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Impact of Scientific Attitude on Scientific Creativity

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ABSTRACT

In classroom situations when teacher create new learning experiences students will be interested and they try to make connections to what they already know. But it is not that easy for a teacher to create new learning experiences everytime. An individual with a scientific attitude much more exposure to find out new experiences and situations and we can say they are creative in their own way. Scaffolding occurs when they create new ideas. So does scientific attitude affect scientific creativity is the question here. For effective cultivation of creativity, attitude must be there. The area of research definitely require a lot more attitude and creativity. The formulation of a research problem reflects what the researcher intends to do and is it feasible to do in the practical situation. Definitely an individual equipped with so much of scientific attitude definitely turn his/her research problem into a compatible one. In this paper the researcher reflect upon the effect of Scientific Attitude and Scientific Creativity among Researchers. Descriptive survey method is adopted for the study. 150 research scholars from Hyderabad is selected through stratified sampling technique. ANOVA is used to analyse the data. The results show that there is significant effect of scientific attitude on scientific creativity. But it is seen that the among research scholars of language stream these two variable is not showing any significant effect.

1. Introduction

People who are eager to know, acquire information on their own way and uplift their self- esteem. Nobody but their self, force them to do so. They catch fun in finding and searching for information. Benefiting from the information gained affect their attitude. They find innovative ways for applying in practical situations. They do so for the sake of learning and to gain new experience. Attitude and creativity are essential for getting ideas and implementing them. Knowledge is crucially essential for creativity because as stated article “the best ideas flow from a well-equipped mind, nothing can come from nothing**.** Let’s see in detail what scientific attitude and scientific creativity are?

Scientific Attitude

In the field of research having a scientific attitude means accepting only facts that have been carefully verified, together with a willingness to reject old theories that new facts tend to relocate. It is seen that Scientific means based on or characterized by the methods and principles of scienceand attitude is a settled way of thinking or feeling about someone or something, typically one that is reflected in a person's behaviour. So scientific attitude can be defined as way of viewing things, a curiosity to know how and why things happen with an open mind and governed by facts. The importance of the scientific attitude in any field is that it leads to truths, and these truths are bases upon objectivity, combined with a fair degree or skepticism and humility, which is contrast to overconfidence and bias.

The following is a list of the scientific attitudes:

- Objectivity: The quality of being objective
- Curiosity: A strong desire to know or learn something
- Open mindedness: Open mindedness is receptiveness to new ideas
- Persistence: Firm or obstinate continuance in a course of action in spite of difficulty or opposition
- Knowledgeability: Wisdom as evidenced by the possession of knowledge
- Creativity: The use of the imagination or original ideas, esp. in the production of anartistic work
- Flexibility: The quality of bending easily without breaking
- Risk taking: Someone who risks loss or injury in the hope of gain
- Intellectual honesty: Intellectual honesty is honesty in the acquisition, analysis, and transmission of ideas
- Humility: A modest or low view of one's own importance; humbleness

All these qualities enable one to ask the right questions, observe, search for information as well as carry out experiments. A good researcher must possess these qualities. A scientific attitude is also important because it dictates that answers to questions be arrived at through a process of critical thinking. Scientific attitude is governed by factors like intellectual honest, open mindedness and creativity. So creativity is coupled with scientific attitude in so many aspects. Let us see what scientific creativity is?

Scientific Creativity

A large amount of work, both in terms of theoretical empirical, done in the field of scientific creativity may be listed in the following topics: the creative work or product, the creative person, the creative process, and the creative situation (Isaksen, 1987; MacKinnon, 1987; Rhodes, 1961). Bach has defined creativity as ability to integrate creative elements into new combinations, which correspond some requirements or are otherwise useful. According to Feist (1998)

it is the the capacity to have novel-original and useful-adaptive ideas in the domain of natural and social sciences.

Torrance's (1962) put forwarded the factors which backings the creativity and that list of psychological and social variables conducive to creative achievement is still worth mentioning in this context. It includes the absence of serious threat, the readiness to take risks, the awareness of one's feelings, the awareness of oneself as being different from another, openness to ideas of others, confidence in one's perceptions of reality or ideas, and mutuality in interpersonal relationships. All these factors are necessary for anyone to carry out a fruitful research.

Wakefield has reminded that most important is to find good problems i.e. state right questions. A creative individualknows how to correctly formulate research problems, how to generate an extensive search space for a selected problem, formulate the necessary practical knowledge to reduce the search space into adaptable dimensions, and conduct exhaustive search in the compact search space. Any missing link between these concepts, can hinder scientific creativity.

Scientific creativity can be investigated through five basic cognitive and computational concepts. These are 1) Motivation for scientific research. 2) Ability to correctly formulate research problems within a body of knowledge. 3) Ability to create a comprehensive search space for the solution of a scientific problem. 4) Ability to assemble (or induce) and implement a set of heuristics to reduce the search space. 5) Patience and stamina for the exhaustive search for solving the scientific problem within the constrained search space.

Here an attempt is made to find out the effect of scientific attitude on scientific creativity among research scholars. The correct formulation of research problems requires a mastery of the conceptual structure of the field of science involved. The creative scientist can also change this structure for reformulating a research problem, and in some cases, these changes can include the most fundamental concepts and principles of the field such as time and measurability. Scientific creativity exhibits itself during the completion of a series of research tasks.

