thinking from distraction and aims to preserve and protect the desired (goal-oriented) responses from deterioration and decay, through the continuation of appropriate responses, and the preservation of information from the influence and interaction of extraneous stimuli in the situation, as well as Interfering with other undesirable responses and adjusting the interfering responses that would impede the correct response (Barkley, 1998: 123-122).

Control allows the individual to regulate his activity level and behavior according to the situation, the requirements of the task, and the weakness of behavioral control can lead to difficulty in controlling motor behavior in addition to weak goal orientation, and lack of flexibility in solving problems.

Second: Standby endurance:

Model Karmezy et al. (Garmezy *et al*., 1984), this model was represented by the longitudinal studies conducted by Carmezi and his colleagues in the dysfunction of information processing and intentional processing among children of parents with schizophrenia from (1971 - 1982) within the "Minnesota to detect risk factors" project. The path of stable families and their interdependence, as they found that most children did not become poorly adapted adults, but rather that they grew up as happy and competent individuals (Garmazey, 1985: 231).

While McLaughlin and others (Mclaughlin, *et Al*., 2009) mention that each of "Garmey, Masten & Tallegen" (1984, Garmey, Masten & Tallegen) identified three basic models of resilience, including: (the compensatory model - the protective factor model - the challenge model These models are interactionping, however, they emphasize different personal characteristics or attributes (reliance on faith - high intelligence), which can work effectively in adapting to stressful psychological conditions.

First: The compensatory model: Exposure to psychological stress reduces efficiency,

and that certain personal attributes work additionally to raise efficiency in an opposite direction to the risk factor (Richardson, 1990: 61-75).

Second: The protective factor model: which emphasizes the interaction between psychological stress and personal attributes.

Third: The challenge model: - which is based on the idea that some psychological pressures actually increase the ability to adapt, (Mclaughlin *et al*., 2009: 355-356).

Here the risk factor or the stressor is treated as an improving and adaptive factor because it is not severe or excessive, very small pressures are not sufficiently challenging for the individual, and very high levels of stress result in dysfunction, while medium levels of pressure progress When a challenge is overcome, it strengthens efficiency. If the challenge is successfully dealt with, it helps prepare and prepare the person for an upcoming difficulty. But if the efforts are unsuccessful, the individual becomes increasingly vulnerable to danger. Psychological resilience develops not only by avoiding risks or danger but also through successful engagement with it, (Seligman & Csikszentmihalyi, 2000: 5-14).

On the other hand, Morales (2010) sees that there are four elements that must be addressed when studying resilience theory.

1. *Risk* factors***:*** they refer to the environmental variables that make an individual vulnerable to potential danger.

2. Protective factors: They refer to the capabilities and capabilities that exist in the individual, which work to mitigate the impact of risk factors, or (they are the strengths that individuals possess).

3. Areas of targeting danger: they refer to one of the qualitative aspects of the individual, which appears in the form of problems in a particular situation.

4. Compensatory strategies: They refer to the techniques that individuals develop to protect themselves from being the target of danger.

Chapter three

Research Methodology

First: Preamble

This chapter includes defining the method used in the current research and its procedures in terms of its society, selecting the sample and extracting the psychometric characteristics of the research tools, as well as defining the statistical methods that were used in analyzing the data, as follows:

Second: search procedures

1. Research community

The population of this research consists of Wasit University students (males and females) from the disciplines (scientific and humanities) for the morning preliminary study for the academic year (2021-2022), whose total number is (13750) (x̄) and Table No. (1) by

faculties, stage and gender shows that:

Table (1)

