INTRODUCTION

Creativity and its domains defy precise definition since they encompass every sense- sight, smell, hearing, feeling, taste and even the extrasensory. Much of it remains unseen, nonverbal and unconscious. The phenomenon of creativity comprises of many nuances and interpretations with the extreme empiricists trying to throw a net of analytical propositions to grasp it (Wallach & kogan, 1965 & Guilford, 1968) and the metaphorically oriented theories ever widening its scope to highlight its relevance in every aspect of human functioning (Csikzentmihalyi, 1998 & Sawyer, 2006). Even decades of research on the relationship between intellectual functioning and creativity have been unable to unveil the exact nature of this enigmatic concept which sometimes appears to be a subset of IQ, sometimes overlapping and at other times just disjoint. (Sternberg, Kaufman, and Pertz, 2002). Interestingly Le françois (1982) had remarked that just as very low intelligence was stupidity, similarly very low creativity was ordinariness.

Attempts were made by many investigators such as Crutchfield (1962), Moustaks (1967) by contrasting creativity with conformity in order to grasp its essence. Apart from the defining standpoint of creativity, its expanse covers attitudes, underlying subtle processes and achievements (Barron & Harrington, 1981). Mooney (1963) suggested four approaches to creativity viz. environment, product, process, and person. The creative process and creative product have typically been seen as the criteria of creativity. The creative person has been the
main basis of prediction in the equation with environment used variously as a modifier in the equation as the stimulus situation through which inner processes are activated (Taylor, 1988). Recently Runco (2007) added ‘potential’ after Simonton (1990) who had added ‘persuasion’ to extend the four ‘p’ framework. Simonton (1990) described creativity as ‘persuasive’ by considering creative outputs to have the capacity to alter existing notions lending a social perspective to creativity. The potential differentiation as proclaimed by Runco (2007) exists between creative potential and creative performances with the former appreciating and giving significance to yet unfulfilled possibilities and subjective processes. To sum up Plucker et al, 2004). Comprehensively combined the whole gamut of opinions on creativity by describing it as “The interaction among aptitude, process, and environment by which an individual or group produces a perceptible product that is both novel and useful as defined within a social context”.

Beyond speculative definitions making estimations about the nature of creativity another debate persisted alongside related to its domain specificity or generality. (e.g., Baer, 1993; Sternberg, Grigorenko, & Singer, 2004). Creativity within domains expresses itself varyingly.

The genesis and mechanisms of creativity within the sciences and arts was brought to the fore when Stanley Stark (1969) distinguished two relatively independent contexts of creativity. He proposed ‘novelty’ which was akin to problem solving capacities and ‘meaning’ type of creativity which connoted aesthetic sensibilities. Dunber (1995) concluded that creative expressions of the scientist is never an accidental and sudden insight, rather it’s a long drawn effort and a careful reasoning towards the final solution.

The science streams i.e., physical, biological, chemical, engineering show a common overlap whereas literary, philosophical, musical and sculptural creativity show commonalities markedly differentiated from the previous group. Scientific creativity always involves an addition to previous knowledge, either an improved theory or a new object or procedure, whereas artistic creativity may give new representation of life (e.g. painting, poem) or feeling, but not usually progression from previous representations (Vernon, 1989).

Creative productivity has been understood as a particular type of cognition (a particular method of combining mental elements) with a certain configuration of personality traits especially behavioral traits (that manifest in performance) namely aptitude, interest, attitudes and temperaments A creative pattern becomes manifested in creative behaviour which includes activities such as inventing, designing, contriving, composing and planning. Dellas and Gaier (1970) constructed the picture of a truly creative personality by attributing to it traits such as: Independence in attitude and social behaviour, dominance, introversion, openness to stimuli, intuitiveness, flexibility, radicalism and rejection of external constraints.

