

Effect of Meditation on Creativity and Intelligence

Godwin A. Ugal

The present study was conducted to find the effect of meditations on creativity and intelligence. Torrance Test of Creative Thinking were used for the measurement of creativity and Raven's Standard Progressive Matrices was used for the measurement of intelligence. A group of 20 subjects were administered Torrance Test Creative Thinking and Raven's Standard Progressive Matrices before they started the training of meditations. After a training of seventy days, the same twenty subjects were again administered both the tests. The data obtained were subjected to Sandler's A-Test for the difference between means of two conditions of before meditation and after meditation for fluency scores, ~~fluency scores~~, flexibility scores, originality scores, elaboration scores, total creativity scores, and intelligence scores. Coefficient of correlation was computed between the creativity and intelligence for both conditions separately. It was found that both conditions differ significantly for fluency, flexibility and total creativity and intelligence under both the conditions for before meditation and after meditation.

INTRODUCTION

Meditative practices have developed in various parts of the world over the centuries. All of them involve a shifting of attention – often using a chant, flower, candle flame, blank wall, crystal, one's breathing, repetitive movement, a koan (a puzzle), a mandala (a concentric geometric design), a "mantram" (a phrase repeated, either silently or out loud, or the changing process of one's ongoing experience). The objective of this one-pointed focus is either to narrow or expand the content of awareness to a fine point so that it may eventually enable the meditator to break through to a higher, more intense plane of existence (Ferguson, 1973).

Research data linking meditation and creativity are negligible despite the theoretical paper, which have been written, and the case studies which are frequently cited (Bloomfield et al. 1975). However, one interesting line of research, followed by a few investigators of Transcendental Meditation (TM), concerns Maslow's concept of self-actualization (1970) – the extent to which a person is applying his or her potential (in Krippner and Maliszewski, 1978). Seeman et al (1972) administered the Personal Orientation Inventory (POI) to matched TM and control groups of 15 subjects each. After two months, during which the first group had taken a course in TM, the POI was again administered. The control group showed few changes, but the meditators improved in such "self-actualization" scales as inner-directedness, self-regard, spontaneity, acceptance of aggression, and capacity for intimate contact. Similar results with POI and TM students have been reported by Niedich et al. (in Bloomfield et al., 1975, p.99).

Students participating in TM programme showed marked improvement in academic achievement as has been reported by Collier (1976). Speed and accuracy of complex perceptual motor performance involving adaptive flexibility were greater in subjects participating in the TM technique than in control subjects according to Blasdelle (1976). Toja (1976) observed enhanced development of non-verbal fluid intelligence by the practice of the TM technique. Scheeter (1976) found positive changes occurring in creativity, intellectual performance and other psychological variables in high school students practicing TM technique.

Creativity is the concept that was first propounded by philosophers. In the beginning it was claimed that God is the only creator of universe. During renaissance it was given a formal expression by the philosophers of enlightenment. They said that man can become a creator by using supernatural powers (Nahm, 1956). Experimental studies on creativity were first conducted by Patrick (1937, 1938 & 1941). She identified the process of preparation, incubation, illumination, and elaboration, as described by Wallas (1945).

The first major scientific attempt which showed that creativity is a function of the intellect, was that of Guilford (1950). According to him, mental abilities can be broadly divided into two classes: a small class of memory abilities and a much larger one of thinking abilities. The later, in turn, can be subdivided into three categories of cognitive, productive and evaluative abilities. Cognitive abilities are involved in the recognition of information (in becoming aware of something), productive abilities in the use of information (normally to generate new information), and evaluative abilities in the judgement of whether what is cognized or produced is correct or suitable to meet the requirement.

In the present investigation, the investigator purported to find the effect of meditation on creativity and intelligence and for this creative aptitude test criterion was used. It was felt that both verbal and figural tests in conjunction with each other may be helpful in identifying with greater certainty and creative ability of the individual. So, it was decided to use a test which has both verbal and figural tests. Torrance tests of Creative Thinking served the objective. The tests have been found to be reliable and valid under various conditions by Raina (1972), Basu and Jawa (1973) amongst other.

METHOD

Sample – A group of 20 subjects (15 males and 5 females) in the age group of 25 – 32 years were selected randomly from the freshers who were just to start learning of the TM programme in an institute located at Lagos.