0	Stage1		Stage 2		Stage 3		Stage 4		Stage 5		Stage 6		Type		Specialized		Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	Sci.	Hum.	
Education	446	514	252	385	318	331	209	371					1225	1601		2826	2826
Administration and Economics	375	314	254	196	246	224	236	215					1111	949	2060		2060
Science	105	264	100	174	89	118	71	93					410	649	1059		1059
Art	96	127	113	179	100	116	98	153					407	575		982	982
Law	118	92	105	86	113	83	89	107					425	468		793	793
Engineering	94	69	60	51	50	67	76	82	16	2			282	285	567		567
Medicine	79	106	28	77	33	60	47	74	28	43	31	32	329	392	721		721
Agriculture	74	67	49	32	70	75	62	51					255	225	408		408
Basic education	197	250	158	159	317	64	197	206					625	772		1397	1397
Physical education	97	32	123	48	105	32	118	39					443	151	594		594
Veterinary	16	19	28	19	11	11	3	/	8	1			66	50	116		116
Dentist	36	75	20	62	21	55	16	60	29	49			122	301	423		423
Computer and information technology	17	38	20	30	30	26	20	28					87	122	209		209
Fine arts	28	86	32	80	35	77	52	118					147	361		508	508
Education for pure sciences	188	187	197	106	111	123	234	100	175				571	516		1087	1087
Total	1966	2240	1539	1684	1649	1462	1528	1697	256	95	31	32	6505	7417	6157	7593	13750

M: Male, F: Female.

* Data for the research community was obtained from the Planning Division at the Presidency of Wasit University.

2. Research sample

The sample of the current research was chosen by stratified random method, and its number was (500) male and female students, distributed according to the gender variable, by (203) male and (297) female students. As for specialization, the number of students in the scientific specialization reached (242) male and female students and The number of students in the humanitarian specialization is (258) male and female students, and table (2) shows this.

Table (2) *The research sample distributed by gender and specialization.*

	College	Gender		Total
		Male	Female	
Scientific specialization	**Engineering**	**33**	**55**	**88**
	Dentist	29	49	78
	computer Sciences	29	47	76
Total		91	151	242
	Art	47	62	109
Humanitarian specialty	Fine arts	23	30	53
	Law	42	54	96
	Total	112	146	258
Total summation		203	297	500

3. Research tools

For the purpose of achieving the objectives of the research, the researcher built two scales [Control of Cognitive Interaction,], and the adoption of the preparatory resilience scale,

as follows.

The first tool: Cognitive interaction control scale

After reviewing the literature, studies and previous measures that dealt with controlling cognitive interaction, the researcher built a measure of cognitive interaction control due to the lack of a scale that matches the sample of the current research. The scale was prepared by following several steps, which are as follows

A. Defining the concept of controlling cognitive interaction theoretically. The researcher has adopted the Barkley definition (1997, Barkley)

B. Determine the areas of the concept to be measured:

Based on Barclay's definition and theory, two areas of the concept of cognitive interaction control have been identified, with theoretical definitions for each of them defined, as follows:

Issuance response and keep it: the individual's ability to produce ideas smoothly without the presence of any internal factors that impede their retrieval.

Cut off the interactionping responses, which are the prevention or impediment of the successive responses that the individual retrieves during the thinking process.

Statistical analysis

1) The discriminatory strength of the items of the Cognitive Interaction Control Scale: Calculating item discrimination is one of the most important characteristics of psychological scales, because it greatly affects the scale's ability to detect individual differences that characterize individuals and on which the psychological scale is based (Ebel, 1972: 398). Accordingly, the researcher extracted the discriminatory power coefficients for the items of the cognitive interaction control scale, and in order to find the discriminatory power for the scale items, the researcher followed the two extreme groups method: After the cognitive interaction control measure was applied to the statistical analysis sample of (500) male and female students (Table 3).

