

IMPACT OF GUNAS ON COGNITIVE ABILITIES

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ABSTRACT

Indian philosophy conceptualizes Trigunas (Sattva, Rajas and Tamas Gunas) the source of the personality. These three Gunas in different proportions influence the mental and intellectual quality of every individual. It indicates the attitude with which human mind functions. In fact each and every action and behaviour can be classified as being a representation of one of the Trigunas. Cognition is a mental process of acquiring knowledge and understanding an individual through thought, experience and the senses. Therefore the present research paper is an effort to investigate the effect of Gunas on cognition. The sample of 200 respondents was randomly selected from Agra, Prayagraj (Allahabad) and Banaras on the basis of gender, age range and socio-economic status. For measuring Gunas 'Gita Inventory of Personality' by Das (1991), Selective Attention by Stroop Test and Short Term Memory by Asthana (1982) were used. In order to find out the result the Analysis of Variance (ANOVA) is applied. First finding indicates the significant Main effect of the independent variable i.e. Gunas on the dependent variable Selective Attention [$(F_{\text{Gunas}} (1, 196) = 0.953, (p < 0.05))$] of students was found significant, which suggested that there is significant effect of Gunas on Selective Attention. But the effect of Gender on Selective Attention [$(F_{\text{Gender}} (1, 196) = 0.190, (p > 0.05))$] of students was not significant. Second finding indicates the significant Main effect of the independent variable i.e. Gunas on the dependent variable Short Term Memory [$(F_{\text{Gunas}} (1, 196) = 5.489, (p < 0.01))$] of students was found significant, which suggested that there is significant effect of Gunas on Short term memory. At the same time the effect of Gender on Selective Attention [$(F_{\text{Gender}} (1, 196) = 1.473, (p < 0.05))$] of students is also significant. Interaction effect of the independent variables i.e. Gunas and Gender on the both dependent variables i.e. Selective Attention and Short Term Memory of students was not found significant at 0.05 ($p > 0.05$) level, which suggested that there is not significant interaction effect of Gunas and Gender on Selective Attention and Short Term Memory.

Keywords- Sattva, Rajas and Tamas Gunas, Selective Attention and Short Term Memory

1. INTRODUCTION

Personality is the global organization of human attribute related to physical, mental, temperament, skill, morality, attitude and integration of all the individual's abilities. It can be defined as a dynamic and organized set of characteristics possessed by a person that uniquely influences his/her cognitions, motivations and behaviours in various situations. Personality is normally a combination of the various traits and types yet in each individual there is one characteristic which dominates his personality and he behaves accordingly. The Indian perspective of personality refers to both the biological and psychological system. In *Samkhya Yoga* and *Gita* as mentioned repeatedly that *Gunas* influence the human behaviour and personality.

Prakriti has three characteristics of lightness (*sattva*), activity (*rajas*) and stability (*tamas*). These three combine and recombine so as to form the different aspects of mind, senses and the five elements: Earth, water, fire, air, and space. The core dynamics of *Samkhya* Psychology is based on the theory of the *Gunas*. The *Gunas* theory originates from the *Sankhya* school of Indian philosophy which states that the entire physical universe or "*prakriti*" is made up of three constituents- *Sattva*, *Rajas*, and *Tamas Gunas* ^[1]. There are *tri-gunas* each representing the qualities which govern the nature on macro as well as micro level.

