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Selective Attention of University Professors

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Abstract

The research aims to identify: Selective attention among university professors.

Statistically significant differences in selective attention according to gender (male - female) and specialization (scientific - human). To achieve the aims of the research, the researchers chose the research sample from the professors at the University of Babylon, according to the simple random method, from six faculties, two humanities and four scientific faculties, and applied Thomson equation to extract the sample size. With a proportional distribution, a selective attention measurement tool was applied to the research sample according to the theoretical framework and the definition of Strobe and his tool for measuring selective attention, which consists of four tasks with (80) test items that were applied using tablets to the research sample. Search for the following results: There are no statistically significant differences according to the gender variable, and there are statistically significant differences according to the specialization variable in favor of the scientific specialization in light of this, the researchers came up with a set of suggestions and recommendations

Keywords: selective attention, university professors.

Introduction

Man derives his interaction with the environment through the sources of information surrounding him, which include various and enormous types of stimuli, and in order to be able to conform with the environment, Man needs to examine sensory or visually what surrounds them quickly and accurately, and to keep in their mind some details or respond with an appropriate reaction to some. This requires focusing attention and creating a range of attention that accommodates the largest number of stimuli in a unit time as individuals are constantly exposed to many scenes or information, but they are only able to identify and process relevant target information, while ignoring irrelevant information. (keulan et al., 2002:515).

Research Investigation

The human brain directs its attention to one specific thing with the exclusion of external stimuli in some situations, where the individual focuses his attention selectively towards some of the surrounding stimuli around him, but this process may be a problem for most adults as individuals are constantly exposed to many visual and auditory scenes that may make them unable to identify and process information relevant to the situation, and they ignore the information, some information relevant to the situation due to the large number of distractions that are able to alter reactions to what they are going through. Any purposeful behavior in daily life requires focusing attention on some information related to the situation and ignoring

distractions. Huang-pollok (2001) explained that the perceived world provides a great deal of information that exceeds the ability of the human system with limited capacity to process it. As a result, the selection among the number of multiple stimuli that are proportional to the amount of cognitive processing in the perceptual system must occur at a certain point in the information processing process that only allows the processing of a limited amount of information available after that point (Huang-pollok, 2001; Noor, 2021).

Research Significance

Selective attention is a vital mental process whose importance lies in being one of the main requirements for many mental processes such as perception, remembering, thinking and learning. If this process does not occur, the individual may not be able to perceive what is going on around him, and he may have difficulty in the process of remembering, which results in many errors, whether in terms of the thinking process or the performance and implementation of behavior. (Zghoul and Zughoul, 2007; Roberts, 2021).

Selective attention has an adaptive importance. For example, if we pay attention to a lot of environmental information, we will not be able to detect important events effectively. Therefore, we can determine the amount of processed information from processing this (selected) information more efficiently. Attention is an important and necessary condition for the success of all types of activities performed by humans, whether in playing, education, or work.etc.

The more complex the activity that a person performs and requires greater responsibility, the greater the requirements for attention in terms of focus and permanence. Without attention, the individual would not be able to perceive, remember, imagine, learn or perform accurate work. (Mansour and Al-Ahmad, 2003; Smith & Stamatakis, 2020).

Research Objectives

The research aims to comprehend:

1- Selective attention of university professors.

2- Statistically significant differences in selective attention according to gender (male - female) and specialization (scientific - humanitarian)

Terms Definition:

Stroop (1935): The ability to respond to certain environmental stimuli while ignoring others. (Stroop,1935:5)

Theoretical Framework: Issa (2017) believes that performing more than one task simultaneously and concurrently usually leads to a decline in performance rates and speed, and this decrease may be due to the bottleneck method in coordinating between the executive tasks responsible for the implementation of multiple tasks. Additional interference may arise if it is presenting tasks in different sensory ways, and thus, the sensory cortex that is responsible for these tasks compete for attention resources, and this competition may also occur outside the sensory cortex and that is in the areas of the brain associated with the implementation of those tasks in the event that those tasks require the same processing, whether phonological or spatial. (Issa, 2017: 6)

Characteristics of Selective Attention

In her study (2011), El-Batool referred to the characteristics of selective attention, which are the following:

1- Selection: selective attention allows the selection of information that is highly processed.

