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Competency to Sort Information and Selectively React To This Information as a Function of Cognitive Style

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ABSTRACT

The purpose of this study is to determine whether the competency of the individual to sort information from his or her environment and selectively react to this information is influenced by such important variables as cognitive style. For the investigation Purposive randomized sampling technique will be employed to select the adults. Effective sample will be consist of 240 adult, in which 120 adults will be male, and another 120 adults will be female, male adults and female adults will equally classify in urban and rural, again both group from male adults (urban and rural) and female adults (urban and rural) will equally classify in high level of cognitive style and low level of cognitive style. To determine Pattern of cognitive style, Cognitive Style inventory (CSI) developed by Dr. Praveen Kumar Jha, will be used, and To determine competency of the individual to separate the word and colour naming stimuli Stroop Colour and Word test standardized by Charles J. Golden will be use. For the each subject, initially data of each group will be separately scrutinized by employing descriptive statistics i.e. mean and S.D. The statistical analysis will be mainly consisted of inferential statistics i.e. Two Way ANOVA with the help of SPSS. Outcome of result shows that the Competency to sort information and selectively react to this information as a Function of cognitive style.

Keywords: *Cognitive style, Ability of the individual, Area of Living, & Gender.*

Cognitive styles describe how the individual acquires knowledge (cognition) and processes information (conceptualization). Cognitive styles are related to mental behaviors which individuals apply habitually when they are solving problems. In general, they affect the way in which information is obtained, sorted, and utilized. Cognitive style is usually described as a stable and persistent personality dimension which influences attitudes, values, and social interaction. It is a characteristic of cognitive processing which is particular to a certain individual or class of individuals.

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There are many different definitions of cognitive style. Tennant (1988) defined cognitive styles as "an individual's characteristic and consistent approach to organizing and processing information". Riding, Glass, and Douglas (1993) termed cognitive styles as "a fairly fixed characteristic of an individual" and "are static and are relatively in-built features of the individual". Based on the above definitions, in the authors' points of view, cognitive/learning styles refer to the individual's consistent and characteristic predispositions of perceiving, remembering, organizing, processing, thinking, and problem solving.

In psychology, the Stroop effect is a demonstration of interference in the reaction time of a task. When the name of a colour (e.g., "blue," "green," or "red") is printed in a colour not denoted by the name (e.g., the word "red" printed in blue ink instead of red ink), naming the colour of the word takes longer and is more prone to errors than when the colour of the ink matches the name of the colour. The effect is named after John Ridley Stroop who first published the effect in English in 1935 (Stroop, John Ridley 1935). The effect had previously been published in Germany in 1929 (Jaensch, E.R 1929, Jensen, A. R., Rohwer, W.D. 1966 MacLeod C. M. 1991). The original paper has been one of the most cited papers in the history of experimental psychology, leading to more than 701 replications (MacLeod C. M. 1991). The effect has been used to create a psychological test (Stroop Test) that is widely used in clinical practice and investigation.

Original Experiment

The effect is named after John Ridley Stroop, who published the effect in English in 1935 in an article entitled "Studies of interference in serial verbal reactions" that includes three different experiments (Stroop, John Ridley 1935). However, the effect was first published in 1929 in Germany, and its roots can be followed back to works of James McKeen Cattell and Wilhelm Maximilian Wundt in the nineteenth century (Jaensch, E.R 1929, Jensen, A. R., Rohwer, W.D. 1966 MacLeod C. M. 1991).

In his experiments, Stroop administered several variations of the same test for which three different kinds of stimuli were created. In the first one, names of colours appeared in black ink. In the second, names of colours appeared in a different ink than the colour named. Finally in the third one, there were squares of a given colour (Stroop, John Ridley 1935).

In the first experiment, 1 and 2 were used (see first figure). The task required the participants to read the written colour names of the words independently of the colour of the ink (for example, they would have to read "purple" no matter what the colour of its ink was). In the second experiment, stimulus 2 and 3 were used, and participants were required to say the colour of the letters independently of the written word with the second kind of stimulus and also name the colour of the dot squares. If the word "purple" was written in red, they would have to say "red", but not "purple"; when the squares were shown, the participant would have to say its colour. Stroop, in the third experiment, tested his participants at different stages of practice at the tasks and stimulus used in the first and second experiments, to account for the effects of association (Stroop, John Ridley 1935).

