

COGNITIVE INHIBITION AMONG OUTSTANDING STUDENTS

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ABSTRACT

The current paper aims at finding out the degree of cognitive inhibition among outstanding students. To achieve the aim of the research paper, the researcher has used the cognitive scale and the scale has been applied on a sample of the statistical analysis of (300) male and female students out of outstanding students. The discrimination power has been extracted for each instrument and two types of validity (i.e, face validity and construct validity) the instrument were verified .Reliability was alsoverified by two test an re-testing , and Alpha Cronbach Formula. The instruments have been administered on the sample amounting to (400) male and female students by using SPSSResults showed that the sample subjects are distinguished for having cognitive inhibition.

CHAPTER ONE: STATEMENT OF THE PROBLEM

The cognitive processes are interrelated and they work together with other processes, So, they depend, in their performance, on correlation, integration and consistency. Thus, decision –making depends on the perception, memory, general information, language and thinking.Accordingly, these axes or pillars constitute basically in the process of cognitive organization of learners (Atnkiosso,1996:124)

The cognitive control involves many important cognitive processes which determine the aspects of cognitive activity of learners since the cognitive control enables learners to direct and guide processing and behaviour towards fulfilling their basic goals because they are considered the basic components of the cognitive control of learners which involve the ability to keep the most important goals, and selective and dynamic updating of the cognitive control.(Dick,2006:10).

The lack of the ability of cognitive exhibition is regarded as one of the main problems that face individuals and may make them unable to proceed in the cognitive activity and as a result, they are unable to resist the cognitive intervention and remove cognitive stimuli which influences individuals attention.Accordingly, they became unable to adapt or cope with the potential

The main problem in this paper lies in answering the following questions:

Do secondary school students in general and outstanding students in particular possess a mental mechanism of voluntary nature that enable them to curb unsuitable information during their performance of processing cognitive response of requirements of current educational task?

Importance of the Research Paper

The cognitive process, which mediate between the learners responses and the educational reality,is considered the essence of process of learning since these processes enable learners to organize complex mental organization such as thinking, planning and decision making. (AbuRiyash,2007:25)

The cognitive inhibitions is but one of the most important cognitive functions in the cognitive organization of learners because of the impact of the processes of the cognitive inhibitions in processing information which is concerned with supply, retrieving and storage by raising the competence of learners mentality through deleting unnecessary tasks out of memory contents to leave big spatial area for understanding and comprehension that may help them to acquire cognitive construction which enable them to share problems (Harnishfeger&Bjorklund, 1996 : 178)

For this reason, outstanding students are treated as human fortune, cultural civil and educational function that nations in dire need to benefit from individuals talents to bring success to their development plans since these nations rely on intellect and human efforts in harnessing natural resources and physical possibilities to serve human beings and all society political and educational philosophies have stressed (Abulaziz,2008:20).

The issue of outstanding students has occupied a great importance in most world countries since it is deemed as a national fortune which can participate in building fortune of their homeland and nation (AL –Mayatah and Al –Bawaler,2000:2)

The importance of the current research paper focus on the following points:

1. Identifying the nature of the impact of the cognitive inhibition among outstanding students.
2. Scarcity of research studies in the field of the cognitive inhibition among outstanding students.
3. The current research paper represented as new scientific edition to enrich the local library in the field of cognitive inhibition.

Aims

The current research paper aims at identifying the degree of cognitive inhibition among outstanding school students.

Limits of the Research Paper

The current research paper is limited to secondary school outstanding students out of (fourth-fifth-sixth) grades for the scholastic year (2017-2018)

Terms of Definition

Cognitive Inhibition

1.(Bjorklund&Harnishfeger 1990

Cognitive inhibition refers to an individual's ability to suppress information that has already been processed into working memory. Such

suppression allows more space to be used for information processing or memory storage as it reduces interference from irrelevant or unnecessary information.

2.(Bjorklund&Harnishfeger (1995)

Cognitive inhibition is a process that allows individuals to stop or proceed in the cognitive activity which become very active and this process resists interference among stimuli by eliminating all cognitive acts that influenced the process of attention as well as it depends on the cognitive flexibility of individuals in coping with the requirements of the potential situations in delaying responses or arranging priorities.

3.Harnishfeger & pope (1996) Definition

Cognitive inhibition is a prevention of restoration existed in the memory in quest for accessing to the goal to make it easy for memorizing new information.

The Theoretical Definition of Cognitive Inhibition

The researcher adopted Bjorklund&Harnishfeger (1995) definition of cognitive inhibition because of being a comprehensive definition as it compared to other definitions.(See Bjorklund&Harnishfeger ,1995)

The Operant Definition of Cognitive Inhibition is the total degree which students get through their answers on the scale of the cognitive inhibition which is built in the following paper.

