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Can Personality Explain Learning Strategies? A Psychological Inquiry into Triguna and Big Five Traits across Indian and Western Context

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Abstract
Traditional societies developed their own models for understanding reality across various domains of life; however, many of these models have not been systematically examined using modern scientific methods. Conversely, modern science has proposed its own conceptual frameworks, which have rarely been compared with traditional perspectives. One such concept is personality. In classical Indian texts, the concept of Triguna has been discussed extensively as a framework for understanding personality. In contemporary educational contexts, personality assessment is often used to design learning environments that align with individual preferences.
The present study aims to examine Triguna as a model of personality and explore its relevance in understanding students' learning strategies. A correlational design was employed to investigate the relationship between Triguna and the Big Five personality traits (n = 343), and between Triguna and learning strategies and learning styles (n = 114). The findings indicate that Sattva is associated with emotional stability, sociability, altruism, broad-mindedness, and purposefulness. Individuals with higher Sattva also showed preferences for visual and auditory learning styles and demonstrated stronger engagement with effective learning strategies. In contrast, Rajas and Tamas were associated with emotional instability, frequent mood fluctuations, and comparatively lower organization and goal orientation. Rajas showed positive associations with tactile learning, whereas Tamas demonstrated a negative association with visual learning. These findings suggest that the Triguna framework may provide meaningful insights into personality characteristics and learning preferences, offering potential implications for designing more personalized educational approaches.

Keywords: *Triguna, Personality, Big Five Traits, Learning Strategies, Learning Styles*

1. Introduction

1.1 Personality in Modern Psychological Literature

Ciccarelli & Meyer (2018) defined personality as "the unique and relatively stable ways in which people think, feel and behave, that characterize a person's responses to life situations." (The American Psychiatric Association, 2013; Passer & Smith, 2021). According to Zimbardo (2008), Personality is the unique and persistent qualities of an individual shaped by the social interactions and genes, that represents a dynamic orientation of the organism to the environment. The understanding of personality developed as different psychologists. The earliest mention of personality can be traced back to Ancient Greek philosophers such as Hippocrates' Pillars of temperament and 4 types of humors.

The psychodynamic approach to personality, pioneered by Sigmund Freud, posits that human personality comprises three elements: the id, ego, and superego. The id represents primal instincts and desires, the ego acts as a mediator between the id and reality, and the superego functions as a moral guide. Freud's theory also divides the mind into the unconscious, preconscious, and conscious realms. Childhood experiences, explored through psychosexual stages like the Oral and Phallic stages, significantly shape adult personality. Neo-Freudians like Erik Erikson expanded on this, introducing psychosocial stages from infancy to late adulthood, emphasizing that successfully navigating each stage's challenges is vital for overall psychological well-being (Erikson, 1950). Behaviorists emphasize environmental causes and view humans as reactors to external events (Parker et al., 1998). Behaviourists Ivan Pavlov, John Watson and Skinner gave the concepts of classical and operant conditioning and the role of life experiences as being the factors responsible for development of personality traits. The socio-cognitive perspective emphasizes how a person's thoughts and their social environment interact dynamically, impacting the learning experiences that form personality. The idea of "reciprocal determinism," which emphasizes that personality development results from ongoing interactions between an individual, their environment, and their behavior, is at the basis of this theory. These elements interact with one another continuously in a feedback loop. Famous humanistic psychologists Carl Rogers and Abraham Maslow emphasized on the role self actualisation and realizing one's highest potential as motivating forces that shape our personality. According to George Kelly, people try to make sense of the world by developing their own mental categories or personal constructs to interpret other people and events, these constructs represent one's world view and determine personality.
Gordon Allport, a pioneer in trait psychology. Allport developed the idea of "central traits," which he defined as the most important and defining characteristics of a person's personality (Allport, 1937). The significance of finding and assessing stable personality traits was emphasized by his research. Raymond Cattell created the 16 Personality Factors (16PF) questionnaire, Raymond Cattell built upon Allport's concepts (Cattell, 1946). The purpose of this evaluation was to identify

the surface and source traits that comprise human personality. Hans Eysenck with his PEN model—which stands for Psychoticism, Extraversion, and Neuroticism, attempted to understand components of personality and also worked towards making tools to assess personality (Eysenck, 1947).The Type Approach to personality, rooted in the work of Katharine Cook Briggs, Isabel Briggs Myers, and Carl Jung, has become a prominent framework in understanding human personality. The Myers-Briggs Type Indicator (MBTI) is a widely recognized tool based on Jung's theory of psychological types. It categorizes individuals into one of 16 personality types by assessing their preferences on four dichotomous measures, including extraversion vs. introversion, sensing vs. intuition, thinking vs. feeling, and judging vs. perceiving. Additionally, David Keirsey extended the MBTI with the Keirsey Temperament Sorter, which categorizes people into four basic temperament types: Guardian, Artisan, Idealist, and Rational.

These works in the field of trait approaches of personality have provided a foundation for the Big Five dimensions: Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience. Unlike the Type Approach, which categorizes individuals into distinct personality types, the Big Five Theory examines personality traits along a continuum. The trait-based approach provides a more nuanced and flexible way to describe and understand individual differences in personality, making it a popular and widely accepted framework in the field of personality psychology.

1.2 Methods of Personality Assessment

There are various methods to assess personality. Self-report inventories are also called structured or objective techniques.These types of tests ask questions regarding symptoms, feelings, reactions and relationships as a means of learning about clients' personality.

Theory guided inventories In this type, test developers design testing instrument around a formal or informal pre-existing theory. Examples of such inventories are Personality research form based on Murray's (1938) need-press theory of personality, the State-Trait Anxiety Inventory (STAI).

In a criterion-keyed approach, test items are assigned to a particular scale if, and only if, they discriminate between a well-defined criterion group and a relevant control group.Minnesota Multiphasic Personality Inventory. Developed by Hathaway and McKinley, in 1943, the MMPI was a 566-item true–false personality inventory designed originally as an aid in psychiatric diagnosis, is one such example.

