

A Study of Relationship between Creativity and Intelligence in Adolescents

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ABSTRACT

Feeling of well-being and happiness can be experienced through creativity. One can enjoy being creative for the sake of exploration and invention which has over generations enhanced human society's ability to survive in this unpredictable world, or one can practice creativity in the pursuit of day to day activities or at work and be happy. Hence creativity is an important construct for promoting happiness. The query lies in discovering whether all persons are creative or a few persons are endowed with this positive virtue. Is creativity related to intelligence? The relationship between creativity and intelligence has been subject to empirical research for decades yet there is no consensus on how these constructs are related. Therefore the main purpose of this research was to study the relationship between intelligence and creativity in adolescents. Major objectives chosen are (i) to measure the relationship between creativity and intelligence (ii) to measure the difference between boys and girls in intelligence and creativity. The study was conducted on 30 girls and 30 boys, aged 12-18 by purposive sampling technique. The data was obtained by the administration of the two non-verbal scales (i) standard progressive matrices by Raven (ii) test of creative thinking by Baqer Mehdi. Results revealed that (i) intelligence and creativity were positively correlated (ii) significant differences existed between boys and girls on creativity and no difference was found on intelligence. The study further highlighted the ways and means of enhancing creativity.

Keywords: *Intelligence, Creativity, Well-being, Happiness.*

Research has shown that creating new things enhances mental health and makes happy. Creating something with your hands fosters pride and satisfaction, but also provides psychological benefits because it can uncover and channel inner stings, wound smart less and growth ensues. When you make something you feel productive, but the engagement and exploration involved in the doing can move your mind and elevate your mood. Creativity is a powerful tool for altering

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the inner life because making things or transforming inner states into outer productions fosters solace and satisfaction.

Intelligence has been defined in many different ways such as in terms of one's capacity for logic, abstract thought, understanding, self-awareness, communication, learning, emotional knowledge, memory, planning, creativity and problem solving.

According to David Wechsler "intelligence is the aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his environment"

Creativity is phenomenon whereby something new and valuable is created (such an idea, a joke, an artistic or literary work, a painting, or musical composition a solution an invention etc.) it is the act of turning new and imaginative ideas into reality. Theories of creativity (why some people are more creative than others) have focused on a variety of aspects. The dominant factors are usually identified as "the four Ps"-process, product, person and place.

Creative insights and illumination can be explained by a process consisting of 4 stages:

1. Preparation (preparatory work on a problem that focuses the individual's mind on the problem and explores the problem's dimensions)
2. incubation (where the problem is internalized into conscious mind and nothing appears externally to be happening)
3. illumination (where the creative idea bursts forth from its preconscious processing into conscious awareness)
4. verification (where the idea is consciously verified)

Intelligence certainly plays a part in creative thinking, IQ (Intelligence quotient) is generally gauged by an ability to interpret information and provide solutions, no matter the circumstances. If you are great at acquiring knowledge (through reading or lectures or watching videos on you tube) and you have the ability to put that knowledge to use effectively, but lack the ability to effectively filter through solutions, may come up with effective ideas, but it going to take you a long time. As opposed to those with high intelligence levels who can filter through ideas quickly. Intelligence only gets you so far when it comes to creativity. Many creative problems strongly draw on verbal abilities and general knowledge. Crystallized intelligence was found to show higher correlations with specific measures of creative potential than other components of intelligence (cho et al.,2010)

To creative is to pull existing knowledge into a new situation and quickly sort through potential outcomes. Of course: existing knowledge is something that anyone above a certain threshold on the IQ scale can amass. So intelligence matters, it demonstrates your ability to gather knowledge and effectively use it. Creativity is the ability to go beyond the intelligence frame and capitalize

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on seemingly random connections of concepts. Being able to come up with creative ideas is not something you need an overly-high IQ to accomplish. Once you have got a level of knowledge gathering and utilization that's about average, you are well on your way to having the creative potential of Albert Einstein, Bill gates or Steve jobs. Mr. Jobs even stated this himself while he was alive by saying creativity is just connecting things when you ask creative people how they did something, they feel a little guilty because they did not really do it, they just saw something. It seemed obvious to them after a while. That's because they were able to do that was they have had more experiences than other people.