Outstanding Students according to Ministry of Education (1979)

Outstanding students are those students who are taught in outstanding schools and they are admitted according to their high marks and averages in the general examination of primary study as well as they have succeeded in the performance of the two tests : the first test measures the mental ability and thesecond test measure their achievement in some subjects .Moreover measuring those students have been conditioned not to be failure or failing in one or two subjects during their previous study (Ministry of Education , 1979:6)

CHAPTER TWO : THEORETICAL FRAMEWORK: REVIEW OF LITERATURE

• Cognitive Inhibition

Cognitive inhibition and interference are considered interrelated terms in many psychological reviews of literature since the former refers to the process of deleting irrelevant information and the latter refers to hyperactivity under circumstances of attention deficit disorder ((Bjorklund&Harnishfeger , 1994 : 341).Cognitive inhibition has the ability to regulate consciousness out of unrelated task memory and this ability decreases with age where the ability of learners on regulating their consciousness intentionally make unrelated tasks information inhibition decreases with age ((Derakshan, 2009 : 51-53)

The basis of cognition inhibition dates back to the beginning of psychology since the most prominent theorists in psychology have proposed some models of cognitive inhibition .Chief of them Freud who considered suppression as inhibition of thinking in consciousness awareness in that it is an active process required a great efforts on the part of individuals .Freud also propose a second type of inhibition is called (primary repressive) which refers to the repression of experience and memories in early childhood.(Bjorklund&Harnishfeger , 1996 : 141-142)

Colin Macleod (2007) proposed that the cognitive inhibition is an impairment to mental processes in whole or in part, intentionally or otherwise .This concept does not mean stopping all other processes .Instead , it decreases them (Colin Macleod, 2007 :148-154)

The inhibition represented by suppression of performance cognitive tasks by retrieving unrelated information out of interferenceand retrieving new information to improve the proficiency of working memory (Conway, 1994 : 354-373)

The cognitive inhibition performs a functional role to overcome cognitive interference during early stages of second language acquisition (Martin- Rhee & Bialystok 2005) Martin et al stressed that there are clear cognitive features among bilingual individuals during performance

of their cognitive task (Martin- Rhee & Bialystok 2005 : 24)

The cognitive inhibition affects the self -regulation of behaviour of learners since they are responsible of regulating and selecting information among different types of data (Kroll & Degroot, 2005 : 425)

There are many experiments trials proved that worry and concern decrease inhibition function where (Calvo&Eysenk, 1996) found that understanding and comprehending texts by counterparting meanings presentation that are supposed to be presented to the sample individuals which are not required to be focused on are very clear to high worry individuals more than low worry individuals (Calvo&Eysenk , 1996 : 389-393)

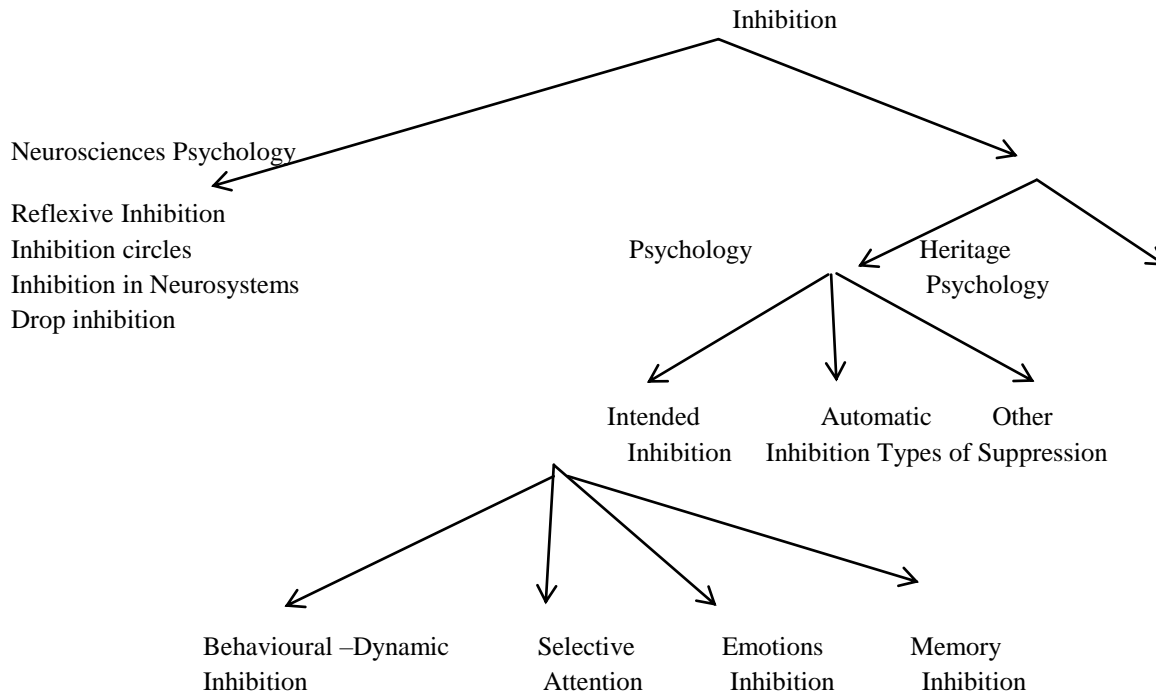
The cognitive inhibition is required one of the most executive functions which include three parts: (cognitive inhibition, cognitive flexibility, and working memory) since cognitive inhibition is considered the first function of development and any default or damage in the cognitive inhibition will lead to damage in many processes Barkley (2006) pointed out that cognitive inhibition is the main cause of deficit hyper activity disorder (Reck, 2009 : 2)