2- Candidate's ability: This choice in processing includes improving the processing of the selected information and marginalizing other information.
3- Monitoring: the presence of monitoring in the processing of information is linked to the concept of adaptability member.
4- Active and passive use: Attention can be directed negatively towards the semantic sensory characteristics of the stimulus, as the environment can be subject to unexpected changes and it must be possible to express a quick and specific reaction.
5- The level of selection: achieved after semantic analysis in the active memory or during the answer itself. (Al-Batool, 2011: 111-112)

Components of visual selective attention:

The mechanism of visual selective attention consists of:

1- Research: The research process is an attempt to determine the location of the stimulus in the visual field.
2- Filtering: It is the process of selecting a specific stimulus or characteristic and ignoring the other stimuli or characteristics (Al-Sayed, 1998: 33).
3- Preparedness for the response: The individual maintains the strategy with which he responded to the previous goal in order to respond to the next goal, or change and modify it (Al-Sayyid Wafaeqa, 1999: 18.)

Explanatory theory of selective attention

First: Stroop Theory (1935)

Stroop (1935) argues that selective attention is what allows us to focus primarily on one thing while ignoring all other stimuli. Whether it is reading a book, listening to someone talking, watching a movie or writing an article. Selective attention is necessary in order to prevent disturbances and focus on the task at hand and it is easier to notice its absence than its presence. This happens when our thoughts are distracted, and we reach the end of the paragraph while wondering what we have just read, on the contrary to this behavior, we can sometimes focus so much that we effectively ignore even the vital stimuli such as feeling hungry or sleepy when it comes to stroop tasks, selective attention is essential so you can focus on the stimuli and the task at hand rather than all other potential stimuli (e.g. random thoughts, reflection on the screen).

Stroop explains that selective attention represents one of the most complex sensory systems for humans, judging by the depth, shape, size, direction and color under different types of light for partially hidden objects, these may all appear to be simple and automated processes and are so complex that robotics and AI (Artificial intelligence) engineers are still struggling to get an algorithm to perceive moving and static scenes the way humans do. (Christina, 2022:13)

(Stroop, 1935) shows that when it comes to more complex visual stimuli, especially linguistic, it may occur due to the distance that must be covered from the occipital lobe to Wernicke's area; which are also larger than the area covered by the auditory language stimulus and the brains of individuals born with hearing impairments and whose first language is sign language, adapt very quickly by using areas designated for auditory processing in order to process visual language stimuli.

This could be an indicator of brain flexibility, as studies have also shown cortical

changes in the brains of blind individuals, where the visual cortex is used for language processing, not an indicator that the distance between cortical areas can affect processing time. (Gilbert & Walsh, 2004:500)

Research methodology and procedures

Research Methodology

The research method is the descriptive method, which is a scientific diagnosis of a phenomenon, and insight into it quantitatively, with linguistic and mathematical symbols (Daoud and Abdel Rahman, 1990: 163).

Community and Sample Research:

The current research community was determined by the teaching staff of the University of Babylon for the academic year (2021 / 2022), and the research community reached (1958) professors. The researchers chose a sample of professors from (6) colleges and by applying the Thomson equation to extract the sample size, which amounted to (322) professors who were distributed according to the method of the stratified random sample with a proportional distribution according to the percentage. The percentage of males was (62%) and the percentage of females (38%) along with the percentage of scientific majors is (71%) and the percentage of humanitarians is (29%).

