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Research Paper

Divergent Production Abilities as Function of Psycho-Physiological State of Students

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ABSTRACT

Aim of the study is to find out whether Divergent Production Abilities of students are affect by psycho-physiological state, for this investigation sample of 120 subjects were selected in which 60 subject were from normal psycho-physiological state and another 60 subject were from neurotic psycho-physiological state.. The sampling was simple random (a type of probability sampling). Dysfunctional psycho-physiological state of students was determined on the score obtained from the norms given in the Psycho-Physiological State Inventory (PPSI–VS) by Sanjay Vohra and Divergent Production Abilities was determined on the score obtained from the norms given in the Divergent Production Abilities by K.N. Shrma. Mean, S.D. & 't' test was applied to find out the difference between groups. The result obtained through the study showed that Students who experience normal psycho-physiological state exhibit higher level of divergent production abilities than Students who experience neurotic psycho-physiological state.

Keywords: *Divergent Production Abilities, Psycho-Physiological State.*

Creativity can be understood to mean many different things, and researchers study creativity from widely varying points of view. One target for the present research is the process of creative thinking. The focus is on the subjective evaluation that such thinking is beautiful, excellent, amazing, and creative. The hypothesis: that which is creative is attractive. To investigate this hypothesis, subjects' assessment of creativeness of their ideas were examined in three types of creative thinking tasks. Subjects undertook these tasks and evaluated attractiveness and creativeness of their own and others' efforts intuitively. Their intuitive and subjective evaluation is largely a matter of emotion, and their measures of the evaluation are subconscious functions. There are high correlations between attractiveness and creativeness that is rated as novel and appropriate.

In particular, there are very high correlations in one of the three tasks, named the new product test. The absence of correlation between novelty and appropriateness suggests that novelty

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and appropriateness are independent of each other. In all creative thinking tasks, answers can be obtained in sufficient quantity and with an adequate range of scores. The new product test in particular yields a range of responses from the highest score to the lowest. The results of this experiment support the hypothesis that what is creative is attractive. Furthermore, the considered thinking tasks should be valid for assessing the influence of the physical environment on creative performance (Takahashi, H., Ishikawa, A., Higuchi, M., Kato, S., Kuroki, T., & Nozaki, N. 2012).

Prior investigations into a creativity–meditation connection involving diverse meditation strategies, proficiency levels, and creativity measurement instruments presented mixed results. These results are explained through evidence (primarily from EEG studies) supporting the hypothesis that meditation training variously enhances creative incubation and illumination via transcendence and integration, neuropsychological mechanisms common to both processes. Transcendence surpasses informational limits; integration transforms informational boundaries. In this respect, increased low-alpha power reflects reduced cortical activity and detached witnessing of multimodal information processing; theta indicates an implicit affect-based orientation toward satisfaction and encoding of new information; delta reflects neural silence, signal matching and surprise, and gamma indicates heightened awareness, temporal-spatial binding, and salience. Cortical intra-interhemispheric synchronization, within these EEG spectral bands, is essential to effective creativity and meditation. The relative impact on creativity of various meditation strategies (mindfulness, concentrative and combined) is discussed. Sanyama, an ancient yogic attentional technique embodying both transcendence and integration, provides a unique neuropsychological explanation for extraordinary creativity (Horan, R. 2009).

Psychophysiology is firmly identified with the field of neuroscience and social neuroscience, which principally worries about connections between mental occasions and mind reactions. Psychophysiology is additionally identified with the therapeutic train known as psychosomatics. While psychophysiology was a teach off the standard of mental and medicinal science before generally the 1960 and 1970s, all the more as of late, psychophysiology has gotten itself situated at the crossing point of mental and restorative science, and its ubiquity and significance have extended equivalently with the acknowledgment of the between relatedness of brain and body.

Psychophysiology measures exist in three spaces; reports, readings, and conduct. Evaluative reports include member reflection and self-appraisals of inner mental states or physiological sensations, for example, self-report of excitement levels on the self-appraisal puppet, or measures of interceptive instinctive mindfulness, for example, pulse recognition (Cacioppo, John; Tassinary, Louis; Berntson, Gary 2007). Benefits to self-report are an accentuation on precisely comprehend the members' subjective experience and understanding their discernment; in any case, its traps incorporate the likelihood of members misjudging a scale or erroneously reviewing occasions (Robinson, Michael; Clore, Gerald 2002).

Statement of the Problem:-

To study the divergent production abilities as function of psycho-physiological state of students.

Purpose and Objectives:-

1. To find out whether the Divergent Production Abilities of students are affect by psycho-physiological state.
2. To find out whether level of Creativity i.e. Production Abilities of students of s affected by psycho-physiological state.

Hypothesis

Students who experience normal psycho-physiological state exhibit higher level of divergent production abilities than Students who experience neurotic psycho-physiological state.