Stroop noted that participants took much longer to complete the colour reading in the second task than they had taken to name the colours of the squares in Experiment 2. This delay had not appeared in the first experiment. Such interference was explained by the automation of reading, where the mind automatically determines the semantic meaning of the word (it reads the word "red" and thinks of the colour "red"), and then must intentionally check itself and identify instead the colour of the word (the ink is a colour other than red), a process that is not automatized.

Unlike researchers performing the Stroop test that is most commonly used in psychological evaluation, (Golden, C.J. 1978) J.R Stroop never compares the time used for reading black words and the time needed for naming colours that conflicted with the written word.

Experimental findings

Stimuli in Stroop paradigms can be divided into 3 groups: neutral, congruent and incongruent. Neutral stimuli are those stimuli in which only the text (similarly to stimuli 1 of Stroop's experiment), or colour (similarly to stimuli 3 of Stroop's experiment) are displayed Congruent stimuli are those in which the ink colour and the word refer to the same colour (for example the "pink" word written in pink). Incongruent stimuli are those in which ink colour and word differ. Three experimental findings are recurrently found in Stroop experiments. A first finding is *semantic interference*, which states that naming the ink colour of neutral stimuli (e.g. when the ink colour and word do not interfere with each other) is faster than in incongruent conditions. It is called semantic interference since it is usually accepted that the relationship in meaning between ink colour and word is at the root of the interference. The second finding, *semantic facilitation*, explains the finding that naming the ink of congruent stimuli is faster (e.g. when the ink colour and the word match) than when neutral stimuli are present (e.g. when the ink is black, but the word describes a colour). The third finding is that both semantic interference and facilitation disappear when the task consists of reading the word instead of naming the ink. It has been sometimes called *Stroop asynchrony*, and has been explained by a reduced automatization when naming colours compared to reading words (Van Maanen L, Van Rijn H, Borst J.P. 2009).
In the study of interference theory, the most commonly used procedure has been similar to Stroop's second experiment, in which subjects were tested on naming colours of incompatible words and of control patches. The first experiment in Stroop's study (reading words in black versus incongruent colours) has been discussed less. In both cases, the interference score is expressed as the difference between the times needed to read each of the two types of cards. Instead of naming stimuli, subjects have also been asked to sort stimuli into categories. Different

characteristics of the stimulus such as ink colours or direction of words have also been systematically varied. None of all these modifications eliminates the effect of interference (MacLeod C. M. 1991).

Theories: -

There are several theories used to explain the Stroop effect and are commonly known as 'race models.' This is based on the underlying notion that both relevant and irrelevant information are processed in parallel, but "race" to enter the single central processor during response selection. (Johnson, A. 2004) They are:

Speed of processing theory

This theory suggests there is a lag in the brain's ability to recognize the colour of the word since the brain reads words faster than it recognizes colours (McMahon, M. 2013). This is based on the idea that word processing is significantly faster than colour processing. In a condition where there is an in congruency regarding words and colours (e.g. Stroop test), if the task is to report the colour, the word information arrives at the decision-making stage before the colour information which presents processing confusion.35 Conversely, if the task is to report the word, because colour information lags after word information, a decision can be made ahead of the conflicting information (Lamers, M. J. & et al. 2010).

Selective attention theory

The Selective Attention Theory suggests that colour recognition as opposed to reading a word, requires more attention. In other words, the brain needs to use more attention to recognize a colour than to word encoding, so it takes a little longer (McMahon, M. 2013). The responses lend much to the interference noted in the Stroop task. This may be a result of either an allocation of attention to the responses or to a greater inhibition of distractors that are not appropriate responses.

Automation of reading theory or Automaticity Hypothesis

This theory is the most common theory of the Stroop effect (McMahon, M. 2013). It suggests that since recognizing colours is not an "automatic process" there is hesitancy to respond; whereas, the brain automatically understands the meaning of words as a result of habitual reading. This idea is based on the premise that automatic reading does not need controlled attention, but still uses enough attentional resources to reduce the amount of attention accessible for colour information processing (Monahan, J. S. 2001). Stirling, N. (1979) introduced the concept of response automaticity. He demonstrated that changing the responses from coloured words to letters that were not part of the coloured words increased reaction time while reducing Stroop interference.

Parallel distributed processing theory

This theory suggests that as the brain analyzes information, different and specific pathways are developed for different tasks (Cohen, J. D. 1990). Some pathways, such as reading, are stronger than others, therefore, it is the strength of the pathway and not the speed of the pathway that is important (McMahon, M. 2013). In addition, automaticity is a function of the strength of each pathway, hence, when two pathways are activated simultaneously in the Stroop effect, interference occurs between the stronger (word reading) path and the weaker (colour naming) path, more specifically when the pathway that leads to the response is the weaker pathway (Cohen, J. D. 1990).