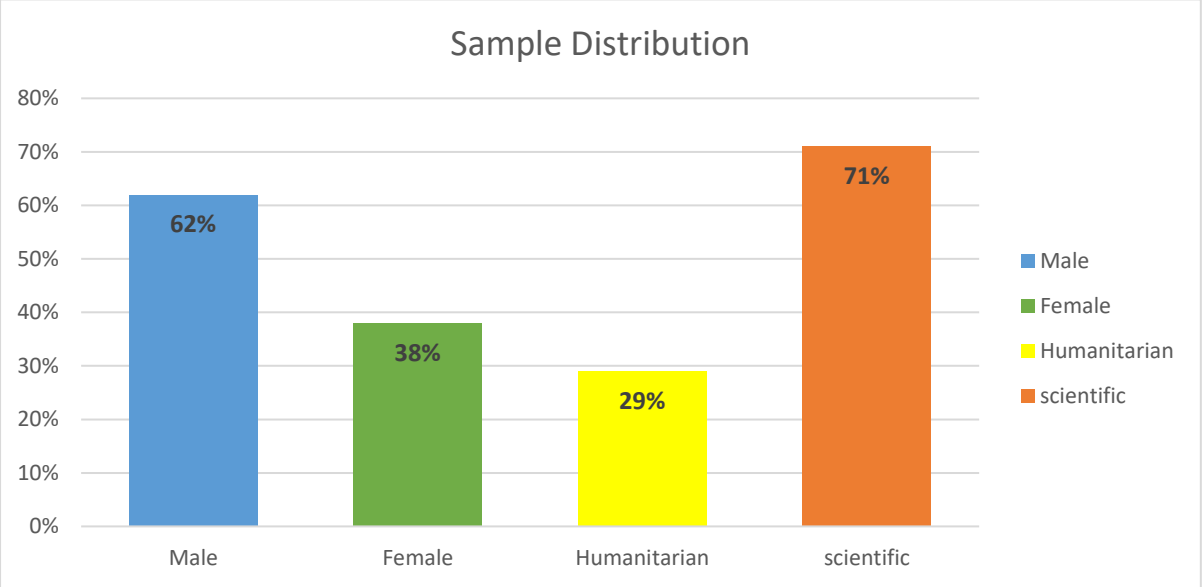

Figure (1) Distribution of the sample according to percentages

Research tool

To achieve the objectives of the current research, a tool for measuring selective attention was required, according to the theoretical framework, and the adoption of the definition of Stroop and his tool for measuring selective attention. Where the researchers adopted the Stroop tool to measure selective attention, which consists of four lists that include a group of stimuli (words, shapes) printed in different colors. The objective of this test is to reveal the effect of overlapping color stimuli when reading color labels in sequence and the effect of overlapping word stimuli on naming colors in a sequential manner (Stroop, 1935: 640-659), and the descriptive statistical characteristics of the selective attention test were found, and the results shown in the table below:

Table (1) *Descriptive Statistical C haracteristics of theStroop Effect Test*

32	**Range**	**0.136**	**Torsion Error**	**6.504**	**Standard Deviation**	**48.6**	**ArithmeticMean**
33	Lowest Degree	-0.321	Kurtosis	42.303	Variance	49	Mediator
65	Highest Degree	0.271	Kurtosis Error	-0.101	Skewness	49	Mode

Statistical Analysis of Stroop Test Items

1- Items Difficulty

This procedure aims to select items of appropriate difficulty for students and delete items that are very easy or very difficult. After conducting the statistical analysis on the test items, it was found that the difficulty coefficients of the items ranged from (0.50 - 0.78), that is, of medium difficulty and within the acceptable range.

2- Discriminatory Power of Test Items

The current research followed the method of the two peripheral groups in extracting the coefficient of discrimination through the difference between the number of people who answered correctly in the two groups (higher and lower) divided by the number of one of the two groups. Its value ranges between (+1) and (-1), and after conducting statistical analysis, it was found that the number of test items (which are very good and distinguished) reached to (34) items. The number of (good) items in terms of their discriminatory strength was (28), while the items of the test with marginal discriminatory strength reached (18).

3- Internal consistency

The researchers used the Point-Biserial correlation coefficient equation to calculate the correlation between the (continuous) scores and the binary score (discrete) for each of the scale items and for the (322) male and female professors scores through several methods:

- ***The Method of Correlation of the Test Item's Score with the Total Test Score and the Task Score to which it Belongs***

It was found that all the values of the correlation coefficients between the score of the test item and the total score of the test are higher than the tabular value. It was also found that all the values of the correlation coefficients between the score of the test item and the total score of the task to which it belongs are higher than the tabular value of the correlation coefficient of (0.098) at the level of significance (0, 05) and a degree of freedom (320), where the values of the correlation coefficients ranged (0.107-0.803).

- ***The Method of Linking the Task Score with other Tasks and with the Total Test Score***

The researchers used the Pearson correlation coefficient to find the correlation between the degree of each of the test tasks and the total score of the test. We find that all the values of the correlation coefficients between the task score and other tasks and the total score of the test are higher than the tabular value of the correlation coefficient of (0.098) at the level of significance (0.05) and (320) degree of freedom.

Standard Characteristics (Psychometric) of the Test

1) ***Construction Validity*:** check this indicator by keeping the statistically significant related vocabulary and excluding weakly linked test vocabulary. Therefore, the correlation coefficients of the vocabulary with the total score and the discriminatory ability of the vocabulary can be indicators of the validity of the current test in addition

to the relationship of the item to the task and the relationship of tasks to the total score of the test.

2) ***Stability by the Kewder-Richardson Equation Method*:** The Kewder-Richardson equation was applied to the scores of the sample members of the (100) male and female professors, the value of the scale stability coefficient was (0.84), which is an indication that the test reliability coefficient is good.

Presentation, Discussion and Interpretation of Results

The First Objective: To identify the selective attention of university professors.