The Indian philosophy of personality deals with the tri-dimensional classification of *Gunas* (*Sattva*, *Rajas* and *Tamas*) entailing physical, mental and spiritual elements of personality. *Sattva* *gunas* includes attributes like cleanliness, truthfulness, dutifulness, detachment, discipline, etc. *Rajas* *Gunas* includes intensive activity, desire for sense gratification, dissatisfaction, envy for others and a materialistic mentality, etc. and *Tamas* *Gunas* includes anger, arrogance, depression, laziness, feeling of helplessness, etc. All the three *Gunas* are present in each and every individual in different degrees. The dominance of one or the other *Gunas* may lead to a particular type of behaviour. As one *Gunas* becomes predominant we observe corresponding qualities of that specific *Gunas* in the personality of the individual. The three *Gunas* are the causal sources of the various tendencies, qualities and psychological temperaments in human personality. "The *Gita* asserts that three *Gunas* are translated variously as "qualities", "virtues", "properties", of which everything and everyone consists, in different proportions. *Sattva* *guna* is the "spiritual quality". When *sattva* *guna* is dominant, a person has inherent desire to be good and caring. There is a resolute constancy of mind and senses. *Sattva* is prevalent, the light of wisdom shines through the individual. *Rajas* *guna* is the "active quality". *Rajas* *guna* is considered to give rise to passion and desire, it causes greed, activity, undertaking of works, restlessness and desire. *Rajas* dominant and person usually attached with fruits of action. *Tamas* *guna* is the "material quality". *Tamas* arises from hopes and illusions. *Tamas* produces ambiguity, idleness, fantasy, and persistence. When *Tamas* *guna* dominate people become cautious, apprehensive, and revengeful. *Tamas* *guna* also suggests disillusionment and cynicism ^[2].

Cognition is a mental process of acquiring knowledge and understanding an individual through thought, experience and the senses, which is involved in thinking, knowing, remembering, judging and problem solving, attention and memory. Memory is a cognitive function of the ability to retain and recall information of past objects. It is the ability to remember past experiences and the process of recalling previously learned facts, experiences, impressions, skills and habits. It is the store of things learned and retained from our activity, as evidenced by modification of behaviour, or by recall and recognition. There are three types of memory: sensory, short-term memory and long term memory. Short term memory is that brief period of time where one can recall information for what he just exposed to. The capacity of short term memory is very limited. Mostly people can repeat 6 or 7 digits or letters perfectly almost every time, but few can consistently repeat more than 7. At the same time attention is a cognitive ability which describes a person's ability to focus on a task. It is a vital skill that significantly affects a person's ability to complete daily tasks safely at the personal and the professional front. Selective attention is simply the act of focusing on a particular object for a period of time while simultaneously ignoring irrelevant information that is also occurring. It is impossible to give attention to every stimulus in our environment; we use selective attention to select what stimuli are important as events occur. Different study ^[3] ^[4] attempted to identify the personality types based on *trigunas* to memory and extra-sensory perception. Results showed a significant negative correlation between scores of memory and *Tamas*. There was a significant negative correlation between scores of extra-sensory perception and *Tamas*. Bhagavan Das ^[5] elaborated an interaction theory of *gunas* which speaks of their influence on various cognitive processes. People with a *sattvic* outlook on life do have an abstract memory, realistic and appropriate perceptions and productive and abstract thinking. A person in whom the *rajas gunas* predominates usually have a concrete memory, ego involved perceptions, scattered thinking and imagination. In contrast, a *tamasic* person would have loss of memory, distorted perceptions and confused thinking. Correlations between attention and *gunas* were related to cognitive characteristics ^[6]. Negative correlations are reported between *tamas* and field independence ^[7] memory, intelligence and attention-concentration and positive correlations between *sattva* and general intelligence, short term memory and attention-concentration. Ability to focus attention correlates positively with *sattva*, and negatively with *tamas* ^[8]. Higher levels of mastery and self-efficacy were associated with better memory function while high neuroticism was associated with poor memory ^[9]. A study also found that there was a positive relation between healthy adults of personality trait of openness and cognitive abilities ^[11]. Generally *Sattva* was found to be positively correlated with well-being. *Rajas* and *Tamas* were negatively correlated with well-being. Higher levels of *Sattva* and well-being were reported in the older age-group. Males scored higher on *Rajas* while no gender differences were found in well-being (Khanna et al., 2013). With regard to cognitions, the *sattvic* people manifested fully developed awareness, very clear perceptions and cognitions, abstract thinking and intuition. *Rajasic* people showed a developed awareness, sharp perceptions, clear cognitions, factual and tangible thinking, with an emphasis on direct knowledge, confabulations, feeble or defective memory and poor attention.

II. METHOD

II.1 Objective

To study the effect of different Gunas of both Gender on Cognitive abilities.