Projective techniques was first given by Frank, 1939, as he described it as a category of personality tests with unstructured stimuli. In projective techniques, the examinee is given vague, ambiguous stimuli and asked to respond with their constructions. These ambiguous stimuli prevent biases on the part of the examinee. The ambiguity of the stimuli does not give the person any hints as to what an acceptable answer to the question is, which is the case with other structured forms of psychological testing. These tests thus become more reliable in measuring the unconscious. For example, Rorschach Inkblot Test Developed by, Herman Rorschach (1884–1922) in the 1900's; Thematic Apperception Test, also known as TAT is developed by Henry Murray and his colleagues at Harvard psychological clinic.Loevinger's Washington University Sentence Completion Test and the Rotter Incomplete sentences blank are some examples.Draw-a-person test Karen Machover (1949, 1951) developed the Draw-A-Person Test (DAP).

Factor analytic approach of personality assessment is a statistical technique used to identify and measure underlying dimensions or factors that explain patterns of correlations among various personality traits. It helps distill complex personality data into more manageable, interpretable factors. For example, the Big Five model emerged through factor analysis (Goldberg, 1992). Other examples also include Raymond Catell's 16PF, Eysenck's EPQ (Eysenck & Eysenck, 1975)

The NEO Five-Factor Inventory (NEO FFI) is a significant method of personality assessment was Developed in the early 1980s by Paul Costa and Robert McCrae. It emerged from their cluster analysis of the 16 Personality Factors (16 PF) questionnaire by Cattell and others. Initially designed to measure three factors: Neuroticism, Extraversion, and Openness to Experience, the NEO FFI underwent revisions in 1983, incorporating Agreeableness and Conscientiousness to create the NEO Personality Inventory (NEO PI). In 1992, the NEO PI-R (Revised NEO PI) was introduced, providing a more comprehensive assessment with 6 facets for each of the Big Five dimensions. It was validated with middle and older-aged adults, demonstrating excellent reliability and validity. Costa and McCrae also developed the shorter NEO FFI, maintaining reliability and correlation with the NEO PI-R. The NEO FFI is a valuable tool in personality assessment, offering a concise yet reliable measurement of the Big Five traits.

Behavioral assessment focuses on observable behavior rather than underlying traits or hypothetical causes. It offers a direct and practical approach to understanding personality, often used in therapy. Unlike traditional methods, which can be complex and indirect, behavioral assessment is simple, behavior-oriented, and integrated with treatment. Methods include observations, self-reports, ratings, and even ecological momentary assessment.

Interviews are a common method of personality assessment, involving questions to elicit responses that reveal traits. They aim to gather valuable information from individuals. Interviews can take the form of verbal exchanges or non-verbal interactions, both serving as effective tools for understanding personalities.

1.3 Concept of Triguna in Indian Literature

Tri-guna means "formed by three gunas". The concept of the three Gunas is a crucial aspect of Indian philosophy. The Atharvaveda, Upanishads, Smritis, Puranas, Ayurveda, and Darshana shastras (philosophical treatises) of Samkhya, Yoga, Vaisheshika, and Vedanta, which represent all six schools of philosophy, to name a few are indian philosophical texts encompassing extensive descriptions of the Triguna. According to these writings, the three Gunas—Satva (goodness; harmony), Rajas (passion; desire), and Tamas (ignorance and lethargy) interact dynamically. Despite having different characteristics, these Gunas work together to complete tasks, much like the flame, wick, and oil of a lamp. (Samkhya

Karika). It suggests that Prakriti (the cosmic nature) is inert and consists of the three Gunas equally balanced. Therefore, the interaction and combination of the three Gunas is responsible for the creation of the universe.
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'□□□□□□□ □□□□□□□□□□□□□□□ □□□□□□□□□ □□□□□□□□□□□□□□□ (□□□□□□□□□□□□□□□/□□□□□□□□□□/□□□□□□ □□□□/□□□□□□□□ □/□□□□□ □)'
An individual has three types of constitutions i.e., physical, physiological, and psychological constitutions. From a physical standpoint, it is made up of Vata, Pitta, and Kapha, while from a mental standpoint, it is made up of Satva, Rajas, and Tamas Gunas. These Gunas are principally responsible for determining a person's psychological condition and constitution, as stated in Ayurveda.

Sattva has 7 types of compositions, as explained by the Sushruta Samhita i.e., Brahma, Mahendra, Varuna, Kubera, Gandharva, Yamya, and Arsa which are characterized by their Divine qualities (Charak Samhita,) of Purity, joyfulness, contentment, generosity and hospitality (Vivekachudamani, Verse 111) devotion, perseverance, non-harmfulness, theism, faithfulness, patience, forgiveness, righteousness and compassion. In the Bhagavad Gita (14.6-14.8), Lord Krishna describes Sattva as a Guna of enlightenment, one that brings happiness and knowledge (14.9-14.18) and graciously accepts both triumph and defeat (18.26), Arjuna is used as an example of a Sattvik individual. They prefer food promoting long life, vitality, and health (Bhagavad Gita, 17.8-17.10), and therefore have a greater likelihood to adhere to recommended diets as they eat food in moderation (Bhavprakash,Verse 118). They engage in virtuous pursuits and austerities such as speaking truthfully to help others, making sacrifices, fulfilling duty without attachment or desire of pleasure or rewards (Bhagavad Gita, 18.7–18.25), and prefers studying/ living according to the religious texts and chanting mantras (Bhagavad Gita, 17.14–17.19). Their deeds are characterized by wisdom (14.11) as one finds joy and keeps focus through worship, meditation, and serving the Divine (Gita 18.36-37). The sattvic knowledge of the divine (17.20) rightly differentiates between action and withdrawal, duty and what is not duty, the sources of fear and fearlessness, and bondage and freedom (18.30–18.35). The sattvic fortitude uses yoga to keep focus.