Stimulus Material – The stimulus materials used were:

1. Torrance Tests of Creative Thinking (TTCT)
2. Raven's Standard Progressive Matrices

TTCT as developed by Torrance and his associates (1966) can be administered to individuals at all educational levels – from Kindergarten through Graduate level.

Fluency: Reflects the test taker's ability to produce a large number of ideas.

Flexibility: Represents a person's ability to produce a variety of ideas, to shift from one approach to another or to use a variety of strategies.

Originality: Represents the subject's ability to produce ideas that are away from the obvious, common place, banal or established.

Elaboration: Reflects the subject's ability to develop, carry out or elaborate ideas.

In the present investigation only the following three tests were used due to the limitation of time:

1. Unusual Uses
2. Consequences
3. Product Improvement Tasks.

Procedure

All the twenty subjects were given the TTCT and Raven's Standard Progressive Matrices before they started the meditation. After this they were trained on Meditation Programme for 70 days for duration of one hour daily in the morning. The nature of meditations involved fixing of eye sight on candle flame tip and chanting of "mantras"

RESULTS

The mean scores to the TTCT and Raven's Standard Progressive Matrices were presented in the Table 1 of fluency, flexibility, originality, elaboration, composite creativity and intelligence for all the twenty subjects under the pre-meditation condition (Pre), that is, before meditation and under the post-meditation condition (post), that is, after the completion of TM programme for seventy days.

The data were subjected to Sandler's A-Test (Sandler, 1955) for finding the difference between the pre-meditation condition and the post-meditation condition and presented in table 2.

Table 2 indicates that the value of A is significant for fluency, flexibility, originality and composite creativity. This implies that pre-meditation condition is significantly different from the post-meditation condition. But there were no significant differences between two conditions that is, pre-meditation and post-meditation conditions for elaboration and intelligence.

Finally, the coefficient of correlation was computed between composite creativity scores and intelligence scores under pre-meditation condition and post-meditation condition respectively. The value of correlation between composite creativity and intelligence scores was found to be 0.48 ($p < .01$) for pre-meditation condition and 0.52 ($p < .01$) for post-meditation condition.

Table 1: Mean and Range of Creativity Scores (Five Variables) and Intelligence Scores for Pre-Meditation Condition (Pre) and Post-Meditation Condition (Post).

Condition	Creativity Scores						Intelligence Score					
	Fluency		Flexibility		Originality		Elaboration		Composite Creativity			
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Mean	47.15	52.60	47.35	53.40	46.90	50.85	47.15	47.20	188.55	204.15	52.65	52.80
Range	15-50	51-54	46-51	52-55	45-49	49-52	46-48	46-49	182-196	198-209	50-55	51-55

Table 2: Mean Difference Score (Post-Pre) and Value of Sandler's 'A' Between Pre-Meditation Condition and Post-Meditation Condition for Creativity and Intelligence Scores.

	Creativity Scores					Intelligence Score	
	Fluency	Flexibility	Originality	Elaboration	Composite Creativity		
Mean Difference Score (Post-Pre)	5.45	6.15	3.95	0.05	15.60	0.15	
Sandler's 'A' Value	.051*	.051*	.052*	19.00	.054*	3.33	

DISCUSSION

It was found that the mean value under the post-meditation condition were significantly more than under pre-meditation condition for fluency, flexibility, originality and composite creativity. This indicates that after meditation, creativity of an individual increases. Thus, showing that meditation has a direct impact on the creativity of an individual. This is in agreement with the findings of Krishna (1973), Ndich et al. (1975) and Ugal (1995).

No significant difference was found between pre-meditation and post-meditation conditions for intelligence scores. The Raven's scores under pre-meditation and post-meditation are almost the same for all the subjects. This suggests that meditation has no impact on the level of intelligence. Schwartz (1974) suggested that TM practice could conceivably raise IQ test scores. However, in the present study no significant difference was found. This may be due to the reason that all the subjects are functioning at a very high level of intelligence. On the other hand, too much meditation may interfere with a person's logical thinking (Schwartz, 1974).

Literature indicates that the correlation between creativity and intelligence is anything between .25 to .60 (Farrance, 1964; Yamamoto 1962; Roe, 1963; Chadha, 1979).

ditions indicating a moderation correlation between the two. Since creativity and intelligence both are cognitive aspects, this may be one of the reasons for high correlation between creativity and intelligence.

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