Cognitive Inhibition According to Theories of Psychology

1.Inhibition in Clinical –Psychology and Personal Psychology

There are many related aspects of inhibition in clinical psychology personal psychology.Thus, Wood & Tas(2001) asked those individuals of high level of worry and those of low level to determine that each presented word is related to the sentences and these sentences are constructed in the form of pairs that differ only in the final word. Results showed that individual of high level worry exhibit a general weakness in using cognitive inhibition and this proved that cognitive inhibition plays an important role in understanding unfamiliar personality and conduct. (Colin Macleod, 2007 : 88)

2. Inhibition in Neuroscience and Behavioral Sciences



Types of Inhibition in Neurosciences and Cognitive Psychology (Aron , 2007)

Figure (1) The Difference between Inhibition in Neurosciences and Psychology Viewpoint

The above figure states the difference between inhibition in neurosciences which includes some components such as reflexive inhibition that occurs as a result of reflected conditional acts through neural system, inhibition in the neural circles which means the extent of activation of neural cells by some enzymes (Aron, 2007 : 203-214)

- **Explained Models of Cognitive Inhibition**

- 1. **(TCO) Theory of Constructive Operators**

- This theory proposed that there are schemes for used information during doing any task .The scheme helps us to determine followed steps , regulating processes , perceiving information as well as defining the suitable response of each situation

.According to this theory , the schemes that have been chosen activated , regulated and modified through a group of constructive operators including :

1. (M) Mental Attentiona
2. (E) Executive Mechanism
3. (F) Field
4. Attentional Interruption

(Steven Howard, 2013 : 4-7)

- 2. **Model of Behavioral School**

- The interest in inhibition appears very early since it is a behaviour – explained construct and the mechanism of learning during behavioural school. This model plays a vital role in that Ebbinghaus (1864) and James(1890) focused on the nature of inhibition in mechanistic processes in learning ,supervision ,in activating a mechanism for cognitive inhibition to control behaviour .Thus , the

behaviourist hold that understanding information occurs through practice and accordingly acquiring any new information would lead to occurrence of change in conduct which took two phases.

- Either by activating or issuing new behaviours as responses of stimuli or acquired information
- Or inhibition of accustomed behaviour which became unsuitable in view that there are environmental inputs (ShulginaKositzyn&Svinov , 2011).

3.Interactive Model Between Working Memory and Cognitive Inhibition

Roberts, Hager &Heron ,(1994) formulated a model of working memory which explains the potential reason behind existing prefrontal cerebral cortex in doing tasks related to cognitive inhibition and working memory and there is no permanent interaction between he work and memory and cognitive inhibition. Perhaps the main common aspect in all tasks that measure the cognitive inhibition is to play a part in activating the three processes which happen in the prefrontal cerebral cortex which include the following :

1. Working memory has the two sources of processing and storage to choose the correct response and the ability to store information as well as processing information .
2. Alerted memory means information retention across time which focused on keeping working memory very active during periods of time to prevent occurrence of any decline or distortion

Reviews of Related Literature

Firstly , Arabic Studies

1. Sayyad Mohammed (2014)

Differences in Cognitive Inhibition among Dependent and Independent Students in the Cognitive Fields according to the following aims:

- a. Defining the extent of the relation between the cognitive approach of the

cognitive field and the cognitive inhibition.