Table (3) *the discriminatory power of the items of the cognitive interaction control scale.*

No.	Upper group		Lower group		T value		Sig.
	mean	deviation	mean	deviation	Cal.	Tab.	
1	4.378	0.905	3.474	1.280	6.889	1.96	Sig.
2	4.504	0.854	3.333	1.355	8.734		Sig.
3	4.652	0.705	2.888	1.364	13.732		Sig.
4	4.541	0.960	3.541	1.449	6.875		Sig.
5	4.333	0.889	2.664	1.297	12.683		Sig.
6	4.141	1.073	2.770	1.263	9.881		Sig.
7	4.341	0.948	2.756	1.307	11.736		Sig.
8	4.667	0.702	3.000	1.327	13.106		Sig.
9	4.474	0.771	2.830	1.352	12.301		Sig.
10	4.667	0.723	3.415	1.324	9.921		Sig.
11	4.015	1.159	2.378	1.215	11.654		Sig.
12	3.393	1.377	3.015	1.338	2.351		Sig.
13	4.467	0.761	2.741	1.246	14.132		Sig.
14	4.701	0.576	2.644	1.243	17.953		Sig.
15	4.400	1.031	3.267	1.362	7.932		Sig.
16	4.437	0.903	2.910	1.258	11.789		Sig.
17	4.652	0.695	3.052	1.289	13.061		Sig.
18	3.852	1.341	3.274	1.330	3.657		Sig.
19	4.585	0.747	3.252	1.220	11.140		Sig.
20	4.467	0.761	2.933	1.344	11.867		Sig.

A. The validity of the items of the cognitive interaction control scale: The researcher verified the validity through the following:

1. Calculating the relationship of the paragraph with the domain to which it belongs: The researcher has calculated the Pearson correlation coefficient between the degree of each

paragraph and the degree of each dimension of the scale, and it was found by calculating the correlation coefficients for all paragraphs that they are statistically significant in all and are greater than the critical value at the level (0.05).) amounting to (0.088) and a degree of freedom (498), which indicates the validity of its construction and its validity to measure cognitive interaction control (table 4).

Table (4) *Correlation coefficients of the degree of the paragraph with the degree of the field to which it belongs.*

Generate and save responses		Pause overlapping responses	
No.	Correlate	No.	Correlate
1	0.443	11	0.493
2	0.453	12	0.351
3	0.603	13	0.563
4	0.390	14	0.600
5	0.661	15	0.477
6	0.458	16	0.595
7	0.621	17	0.587
8	0.535	18	0.354
9	0.557	19	0.537
10	0.450	20	0.506

Second: Reliability Scale: The reliability of the cognitive interaction control scale has been calculated, in two ways:

1) Test and Retest

Extracting the Pearson correlation coefficient between the scores of each of the first and second applications. The correlation coefficient in this way for the scale as a whole was (0.84), which is a good stability coefficient (Al-Esawy, 1985: 58).

* Alfa Cronbach Internal Consistency Method: The stability was extracted in this way from applying the scale to the research sample of (500) male and female students themselves, and using the Cronbach equation, the alpha coefficient reached (0.81), which is a good stability coefficient.

* ***Final Formula for Cognitive Interaction Control Scale***

After the researcher extracted the psychometric characteristics, and ensured the validity and stability of the scale, the cognitive interaction control scale in its final form became valid for application (Appendix 9), and it consists of (20) paragraphs divided into two areas (issuing responses and keeping them, stopping the overlapping responses). Each paragraph has five alternatives, which are (always apply to me, apply to me often, apply to me sometimes, rarely apply to me, never apply to me). From the paragraphs of the scale, so the highest score that a respondent can get is (100), which represents the highest score, and the lowest score he gets is (20) degrees, which represents the lowest overall score for the scale, and thus the theoretical average of the scale is (60) degrees.

The second tool: the standby resilience meter

After reviewing the literature and previous studies on preparatory endurance, the researcher relied on the (adult endurance) scale, which was developed by Friborg & Martinuss (2003), based on the theory and definition of (Garmezy, 1984), due to the lack of a scale that

matches the current research sample.

Scale description

The scale, in its original form, is an appendix (2) of (32) paragraphs that measure preparatory resilience, distributed over six dimensions: (self-awareness, future prediction, social efficiency, organized style, family cohesion, and social sources). Two alternatives to the answer were (a, b).