Rajas guna is inextricably linked to Tamas. It is suggested that Tamas Guna will not take any action unless Rajas does. Rajas is regarded as impure because of its quality of extreme emotions and anger, and Tamas is impure because of its greedy quality (Charaka Shareera Sthana 4/36). The constitutions of Asura, Sarpa (Snake), Shakun, Rakshas, Pisaca, and Preta display Rajasik tendencies such as fierceness, deceitfulness, envy, lust, pride, pain, instability, arrogance, lack of patience and restlessness due to burning passion, indulgence (Bhavprakash,) and attachment to worldly desires (Vivekachudamani, 111). In Bhagvat Gita (14.7), Kunti's son is described as having a Rajasik personality, inspired by action (14.9-18) and motivated by his desire and pleasure (Bhagavad Gita, 18.7–18.25; (18.27).). The product of Rajas is avarice, envy and sadness (14.9, 14.12). (Bhagvat Gita, 14.9-14.18), which explains their selfish behavior leading to unpredictable outcomes. (Bhagavad Gita, 17.14–17.19). Rajasic happiness is derived from sensual pleasures. In the beginning, it appears as sweet as nectar, but ultimately, it becomes like poison. (from Bhagavad Gita 18.38). While categories of pashava (animal), matsya (fish), and vanaspatya (plant), display Tamasik Characteristics of irresponsibility, stubbornness (18.28, 14.13, 17.5-6), dullness, atheism, sorrow, laziness, ignorance, dishonesty, a lack of purity and inner illumination, deviation from religious instruction and display of dismoral behavior. Bharat's son is an embodiment of Tamas, which is evil, deceptive and causes ignorance and inaction (Bhagvat Gita, 14.6-14.18). Given Tamasik characteristics of ignorance and ill-will, they take part in dangerous activities that hurt them and other people. (Bhagavad Gita, 17.14–17.19), often motivated by delusion and disregard of the effects of one's actions. (Bhagavad Gita, 18.7–18.25). While Rajasik people misunderstand the difference between virtue and vice, Tamasic intellect misinterprets reality and sees wickedness as good (18.30–18.35). Tamasic individuals find happiness in laziness and delusion. They indulge in sensual pleasures, but it ultimately leads to their destruction. (Bhagavad Gita 18.39). Rajasic individuals favor sour, spicy, and hot foods. Tamasic individuals opt for stale, tasteless, and impure foods, reflecting their respective qualities (Bhagavad Gita, 17.8-17.10). Both are less likely to follow prescribed diets or regulated activities (Charaka Viman Sthana 6/9; Sushruta Samhita,) and both lead to grief and ignorance (Bhagvat Gita, 14.9-14.18). Rajasic firmness pursues material riches, whereas Tamasic firmness adheres to vices, resulting in sensuality and inertia. The difference between rajasic knowledge (17.21), which involves discriminating for one's own benefit, and tamasic knowledge (17.22), which is superficial and devoid of genuine understanding, emphasizes the importance of knowledge quality in one's spiritual path.

As Sattva Guna increases by subduing rajas and tamas, Rajas increase by overpowering sattva and tamas, and Tamas increase by dominating over sattva and rajas. In order to control one's senses, develop trust, dedication, emancipation, and self-purity, as well as to ultimately develop a Satvik disposition, the text promotes the Ashtanga Yoga path, emphasizing the Yamas and Niyamas (Vivekachudamani, Verse 111).

1.4 Methods of assessment of Triguna

The Big 5 personality Model is a widely used model to assess personality, however it still continues to remain controversial in terms of it's factor structure as Boyle, 2008 describes it's inability to provide coverage to all types of personality traits. (Both Normal, and Abnormal). Several researchers have questioned its reliability in terms of producing consistent results. (Boyle, 2008). It has been argued that the dimensions are way too broad and heterogenous to make accurate predictions.

Another critique for the model comes from its lack to account for maturational change, a call for a more dynamic form of personality assessment/ theory which accounts for the developmental changes (Cattell et al., 2002; Roberts et al., 2006a,b; Srivastava et al., 2003). One of the biggest criticism accounts for the lack of account of the influence of the environment in personality changes that the model assessment failed to reflect, as also pointed out by Rothbart, 2000, p 130.

The Ayurvedic Doctrine of the Triguna states that the Prakriti consists of three gunas, Sattva, Rajas and Tamas.This model of personality and temperament allows for a more dynamic and holistic assessment given the broad range of categories it lends us information into such as the food preferences, mood states, propensity, Intellect, happiness, pleasure etc. Although the traditional assessment of this model is based on observation and experience, the model offers strong testable theoretical constructs. (Ravindra & Babu, 2021). Additionally, one of the biggest advantages of the model is the scope for behavioral modulation, so that a favorable guna is brought to dominance, thereby modulating the trait characteristics and creating a favorable environment for growth and learning. (Ravindra & Babu, 2021). The model takes into account the importance for wellbeing and spirituality and therefore, acts as a better model for evaluation and modification. (Puta & Sedlmeier, 2014).

1.5 Learning Strategies in Educational Context

Despite being known for creating brilliant minds, the Indian educational system has many difficulties. Education experts have voiced concerns about issues like excessive memorization of facts and information at the expense of critical thinking and creativity (Robinson, 2010), rigid curricula that stifle curiosity and self-directed learning (Mitra, 2006), and a one-size-fits-all methodology that causes student disengagement and frustration (MRM, 2023). Dr. Shyama Chona emphasises the detrimental impacts of academic pressure on kids (Chona, 2016), while Kalam (2011) notes that the lack of experiential learning and practical life skills in curricula leaves pupils unprepared for problems in the real world. Additionally, the employability gap shows a mismatch between educational results and market demands (Aspiring Minds, 2019), mostly as a result of curricular content's simplicity and dearth of practical application.

Every child has their own personality composition, intellectual ability and interest portfolio. This is known as individual differences in personality. Individual differences are specific character features that distinguish one student from another during the educational process. Each learning context benefits greatly from the unique contributions made by each learner. (Simsek,)Therefore, since all children are unique in terms of their thoughts, feelings, behaviors to begin with to their strengths, cognitive processing, memory ability to not limit oneself, Learning should be tailored to the child's ability and preferences. By this way, education can truly fulfil it's purpose of providing knowledge effectively, enganginly and inclusively. (MRM, 2023)

The improvement of students' foundational skills has been shown to be successful with customized learning initiatives like "Teaching at the Right Level" (Pratham, 2019). In especially for students starting at lower performance levels, research shows considerable increases in exam scores (Pratham, 2019). These efforts show how customized education can close gaps in knowledge and better prepare students for problems in the future.

1.6 Relationship between Big Five Traits and Triguna

Uma, Lakshmi, and Parameswaran (1971) examined how the Sāttvic and Rājasic dimensions of Triguna align with introversion-extroversion, revealing that individuals scoring high on the Sāttvic dimension tend to exhibit introverted tendencies, while those with elevated Rājasic scores lean towards extroversion (Uma, Lakshmi, & Parameswaran, 1971).