2. Statement of the problem

The present study it entitled as **"The Effect of Scientific Attitude on Scientific Creativity among Research Scholars of Hyderabad"**

3. Objectives of the study

- To find out the effect of Scientific Attitude on Scientific Creativity for the total sample.
- To find out the effect of Scientific Attitude on Scientific creativity for the subsample based on gender
- To find out the effect of Scientific Attitude on Scientific creativity for the subsample based on type of management

4. Hypothesesof the study

- There will be significant effect of Scientific Attitude on Scientific Creativity for the total sample.
- There will be significant effect of Scientific Attitude on Scientific Creativity for the subsample based on gender
- There will be significant effect of Scientific Attitude on Scientific Creativity for the subsample based on type of management

5. Methodology

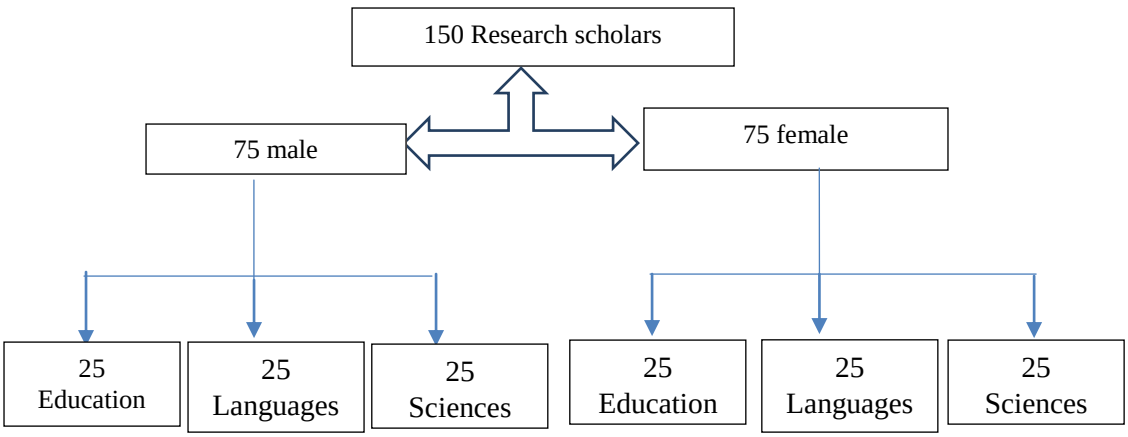
Method

The study employed the descriptive survey method

Sample

Sample incudes the 150 research scholars of various departments in different universities in Hyderabad. The sample selection is done by stratified sampling technique.

SAMPLE BREAKUP



Variables

The variables of the study are scientific attitude and scientific creativity; Scientific attitude as independent variable and scientific creativity as dependent variable. Gender and different streams are taken as the demographic variables.

Tool

The investigator made use of two tools, one for scientific attitude and one for scientific creativity. Already standardised tools are used for the present study.

Statistical technique

ANOVA is used to analyse the data in this study

6. Analysis

The data collected was analysed using SPSS software. ANOVA was found out to see the effect of both the variables. The objective wise analysis is given below

I. Effect of Scientific Attitude on Scientific Creativity for the total sample

Table I

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	53.747	2	26.874	4.537	.218
Within Groups	3655.135	147	17.489		
Total	3708.882	149			

II. A. Effect of Scientific Attitude on Scientific Creativity for the male subsample

Table II

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	22.365	2	11.182	.091	.913
Within Groups	25706.404	72	122.997		
Total	25728.769	74			

B. Effect of Scientific Attitude on Scientific Creativity for the female subsample

Table III

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	18.808	2	9.404	.495	.610
Within Groups	5144.772	72	18.984		
Total	5163.580	74			

III. Effect of Scientific Attitude on Scientific Creativity for the subsample based on different streams of study

A. EDUCATION

Table IV

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	475.115	2	237.557	2.567	.129
Within Groups	24481.255	47	114.935		
Total	24956.370	49			

B. LANGUAGES

Table V

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	75.057	2	37.528	.288	.750
Within Groups	35345.341	47	130.426		
Total	35420.398	49			

C. SCIENCES

Table VI

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.054	2	7.527	3.431	.651
Within Groups	3020.673	47	17.461		
Total	3035.727	49			

7. Interpretation of the result

From the table I-VI it is seen that the F value for the total sample is 4.5 and it is seen that there is significant effect of Scientific Attitude on Scientific Creativity in the total sample. But there is no significant effect of Scientific Attitude on Scientific Creativity in the subsample based on gender. The F

value for the male subsample is 0.091 and for the female subsample is 0.49, both values are not significant at 0.05 level.

But there is significant effect of Scientific Attitude on Scientific Creativity in the subsample based on different streams of study. For the subsample Education the F value is 2.56 which is significant at 0.01 and 0.05 level. For the subsample Language the F value is, 0.28 which is not significant at any level. In the subsample Science the F value 3.41 is which is significant at 0.01 and 0.05 level.

It is evident from the study that Scientific Attitude of the Research Scholars is having significant effect upon the Scientific Creativity. Those who are having high scientific attitude, will have a divergent thinking ability and they try to apply creative ideas in the problematic research situations and come up with most practicable solutions.

8. Conclusion

In educational research, the Scientific Attitude of researcher is very important. Because it gives the person to think logically, that in turn gives the power to solve the problems. For a successful life, experience of a person matters a lot. If a person to obtain creativity skills he/she should have a positive attitude towards it. More than they uses the new method of subject skills for better results. Recognition of people's attitude style at the beginning of selection of a research problem is caused to be easy forming toward researchable questions. So, it is better the mentioned to check the effect of Scientific Attitude and Scientific Creativity beforehand.

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