- b. Determining the differences between students on a scale of cognitive inhibition which is attributed to the variable of specialization of scientific and humanities.
- c. Defining the differences between students on a scale of cognitive inhibition which is attributed to the bilateral interaction between the cognitive approach and specialization of scientific and humanities.

The researcher used Miller model 1991 as an approach of cognitive theory and he also used Nozal model 1990 and he prepared the cognitive inhibition, statistical means (Pearson correlation coefficient – Variance analysis-Validity –reliability)

Results show that:

- a. There is statistical significant difference between the two averages of students marks on a scale of cognitive inhibition due to the type of the method (dependent – independent)
- b. a. There is nostatistical significant difference between the two averages of students marks (Scientific humanities)on a scale of cognitive inhibition.
- c. There is no statistical significant difference between the two averages of students marks on a scale of cognitive inhibition due to the type of the method (dependent – independent) and specialization (Scientific humanities)

(Sayyad Mohammed 2014 : 937-938)

2. Al-Dhabaa and Shalabi (2015)

The cognitive strategies for regulating emotions as a median variable between cognitive inhibition and depression symptoms among university students .The study aims at:

- a. Identifying the relation between the cognitive strategies for regulating emotions as a median variable between cognitive inhibition and depression symptoms among university students.
- b. Identifying the nature of correlation between cognitive strategies for regulating emotions as a median variable between cognitive inhibition and depression symptoms among university students.
- c. Identifying the nature of correlation between cognitive inhibition and depression symptoms among university students.
- d. Identifying gender differences in the cognitive strategies for regulating emotions among university students.

Results showed that :

- a. There is a positive statistical significant correlation between cognitive inhibition and the total degree of an adaptive cognitive strategies.
- b. There is a positive statistical significant correlation between depression symptoms and cognitive strategies for regulating emotions.
- c. There is a positive correlation between cognitive inhibition and depression symptoms.
- d. There are gender differences between cognitive inhibition and the total degree of an adaptive cognitive strategies in favor of female students and there is no statistical significant differences between males and females in the un adaptive cognitive strategies (Al-Dhabaa and Shalabi , 2015 : 280-285)

3. Hassanein and Awada (2016)

The cognitive inhibition among secondary and university students .Comparative study.

The study aims at :

1. Identifying the differences between the averages of secondary and university marks on a scale of cognitive inhibition.
2. Identifying the differences between the averages of (male and female students) marks on a scale of cognitive inhibition.
3. Identifying the differences between the averages of scientific and humanities students on a scale of cognitive inhibition.
4. Identifying the differences between averages of males of the four groups (university females –secondary males – secondary females) on a scale of cognitive inhibition.
5. Identifying the differences between the averages of the marks of the four groups (scientific males , humanities males–scientific females –humanities females)
6. Identifying the differences between averages of English group-student marks (scientific males ,humanities males, scientific females, humanities females, university males , university females , secondary males , secondary females ,on a scale of cognitive inhibition.

The researcher used scale of cognitive inhibition as an instrument for this study. The following means have been used (Arithmetic mean –standard deviation –T-test for two independent samples .T –test for correlated samples –variance analysis .

The study arrives at the following results

1. There are statistical significant differences between two averages of university and secondary students marks on a scale of cognitive inhibition in favour of secondary students .
2. There are no statistical significant differences between two averages of males and females marks on a scale of cognitive

inhibition due to the impact of gender (male – female).

3. There are no statistical significant differences between the two averages of students males for scientific and humanities on a scale of cognitive inhibition (Hassanein and Awadha 2016 : 817-818)

Aspects of Utilization of Literature Reviews

- 1. Methodology :** Most of the studies that deal with cognitive inhibition follow the correlational descriptive approach which the researcher has adopted in this paper.
- The researcher has benefited from the size of previous sample and the suitable sample has been used to achieve the aims of the current paper.
- The researcher has benefited from formulating the aims of the previous studies and in the light of these aims , the researcher has formulated the aims of the current paper.
- The researcher has benefited from the used statistical means in the previous studies and some of these means have been used in the current research paper.
- The researcher has benefited from the results of the previous studies.

CHAPTER THREE: RESEARCH METHODOLOGY AND PROCEDURES

The following chapter deals with the methodology and procedures of the current research paper as well as defining its population , sample , instrument , using psychometric features and statistical means.

Firstly :Methodology

The researchers have used the descriptive approach in the current study because it is widely used approach due to the description and explanation that provides for each paper (Dawood and Abdulrahman 1990:159).

The current research paper aims at identifying the relation between different variables; cognitive inhibition , attention methods and competitive worry . These are types of the

descriptive approach which aims at identifying the size and type of the relation held between the variables of this paper (Thoqan et al , 1983:188).