II.2 Hypotheses

1. There is significant effect of Gunas on selective attention of Students.
2. There is significant effect of Gunas on short term memory of Students.
3. There is significant effect of gender on selective attention of Students.
4. There is significant effect of gender on short term memory of Students.
5. There is significant interaction effect of Gunas and gender on selective attention of Students.
6. There is significant interaction effect of personality (Gunas) and gender on short term memory of Students.

II.3.1 Independent Variables:

(1) Gunas

- (a) Sattva Gunas
- (b) Rajas Gunas
- (c) Tamas Gunas

(2) Gender

- (a) Boys
- (b) Girls

II.3.2 Dependent Variables:

1. Selective Attention
2. Short Term Memory

II.4 Sample

In the present research, 200 residential undergraduate students (100 boys and 100 girls) from Agra, Prayagraj (Allahabad), Banaras and the adjacent areas were randomly selected. Their age range were between 20 to 23 years. The sample was matched on the basis of gender, age, education and socio-economic status.

II.4.1 Inclusion criteria

- Age: 20 to 23 years
- Under graduate students from Residential College and universities.
- High school academic achievement ranges from 60% to 85%.
- Middle socio-economic status.

II.4.2 Exclusion criteria

- Subjects with any chronic ailment
- Substance abuse and Smokers

II.5 Tools

Gita Inventory of Personality ^[12]

Gita Inventory of Personality is based on the concept of Gunas (personality) from the Bhagavadgita, a traditional text of yoga. This inventory was developed by Das in 1991 and measures three Gunas containing ten questions that have three response choices. This test has a test-retest of 0.60 with a confidence level of 99% and has been validated. This is a valid tool for identifying the types of personality. The score value of weightage of an item indicating Sattva is 3, for an item indicating Rajas is 2, and for an item indicating Tamas is 1. It classifies people as being predominantly of Sattva, Rajas and Tamas type, depending on their total score on the test.

Stroop Test

Selective Attention was measured by a Stroop Test, constructed by researchers themselves. There were three cards and each was having 40 items. The first card examines how fast the participant can read words, the second card tests how fast the participants can name the colors on the card, and in the third card the participants were asked to name the color of the ink in which the words are printed in, ignoring the word that was print for each item. The task was administered individually. Total 10 colour names were used. The task is to look at each card, and move down the columns, naming the ink colours, as quickly as possible, within a given time limit.

Short Term Memory ^[13]

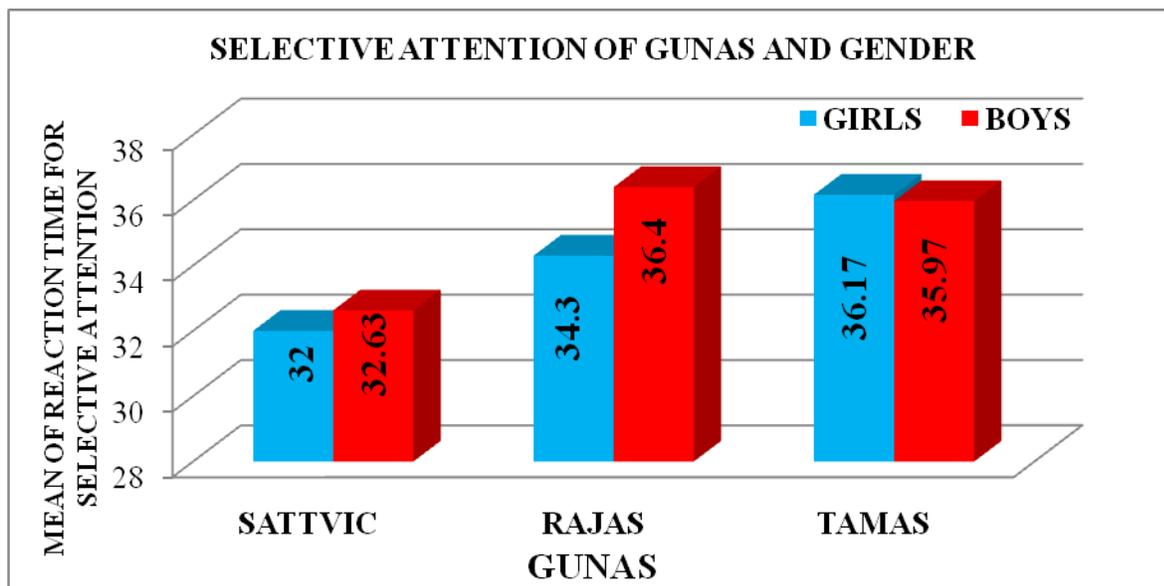
Short Term Memory scale was designed by Asthana (1982). In this scale 24 trigrams prepared in such a way that eight CVCs have an association value of more than 80 (72 to 97; M=81; High association value); eight CVCs have an association value of 45 (moderate average value); and eight CVCs have an association value less than 8 (3 to 13; M= 8.10; low average). These 24 CVCs are randomly assigned to the presentation and test phase.