Further exploration by Singh (1971) unearthed correlations between Triguna and cognitive characteristics. Sāttvic individuals demonstrated fully developed awareness, clear perceptions, abstract thinking, and intuition, while Rājasic individuals showcased developed awareness, sharp perceptions, clear cognitions, factual and tangible thinking. In contrast, Tāmasic individuals manifested hazy awareness, delusions, hallucinations, and feeble memory, underlining the intricate interplay between Triguna and cognitive processes (Singh, 1971).

Moreover, Mohan and Sandhu (1988) extended this inquiry by investigating the interrelationship between Triguna and Eysenck's personality dimensions. Their research revealed that Sāttvic Guna emerged as the most favored dimension, followed by Rājasic and Tāmasic. Intriguingly, Sāttvic Guna exhibited negative correlations with extraversion (positively related to introversion), while Rājasic Guna displayed a positive connection with extraversion. This exploration underscores the intricate connection between ancient philosophies and contemporary psychological understanding, enriching our comprehension of personality traits, cognitive characteristics, and their implications for modern psychology (Mohan & Sandhu, 1988).

2. Research Design

Two correlational studies were conducted to investigate the relationships between specific variables. Study 1 aimed to explore the associations between Triguna and the Big Five personality factors, while Study 2 sought to examine the connections between Triguna and Learning Strategies.

2.1 Participants / Sample

In the first study, 345 participants were taken, while in the second study 114 participants were chosen. Participants were sampled through convenience sampling procedures. Participants were students pursuing their bachelors in different subjects like B.tech, B.des and Faculty who were a part of IIT, Delhi.

2.1.1 Study 1: Relationship between Triguna and Big Five Personality Traits

For Study 1, participants were asked to complete two standardized questionnaires:

SRT Questionnaire (Dondogdorj & Tungalag, 2008): This questionnaire measures the participants' Triguna profiles, assessing their levels of Sattva, Rajas, and Tamas.
NEO Five-Factor Inventory (NEO FFI): The NEO FFI is designed to assess the Big Five personality traits, including Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism.

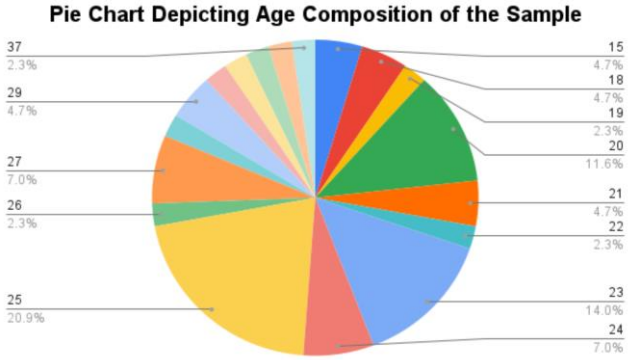

Figure 1. Age distribution of participants in Study 1.

2.1..2 Study 2: Relationship between Triguna and Learning Strategies
In Study 2, participants were asked to complete three standardized questionnaires:
Learning Strategies Scales for Learning Questionnaire (Pintrich et al., 1993): This questionnaire measures various learning strategies employed by participants, including cognitive and metacognitive strategies.
Learning Style Questionnaire (adapted from Texas Learning Center, 2006): This questionnaire assesses participants' preferred learning styles in terms of Visual, Auditory or Tactile Learning.
SRT Questionnaire (Dondogdorj & Tungalag, 2008): Similar to Study 1, the SRT Questionnaire was used to evaluate participants' Triguna profiles.

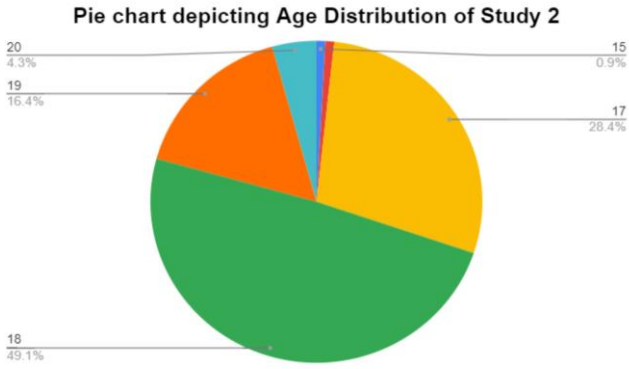

Figure 2. Age distribution of participants in Study 2

2.2 Data Collection Procedures
Google Forms was used as a modality to collect data from the participants. The questionnaires were inserted into the Google forms. Two Google forms were created for the purpose of the two studies These forms were circulated and data was collected over a period of one week.

2.3 Data Analysis
The collected data was scored, cleaned and coded for the purpose of subjecting it to further statistical software Jamovi for proper analysis. For both studies, the collected data were subjected to statistical analysis to determine the strength and direction of the relationships between the variables of interest. Correlational analyses was performed by applying Pearson's correlation coefficients to assess the relationships.

2.4 Ethical Considerations

Ethical approval and informed consent procedures were adhered to during data collection to ensure the ethical treatment of participants and the confidentiality of their responses.

3. Results and Discussion

Table 1. Correlational Matrix between Triguna and BIG 5

	Neuroticism	Extraversion	Openness to Experience	Agreeableness	Conscientiousness
Sattva	-0.239 ***	0.194 ***	0.209 ***	0.259 ***	0.495 ***
Rajas	0.425 ***	-0.215 ***	-0.148 **	-0.458 ***	-0.333 ***
Tamas	0.382 ***	-0.252 ***	-0.160 **	-0.308 ***	-0.562 ***