Secondly: Procedures

The current paper population consists of outstanding students in Baghdad from both gender, males and females, out of secondary school for the scholastic year 2017-2018.

The population consists of (7994) male and female students distributed in outstanding secondary schools at Baghdad Directorate of Education (1st , 2nd , 3rd Al-Rusafa) and (1st , 2nd, 3rd Al-Karkh) secondary school students (4th , 5th , 6th grades) by twelve schools – six schools for male students and six schools for female students . Male students represent 53% and female students 47% .The number of 4th grade amounts to 4017 and they represent 50, 25 % and the number of fifth grade amounts to 2291 and they represent 28,65% .The number of 6th grade amounts to 1686 and they represent 21,1% whereas the number of 4th grade amounts to 1224 and they represent 52 , 88% and the number of the students of the 5th grade amounts to 1192 and they represent 57,3% and the number of the 6th grade amounts to 922 and they represent 54,69 %.

Table (1)
Population According to Baghdad Directorates of Education and According to Gender and Grade

Directorate	Gender	4 th	5 th	6 th	Total	Total
Al-Rusafa Al Awala	Male	427	289	206	922	1743
	Female	383	307	131	821	
Al-Rusafa Al-Thaniya	Male	937	475	364	1776	3281
	Female	763	427	315	1505	
Al-Rusafa Al-Thaltha	Male	126	90	73	289	481
	Female	80	57	55	192	
Al-Karkh Al-Awala	Male	178	97	72	347	752
	Female	215	104	86	405	
Al-Karkh Thaniya	Male	274	145	120	539	963
	Female	233	98	93	424	
Al-Karkh Al-Thaltha	Male	182	96	87	365	774
	Female	219	106	84	409	
Total Average	Male	2124	1192	922	4238	7994
	Female	1893	1099	764	3756	
	Grades	4017	2291	1686		

The Sample

The study sample involves outstanding school students out of 4th, 5th, 6th grades- Baghdad Directorate of Education by 400 male and female student according to the ratio method (i.e. this rate represent 5% out of the population size as shown in table (2):

Table (2)
Research Sample According to Education Directorate , Gender and Grade

Directorate	Gender	Fourth	Fifth	Sixth	Total	Total
Al-Rusafa Al Awala	Male	21	14	10	46	87
	Female	19	15	7	41	
Al-Rusafa Al-Thaniya	Male	47	24	18	89	164
	Female	38	21	16	75	
Al-Rusafa Al-Thaltha	Male	6	5	4	14	24
	Female	4	3	3	10	
Al-Karkh Al-Awala	Male	9	5	4	17	38
	Female	11	5	4	20	
Al-Karkh Thaniya	Male	14	7	6	27	48
	Female	12	5	5	21	
Al-Karkh Al-Thaltha	Male	9	5	4	18	39
	Female	11	5	4	20	
Total Average	Male	106	60	46	212	400
	Female	95	55	38	188	

Instruments

Firstly , Cognitive Inhibition

1.Defining Cognitive Inhibition a Concept

The researchers have been fully aware of reviews of literature and theoretical frameworks which are concerned with the cognitive inhibition and the researcher does not find a scale for measuring the cognitive inhibition in the local environment so the researcher seeks to build a scale of the cognitive inhibition to achieve the aims of the current paper and the items of the scale of cognitive inhibition have been built by following these steps.

- The researchers have adopted (Bjorklund & Harnishfeger 1995) theory where they define the cognitive inhibition as “a process

that allows individuals to stop or proceed in the cognitive activity and acts to resist the cognitive interference between stimuli by removing all cognitive acts that influence attention since it depends on individual cognitive flexibility in adapting with potential situation “. The adopted scale consists of 30 items and distributed into (3) components:controlling the cognitive activity resisting the cognitive interference, the cognitive flexibility.

1.Defining Scale Domain

First Domain:Controlling the cognitive activity: is a process that allows individuals to stop or proceed a cognitive activity and it consists of ten items.

Second Domain: Resisting the Cognitive Interference: is a process that allows to prevent the cognitive interference between stimuli during performing cognitive activity and decreasing its impact in continuity of the cognitive activity. It consists of ten items.

Third Domain : the cognitive flexibility: is a mental process through which individuals can adapt himself with requirements of the potential situations .It consists of ten items.

1. Collecting and Formulating Items

Thirty items have been formulated where these items have been distributed into three domains, each one has ten items and the self-report approach has been adopted. Let it be known that the content of items responses can be estimated through the students way of thinking and answer options would be as follows:

(never , rarely, sometimes , often)

1. Scale Validity

The items of the scale have been displayed on a group of experts and specialists in the psychological and educational sciences as well as measurement and evaluation .Results showed that all scale items are valid with the exception of making some modifications .