III Statistical Analysis & Interpretation of Data

The present study was conducted by using 2X3 Factorial Design, considering the cognition (Selection Attention, Short Term Memory) as dependent variable and Gunas (Sattva, Rajas and Tamas Gunas) and Gender (Boys and Girls) as independent variables. The data generated was analyzed by using 2X3 ANOVA (Analysis of Variance) method, separately for each of the three gunas i.e. Sattva, Rajas and Tamas gunas.

**III.1 TABLE: Effect of Gunas and Gender on Selective Attention (Reaction time in seconds):
Interaction Table of Group Means**

Second IV (b) Gender First IV (a) Gunas	(b1) Girls	(b2) Boys	Sum
(a1) Sattvic Gunas	32.00 (N = 13)	32.63 (N = 08)	32.315
(a2) Rajas Gunas	34.30 (N = 63)	36.40 (N = 62)	35.35
(a3) Tamas Gunas	36.17 (N = 24)	35.97 (N = 30)	36.07
Sum	34.15667	35	34.578



III.1 FIGURE: Graph showing the Effect of Gunas and Gender on Selective Attention (Reaction time in seconds)

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III.2 TABLE: Effect of Gunas and Gender on Selective Attention (Reaction time in seconds): ANOVA

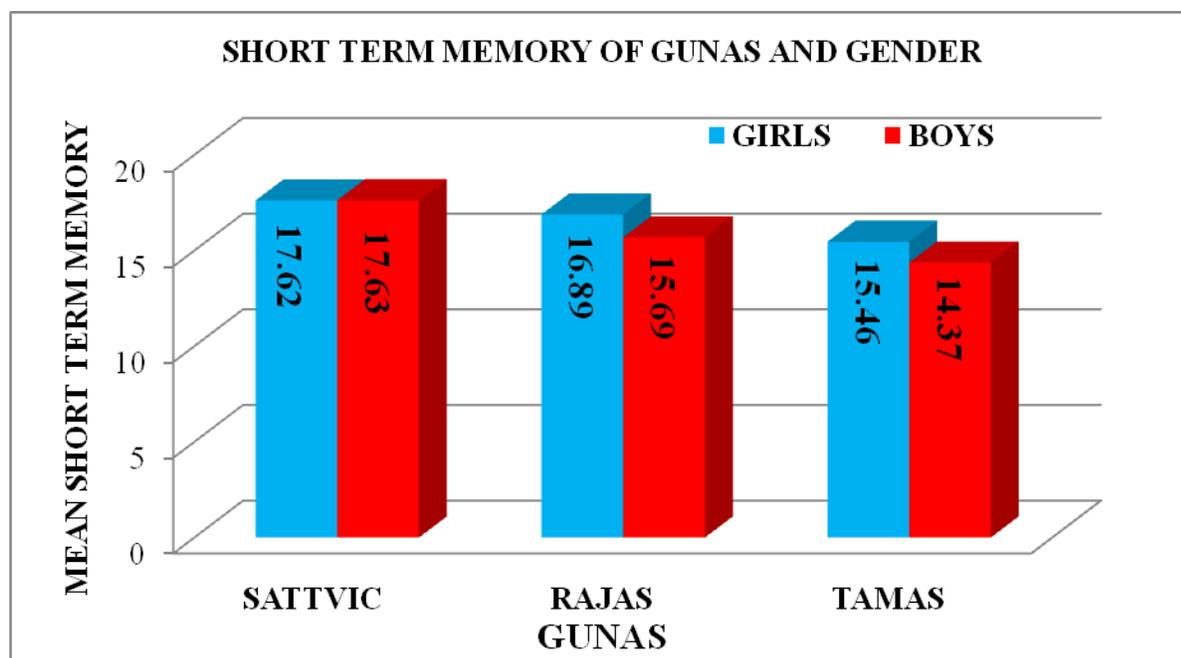
Source	SS	df	MS	F
Gunas	207.799	2	103.899	0.953*
Gender	20.665	1	20.665	0.190
Gunas x Gender	52.278	2	26.139	0.240
Error	21146.364	194	109.002	
Corrected Total	21513.180	199		