REVIEW OF LITERATURE

Derefeldt, G., Swartling, T., Berggrund, U., Bodrogi, P. (2004) report surveys cognitive aspects of colour in terms of behavioral, neuropsychological, and neurophysiological data. Colour is usually defined as a colour stimulus or as perceived colour. In this article, a definition of the concept of cognitive colour is formulated. To elucidate this concept, those visual tasks are described where it is relevant: in colour categorization, colour coding, colour naming, the Stroop effect, spatial organization of coloured visual objects, visual search, and colour memory.

Ferrand**, L.,** Augustinova**, M. (2013)** found that the substantial magnitude of the Stroop interference that occurs when a participant's initial fixation is directed at the optimal viewing position is eliminated when the initial fixation is directed at the end of a word, Perret and Ducrot (2010) concluded that initial fixation at the latter position likely prevents reading. In the present study, we further examined this interpretation. To this end, the two conflict dimensions (semantic vs. response) that were confounded in the original work were separated within a semantically based Stroop paradigm (Neely & Kahan, 2001) that was administered with vocal (instead of manual) responses. In line with past findings showing greater interference in the vocal task, the reported results indicated that standard Stroop interference was reduced, but not eliminated, thus making the initial interpretation in terms of reading suppression unlikely. This conclusion is further strengthened by the presence of isolated semantic interference, the magnitude of which remained significant and was unaffected by viewing position. In sum, these results show that initial fixation of the end of a word simply reduces (nonsemantic) response competition.

Goolkasian, P. (1999) tested a series of studies for distractor compatibility effects across wide target/distractor distances (0.6 [degrees] to 20 [degrees] of visual angle). The effects of precue condition, constant/varied target location, horizontal/vertical distractor distance, and foveal/peripheral presentation were studied. Results show strong compatibility effects across wide distances when distractors are at peripheral retinal locations. When both stimuli were presented at the same peripheral location in opposite hemifields, compatibility effects were evident within an area of at least 2.5 [degrees] of visual angle. In contrast, when foveally placed distractors were used, compatibility effects were found primarily with target letters positioned near. The findings suggest that distance effects are not homogeneous across retinal location.

Goolkasian, P. (1981) conducted two experiments were with 48 undergraduates to study the perceptual facilitation and inhibition that occurs between foveal and parafoveal or peripheral regions of the eye. Exp I used a Stroop task to compare colour detection latencies of foveal and parafoveal targets. Target and distracter components of the Stroop stimuli were separated and presented with varied stimulus onset asynchronies. Exp II used a Stroop-like task to extend the findings into the visual periphery. Ss processed foveally presented distracter information while attending to targets presented in parafoveal or peripheral eye regions. Incompatible distracter information was suppressed while compatible information was used to facilitate target processing. When targets were presented foveally along with the distracter information, Ss automatically processed the distracter information. Findings are discussed within the framework of past studies that presented Ss with competing tasks across retinal location. A 2-process theory of attention is also considered.

Lamb, M. R., Robertson, L. C. (1988) examined three experiments that the effects of changes in retinal locus and locational uncertainty in the processing of hierarchical stimuli. In Experiment 1, stimuli were presented randomly in the left, center, or right portions of a display. Central presentation decreased reaction times for identifying small letters presented within a hierarchical stimulus pattern (i.e., local letters) but not for a single small letter presented alone. In Experiment 2, all stimuli were presented centrally, thus eliminating the locational uncertainty that existed in Experiment 1. The elimination of locational uncertainty resulted in faster reaction times (as compared with the central data of Experiment 1) for identifying small letters, whether or not they appeared in a hierarchical pattern. In Experiment 3, eye movements were monitored and eliminated as a possible source of these effects. The results are discussed in terms of possible effects of an attentional "spotlight" on hierarchical stimulus processing. It was also found that the identity of the target letter (i.e., whether it was an H or an S) had a large effect on performance. Finally, in contrast to earlier findings (Hoffman, 1980; Martin, 1979), the response-time advantage at a given level and the amount of Stroop-type interference produced at the other level did not always covary, suggesting that these two effects may reflect the operation of separate mechanisms.

Statement of the Problem:

To study the Competency to sort information and selectively react to this information as a Function of cognitive style.

Objectives

1. The purpose of this study is to determine whether competency of the individual to separate the word and colour naming stimuli on the basis of cognitive style, gender and area of living i.e. urban or rural.