1. Statistical Analysis for Items

a. Discrimination Power: In order to verify the discrimination of items, the researcher calculated the discriminatory power of the preparatory resilience scale by calculating the arithmetic mean and standard deviation for each item in the upper and lower groups. Of the paragraphs of the scale amounting to (32) items, and it was found that all the paragraphs of the scale are distinguished at the level of significance (0.05) and the degree of freedom (268), (Table 5).

Table (5) *shows the discriminatory power of the standby resilience scale.*

No.	Upper group		Lower group		T value		Sig.
	mean	deviation	mean	deviation	Cal.	Tab.	
1	1.733	0.444	1.289	0.455	8.3581.96		Sig.
2	1.985	0.121	1.770	0.422	5.846		Sig.
3	1.978	0.148	1.455	0.500	11.981		Sig.
4	1.719	0.451	1.304	0.462	7.680		Sig.
5	1.822	0.384	1.560	0.498	4.989		Sig.
6	1.948	0.223	1.545	0.500	8.811		Sig.
7	1.822	0.384	1.493	0.502	6.238		Sig.
8	1.563	0.498	1.352	0.500	2.824		Sig.
9	1.770	0.422	1.239	0.428	6.671		Sig.
10	1.904	0.296	1.396	0.491	10.597		Sig.
11	1.851	0.358	1.333	0.473	10.426		Sig.
12	1.948	0.223	1.546	0.411	10.284		Sig.
13	1.793	0.407	1.433	0.497	6.691		Sig.
14	1.830	0.377	1.437	0.498	7.511		Sig.
15	1.919	0.275	1.622	0.487	6.338		Sig.
16	1.933	0.250	1.326	0.470	13.622		Sig.
17	1.896	0.306	1.288	0.454	13.272		Sig.
18	1.978	0.148	1.537	0.500	10.088		Sig.
19	1.963	0.190	1.567	0.497	8.888		Sig.
20	1.978	0.148	1.756	0.431	5.824		Sig.
21	2.000	0.000	1.437	0.498	13.515		Sig.
22	1.541	0.500	1.267	0.444	4.899		Sig.
23	1.985	0.121	1.642	0.481	8.270		Sig.
24	1.978	0.148	1.474	0.501	11.521		Sig.
25	1.925	0.264	1.597	0.492	7.027		Sig.
26	1.985	0.121	1.444	0.499	12.592		Sig.
27	1.963	0.190	1.430	0.497	11.975		Sig.
28	1.993	0.086	1.689	0.465	7.681		Sig.
29	1.978	0.148	1.541	0.500	10.014		Sig.
30	1.919	0.275	1.348	0.478	12.364		Sig.
31	1.881	0.324	1.370	0.485	10.474		Sig.
32	1.889	0.315	1.319	0.468	12.086		Sig.

C- Items Validity:

1. Calculating the relationship of the paragraph with the domain to which it belongs: The researcher has calculated the Pearson correlation coefficient between the degree of each paragraph and the degree of each dimension of the scale, and it was found by calculating the correlation coefficients for all paragraphs that they are statistically significant in all and are greater than the critical value at the level (0.05).) amounting to (0.088) and degree of freedom

(498), which indicates the validity of its construction and its validity for measuring the preparedness endurance (Table 6).