*P<0.05

Mean and Analysis of variance (ANOVA) was calculated. It reveals that First finding indicates the significant main effect of the independent variable i.e. Gunas on the dependent variable selective attention [$(F_{\text{Gunas}} (1, 196) = 0.953, (p < 0.05))$] of students was found significant, which suggested that there is significant effect of gunas on selective attention. Further finding indicates the main effect of the second independent variable i.e. Gender on selective attention [$(F_{\text{Gender}} (1, 196) = 0.190, (p > 0.05))$] of students was not significant. It means there is no significant effect of gender on selective attention. The Interaction effect of the both independent variables i.e. Gunas* Gender [$(F_{\text{Gunas*Gender}} (1, 196) = 0.240 (p > 0.05))$] on the dependent variables i.e. Gunas and Gender does not have significant effect jointly on selective attention. If the mean values are compared it can be interpreted that the students of sattva personality have better selective attention as compared to students of tamas and rajas gunas.

III.3 TABLE: Effect of Gunas and Gender on Short Term Memory: Interaction Table of Group Means

Second IV First IV (b) Gender (a) Gunas	(b1) Girls	(b2) Boys	Sum
(a1) Sattvic Gunas	17.62 (N = 13)	17.63 (N = 08)	17.625
(a2) Rajas Gunas	16.89 (N = 63)	15.69 (N = 62)	16.29
(a3) Tamas Gunas	15.46 (N = 24)	14.37 (N = 30)	14.915
Sum	16.657	15.796	16.276



III.2 FIGURE: Graph showing the Effect of Gunas and Gender on Short Term Memory.

III.4 TABLE: Effect of Gunas and Gender on Short Term Memory: ANOVA

Source	SS	df	MS	F
Gunas	125.120	2	62.560	5.489**
Gender	16.789	1	16.789	1.473*
Gunas x Gender	6.243	2	3.122	0.274
Error	2211.277	194	11.398	
Corrected Total	2408.595	199		

**P<0.01

*P<0.05

Mean and Analysis of variance (ANOVA) was calculated. It reveals that calculated First finding indicates the significant Main effect of the independent variable i.e. Gunas on the dependent variable short term memory [$(F_{\text{Gunas}}(1, 196) = 5.489, (p < 0.01))$] of students was found significant, which suggested that there is significant effect of gunas on short term memory. Further finding indicates the significant Main effect of the second independent variable i.e. Gender on short term memory [$(F_{\text{Gender}}(1, 196) = 1.473, (p < 0.05))$] of students was significant. It means there is significant effect of gender on short term memory. The Interaction effect of both independent variables i.e.

Gunas* Gender [$F_{\text{Gunas*Gender}}(1, 196) = 0.274, (p > 0.05)$] on the dependent variables i.e. short term memory of students was not found significant. It indicates that Gunas and Gender does not effect to gather short term memory. When mean values are compared the students of sattvic personality have better short term memory as compared to the students of tamas and rajas gunas.