2. To find out whether there are individual differences in terms of cognitive style, gender and area of living i.e. urban or rural.
3. To find out the competency of the individual to sort information from his or her environment and selectively react to this information on the basis of cognitive style, gender and area of living i.e. urban or rural.
4. To suggest the importance of individual's cognitive style, gender and area of living i.e. urban or rural is predictive of their behaviour and compatibility with others.

Hypotheses:

1. Adults with High level of cognitive style exhibit higher competency to sort information and selectively react to this information than adults with low level of cognitive style.
2. Adults from urban area exhibit higher competency to sort information and selectively react to this information than adults from rural area.
3. Male adults exhibit higher competency to sort information and selectively react to this information than female adults.
4. There is significant interaction effect between level of cognitive style and gender on the competency to sort information and selectively react to this information.
5. There is significant interaction effect between level of cognitive style and area of living on the competency to sort information and selectively react to this information
6. There is significant interaction effect between level of cognitive style and gender and area of living on the competency to sort information and selectively react to this information.

METHODOLOGY

Participants

The population of the study will be adult people from Aurangabad, Maharashtra. Purposive randomized sampling technique will be use to select the adults. Initially near about sample of 400 subjects will be select from the population and the effective sample will consist of 240 adult, in which 120 adults will be male, and another 120 adults will be female, male adults and female adults will equally classify in urban and rural, again both group from male adults (urban and rural) and female adults (urban and rural) will equally classify in high level of cognitive style and low level of cognitive style. The efforts will be made to have the sample as representative as possible in terms of education. All the subjects will be from similar kind of socio-economic status and they will be not having any kind of spectacles or visual illness.

Sample Distribution

	Male adults		**Female adults**		**Total**
	Urban	**Rural**	**Urban**	**Rural**	
High level of cognitive style	30	30	30	30	120

	Male adults		**Female adults**		**Total**
	Urban	**Rural**	**Urban**	**Rural**	
Low level of cognitive style.	30	30	30	30	120
Total	60	60	60	60	**Total N = 240**

Variables:

1) Cognitive Style, gender and area of living i.e. urban or rural is independent variable in this study.
2) Competency to sort information and selectively react to this information i.e. performance of Stroop Colour and Word Test of adults are dependent variables in this study.

Research Design: -

***Factorial Design: -* 2x2x2**

	A1		**A2**	
	B1	**B2**	**B1**	**B2**
C1	A1B1C1	A1B2C1	A2B1C1	A2B2C1
C2	A1B1C2	A1B2C2	A2B1C2	A2B2C2

- ➢ **A = Gender.**
  - ✓ **A1 = Male Adults.**
  - ✓ **A2 = Female Adults.**
- ➢ **B = Area of Living.**
  - ✓ **B1 = Urban**.
  - ✓ **B2 = Rural**.
- ➢ **C = Cognitive style.**
  - ✓ **C1 = High level of cognitive style**.
  - ✓ **C2 = Low level of cognitive style**.

Operational definitions of variables: -

1. Gender: - Classification of the male and female was determine with the help of norms from society i.e. "Gender" refers to the socially constructed roles, behaviours, activities, and attributes that a given society considers appropriate for men and women. The state of being male or female, typically used with reference to social and cultural differences rather than biological ones.

2. Area of Living: -

Adults those living in a geographic area that is located outside cities and towns considered as rural and Adults those living in high human population density and vast human-built features in comparison to the areas surrounding it i.e. cities and towns considered as urban.

3. Cognitive Style: - Pattern of cognitive style will be determined with the help of score obtained from Cognitive Style inventory (CSI) developed by Dr. Praveen Kumar Jha.

4. Competency to sort information and selectively react to this information: - Competency to sort information and selectively react to this information was determine with the help of score obtained by Stroop Colour and Word test standardized by Charles J. Golden.

Measurement Tools:

1. Cognitive Style: - To determine Pattern of cognitive style, Cognitive Style inventory (CSI) developed by Dr. Praveen Kumar Jha, will be used, which measures the ways of thinking, judging, remembering, storing information, decision making and believing in interpersonal relationship. Inventory consists of 40 items which measure systematic cognitive style and intuitive cognitive style consisting of 20 items each on a five point Likert format.

Reliability of the test was determined by two methods viz. split half and test-retest method. The full length split half reliability of CSI was 0.653 and the test retest reliability of the whole test was calculated to be 0.39 and for. The validity of the scale was measured by getting evaluation of each item by six judges, only those items were included in preliminary scale which got agreement by majority of judges. It ensures high content validity. The internal validity was determined by calculating discriminative power of each item in terms of phi-coefficient correlation and chi square.