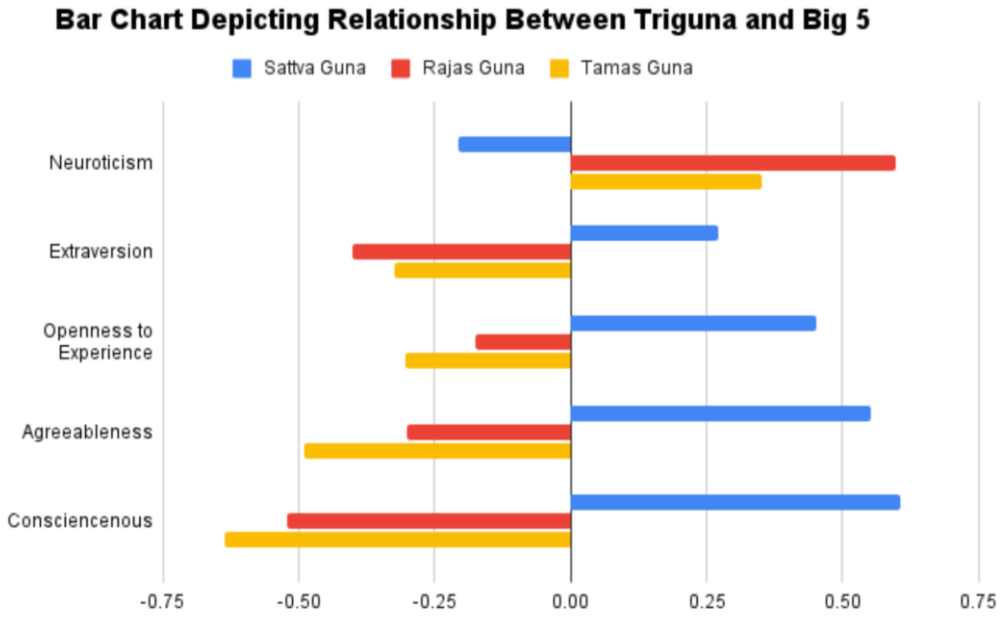

Figure 3. Relationship between Triguna and Big Five personality traits.

Table 2. Correlational Matrix between Triguna and Learning Strategy

	Sattva	Rajas	Tamas
Rehearsal	0.296 **	0.068	-0.068
Elaboration	0.329 ***	0.172	0.167
Organizational	0.375 ***	0.038	0.018
Critical Thinking	0.174	0.163	0.192 *
Metacognitive self regulation	0.423 ***	0.066	0.031
Time Management	0.321 ***	-0.128	-0.204 *
Effort Regulation	0.239 **	-0.202 *	-0.341 ***
Peer learning	0.236 *	0.034	0.066
Help Seeking	0.357 ***	-0.02	-0.051

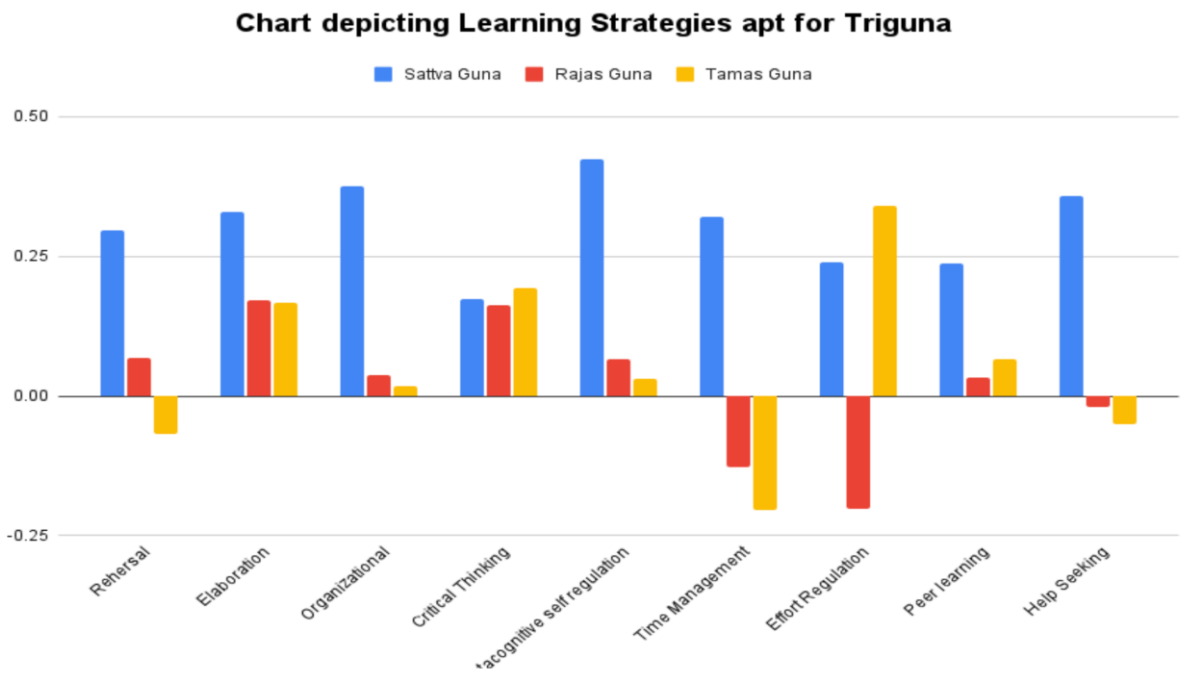

Figure 4. Learning strategies associated with Sattva, Rajas, and Tamas

Table 3. Correlational Matrix between Triguna and Learning Strategy

	Visual	Auditory	Tactile
Sattva	0.295 **	0.190 *	0.055
Rajas	0.047	0.143	0.258 **
Tamas	-0.207 *	0.093	0.164