Table (6) *Correlation coefficients of the degree of the paragraph with the degree of the field to which it belongs.*

Self-awareness		Personal building style (organized)		Social competence		Family cohesion		Social support resources		Perception of the future (planning for the future) and the spirit of risk	
No.	Correlate	No.	Correlate	No.	Correlate	No.	Correlate	No.	Correlate	No.	Correlate
1	0.571	7	0.567	11	0.565	17	0.635	22	0.482	29	0.655
2	0.450	8	0.471	12	0.377	18	0.748	23	0.606	30	0.824
3	0.607	9	0.649	13	0.727	19	0.713	24	0.622	31	0.782
4	0.564	10	0.639	14	0.700	20	0.524	25	0.451	22	0.777
5	0.514	-	-	15	0.497	21	0.715	26	0.692	-	-
6	0.550	-	-	16	0.610	-	-	27	0.648	-	-
-	-	-	-	-	-	-	-	28	0.546	-	-

Second: Reliability Scale:

The researcher has calculated the stability coefficient of the scale in two ways:

1. Retest-Test method:
The correlation coefficient was (0.87), which is a good stability coefficient.
2. *The internal consistency method (Alfa Cronbach):*
The stability was extracted in this way from applying the scale to the research sample of (500) male and female students themselves, and using the Cronbach equation, the alpha coefficient reached (0.85), which is a good stability coefficient.

The final formula of the standby resilience scale:
After confirming the psychometric properties of the preparatory resilience scale, and also confirming the validity and stability of the scale, the preparatory resilience scale became ready for application, Annex (10), which consists of (32) paragraphs comprising six components: (self-awareness, personal building style (organizer), Social competence, family cohesion, sources of social support, perception of future prediction (planning for the future)). The paragraphs were formulated in the manner of verbal attitudes, as each situation includes two alternatives, one of which indicates the preparatory resilience and gives the degree (2) and the second alternative does not include the preparatory resilience and gives the degree (1) . The total score of the respondent is calculated by summing the scores obtained for each of the scale's items, so that the highest score obtained by the respondent is (64) degrees and the lowest score is (32) degrees, with a theoretical average of (48) degrees.

Statistical means:
The researcher used the following statistical methods:
First: In this research, the researcher used the statistical package for social sciences - SPSS to extract the following:

1. Pearson Correlation Coefficient: which was used to find the following:
*Relationship of the degree of the paragraph with the total degree of the cognitive interaction control scale.

*Relationship of the paragraph score with the domain of the cognitive interaction control scale

*Relationship of the degree of the paragraph with the total degree of the preparedness steadfastness scale.

*Relationship of the paragraph score with the domain of the preparedness resilience scale

*Stability by retesting the cognitive interaction control scale and the preparatory resilience scale

*Finding the correlation between the research variables.

***2. Facronbach* stability coefficient:** to calculate the stability of the cognitive interaction control scale and the preparatory resilience scale.

3. Z test: to find out the differences in the relationship between the research variables according to gender and specialization.

4. Multiple regression analysis: to find out the contribution of preparatory resilience in explaining the variance in controlling cognitive interaction.

Chapter four

This chapter includes a presentation of the results that have been reached based on the goals that have been identified, and the interpretation and discussion of these results according to the theoretical framework, previous studies and the characteristics of the society studied in the current research, and then come up with a set of conclusions, recommendations and suggestions, and the results can be presented as follows:

The first objective: to identify the control of cognitive interaction among university students.

The results of the research showed that the arithmetic mean of the scores of this sample on the scale amounted to (73,936) degrees and with a standard deviation of (11,216) degrees. 0.05), as the calculated t-value amounted to (27,784), which is greater than the tabular t-value of (1.96), and with a degree of freedom (499), which means that the research sample has a control over cognitive interaction (Table 7 and Figure 1).

Table (7) *Arithmetic mean, standard deviation, and T-value of the cognitive interaction control scale.*

Variable	Sample	Mean	SD	Hypothetical mean	T value		Sig. (0.05)
					Cal.	Tab.	
interaction control scale	500	73.936	11.216	60	27.784	1.96	Sig.