2. Stroop Colour and Word test - To determine competency of the individual to separate the word and colour naming stimuli Stroop Colour and Word test standardized by Charles J. Golden will be use which having higher reliability and validity.

Procedure:

Initially researcher will categorized the adults in be male and female, male adults and female adults will equally classify in urban and rural, again both group from male adults (urban and rural) and female adults (urban and rural) will equally classify in high level of cognitive style and low level of cognitive style, and administered the Stroop Colour and Word test on 240 subjects and record the score on with the help of individual interview technique.

Purposed Statistical Procedure:

The sample will be available for statistical analysis consisted of 240 subjects after data collection. For the each subject, initially data of each group will be separately scrutinized by employing descriptive statistics i.e. mean and S.D. The statistical analysis will be mainly consisted of inferential statistics i.e. Two Way ANOVA with the help of SPSS.

STATISTICAL ANALYSIS AND INTERPRETATION

On the basis of close scrutiny brief summary of the results relevant to the hypotheses are presented below.

Hypothesis No. 1 Adults with High level of cognitive style exhibit higher competency to sort information and selectively react to this information than adults with low level of cognitive style.

Table 1. Showing Mean, & S. D. value for higher level of systematic cognitive style and lower level of systematic cognitive style on Stroop Colour Word Interference Score.

Variable	N	Mean	S.D.
Higher Level of Systematic Pattern Cognitive Style	120	153.75	54.76
Lower Level of Systematic Pattern Cognitive Style	120	121.01	24.25

Table 2. Showing F value for higher level of systematic cognitive style and lower level of systematic cognitive style on Stroop Colour Word Interference Score.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Cognitive Style	64321.004	1	64321.004	49.41	0.01
Error	302031.367	232	1301.859		
Total	5020735.000	240			
Corrected Total	491206.496	239			

Table 1 & 2 Showing Mean, S. D. & F value for higher level of systematic cognitive style and lower level of systematic cognitive style on Stroop Colour Word Interference Score. Results show that the mean score of the (153.75) Higher Level of Systematic Pattern Cognitive Style of adults is found higher than the mean score of the (64.60) lower Level of Systematic Pattern Cognitive Style of adults on Stroop Colour Word Interference Score. Further inferential statistics i.e. Analysis of Variance ($F (1, 239) = 49.41$, $P < 0.01$) indicate that the there is significant difference between cognitive style i.e. higher and lower on Stroop Colour Word Interference Score. Thus it can be concluded that the Adults with High level of cognitive style exhibit higher competency to sort information and selectively react to this information than adults with low level of cognitive style.

Hypothesis No. 2 Adults from urban area exhibit higher competency to sort information and selectively react to this information than adults from rural area.

Table No. 3. Showing Mean & S. D. value for area of living i.e. urban & rural on Stroop Colour Word Interference Score.

Variable	N	Mean	S.D.
Urban	120	142.37	50.43
Rural	120	137.38	45.33

Table No. 4. Showing F value for area of living i.e. urban & rural on Stroop Colour Word Interference Score.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Area of Living	5990.004	1	5990.004	4.60	0.05
Error	302031.367	232	1301.859		
Total	5020735.000	240			
Corrected Total	491206.496	239			

Table no. 3 & 4 Showing Mean, S. D. & F value for area of living i.e. urban & rural on Stroop Colour Word Interference Score. Results indicate that the mean score of the (142.37) Adults from urban area is found higher than the mean score of the (137.38) adults from rural area on Stroop Colour Word Interference Score. Further inferential statistics i.e. Analysis of Variance ($F (1, 239) = 4.60, P < 0.05$) indicate that the there is significant difference between area of living i.e. urban & rural on Stroop Colour Word Interference Score. Thus it can be concluded that the Adults from urban area exhibit higher competency to sort information and selectively react to this information than adults from rural area.

Hypothesis No. 3 Male adults exhibit higher competency to sort information and selectively react to this information than female adults.