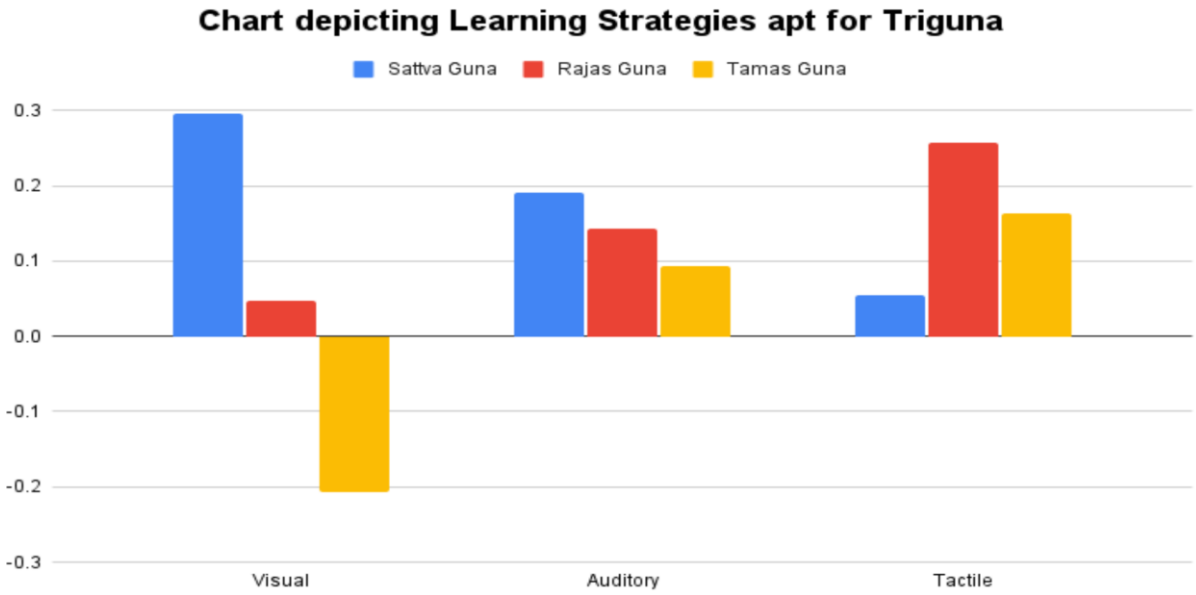

Figure 5. Learning styles (Visual, Auditory, and Tactile) across the three Gunas

3.1 Relationship between Triguna and Big Five Personality Traits

Pearson's correlation analysis was conducted to examine the relationship between Triguna and the Big Five personality traits (Table 1; Figure 3). The results indicated that Sattva was significantly negatively correlated with Neuroticism ($r = -0.239$, $p < .001$) and positively correlated with Extraversion ($r = 0.194$, $p < .001$), Openness to Experience ($r = 0.209$, $p < .001$), Agreeableness ($r = 0.259$, $p < .001$), and Conscientiousness ($r = 0.495$, $p < .001$). In contrast, Rajas demonstrated a significant positive correlation with Neuroticism ($r = 0.425$, $p < .001$) and significant negative correlations with Extraversion ($r = -0.215$, $p < .001$), Openness to Experience ($r = -0.148$, $p < .01$), Agreeableness ($r = -0.458$, $p < .001$), and Conscientiousness ($r = -0.333$, $p < .001$). Similarly, Tamas showed a positive association with Neuroticism ($r = 0.382$, $p < .001$) and significant negative correlations with Extraversion ($r = -0.252$, $p < .001$), Openness to Experience ($r = -0.160$, $p < .01$), Agreeableness ($r = -0.308$, $p < .001$), and Conscientiousness ($r = -0.562$, $p < .001$). These results indicate that Sattva is associated with emotionally stable and socially adaptive personality characteristics, whereas Rajas and Tamas demonstrate the opposite pattern across several Big Five dimensions.

3.2 Relationship between Triguna and Learning Strategies and Learning Styles

Pearson's correlation analysis was conducted to examine the association between Triguna and learning strategies (Table 2; Figure 4). The results revealed that Sattva showed significant positive correlations with several learning strategies, including Rehearsal ($r = 0.296$, $p < .01$), Elaboration ($r = 0.329$, $p < .001$), Organizational strategies ($r = 0.375$, $p < .001$), Metacognitive Self-Regulation ($r = 0.423$, $p < .001$), Time Management ($r = 0.321$, $p < .001$), Effort Regulation ($r = 0.239$, $p < .01$), Peer Learning ($r = 0.236$, $p < .05$), and Help Seeking ($r = 0.357$, $p < .001$). In contrast, Rajas and Tamas showed relatively weaker or negative associations with several learning strategies, particularly Effort Regulation and Time Management.

With respect to learning styles (Table 3; Figure 5), Sattva demonstrated significant positive correlations with Visual ($r = 0.295$, $p < .01$) and Auditory learning styles ($r = 0.190$, $p < .05$). Rajas showed a significant positive correlation with Tactile learning ($r = 0.258$, $p < .01$), whereas Tamas demonstrated a negative association with Visual learning ($r = -0.207$, $p < .05$). These findings suggest that different Gunas are associated with distinct patterns of learning strategies and learning preferences Overall, the findings from both studies indicate meaningful associations between the Triguna framework, personality traits, and learning behaviors. In Study 1, Sattva showed negative correlations with Neuroticism and positive correlations with Extraversion, Openness to Experience, Agreeableness, and Conscientiousness, indicating emotionally stable and socially adaptive personality characteristics. In contrast, Rajas and Tamas demonstrated positive associations with Neuroticism and negative correlations with several other Big Five traits. In Study 2, Sattva was positively associated with several effective learning strategies such as rehearsal, elaboration, organization, metacognitive self-regulation, time management, effort regulation, peer learning, and help seeking, whereas Rajas and Tamas showed comparatively weaker or negative associations with several learning strategies, particularly effort regulation and time management. In terms of learning styles, Sattva showed positive associations with visual and auditory learning styles, whereas Rajas demonstrated a positive association with tactile learning, and Tamas showed a negative association with visual learning. These findings suggest that the Triguna model may provide useful insights into individual differences in personality traits and learning approaches.

4. Discussion

The aim of the present study was to explore the relationship between Triguna, a concept rooted in Indian philosophy and Ayurveda, and the Big Five personality traits in order to understand how personality dispositions may influence learning strategies among students. By integrating Eastern and Western perspectives on personality assessment, the study attempts to highlight the similarities and differences between these two conceptual frameworks and examine whether the ancient Triguna model can provide meaningful insights into modern psychological constructs.

