



A STUDY ON ATTITUDE AND MOTIVATION IN RELATION TO ACADEMIC ACHIEVEMENT OF THE STUDENTS OF UG IN SCIENCE IN RELATION TO CERTAIN FACTORS

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ABSTRACT

Science provides important knowledge and helps understand nature and causes positive changes in life. In other words, science education aims to develop literacy in all pupils for making decisions about physiological, psychological, and sociological issues. To realize this aim, students should be well educated in science subjects.

There is no agreement on the concept or description of an attitude towards science; attitude is generally used to describe emotional tendencies towards events, people, place, situation and ideas. For instance, expressions such as “I love science”, “I like science” or “science is boring” are taken as being representative of students’ attitude towards science (Papanastasiou, 2002). Students’ attitude towards science significantly affects their success in science (Prokop, Tuncer & Chudá, 2007).

Another factor affecting students’ learning and success is motivation. Motivation involves complex psychological patterns used to explain efforts and behavior displayed in the course of different activities. When considered in a learning environment, motivation is a concept that refers to students’ expenditure of time and effort to fulfill the duties expected of them, as well as their willingness to use their skills for this purpose.

Achievements attained when a student is recognized or appreciated of his accomplishments in terms of grades or successful goals that in turn heighten one’s self-esteem. Recognizing the significance of fostering attitude, motivation and academic achievement, the investigator attempted to find out the relationship among attitude, motivation and academic achievement of UG students in science.

INTRODUCTION

Of all the creations of God - human life is the most sacred. It has two aspects - the biological and the sociological, where the biological aspect of human life is maintained and transmitted by nutrition and reproduction, the social aspect of human life is maintained and transmitted by education. Man is primarily distinguishable from the other animals because of his edification ability, intelligence, creativity and other mental abilities. He desires to go ahead. This list of human achievements is very big. How has all this been done? It is only through education. It is education, which promotes his intelligence, enables him to be industrious and ensures his progress.

Man's achievement in the field of science and technology helped to improve material conditions of living. All our knowledge ends with study of matter, plants and living creatures. Education serves not only to develop one's intelligence and skill but also makes him matured, disciplined and useful to the society by holding certain high values in life

Science is a systematized body of knowledge. This knowledge may pertain to any subject or field of life. According to Columbia Encyclopedia, "Science is an accumulated and systematized learning in general usage restricted to natural phenomenon." Science enables the man to study various phenomenon in the space and establish various relationships between them. It explains that science is a byproduct of our empirical knowledge and deals with logical reasoning. Science is useful in character formation and moral development. It helps in developing moral attitude as there is no place of biased attitudes, prejudiced feelings etc. in the solution of problems in science.

REVIEW OF RELATED LITERATURE

Ozer, S. (2019) studied An investigation of attitude, motivation and anxiety levels of students studying at a faculty of tourism towards vocational English course. **Objectives of the study:** To analyse attitude, motivation and anxiety levels of students at a state university studying at a faculty of tourism towards vocational English course. **Methodology:** In the study, quantitative research and survey method were used. **Sample:** 325 students participated in the study voluntarily. **Tool:** Attitude Scale towards Vocational English Course, Foreign Language Classroom Anxiety Scale (FLCAS) and Attitude/Motivation Test Battery (AMTB) were used in the research to collect data. **Result:** There was a significant difference between attitude, motivation and anxiety levels in terms of department, achievement and additional study. There was a significant difference in anxiety, while there was no significant difference in attitude and motivation levels in terms of gender.

Hacieminoglu, E. (2019) analysed Student and School Level Variables related to Elementary School Students' Attitudes towards Science. **Objectives of the study:** To investigate what school- and student-level factors are associated with student' attitudes towards science. **Methodology:** The overall design of this study is mainly a cross-sectional survey and correlational. **Sample:** The convenience sampling method was used in this study and 2975 elementary students in different schools and cities of Turkey constituted the sample of this study. **Tool:** The Test of Science Related Attitude, Learning Approach Questionnaire, Achievement Motivation Questionnaire, School Background Questionnaire were used as data collection tools. Hierarchical Linear Modeling (HLM) was selected as a modeling technique for data analyses. **Findings:** The quality of school's educational resources, learning and motivational factors, and factors related to student feelings and outside activities, and some student characteristics significantly contributed to the students' attitudes towards science.

TITLE OF THE PROBLEM

The present research is entitled as **“A STUDY ON ATTITUDE AND MOTIVATION IN RELATION TO ACADEMIC ACHIEVEMENT OF THE STUDENTS OF UG IN SCIENCE IN RELATION TO CERTAIN FACTORS”**

METHOD OF STUDY

Descriptive survey method was adopted in the study. The present study is focused to find out the relationship among attitude, motivation and academic achievement of UG students in science. The researcher selected Kadapa District of Andhra Pradesh for conducting the study. Seven hundred and fifty students were selected from Kadapa District of Andhra Pradesh in the study. Two researcher-tools were used in the study. One is attitude towards science scale, second is motivation scale which is used for testing the relationship among attitude, motivation and academic achievement of UG students in science.

SAMPLE OF THE STUDY

The Population of the present study was III year UG science students of Arts & Science colleges from Kadapa district, Andhra Pradesh. The investigator has selected 750 students out of 6,480 students in **Rayachoty, Produddur, madhanapalli** of Kadapa District of Andhra Pradesh, India.