Table No. 5 Showing Mean & S. D. value for gender on Stroop Colour Word Interference Score

Variable	N	Mean	S.D.
Male	120	154.62	55.75
Female	120	120.14	20.48

Table No. 6. Showing F value for gender on Stroop Colour Word Interference Score.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Gender	71311.537	1	71311.537	54.78	0.01
Error	302031.367	232	1301.859		
Total	5020735.000	240			
Corrected Total	491206.496	239			

Table no. 5 & 6 Showing Mean, S. D. & F value for gender on Stroop Colour Word Interference Score. Outcome of result shows that the mean score of the (154.62) Adults from urban area is found higher than the mean score of the (120.14) adults from rural area on Stroop Colour Word Interference Score. Further inferential statistics i.e. Analysis of Variance ($F (1, 239) = 54.78, P <$

0.01) indicate that the there is significant difference between gender i.e. male & female on Stroop Colour Word Interference Score. Thus it can be concluded that the Male adults exhibit higher competency to sort information and selectively react to this information than female adults.

Hypothesis No. 4 There is significant interaction effect between level of cognitive style and gender on the competency to sort information and selectively react to this information among adults.

Table No. 7. Showing F value for interaction of cognitive style and gender on Stroop Colour Word Interference Score.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Cognitive Style * Gender	32830.204	1	32830.204	25.22	0.01
Error	302031.367	232	1301.859		
Total	5020735.000	240			
Corrected Total	491206.496	239			

Table No. 7. Showing F value for interaction of cognitive style and gender on Stroop Colour Word Interference Score. Statistical investigation reveal that the significant interaction effect were found ($F (1, 239) = 25.22$, $P < 0.01$) between cognitive style and gender on Stroop Colour Word Interference Score. It means interaction between cognitive style and gender affect the competency to sort information and selectively react to this information among adults.

Hypothesis No. 5 There is significant interaction effect between level of cognitive style and area of living on the competency to sort information and selectively react to this information.

Table No. 8. Showing F value for interaction of cognitive style and area of living on Stroop Colour Word Interference Score.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Cognitive Style * Area of Living	7139.504	1	7139.504	5.48	0.05
Error	302031.367	232	1301.859		
Total	5020735.000	240			
Corrected Total	491206.496	239			

Table No. 8. Showing F value for interaction of cognitive style and area of living on Stroop Colour Word Interference Score. Results reveal that the significant interaction effect were found

(F (1, 239) = 5.84, P < 0.05) between cognitive style and area of living on Stroop Colour Word Interference Score. It means interaction between cognitive style and area of living affect the competency to sort information and selectively react to this information among adults.

Hypothesis No. 6 There is significant interaction effect between level of gender and area of living on the competency to sort information and selectively react to this information.

Table No. 9. Showing F value for interaction of gender and area of living on Stroop Colour Word Interference Score.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Gender * Area of Living	6837.338	1	6837.338	5.252	0.05
Error	302031.367	232	1301.859		
Total	5020735.000	240			
Corrected Total	491206.496	239			

Table No. 9. Showing F value for interaction of gender and area of living on Stroop Colour Word Interference Score. Results depicts that the significant interaction effect were found (F (1, 239) = 5.25, P < 0.05) between gender and area of living on Stroop Colour Word Interference Score. It means interaction between gender and area of living affect the competency to sort information and selectively react to this information among adults.

Hypothesis No.7 There is significant interaction effect between level of cognitive style and gender and area of living on the competency to sort information and selectively react to this information.

Table No. 10. Showing F value for interaction of cognitive style and gender and area of living on Stroop Colour Word Interference Score.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Cognitive Style * gender* Area of Living	745.538	1	745.538	0.57	NS
Error	302031.367	232	1301.859		
Total	5020735.000	240			
Corrected Total	491206.496	239			

Table No. 9. Showing F value for interaction of cognitive style and gender and area of living on Stroop Colour Word Interference Score. Results reveal that the no significant interaction effect were found (F (1, 239) = 0.57, P > 0.05) between cognitive style and gender and area of living on

Stroop Colour Word Interference Score. It means interaction between cognitive style and gender and area of living play similar kind of roll to determine the competency to sort information and selectively react to this information among adults.

CONCLUSIONS

1. Adults with High level of cognitive style exhibit higher competency to sort information and selectively react to this information than adults with low level of cognitive style.
2. Adults from urban area exhibit higher competency to sort information and selectively react to this information than adults from rural area.
3. Male adults exhibit higher competency to sort information and selectively react to this information than female adults.
4. Interaction between cognitive style and gender affect the competency to sort information and selectively react to this information among adults.
5. Interaction between cognitive style and area of living affect the competency to sort information and selectively react to this information among adults.
6. Interaction between gender and area of living affect the competency to sort information and selectively react to this information among adults.
7. Interaction between cognitive style and gender and area of living play similar kind of roll to determine the competency to sort information and selectively react to this information among adults.

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