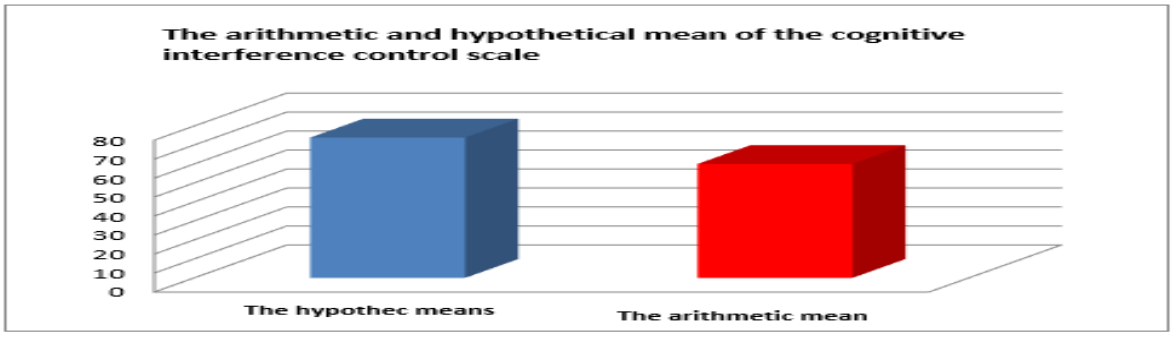

Figure (1) *The arithmetic and hypothetical mean of the cognitive interaction control scale.*

This can be explained in the light of Barkly's theory (Barkly, 1997), which is adopted in the current research, that university students work to protect their thinking from distraction by preserving and protecting the desired (goal-oriented) responses from deterioration and decay, and through the continuation of appropriate responses, and preservation On the information from the influence and interaction of intrusive stimuli in the situation, as well as interaction with other undesirable responses and adjusting the overlapping responses that would impede the correct response.

The interaction control allows the individual to regulate his level of activity and behavior according to the situation and the requirements of the task. The control is represented in suppressing the efficiency of performing cognitive tasks by retaining information that is not relevant to the task from the interaction (the interaction is to distract the learner and transform it from stimuli that are not relevant to the task to stimuli related to the task It also raises the interaction to the sensitivity of the learner's performance to experimental situations) with the start of memorizing new information to maintain the efficiency of working memory (Conway, 1994: 354-373).

This also means that university students have the ability to suppress the distracted cognitive processes that were active earlier, exclude stimuli that are not relevant to the task, and resist the cognitive interaction of stimuli that can seize their attention and distract their learning.

The third objective: to identify the preparatory resilience of university students.

To achieve this goal, the researcher applied the preparatory resilience scale consisting of (32) items on the research sample consisting of (500) male and female students. The results of the research showed that the arithmetic mean of the scores of this sample on the scale amounted to (54,334) degrees and a standard deviation of (5,325) degrees. 0.05), as the calculated t-value amounted to (26,596), which is greater than the tabular t-value of (1.96), and with a degree of freedom (499), which means that the research sample has a preparatory steadfastness (Table 8 and Figure 2).

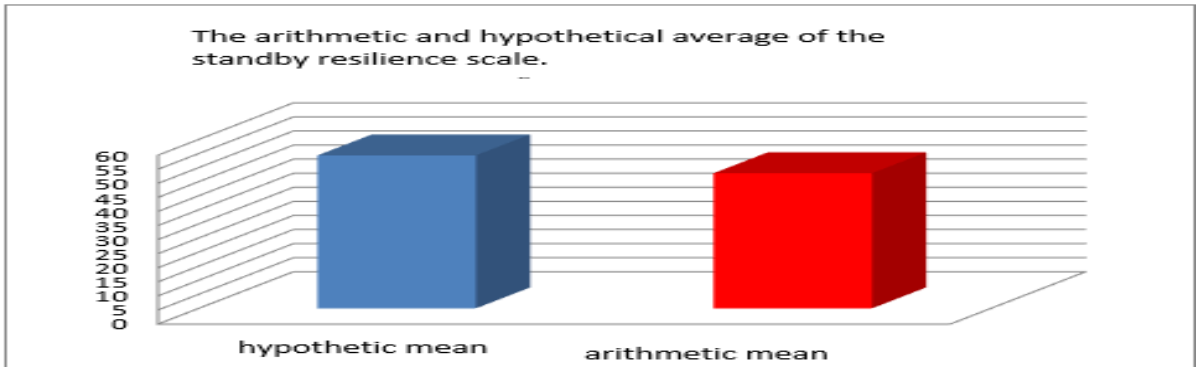

Figure (2) *The arithmetic and hypothetical average of the standby resilience scale.*

