

## **Relationship between Mental Imagery and Creativity of Secondary School Students.**

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### **Abstract**

Mental imagery and creativity have a strong relationship, as the former plays an important role in stimulating the latter. Mental imagery is the ability to create vivid, sensory experiences in one's mind without the presence of external stimuli. Meanwhile, creativity refers to the ability to come up with new and innovative ideas or solutions to problems. Research has shown that individuals who are capable of generating rich mental images tend to be more creative than those who struggle with this ability. This is because mental imagery allows individuals to visualize and manipulate various elements, which can lead to novel connections and ideas. The present study attempts to find out the relationship between mental imagery and creativity of secondary school students. The study was conducted on a sample of 1200 secondary school students. The study concluded that there is a significant positive relationship between mental imagery and creativity of the secondary school students. *Keywords:* Mental imagery, creativity

### **Introduction**

Mental imagery is a representational medium for providing researchers access to thoughts, symbolization, and combination of elements, possibly facilitating the emergence of new ideas and creativity. In this direction, different aspects of mental imagery were considered which could increase or explain the emergence of creativity: daydreaming styles (common forms of imagination that involve spontaneous thoughts unrelated to the context, Zedelius and scholar); imagination of activities over a long period, relevant especially for actual creative achievements in science and writing (Jung et al); as well as 'looking at nothing' and blinking behaviours, that do not necessarily involve visual imagery (Salvi and Bowden). In addition, we explored the relationships between different creative objects' production and artistic drawings with other mental imaging processes i.e., generation, inspection and transformation, (Palmiero et al., 2012).

We also collected studies that investigated distinct and peculiar aspects of creativity and its cognitive components, such as the equal-odds rule of divergent thinking. Interestingly,

the relationships between convergent thinking involve insight and intelligence and working memory updating (maintenance of items in working memory and binding of the incoming information, One of how mental imagery and creativity are connected is through the use of visual metaphors. Visual metaphors use imagery to represent an idea or concept and can be a powerful tool for generating creative insights. For example, a chef struggling to develop a new recipe might imagine the flavours and textures of different ingredients and then combine them in novel ways.

Another way in which mental imagery can enhance creativity is through the use of mental simulations. Mental simulations involve mentally rehearsing or visualizing a particular task or activity. This can help individuals generate new insights or solutions to problems, as they can imagine various scenarios and how they might play out.

### **Objectives**

- 1 To find out the relationship between mental imagery and creativity of secondary school students in the total sample.
- 2 To find out the relationship between mental imagery and creativity of secondary school students in the subsamples based on gender.

### **Hypotheses**

- 1 There exists a significant positive relationship between mental imagery and creativity of secondary school students in the total sample.
- 2 There exists a significant positive relationship between mental imagery and creativity of secondary school students in the subsamples based on gender.

### **Research Methodology**

The normative survey method was used for the study. The study was conducted on a sample of 1,200 secondary school students. A stratified random sampling technique was used to collect the data where due representation was given to the gender of the subjects. The tools used in the study were a test of imagery administered: the Vividness of Visual Imagery Questionnaire (VVIQ) [D.F. Marks, 1973] and Torrance's Suppose Test (Suppose) [E. P. Torrance, 1974].. The Vividness of Visual Imagery Questionnaire, or VVIQ, is a self-report rating of the vividness of one's ability to visualize situations [D. F. Marks, 1973]. (For example, "Visualize a rising sun. Consider carefully the picture that comes before your mind's eye.") Subjects rate their internal images on a scale from 1 (clear) to 5 (unclear). The score on this instrument represents the sum of ratings on sixteen items. The Just Suppose

Test represents the novel divergent response dimension [E. P. Torrance, 1974]. In this task, the subject is given an improbable situation and is asked to list as many imaginative consequences of that situation as possible in five minutes. (For example, "JUST SUPPOSE a great fog was to fall over the earth, and all we could see of people would be their feet. What would happen? How would this change life on the planet? List your ideas and guesses below.") The statistical technique used to analyse the data was Carl Pearson's product-moment correlation coefficient. **Analysis and Interpretations**

The study aimed to investigate the relationship between mental imagery and creativity among secondary school students in the overall sample and within subgroups based on gender. To analyse this relationship, the researchers employed Carl Pearson's product-moment coefficient of correlation, which measures the strength and direction of linear correlation between two variables.

The obtained correlation coefficients reflect the degree of association between the students' mental imagery scores and creativity scores. These coefficients provide insights into whether the two variables have a positive, negative, or negligible relationship.

The correlation coefficient between mental imagery and creativity scores was calculated in the total sample. This value indicates the overall relationship between the ability to generate mental images and the level of creativity exhibited by secondary school students. Additionally, the researchers performed subgroup analyses based on gender. For male and female students, correlation coefficients between mental imagery and creativity scores were determined separately. This approach allowed the researchers to explore whether the relationship between mental imagery and creativity differed between genders.

The correlation coefficients, when interpreted, can provide insights into the strength and nature of the relationship. A positive correlation suggests that higher mental imagery scores are associated with higher creativity scores, meaning that students with better mental imagery skills tend to demonstrate higher levels of creativity. A negative correlation, on the other hand, would indicate an inverse relationship, where higher mental imagery scores are linked to lower creativity scores. A correlation close to zero indicates a weak or negligible relationship between the two variables.