For the purpose of achieving this goal, the answers of the research sample members on the selective attention test were analyzed and the results shown in Table (2) below:

Table (2) *The Results of the T-test to indicate the difference between the arithmetic mean and the hypothetical mean of the selective attention test*

Indication	T- Value		Hypothetical	Standard	Arithmetic	Sample	Test
	Tabular	Calculated	Center	Deviation	Mean		
Significance		23.75	40	6.504	48.6		S electiveAttention
Significance		11.45	10	3.45	12.2		First Task
Significance	1.96	15.54	10	2.67	12.3	322	Second Task
Significance		16.72	10	2.20	12.04		Third Task
Significance		12.33	10	3.00	12.06		Fourth Task

By observing the above table, we find that the research sample possesses levels of selective attention, as the arithmetic means were compared with the hypothetical mean for each task, and it was found that the current research sample possessed high levels of selective attention, where the calculated T-values were greater than the tabular value of (1.96) at the significance level (0.05) and the degree of freedom (321), which means that there are statistically significant differences.

This result can be explained in the light of the cognitive trend that man is an effective being in processing information and environmental stimuli. The results also indicate that the current research sample possesses good selective attention compared to the calculated T-value of the test, and it is also a clear indication that the sample members are distinguished by the ability to distinguish the interferences.

Since the University professor deals with a huge amount of cognitive and environmental information on an ongoing basis, which requires him to keep that information and retrieve it from the stored cognitive structures and mental schemes when needed.

The Second Objective: The statistically significant differences in selective attention according to the variable of gender (male-female) and specialization (scientific – humanitarian).

To achieve this goal, the researchers extracted the values of the means and standard deviations of the research sample according to the variable of gender and specialization, as shown in Table (3):

Table(3) *Arithmetic Means and Standard Deviations of the research sample distributed accordingto Genderand Specialization*

Standard Deviation	Arithmetic Mean	Specialization	Gender
6.765	48.81	Scientific	
6.644	47.41	Humanitarian	male
6.742	48.38	Total	
5.875	49.52	Scientific	
6.533	47.26	Humanitarian	female
6.096	48.96	Total	
6.424	49.09	Scientific	
6.572	47.36	Humanitarian	Total
6.504	48.60	Total	

For the purpose of identifying whether there are statistically significant differences in the degree of selective attention according to the variables of gender and specialization, and the effect resulting from the interaction between the two variables, this was tested using a binary analysis of variance, as shown in Table (4):

Table (4) *Statistically Significant differences in Selective Attention according to the variables of Gender and Specialization*

indication	Tabular	Calculated phasic	mean squares	degree of freedom	sum of squares	Variable Source
Non-significant	3.84	0.111	4.666	1	4.666	Gender
significant		4.701	197.421	1	197.421	Specialization
Non-significant		0.265	11.118	1	11.118	Gender * Specialty
			41,996	318	13354.781	The Error
				322	774208	The Total
				321	13579.118	Total corrected

The results of the binary analysis of variance in Table (4) indicated the following:

Gender

It appears from the above table that the calculated value of (0.111) is lower than the tabular value of (3.84) at the level of significance (0.05), which means that there are no statistically significant differences.

This result can be attributed to the fact that the male and female research sample members live in the same environment and are exposed to the same attentional stimuli, and they deal with it accordingly.

Specialization

It appears from the above table that the calculated value of (4.701) is higher than the tabular value of (3.84) at the level of significance (0.05), thus, there are statistically significant

differences in favor of the scientific specialization.

The researchers believe that this is due to two main reasons; the first is that University professors of scientific specialization deal with a lot of applied curricula, which are distractions.

For example, professors at the College of Engineering or colleges of science and others. The second reason is that scientific disciplines need careful attention to their dealings with tools and applications that need their focus and the choice of direction towards identifying these tools or applications regardless of other distractions.

Gender Interaction* Years of Service

There are no statistically significant differences according to the interaction of gender and specialization in selective attention. The calculated t-value was (0.265), which is less than the tabular value of (3,84) at the significance level (0.05), and thus there is no effect of gender with specialization on selective attention.

Conclusion

Through the previously mentioned and in light of the results and procedures that resulted from the current study, I reached the following conclusions:

The professors at the University of Babylon are characterized by selective attention, as they possess a good degree of it, because the University professor needs high levels of attention in the classroom and to the surrounding stimuli around him during the teaching process.

The selective attention is not affected by the gender of the teaching staff, male or female. However, there is an influence on the nature of the specialization of the University professor, whether he is a scientific or humanitarian specialist.

Recommendations and Proposals

In light of the research results***, the researchers recommend the following:***

1. Benefiting from the results of this research in teaching methods courses when preparing University professors for their future role in the educational process, especially in selective attention and its role in processing information in the classroom.

2. Conducting a study on the relationship of selective attention to thinking patterns among university professors.

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