1. Scale Instructions

The aim of test instruction is to guide respondents on scale items.(Al-Zawbaai et al 1981:69).Besides these instructions are guidelines that respondents should follow during their responses to the scale items .The instructions include mentioning gender , grade and without mentioning names.

1. Pilot Experiment of Cognitive Inhibition Scale

This scale has been applied on a pilot sample consisting of 40 male and female students . The times have been counted between 10-20 minutes with average 15 minutes for each respondents. It appeared that all items are clear and understandable as well as the pilot experiment has been used in Al-Kawathar Secondary Outstanding School and Talib Al-Suhail secondary school on 3-4 /1/2018

The Statistical Analysis of Scale Items of the Cognitive Inhibition

The statistical analysis is considered more important than logical analysis because it can be fulfilled through the content of the items in measurement by identifying some of the scale indices of the items such as the ability to discriminate among respondents as well as its validity coefficient (Al-Kubaisi 1995:5). The statistical analysis shows the accuracy of items (Ebel,1972 : 406)

The researchers have extracted the psychometric characteristics as follows :

a. Discrimination Power

With the aims of keeping good items in the test and assuring of its ability to discriminate among individuals in the measured feature ,this test has been applied on a sample consisting of 300 male and female students and this number seems suitable according to Nunnally(1987, : 262) who proposed that the size of the sample should be ranged between 5-10 items (.Moreover, the two extreme groups approach is considered suitable procedure to make sure of keeping good items and excluding weak items) .

The Two –Terminated Group Method

After applying scale of cognitive inhibition on individual of the sample of statistical analysis - correcting answer sheets and to extract the items discriminating force according to the two extreme group approach .The researcher has adopted the following procedures:

1. Answer sheets are arranged in a descending order from the higher score to a lower one.
2. A high rate of 27% and low rate of 27 % have been chosen to represent the two-terminated groups , as the sample of analysis consists of 300 male and female students. So ,the number of answer sheet is 81 sheets for each group. The marks given for the upper group ranges from 85-103 and the marks for the lower group ranges from 40-72. T –test for independent sample has been used in calculating the discriminating force for each item . Results show that all items are statistically at a level of significant (0.05) and degree of freedom of about 160 and the calculated value is larger than tabulated value which amounts to 1,96 as shown in table (3)

Table (3) shows coefficients of discriminating items of the scale of cognitive inhibition by the two-terminated groups method

Table (3)

Items Discrimination Coefficients of the Cognitive Inhibition Scale According to Two-terminated Groups Method

No.	Upper Group		Lower Group		Calculated T-value	Significance
	Arithmetical Mean	Standard Deviation	Arithmetical Mean	Standard Deviation		
1.	3.05	0.910	2,28	0.940	4.538	significant
2	2.53	1.033	1,53	0.812	5.895	significant
3	2.45	1.141	1,57	0.871	4.766	significant
4	3.07	1.039	2,02	0.911	5.884	significant
5	3.45	0.769	2,33	0.986	6.920	significant
6	2.85	1.527	1,88	1.010	4.089	significant
7	3.63	0.637	2,33	1.052	8.187	significant
8	2.67	1.202	1,80	0.988	4.728	significant
9	2.98	1.017	2,03	1.134	4.831	significant
10	2.90	1.020	1,92	0.989	5.630	significant
11	3.33	0.837	2,47	1.016	5.099	significant
12	3.33	0.933	2,22	0.846	6.870	significant
13	3.32	0.792	2,43	1.015	5.317	significant
14	2.93	1.087	2,25	1.052	3.499	significant
15	3.45	0.872	2,37	1.057	6.124	significant
16	2.77	1.031	2,12	1.151	3.258	significant
17	3.13	0.873	2,37	0.973	4.635	significant
18	3.20	0.917	2,65	1.071	3.022	significant
19	2.98	1.049	2,23	0.963	4.078	significant
20	2.93	1.133	1,77	0.945	6.124	significant
21	3.00	1.042	2,23	1.1,079	3.959	significant
22	3.02	1,127	2,03	1.062	4.687	significant
23	2.73	1,023	2,02	0.873	4.128	significant
24	2.90	1,069	2,38	1.277	2.403	significant
25	3.08	0,869	2,07	0.972	6.039	significant
26	3.13	0,947	2,15	0.917	5.776	significant
27	3.18	0,892	2,32	1.112	4.708	significant
28	3.25	0,856	2,37	0.974	5.277	significant
29	3.27	0,972	2,42	1.109	4.465	significant
30	3.18	0,948	2,50	1.112	3.622	significant

B. Item Correlation Score with the Total Score

This method is considered one of the most accurate means to calculate items internal consistency and this means that each item goes directly in the same track (Awda, 1985:51). Anastasi (1976: 206) points out that the item correlation of internal an external test is regarded as an index of its validity.