Two correlational studies were conducted for this purpose. Study 1 examined the relationship between Triguna and the Big Five personality traits ($N = 343$), while Study 2 explored the relationship between Triguna and learning strategies as well as learning styles ($N = 114$). The Big Five personality model conceptualizes personality through five major dimensions, namely Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. In contrast, the Triguna model explains personality through the three fundamental qualities of Sattva, Rajas, and Tamas. In addition to examining personality traits, the present study also explored learning preferences and learning behaviors. Learning strategies such as rehearsal, elaboration, organization, metacognitive self-regulation, time management, effort regulation, peer learning, and help seeking were analyzed in relation to the three Gunas. Furthermore, the study also examined learning styles, particularly visual, auditory, and tactile learning preferences, in order to understand how different Gunas may be associated with distinct patterns of learning. The findings suggest that the dimensions of the Big Five model may conceptually align with characteristics described in the Triguna framework, indicating that the OCEAN traits can be interpreted within the broader description of the Gunas. These relationships provide a useful foundation for examining how personality dispositions influence learning behaviors and educational preferences. A detailed discussion of the results is presented in the following sections.

4.1 Intercorrelations between Triguna and Big Five Personality Traits

Neuroticism is a dispositional personality trait characterized by the tendency to experience negative emotions such as anger, anxiety, and irritability. It is generally associated with emotional instability in response to environmental stressors (Widiger & Oltmanns, 2017). Individuals scoring high on Neuroticism tend to experience frequent mood fluctuations and exhibit a broader range and greater intensity of emotional disturbances compared to individuals with lower scores. Such individuals

often report elevated levels of anxiety, apprehension, and fear, and are more prone to feelings of guilt, sadness, and depression. Due to their heightened sensitivity to criticism, ridicule, and feelings of inferiority, they may also experience frequent episodes of anger, frustration, and bitterness. Consequently, individuals with high Neuroticism often experience considerable psychological stress and reduced overall well-being. Previous research has also linked Neuroticism with lower quality of life, including higher levels of negative affect, excessive anxiety, occupational difficulties, and dissatisfaction in interpersonal relationships. In contrast, individuals with lower levels of Neuroticism tend to remain calmer, emotionally stable, and less impulsive, demonstrating greater resilience in stressful situations.

In the context of the Triguna framework, the Bhagavad Gita describes Sattva as a state associated with mental clarity, balance, and harmony. For instance, the Gita states that the predominance of Sattva leads to the emergence of knowledge and inner illumination (Bhagavad Gita 14.11). This description aligns with the present findings, where Sattva demonstrated a significant negative correlation with Neuroticism, suggesting that Sattva-dominant individuals tend to exhibit greater emotional stability and psychological well-being. Conversely, the Bhagavad Gita also explains that the predominance of Rajas and Tamas gives rise to restlessness, attachment, confusion, and emotional disturbances (Bhagavad Gita 14.12-13). This perspective is consistent with the current results, which show significant positive correlations between Rajas, Tamas, and Neuroticism. Such findings suggest that individuals characterized by higher levels of Rajas and Tamas may experience greater emotional instability and mood fluctuations.

Extraversion is a dispositional trait characterized by high levels of sociability. Individuals who score high on Extraversion are called extraverts. Extraverts are known for their enjoyment of other people's company as well as their preference for larger social groups. They are also known for their assertiveness, activity, and talkativeness. They prefer stimulation and excitement and typically have a positive outlook on life. They tend to be positive, spirited, and upbeat. High scorers are warm, friendly, affectionate and form close attachment bonds with people, while low scorers are more formal and reserved. They are also dominant and forceful and sometimes may come off as bossy due to their assertiveness. They tend to naturally become leaders of a group, while low scorers lurk in the background and prefer staying reserved. Such individuals also possess enormous amounts of energy and therefore lead fast-paced lives, while low scorers tend to be more relaxed in their tempo. They like bright colors and seek adventurous activities, while low scorers feel little need for thrills and enjoy their own internal world. Extraversion is also associated with the tendency to experience positive emotions such as joy, happiness, love, and excitement. Low scorers are not necessarily unhappy; they are merely less exuberant and high-spirited (Costa & McCrae, 1992). Research (e.g., Costa & McCrae, 1980) has shown that happiness and life satisfaction are related to both Neuroticism and Extraversion, and that positive emotions represent the facet of Extraversion most strongly associated with happiness.

Much like the description of Extraversion as a trait, Sattvik individuals display hospitality and enjoy the company of others. The significant positive correlation between Sattva Guna and Extraversion explains the personality characteristics of Sattvik individuals as generous and inclined toward finding happiness in their activities (Charaka Samhita, Sharira Sthana 4/37), and experiencing a positive mental state (Bhagavad Gita 14.6). In contrast, Rajasik and Tamasik individuals display a negative correlation with Extraversion.

Openness to Experience is the third trait of personality as suggested by the Big Five personality model. Individuals scoring high on this component are characterized by active imagination, aesthetic sensitivity, inner emotional awareness, preference for variety, intellectual curiosity and independent judgment. Such individuals are explorative by nature and possess deep insight into their own mental processes. Open individuals show interest in art and poetry, have varied interests and artistic inclinations, and enjoy travelling and exploring the unknown. Such individuals are also broad-minded in that they embrace novel ideas, are unconventional, and often challenge orthodox traditions. They experience a wider range of emotions, both negative and positive, due to greater emotional sensitivity. Openness is particularly associated with facets of intelligence, such as divergent thinking, that contribute to creativity. On the other hand, individuals scoring low on Openness tend to be more conservative in their approach, narrow-minded, and show preference toward familiar things. Such individuals may prefer routine experiences, such as visiting the same restaurant repeatedly and choosing the same food, rather than exploring new options. They often demonstrate muted emotional reactions due to limited emotional awareness and show less interest in artistic expressions such as music or poetry.

The personality trait of Openness to Experience likewise shows a strong and favorable link with Sattvik individuals. This connection suggests that the Sattva Guna is compatible with traits such as creativity, intellectual curiosity, and openness to new knowledge and experiences. People who are Sattvik tend to be open-minded, responsive to new ideas, and welcoming of diverse viewpoints and artistic expressions. Individuals who are Rajasik and Tamasik, in contrast, exhibit significantly negative relationships with Openness to Experience. While Tamasik individuals, influenced by inertia, may display lower levels of openness and prefer stability and routine, Rajasic individuals may prioritize concrete and competitive pursuits rather than exploratory or reflective thinking.