Convergent thinking involves aiming for a single, correct solution to a problem whereas divergent thinking involves creative generation of multiple answers to a set of problem. Divergent thinking is sometimes used as a synonym for creativity in psychological literature. Other researches occasionally used the terms flexible thinking or fluid intelligence, which are roughly similar to creativity (Guilford, 1950)

Sternberg and O'Hara (1999) gave a general framework for researchers encompassing five possible relationships: intelligence and creativity can either be seen as subset of each other, they may be viewed as coincident sets, can be seen as independent but overlapping sets and lastly as completely disjoint sets.

Karwowski and Gralowski (2013) tested the threshold hypothesis in light of different methodological considerations. The authors proposed three possible criteria in order to accept or reject the threshold hypothesis by means of the correlational approach. The most liberal criterion would be a significant positive correlation below the threshold and an insignificant correlation above it. As a more conservative criterion, there should be a significant positive correlation below the threshold that is significantly higher than the correlation above the threshold, and a significant difference between both of them. The authors investigated the threshold hypothesis at different levels of intelligence and found a threshold effect most likely to be observed at an IQ of 115 when considering the most conservative criterion.

METHODOLOGY

Research design

Correlational design was used to examine the relationship between intelligence and creativity in adolescents.

Sample

This study was conducted on 30 boys and 30 girls, aged 12-18 from Hindi medium school, Jaipur. Purposive sampling technique was used.

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Measures

Two non-verbal scales were used to collect data for the study.

Raven's standard progressive matrices (SPM): the scale has a total of 60 items presented in 5 sets (A-E), with 12 items per set. The problems become progressively more difficult as the test taker proceeds through the problems in the test. Internal consistency reliability for standard progressive matrices is .88.

Creative thinking by Baqer Mehdi: the test consists of three activities picture construction activity, incomplete figure activity and triangles and ellipses activity. Scores were given on the basis of elaboration and originality of the item for each activity. Reliability for creative thinking test is .94.

RESULT AND DISCUSSION

Numerous psychologists have investigated the relationship which exists between creativity and intelligence and diverse results were found. Thus Guilford (1992) includes creativity within the intelligence construct. The basic idea behind the threshold hypothesis is that high creativity requires high or at least above average intelligence. It was assumed that there exists a threshold in intelligence which is usually set to an IQ 120. At this above average intelligence is thought to form a necessary but not a sufficient condition for high creativity.

The main objective of the present study was to measure the relationship between creativity and intelligence.

Table 1. Correlation between intelligence and creativity

Variable	Mean	SD	Correlation
Intelligence	36.23	4.10	1.00
Creativity	95.95	12.24	

Table 1- The Product moment correlation between intelligence and creativity was calculated and data revealed that the relationship between two construct is highly positive. There is perfectly 1.00 correlation exists between intelligence and creativity.

Sternberg (2001) proposed that there is a dialectical relationship between creativity and intelligence. Intelligence is necessary for there to be creativity because not only generation of novel ideas necessary but the critical analysis of novel ideas is also necessary. To be able to generate novel ideas, there must be some basic intelligence, but to further analyse those ideas that are generated, there must be higher intelligence. Sternberg uses the example of Charles Darwin was thought to be a creative because of his high intelligence he was able to generate the idea of evolution and to critically analyse it against other possibilities. If his analysis had not been a change happening, or it would not have been his theory of evolution in the first place.

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Table 2. Significance of difference between boys and girls in their intelligence and creativity.

Variable	Groups	Mean	S.D	T	SL
Intelligence	Boys	36.26	7.49	.20	Not significant
	Girls	35.9	5.79		
Creativity	Boys	87.68	9.08	2.09	Significant at .05 level
	Girls	92.79	9.87		

Table 2 - Represents the mean, standard deviation and t test analysis of girls and boys groups. t value for boys and girls group in intelligence is .20 that is not significant enough so boys and girls does not differ in intelligence. Gender does not play any role in general intelligence .t value for creativity is 2.09 that is significant on .05 level indicates significant difference between boys and girls in creativity. Girls found more creative than boys.

CONCLUSION

The results revealed that there is perfect positive correlation between intelligence and creativity. Intelligence of boys and girls group is almost similar but significant difference exists between girls and boys in creativity. Girls showed more creativity than boys.

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