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A large number of studies have also shown positive association between creativity and major affective disorders and other forms of psychopathology (Edel, 1975; Goertzel & Goertzel, 1978; Karlsson, 1978; Phillips, 1982; Jamison, 1988; Gibson, 1989; Weisberg 2006; Batey & Furnham 2008). Alongside a strong evidence is available for the positive association of creativity with indices of mental health (Cattell, & Butcher, 1967; Stein, 1971; Maslow, 1973; Torrance, 1989; Renzuilli, 2005).

Equivocal findings regarding emotional stability, ego-strength, and anxiety do suggest that people create under varied and differing conditions-internal as well as external. It is highly plausible then that some personal factors might show distinct manifestations across different domains of creative activity such as the arts and sciences. One such factor which deserves attention is the creator’s subjective experience of well being. Though intuitively even a layman knows what the term ‘well being’ implies yet questions are raised about precise empirical conceptualizations in the scientific arena. Broadly subjective well being relates to positive mental health.

The parameters for assessment of mental health are numerous ranging from self esteem to resilience. According to Emerson (1985) well being is the satisfaction of an individual’s goals and needs through the actualization of their abilities or life style. Hence it is not only about extra-psychic success rather it also includes intra-psychic health. It is an experience of functioning effectively and happily as a person in one’s expected role. It is a condition of the whole personality (not merely condition of the mind). It is an outgrowth of one’s total life and is promoted or hindered by day-by-day experiences, not only by major crises being a matter of degree.

High creatives in any domain of creative production too would be experiencing various degrees of well being as would any other individual falling in a normally distributed population. The behavioral repertoire of an individual in varied situations is under the influence of his creative assimilations and consequent execution of decisions thus formed. The objective of the present study was to test how subjective experiences of well being of the creative individuals in the fields of science and literature would influence their productions/end products/accomplishments.

**METHODOLOGY**

Sample for the study comprised of 20 creative young male subjects (10 from sciences and literary fields each) with age ranging from 25-32 yrs. Creative subjects for the study were selected on the basis of subjective ratings of their supervisors/seniors and peers for their creativeness. The criteria used for inclusion of creative subjects in the sample for the two domains was number of publications i.e., 5 and more research papers in science and 10 poems/short stories in
literature. An empirical validation of creativity was performed by assessment of scores on Torrance test of creative thinking. The obtained scores on combined indices of verbal and figural Fluency (60-70), Flexibility (39-47), Originality (45-55) and Figural Elaboration (65-76) were higher as compared to norms of their age groups. This indicated that subjects selected on the basis of supervisors ratings were appropriate selections even with actual psychometric indices of the criteria. All the subjects were required to give detailed report of their achievements. Qualitative evaluation of their productions was done by experts from their respective fields. Ratings of subjective wellbeing were based on scores of subjects on the PGI Well being measure by Verma & Verma (1988). 5 subjects with high well being (having scores of 17 & above) and 5 subjects with low well being (having scores of 12 & below) were taken for the study within the high creative group. Rorschach Ink Blot test was administered to 5 high and 5 low well being subjects (amongst the high creativity group) in sciences and arts. Inferences were drawn on the basis of analysis of Rorschach responses for indices of Form, Colour, Movement and Texture and qualitative information obtained for production by the creative persons.

RESULTS

Analysis of Rorschach responses of subjects in four groups suggested that indices of Wholes (W), Form (F), Human Movement (M), and Color (FC) response along with total number of responses (R) elicited by subjects were useful for identifying differences in the high creatives who differed on subjective experience of well being within sciences and arts.

Analysis of Rorschach responses of high creatives, high and low on well across sciences and literary arts: Subjects with high sense of well being in both science and literature tended to give greater number of responses (R) to 10 inkblots i.e., 40-50. These subjects also yielded high scores on Form (F) indices. This implies that subjects with high subjective experience of well being had an uninhibited impulse to produce more and more responses. This tendency hints at a general capacity for productivity of individuals from both sciences and literature. Their score on Pure Form responses ‘F’ ranged from 18-30.