By examining the correlation coefficients within the total sample and across gender-based subgroups, the researchers can conclude the nature of the relationship between mental imagery and creativity for secondary school students. This information contributes to

our understanding of how mental imagery abilities might impact creativity levels and whether these relationships differ based on gender.

***A. Relationship between Mental imagery and creativity for the total sample***

Statistical indices relating to coefficient of correlation between scores of Mental imagery and creativity for the total sample are presented in table 1.

**Table 1**

**Coefficient of correlation between Mental Imagery and Creativity for the total sample**

N	r	SEr	Confidence interval
1200	0.560	0.020	0.509-0.611

Table 1 shows that the coefficient of correlation obtained are 0.560. It is significant at 0.01 level and the confidence interval is from 0.509 to 0.611.

***B. Relationship between Mental imagery and creativity for boys***

Statistical indices relating to coefficient of correlation between scores of adjustment and achievement motivation for boys are presented in table 2.

**Table 2**

**Coefficient of correlation between Mental Imagery and Creativity for boys**

N	r	SEr	Confidence interval
530	0.468	0.034	0.381-0.556

Table 2 shows that the coefficient of correlation obtained are 0.468. It is significant at 0.01 level and the confidence interval is from 0.381 to 0.556.

***C. Relationship between Mental imagery and creativity for girls***

Statistical indices relating to coefficient of correlation between scores of adjustment and achievement motivation for girls are presented in table 3.

**Table 3**

**Coefficient of correlation between Mental Imagery and Creativity for Girls**

<i>N</i>	<i>r</i>	<i>SEr</i>	<i>Confidence interval</i>
670	0.617	0.024	0.55-0.679

Table 3 shows that the coefficient of correlation obtained are 0.617. It is significant at 0.01 levels and the confidence interval is from 0.555 to 0.679.

**Interpretations**

The tables above indicate that there is significant positive relationship between mental imagery and creativity of secondary school students. Both boys and girls possess significant positive relationship between mental imagery and creativity. The result reveals that creativity has a significant influence in determining mental imagery of secondary school students. Since it appears that some strategies improve the productivity of mental images (Antinietti & Martini, 2000), one may conclude that imagery can be proposed as an educational methodology for the development of creative thinking in childhood. His spontaneous use of imagery in preschool playing behaviour is predictive more creative skills in older children and adults (Singer & Singer, 2006). The link between imagery and creativity also appears to be in the opposite direction: creativity induces a more frequent and complex use of mental imagery (Saracho, 2002).

**Educational implications of the study**

Encouraging mental imagery: Teachers can encourage students to use mental imagery to enhance their creativity. This can involve asking students to visualize different scenarios or to create mental images of an idea they are trying to develop. Teachers can help students generate new and innovative ideas by encouraging mental imagery.

- Integrating visual and creative art: The study suggests that mental imagery and creativity are closely linked. Therefore, incorporating visual and creative arts into the

curriculum can help students develop their mental imagery skills and boost their creativity. Arts classes, drama, and music can help to promote mental imagery.

- Promoting interdisciplinary learning: The study highlights the importance of multidisciplinary education in enhancing creativity. Teachers can encourage students to explore different subjects and fields of study, which can help to expand their mental imagery and creative abilities. For instance, students can use their science knowledge to create artistic representations of scientific concepts or use their understanding of history to write imaginative stories in different historical periods.
- Providing opportunities for divergent thinking: mental imagery is closely related to divergent thinking, which involves generating multiple ideas and solutions to a problem. Teachers can create opportunities for divergent thinking by asking openended questions with multiple possible answers, encouraging brainstorming and collaboration, and providing students with opportunities to experiment and explore different approaches to problem-solving.
- Visual imagery plays a vital role in student's creativity. Mental imagery is effective in limiting stress and anxiety for creative thinking. Imagery creates the mood or setting for the study. Students are much more likely to remember concepts of multiple perspectives if they have rich visual imagery. With a bit of reflection and time, instructors can create visual imagery for the most complex concepts in their classes. Mental imagery is a performativity medium for providing researchers access to thoughts, symbolization and a combination of elements, possibly facilitating the emergence of new ideas and creativity.

#### **Recommendation:**

Based on the current findings, the following recommendation is offered

- Encourage teachers and teacher educators to use mental imagery with physical training to increase students' performance for better outcomes.
- Conduct series training workshops to increase awareness and positive attitude of teachers and teacher educators about mental imagery strategy as an innovative student centred approach method of teaching.

#### **Conclusions**

Overall, the relationship between mental imagery and creativity is complex and involves various cognitive processes. Enhancing our ability to create rich mental images can open new

avenues for creative thinking and problem-solving. As such, mental imagery is essential for individuals who want to cultivate their creativity and reach their full potential. In addition to these approaches, research has shown that mental imagery can help individuals overcome creative blocks. When individuals are stuck on a particular problem or idea, mental imagery can provide a fresh perspective and help them see the problem in a new way. This can lead to new insights and solutions that might not have been apparent otherwise. The mental imagery of secondary school students is positively correlated with their creativity. A positive relationship exists between mental imagery and imagery of secondary school students in the subsamples based on gender. Mental imagery significantly influences secondary school students' creativity.

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