Pearson correlation coefficient has been used to calculate correlation coefficient between items score and the total score of the scale as a whole for 300 students. All items are significant under 0,05 and degree of freedom about 298 since the calculated value is larger than tabulated value which amount to (0,113) as shown in table (4):

Table (4): Item Correlation Coefficient Score with the Total Score of Cognitive Inhibition

No.	Value of Coefficient Correlative	Serial No.	Value of Coefficient Correlative	No.	Value of Coefficient Correlative
1	0.340	11	0.363	21	0.242
2	0.401	12	0.412	22	0.334
3	0.374	13	0.350	23	0.289
4	0.432	14	0.251	24	0.221
5	0.433	15	0.424	25	0.400
6	0.330	16	0.292	26	0.418
7	0.470	17	0.325	27	0.313
8	0.327	18	0.262	28	0.360
9	0.367	19	0.333	29	0.314
10	0.406	20	0.372	30	0.280

C. Relation of Item Degree with the Field of Belongingness

To achieve this, the researchers have extracted the correlation between the score of each item of the scale of the cognitive inhibition and the total score of the field that each item belongs to by depending on the marks of the sample individual amounting to 300 answer sheet. It appeared that correlation coefficient are significant and the tabulated value amounts to 0.113 under level of significance of about 0.05 with degree of freedom of about 298 and table (5) illustrates this:

Table (5): Item Correlation with the Domain with Which Coefficients Values Belong to

Controlling Cognitive Activity		Resisting Cognitive Interference		Cognitive Flexibility	
No.	Correlation Coefficient	No.	Correlation Coefficient	No.	Correlation Coefficient
1.	0.316	11	0.536	21	0.170
2.	0.550	12	0.328	22	0.514
3.	0.584	13	0.457	23	0.314
4.	0.526	14	0.477	24	0.418
5.	0.443	15	0.628	25	0.285
6.	0.513	16	0.490	26	0.487
7.	0.603	17	0.289	27	0.587
8.	0.549	18	0.338	28	0.620
9.	0.587	19	0.488	29	0.614
10	0.485	20	0.463	30	0.570

D. Relation of the Domain with Other Fields and its Relation to the Total Score of the Scale

The type of validity has been verified by using Pearson Correlation Coefficient to find the relation between the individual scores on each domain and the scale total score because correlations of sub – domains with a total degree of the scale are basic homogenous scale (Anistasia,1976:155)

The researchers have used the previous sample answer sheets. Results show that correlation coefficients of each domain with the total score of the scale are statistically significant as Table (6) illustrates that :

Table (6)

Metrics of Internal Correlations of the Scale

Domains	Total Score of the Scale	First Domain	Second Domain	Third Domain
Total Score of the Scale	1	0.356	0.321	0.439
First Domain		1	0.422	0.431
Second Domain			1	0.497
Third Domain				1

Table 6 shows that all correlations between all domains or correlations with the total score of the scale of cognitive inhibition by using Pearson correlation coefficients are statistically significant under level of significance of about 0,05 with degree of freedom of about 2,88 since the tabulated value amounts to 0,113 and this refers to construct validity .

Scale Validity

a. Face Validity

Despite the fact that all procedures of face validity have been completed; however, it is not enough for being reliable means (Abo Hattab,1973:191) Therefore, it is advisable to calculate another type of validity which is called (construct validity)

b. Construct Validity

Discrimination power of items is considered one of the indices of tests and scales construct validity as well as items homogeneousness in measurement (Faraj ,1980 :313) and all items of scale have the ability to discriminate among respondents by linking it with a total score and

the domain to which belong to ,so this is an index of scale construct validity.

Scale Reliability

The scale reliability has been verified by the following methods :

a. Test –Re-test Method

The application of the same scale has been applied on the same group after two weeks and the group has gained the same score .(Obaidat ,2000:138).