Participants:-

Initially 180 subjects were taken for this study from the population of Kolhapur District. Finally sample of 120 subjects were selected in which 60 subject were from normal psycho-physiological state and another 60 subject were from neurotic psycho-physiological state. The sampling was simple random (a type of probability sampling). The efforts were made to have the sample as representative as possible in terms of education, area of living and gender. All the subjects were similar kind of socio-economic status.

The distribution of effective sample

Variables	Students
Normal psycho-physiological state	60
Neurotic psycho-physiological state	60
Total	N = 120

Variables:-

1) Psycho-physiological state is independent variable in this study.
2) A divergent production ability of students is dependent variables in this study.

Design:-

To attain objectives of the present study, Single factor design was used for this study

Measurement Tools:-

1. **Psycho-Physiological State Inventory (PPSI–VS):** Dysfunctional psycho-physiological state of students was determined on the score obtained from the norms given in the Psycho-Physiological State Inventory (PPSI–VS) by Sanjay Vohra. (It tells the psychological and physiological experience of late adolescents or adult group of either sex. It helps to differentiate the psycho-neurotic from the normal. The test having 0.87 reliability score with higher descriptive validity.

2. **Divergent Production Abilities: -** Divergent Production Abilities was determined on the score obtained from the norms given in the Divergent Production Abilities by K.N. Shrma.

Procedure:-

After having the sample selected, the researcher administered the tests on 160 subjects and recorded the scores of the tests. Thus, the collected data were analyzed by statistical techniques.

Statistical Treatment:-

The sample was available for statistical analysis consisted of 160 subjects after data collection. For the each subject, initially data of each group was separately scrutinized by employing descriptive statistics. The statistical analysis was mainly consisted of Mean, S.D. Analysis of Variance i.e. 't' test on Variables.

RESULT ANALYSIS

Hypotheses: - Students who experience normal psycho-physiological state exhibit higher level of divergent production abilities than Students who experience neurotic psycho-physiological state.

Table showing Mean & S.D. Value for psycho-physiological state on divergent production abilities of students

Variables	N	Mean	S.D.	't'	Significance
Normal psycho-physiological state	60	8.18	4.18	6.08	0.01
Neurotic psycho-physiological state	60	6.20	3.48		

Statistical investigation through obtained results shows that the mean score of the Students who experience normal psycho-physiological state is (8.18) comparatively larger than mean score of the Students who experience neurotic psycho-physiological state (11.48) on Level of divergent production abilities. Further inferential comparison i.e. 't' test ('t' = 6.08, P < 0.01, df=118) indicate that there is significant difference found between Students who experience normal psycho-physiological and Students who experience neurotic psycho-physiological state. Thus it can conclude that Students who experience normal psycho-physiological state exhibit higher level of divergent production abilities than Students who experience neurotic psycho-physiological state.

Findings are in line with study conducted by May, J. R., & Johnson, H. J. (1973) who investigated the effects of internally elicited thoughts on autonomic nervous system activity employing a time-locked technique. A tone served as the time-locked cue to signal a thought. 24 undergraduates were divided into 2 groups. Group 1 Ss generated thoughts to a series of

numbers, arousal (stressful) words, and neutral (nonstressful) words. Group 2 Ss generated thoughts to a series of numbers, inhibitory (relaxing) words, and neutral (nonstressful) words.

The numbers and words were memorized by the Ss during the instruction phase of the experiment. Results indicate that internally evoked thoughts produce physiological changes and that the direction of the change is partially dependent upon the affective nature of the cognitive event. Heart rate appeared to be the most sensitive physiological response. The importance of internally evoked thoughts and their autonomic nervous system effects are discussed in relationship to the cognitive mediation controversy in operant autonomic nervous system conditioning and systematic desensitization.

Paludo, A. C., Cook, C. J., Owen, J. A., Woodman, T., Owen, S., & Crewther, B. T. (2017) was to compare the psycho-physiological responses of mountain bike riders to anaerobic and aerobic cycle testing. Nineteen male mountain bike riders were separated into high (n = 6), moderate (n = 6) and low experienced group (n = 7). The athletes were assessed for their psychological state (i.e. state-anxiety and perceived exertion), physiological responses (i.e. heart rate variability, salivary testosterone and cortisol) and performance (i.e. maximal oxygen consumption, power output) during a single bout of anaerobic and aerobic cycle testing. No group differences in state-anxiety or exercise-induced hormones were found ($P > 0.05$). The high experienced group produced greater power outputs in both tests and they reported a higher level of perceived exertion during the aerobic test compared to low experienced ($P < 0.05$). Also, pre-test heart rate variability in the high experienced group was significantly higher than that of the moderate and low experienced groups ($P < 0.001$). In conclusion, greater experience with mountain bike training and competition was associated with elevated cardiac autonomic activity and higher perceived physical exertion in male riders, thereby potentially contributing to (or reflecting) better cycling performance.

CONCLUSION

Students who experience normal psycho-physiological state exhibit higher level of divergent production abilities than Students who experience neurotic psycho-physiological, state.

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