The fourth personality trait suggested by the Big Five theory is Agreeableness. An individual who scores high on Agreeableness is altruistic, empathetic toward others, and willing to provide assistance. Such individuals tend to trust others and believe that their kindness will be reciprocated. However, this trusting nature may sometimes make them appear gullible. They generally assume the best intentions in others. On the other hand, individuals scoring low on Agreeableness are often described as disagreeable or antagonistic. They tend to be more self-centered, skeptical about others' intentions, and more competitive than cooperative. Such individuals may appear cynical, may not trust others easily, and are less inclined to offer help readily (Costa & McCrae, 1990).

Sattvik individuals exhibit a significant and positive association with the personality trait of Agreeableness. Individuals characterized by Sattva are typically kind, courteous and cooperative, which promotes harmonious social relationships (Charaka Samhita, Sharira Sthana 4/37). They are often inclined toward helping others and making personal sacrifices when

necessary, as suggested in classical Indian texts. However, Rajasik individuals show a comparatively strong negative association with Agreeableness, reflecting tendencies toward competitiveness and self-interest. Tamasik individuals also demonstrate a negative association, which may be related to tendencies toward apathy, indifference or harmful behaviour.
Conscientiousness is the fifth trait suggested by the Big Five personality model. Individuals high in conscientiousness are purposeful, goal-driven, resolute, and determined. Digman and Takemoto-Chock (1981) referred to this trait as the "will to achieve." On the positive side, success in school and the workplace is often associated with high levels of conscientiousness. On the negative side, it may sometimes appear as excessive meticulousness, compulsive orderliness, or tendencies toward workaholism or perfectionism. Such individuals are typically highly organized, punctual, and dependable. They are diligent and tend to follow structured routines. On the other hand, individuals with low scores on conscientiousness tend to adopt a more relaxed approach, often preferring flexibility over routine and showing comparatively lower levels of discipline and organization.
The Triguna framework also sheds light on the personality trait of conscientiousness. Sattva Guna demonstrates a significant positive association with conscientiousness, highlighting that individuals embodying Sattva tend to exhibit traits such as reliability, diligence, and a strong sense of responsibility. These individuals are characterized by their careful approach to tasks and commitment to ethical principles (Charaka Samhita, Sharira Sthana 4/37). Conversely, Rajasik individuals display a comparatively negative correlation with conscientiousness, indicating occasional resistance to disciplined and structured behavior due to their competitive and impulsive tendencies. Tamasik individuals, on the other hand, exhibit a stronger negative correlation, suggesting a greater tendency toward irresponsibility, disorganization, and a lack of commitment to duties.

4.2 Intercorrelations between Triguna and Learning Strategies
It was reported that Sattva Guna is significantly and positively correlated with most learning strategies such as Rehearsal, Elaboration, Organization, Metacognitive Self-Regulation, Time Management, Effort Regulation, Peer Learning, and Help Seeking. Sattva-predominant individuals prefer learning through repetition, exploration, and the integration of material from different sources, which can be explained by their hardworking and persevering nature. With the ability to plan strategically, and given their positive correlation with Conscientiousness, they also demonstrate the ability to regulate their own learning through planning, organizing, executing tasks, and incorporating feedback to improve their working strategies. They show a preference for organization and routine. These abilities make it possible for them to remain consistently productive. Their time management skills also enable them to self-regulate and maintain self-control.
With an inclination toward community and a positive correlation with Extraversion, they also tend to learn effectively in peer settings. High in Agreeableness, these individuals ask for help whenever needed and are often among the first to assist others in need. Individuals with higher Sattva Guna typically possess a focused and clear mind, which makes them more responsive to visual aids and educational tools such as mind maps, charts, and colored highlights. Such individuals may benefit from visual teaching techniques including videos, illustrations, graphics, well-organized presentations, worksheets, and notes. Given their positive association with Openness to Experience, Sattvik individuals may also prefer pedagogical tools that include colorful graphics, documentaries, and creative activities such as art and craft. Sattvik individuals may also demonstrate auditory learning preferences. Pedagogical tools such as reading aloud, listening to recorded material, using rhymes for memorization, discussing problems verbally, and explaining diagrams in group settings can be beneficial. Such learners also benefit from study groups and discussion forums.
Rajas is positively correlated with Effort Regulation. Characterized by passion and activity, such individuals attempt to regulate their actions through active engagement. Higher Rajas Guna shows a favorable and strong association with kinesthetic and tactile learning preferences. Due to their high levels of activity and their tendency to derive pleasure from sensory engagement, these individuals thrive when learning involves movement and hands-on participation. Activities such as using manipulative tools, engaging in games or projects, and incorporating movement into the learning process make learning more effective for them. Pedagogical tools that encourage collaboration, pair work, idea sharing, and interactive exercises such as role plays can help them understand and retain concepts more effectively.
Tamas Guna is related to Critical Thinking, Time Management, Effort Regulation, and Help Seeking. Tamasik individuals show negative correlations with Time Management and Effort Regulation, which is consistent with their negative association with Conscientiousness. Their limited ability to organize and plan affects their capacity for self-control. Such individuals may therefore appear irresponsible, unmotivated, or disengaged. However, their positive correlation with Critical Thinking suggests a different form of cognitive engagement. They also demonstrate a positive association with Help Seeking behavior, which may reflect a tendency to depend on others while completing tasks. This may also explain their relatively lower association with Agreeableness. On the other hand, individuals with stronger Tamas Guna may still display the ability to concentrate on and process visual information, despite traditional descriptions associating Tamas with inertia and ignorance.

Conclusion
This research provides empirical evidence regarding the nature, preferences, and personality characteristics of Sattvik, Rajasik, and Tamasik individuals as described in ancient Indian texts. Sattvik individuals are associated with emotional stability, sociability, altruism, broad-mindedness, and purposefulness. As auditory and visual learners, such individuals tend to learn through repetition and elaboration of organized material, while effectively managing their time and effort in both peer-learning environments and independent study. In contrast, Rajasik and Tamasik individuals tend to demonstrate greater emotional instability, frequent mood fluctuations, and a tendency toward social withdrawal. They may appear more self-focused, less organized, and less goal-oriented. Rajasik individuals prefer action-oriented and movement-based learning,

demonstrating stronger preferences for tactile learning and active engagement. Tamasik individuals, although often associated with lower motivation and weak time management, may demonstrate preferences for visual learning. These findings suggest that different pedagogical tools may be more effective for different personality orientations, and that aligning teaching strategies with personality characteristics may help create more personalized and effective learning environments.

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