Higher ‘F’ responses were suggestive of predominance of reality oriented rationality and emotion free modes of problem solving and decision making styles. Another noteworthy marker of this group had been their range of ‘Form Colour’ response (FC, 3-10) and ‘Colour Form’ (CF, 0-2) responses. While the ‘FC’ scores were indicative of better internal controls, near absence of ‘CF’ in the whole group revealed that individuals in the category of ‘high subjective well being and high creativity’ were rarely swayed by emotions even though belonging to different domains of creative production.

High Creatives mainly from the area of literature with low subjective wellbeing gave relatively lesser number of total responses (R,22-35) and less pure form
responses (F, 14-22) as compared to subjects who were high on subjective well being. Though these scores were comparatively on the lower side but certainly not indicative of a stunted capacity for productive creativity or loss of touch of reality. Primacy of Colour as a dominant in their responses hints at another significant feature of psychic functioning of these. Number of Colour dominated Form responses (CF, 5-8) almost matches with their Form Colour responses (FC, 7-10) responses. This ratio seems to hint at the possibility of oscillation between states of better internal controls on one hand and dominance of affect on the other. Human movement responses hint at higher emotional sensitivity to internal and external cues.

Interestingly use of entire blot i.e., Wholes in their percepts of Location, (W, 10-13 & 9-12) and Human Movement responses (M, 8-10 & 7-10) do not show any marked differences between groups of subjects with high and low subjective well being respectively. Observation of complex organizational activity in almost all the Whole percept responses of both groups reveals their likelihood to remain engaged in creative activity, though in different styles and contexts.

The overall patterns of scores on all indices of Rorschach for both the groups reveals that subjects with high sense of subjective well being fall in the Rorschach’s creative category of introverts while creative subjects with low subjective well being could be called ambiverts. The marked difference between these two categories in the Rorschach systems is that introverts are more apt to utilize internal resources in a problem focused and reality oriented manner where as ambiverts tended to oscillate between inwardly and outwardly orientations in the utilization of internal resources.

**Qualitative analysis of creative production of subjects each in the sciences and literary arts:** Evaluation of research activities and paper publications of subjects in science was done by their research supervisors. The reports invariably suggested that subjects with high well being were more innovative, designed ‘their investigations after thorough scrutiny of their work, were more skeptical, critical and open to changes and challenges’. Subjects with low well being were relatively less productive with their emphasis on replication, verification and extension of work suggested by supervisors only.

In the literary domain theme based content analysis of poems and short stories revealed that the main concerns of subjects with ‘high well being’ were related to social evils, inequality, political ideology on one hand and idealistic, perfection oriented with message of universal brotherhood on the other. Subjects with ‘low well being’ depicted a pessimistic world view in their writings. Plots of their short stories were complex, depicting conflicts, contradictions and suffering ultimately resulting in irresolvable conflict but acceptance of circumstances. All these characteristics of nature of writing presumably provides a rich source of catharsis to the writer. Foregeard (2008) analysed linguistic patterns of some eminent writers with psychiatric problems especially unipolar,
bipolar and those who had none of these and he too found a marked difference
in these groups, i.e., writers with bipolar and unipolar disorders used more
death related words with pessimistic orientations as compared to the mentally
healthy group.

In the context of the present study Rorschach protocols of creative
individuals in both the fields viz sciences and literature reveal that at the same
level of creativity, variations in degrees of subjective experience of well being
manifests in the direction and quality of creative production. Contrary to belief,
Rorschach responses did not vary for the ‘high creativ, high SE of well being’
subjects in arts and sciences as had been postulated earlier. The probable rationale
is that though the basis of creativity may differ in the arts and sciences, yet the
personality traits sustaining it generalizes across domains. These results are
strong clues to the problem of how and why creative people tend to choose
specific issues to be addressed by their own selves in a life span of creative
outputs .

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