IV. DISCUSSION

The findings of the present result are certainly in a state to claim that the Gunas is differed significantly in regard to cognitive abilities. The total reaction time of Sattva gunas' students were less as compared to students of rajas and tamas gunas which signifies that the students of Sattva gunas are better in selective attention as compared to students of rajas and tamas gunas. At the same time CVC items recalled in short term memory by students of Sattva gunas were more than the students of rajas and tamas gunas. It suggests that same result that the students of Sattvic gunas have better short term memory as compared to students of tamas and rajas gunas. Present result also suggests that female students are better in short term memory as compared to male. Different studies ^[3] ^[4] found a significant negative correlation between memory and *Tamas* in students. A similar study by Das & Gopal, also found that *sattva* was negatively correlated with emotional and behavioural problems while *rajas* and *tamas* were positively associated. Negative correlations were reported between *tamas* and field independence, short-term memory, intelligence and attention-concentration and positive correlations between *sattva* and general intelligence, short-term memory and attention-concentration. Ability to focus attention correlates positively with *sattva*, and negatively with *tamas* ^[8]. Sattvic people have manifested fully developed awareness, very clear perceptions and cognitions, abstract thinking and intuition because sattvic people includes cleanliness, truthfulness, dutifulness, detachment, discipline, spiritual, etc. in behavior. Rajasic people have awareness, sharp perceptions, factual and tangible thinking, with an emphasis on direct knowledge because this personality includes in behaviour the intensive activity, desire for sense gratification, dissatisfaction, jealousy and materialistic mentality. Further tamasic type people have misty, delusions, hallucinations, confabulations, feeble or defective memory and poor attention because they mainly have anger, arrogance, depression, laziness, and feeling of helplessness ^[14]. A study ^[15] found the difference in memory between Introverts and Extroverts and suggested that the extrovert personality had a better short-term memory as compared to introverts' personality.

V. CONCLUSION

The gunas is primarily responsible for our predominant traits, actions and modes of behavior. It helps the mind, body and the soul to fulfill the requirements of cognition effectively. Therefore, it can be claimed that present research is a milestone to study the effect of different Gunas on cognitive abilities and the subjects of Sattva guna have better selective attention and short term memory as compared to other respondents having greater rajas and tamas gunas.

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REFERENCES

- [1] S.K. Chakraborty, Managerial Effectiveness and Quality of Work Life: Indian Insights. New Delhi: Tata McGraw-Hill, 1987
- [2] K. Srivastava, Concept of personality: Indian perspective, Ind Psychiatry Journal, 21(2), 2012, 89-93.
- [3] M. Sitamma, P.V.K. Rao and P.V.K. Rao, Three Gunas and Cognitive Characteristics : Study of Memory and Extrasensory Perception, Journal of the Indian Academy of Applied Psychology, 21(2), 1995, 185-191
- [4] P.V.K. Rao, and K. Harigopal, The Three Gunas and extra-sensory perception: An Exploratory Investigation, Journal of Indian Psychology, 2(1), 1979, 63-67
- [6] M. Sitamma, Three gunas, cognitive characteristics and self-actualization, unpublished doctoral dissertation. India: Andhra University, 1997.
- [7] M. Sitamma, K.. Sridevi, and P.V.K. Rao, Three gunas and cognitive characteristics: A study of field dependence-independence and perceptual acuity, Journal of Indian Psychology, 13, 1995, 13-20
- [8] JM. Sitamma and P.V. Rao, Three gunas and cognitive characteristics: A study of memory and extrasensory perception, Journal of Indian Academy of Applied Psychology, 21, 1956, 185-191.
- [9] K.. Ruth, et al., The impact of personality on memory function in older adults—results from the Longitudinal Aging Study Amsterdam, International Journal of Geriatric Psychiatry, 2016.
- [10] A. Soubelet and T. A. Salthouse, Personality-cognition relations across adulthood, Developmental Psychology, 47(2), 2011, 303-310
- [11] P. Khanna, K. Singh, S. Singla, and V. Verma, Relationship between triguna theory and well-being indicators. International Journal of Yoga- Philosophy Psychology and Parapsychology, 1, 2013, 69-74
- [12] R.C. Das, Standardization of the Gita inventory of personality, Indian Journal of Psychology, 9, 1991, 47–54.
- [13] B.B. Asthana, Human memory & experimental procedure, published by National Psychological Corporation. Agra, 1982.
- [14] S. kumar and A. Satsangi, Personality and memory retention, Universal Review, 7(9), 2018, 199-204
- [15] K. Fiza, Memory & personality. Science Project, 2014 Web sited- <https://prezi.com/ipgez0r7dcq/memory-personality/>