The researcher has calculated Pearson correlation coefficient between the first and the second application which amounts to (0,87) and it is a very good reliability in psychological scales .(Awdda, 2002:376)

b. Cronbach’s Alpha Formula

To extract the reliability , all the sample sheets amounting to 300 sheets , have been used for scale of cognitive inhibition randomly by using Cronbach’s Alpha Formula where the reliability coefficient amounts to 0,78 and it is of statistical significant scale

(Al- Samaddi and AL-Darabee’ ,2004:198)

The statistical indices of scale of cognitive inhibition as shown table (7):

Table (7)

Prominent Statistical Indices of the Scale of the Cognitive Inhibition

N	300
Mean	78.32
Median	79
Mode	79
Std. Deviation	10.625
Variavce	113.843
Skewness	0.206
Kurtosis	2.42
Range	63
Minimum	40
Maximum	103

Description of Scale of the Cognitive Inhibition with its Final Formulation

The scale of cognitive inhibition consists of three dimensions (controlling cognitive activity – resisting cognitive interference –cognitive flexibility and each dimension consists of ten items and the total number of items are thirty items and the sample consists of 400 male and female students.

The Final Application of the Scale of Cognitive inhibition

The researchers have applied special scales of this paper with its final formulation on the sample amounting to 400 male and female students selected from outstanding secondary school- Al-Rusafa Education Directorate and AL-Karkh Education Directorate for the period starting from 31/12/2017 up to 27/2/2018

The Statistical Means that Have Been used in the Current Research

1. Chi –Square : is used to define the significance differences among referees opinions and viewpoints upon the extent of items validity in the three scales .
2. T-Test for two independent samples: is used to calculate discrimination force by using the two extreme group approach

3. Pearson Correlation Coefficient is used to calculate the item score correlation with the total degree of the scale, domain and reliability by test and re-test method.
4. Alpha formula of internal consistency:is used to calculate the reliability of research paper scales

CHAPTER FOUR: RESULTS : DISPLAY AND DISCUSSION

The current chapter deals with the results according to the given aims and objectives and explaining these results and discussing them according to the theoretical framework and reviews of related literature together with population features that have been studied in the paper and then the paper has come up with a bundle of recommendations and suggestions for further readings. Results show that:

1.The First Aim : Identifying the level of cognitive inhibition among outstanding school students .To identify this aim , the researcher has applied a scale of cognitive inhibition on a sample consisting of 400 students .It appeared that the arithmetic mean of calculating the sample score amounting to 79,42 with standard deviation of about 11,168 degree . Upon identifying the significant difference between the arithmetic mean and the virtual mean which

amounts to 75 degree. This means that a difference is statistically significant under level of 0,05 where the calculated T-value is about 7,906 which is larger than tabulated T-value

which is about 1,96 with degree of freedom of about 399 and this refers to the sample of the paper is marked by cognitive inhibition. Table (8) illustrates this :

Table (8)
Arithmetic Mean ,Standard Deviation and T-value of the Sample

Variable	Sample	Arithmetic Mean	Standard Deviation	Virtual Mean	T-Value		
					Calculated	Tabulated	Significant 0.05
Cognitive Inhibition	400	79.42	11.168	75	7.906	1.96	Significant

It is clear and evident from the first aim that the sample individuals are characterized by cognitive inhibition and this feature is found in outstanding students due to the process of learning that is correlated with the cognitive inhibition which relies on the human intelligence and adaptation to new situations. (Human intelligence , 2015)

According to Harnishfiger who holds that inhibition plays an important role in individual differences since it is considered one of the mental processes that can be correlated with many cognitive and psychological processes including schemes and control behaviour (Rafel , Hanek , 1994 , Baddeleg , 1996)

CHAPTER FIVE : CONCLUSIONS , RECOMMENDATIONS, SUGGESTIONS FOR FURTHER READINGS

Conclusions

The paper has come up with the following findings:

1. The cognitive inhibition is influenced by learners ability of attention across different age groups .
2. There is a direct relation between the cognitive inhibition and the speed of information processing and the ability of individuals to use the cognitive flexibility by updating information .
3. The cognitive inhibition is influenced by neural activation as well as the extent of stimuli and physiological changes .

Recommendations

In the light of the above results the following recommendations have been put forward :

1. It is necessary to hold seminars or workshops for students' parents that urge them to take great care of providing calm family atmospheres that may enable students to hone their energies and focus their attention.
2. It is necessary to provide students with sensual stimuli that may help them to motivate and stimulate their attention in order to give the psychological and moral support as well as raising their spirits for the sake of create their honest spirit of competition without driving students to involve in conflicts .
3. It is necessary to include their curricula on interesting educational means which may help draw their attention.

Suggestions for Further Studies :

1. Conducting a study dealing with the relation between the cognitive inhibition and working memory .
2. Conducting a study dealing with the relation between the cognitive inhibition and fluid intelligence .
3. Conducting a study dealing with the relation between the cognitive inhibition and methods of learning among students of different grades .

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