Table (8) *Arithmetic mean, standard deviation, and T-value of the standby resilience scale.*

Variable	Sample	Mean	SD	Hypothetical mean	T value Cal.	T value Tab.	Sig. (0.05)
standby resilience scale	500	54.334	5.325	48	26.596	1.96	Sig.

This result agreed with the results of the study (Al-Tala'a, 2016).

The result can be explained according to the theory (Garmazey, 1994), which

emphasizes the importance of protective factors that enable and support the individual through the process of positive adjustment with events and pressures (Becker *et al*., 2000: 127).

This means that the protective factors formed by university students during the previous changes in their lives as a result of the experiences and social events they went through helped them to overcome difficulties through their interaction with the stressful factors that threaten their lives, which contributed to the positive confrontation of the shocks and psychological crises that students face, both at the level of study or social life

Thus, the university students showed their ability to show behavioral adaptation when faced with nervous, traumatic, tragic, threatening or even stressful situations and their ability to maintain internal and external balance under the influence of significant threats through various activities that include actions and ideas that lead to achieving positive outcomes in the face The adversities and crises they encounter.

Seventh goal: To identify the correlation between controlling cognitive interference and preparatory resilience among university students.

To verify this goal, the researcher took the answers of the research sample on the two scales of controlling cognitive interference and preparatory resilience, then the researcher used the Pearson correlation coefficient, and the results were as shown in the table (9).

Table (9): *The relationship between cognitive interference control and preparatory resilience.*

No.	Correlation coefficient between cognitive interference control and preparatory resilience	T- value Cal.	Tab.	Sig. (0.05)
500	0.587	16.305	1.96	Sig.

The value of the correlation coefficient between the control of cognitive interference and the preparatory endurance reached (0.587), and to find out the significance of the relationship, the researcher used the t-test for the significance of the correlation coefficient. 0.05) and a degree of freedom (498), which means that the relationship between cognitive interference control and preparatory resilience is a direct, statistically significant relationship, meaning that the higher the preparatory resilience of the individual, the better the control of cognitive interference.

The researcher believes that this is a logical study, as the more students have preparedness steadfastness, the more they have a high ability to control the cognitive activity that is in an active and continuous state, and they work to resist the possible cognitive interference between stimuli by removing all the cognitive actions that would affect the attention process, as The prepared steadfastness enables them to face educational difficulties and problems, especially in the academic field, as it hinders their attention and affects the level of academic achievement for them. Academic crises, adversity and difficulties,

Conclusions

By presenting the results, the following can be concluded:

1. University students have the ability to control cognitive interference, and this indicates their ability to control distractions.

2. The university students have preparedness steadfastness, and this is the role of the protective factors that enable and support the individual through the process of positive adjustment with events and pressures.

Recommendations

In the research results, the researcher recommends the following:

1. Urging the faculty to control the cognitive interference of students during the teaching process and educating them with the necessary methods for this through training courses and workshops, benefiting from the attention process and placing their focus in the focus of attention.
2. Working to establish various programs within the university through scientific and guidance centers to develop the preparedness steadfastness of university students to enable them to overcome the obstacles and crises they face in all areas of life.

Suggestions

The researcher suggests conducting a study:

1. On controlling cognitive interference and its relationship to hemispheric dominance of the brain among university students.
2. On preparatory steadfastness and its relationship to other variables that the current research did not address, such as (perseverance, positive confrontation, expectations of failure and success).

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