SAMPLING TECHNIQUE

Stratified Random sampling technique was used for the selection of III-year UG (science) students of Arts & Science colleges from Kadapa District of Andhra Pradesh. The investigator has selected 15 colleges (5 Government colleges, 5 Private- aided colleges, 5 Self- financed colleges) from 54 colleges of Arts & Science from Kadapa District. 750 students were selected randomly from the above said 15 colleges of Arts & Science was stratified on

the basis of Management of colleges to fulfill the research objectives. The collected data from 750 students was the focus group of the present study, considered for verification of the study results. The following tables show the distribution of samples.

TOOLS USED FOR THE STUDY

The instruments or devices used to collect the data of research was popularly known as inquiry forms, because all of them was in the form of proformas inquiring into certain information about the phenomenon under study, and to be filled in with such information. In the present study, the investigator employed and adopted the following tools.

1. Attitude towards science scale (developed by Hillman, S. J. et. al., 2016)
2. Motivation scale (constructed and validated by the Researcher and Research Supervisor)
3. To find academic achievement of UG students in science, the researcher collects the respondents' second year (i.e.) fourth semester academic achievement mark list from the register maintained in the colleges.

OBJECTIVES OF THE STUDY

To identify the significant difference between attitude and academic achievement of students of UG in science with regard to their background variables such as gender, locality of student, and management.

HYPOTHESIS OF THE STUDY

1. There is no significant difference in Overall motivation and its dimensions of students of UG in science between
 - a. **Male & Female** (Gender)
 - b. **Rural & Urban** (Locality of student)
2. There is no significant difference in Overall motivation and its dimensions of students of UG in science among **Govt / Aided / Self-Financed** (Management of College)

RESULTS AND DISCUSSION

1. GENDER

HYPOTHESIS-1

There is no significant difference between Male and Female science students of UG in Overall attitude and its dimensions.

Table -1

Mean difference between Male and Female science students of UG in Overall attitude and its dimensions.

Variable	Dimensions	Male			Female			't' Value	Sig. at 0.05 Level
		N	Mean	SD	N	Mean	SD		
Attitude	Attitude toward science class	302	43.88	9.50	448	45.01	8.33	1.72	NS
	Desire to become a scientist	302	7.33	2.18	448	7.38	1.96	0.28	NS
	Value of science to society	302	43.72	7.62	448	44.27	6.60	1.05	NS
	Perception of scientists	302	39.50	5.07	448	40.15	4.82	1.78	NS
	Overall	302	134.44	21.29	448	136.81	18.47	1.62	NS

The table reveals that the calculated 't' value for Attitude toward science class, Desire to become a scientist, Value of science to society, and Perception of scientists are **1.72**, **0.28**, **1.05**, and **1.78** respectively, which are less than the table value **1.96** at **0.05** level of significance. The formulated null hypothesis is **accepted**. Hence, there is no significant difference between male and female UG science students in Attitude toward science class, Desire to become a scientist, Value of science to society, and Perception of scientists.

The above table also reveals that the calculated 't'- value for Overall Attitude is **1.68**, which is less than the table value **1.96** at **0.05** level of significance. The formulated null hypothesis is **accepted**. Hence, there is no significant difference between male and female UG science students in overall Attitude.

While comparing the mean scores, female UG science students (mean=45.01, 7.38, 44.27, 40.15, and 136.81) are better than the male UG science students (mean=43.88, 7.33, 43.72, 39.50, and 134.44) in their Attitude toward science class, Desire to become a scientist, Value of science to society, and Perception of scientists, and Overall attitude.

2. LOCALITY

HYPOTHESIS-2

There is no significant difference between Rural and Urban science students of UG in Overall attitude and its dimensions.

Table -2

Mean difference between Rural and Urban science students of UG in Overall attitude and its dimensions.

Variable	Dimensions	Rural			Urban			't' Value	Sig. at 0.05 Level
		N	Mean	SD	N	Mean	SD		
Attitude	toward science class	506	44.71	9.17	244	44.23	8.09	0.70	NS
	Desire to become a scientist	506	7.39	2.06	244	7.31	2.04	0.49	NS
	Value of science to society	506	44.21	7.21	244	43.72	6.65	0.89	NS
	Perception of scientists	506	39.93	5.01	244	39.81	4.76	0.33	NS
	Overall		506	136.24	20.37	244	135.06	18.17	0.77

The table reveals that the calculated 't' value for Attitude toward science class, Desire to become a scientist, Value of science to society, and Perception of scientists are **0.70**, **0.49**, **0.89**, and **0.33** respectively, which are less than the table value **1.96** at **0.05** level of significance. The formulated null hypothesis is **accepted**. Hence, there is no significant difference between rural and urban UG science students in Attitude toward science class, Desire to become a scientist, Value of science to society, and Perception of scientists.

The above table also reveals that the calculated t' value for Overall Attitude is **0.77**, which is less than the table value **1.96** at **0.05** level of significance. The formulated null hypothesis is **accepted**. Hence, there is no significant difference between rural and urban UG science students in overall Attitude.

While comparing the mean scores, rural UG science students (mean=44.71, 7.39, 44.21, 39.93, and 136.24) are better than the urban UG science students (mean=44.23, 7.31, 43.72, 39.81, and 135.59) in their Attitude toward science class, Desire to become a scientist, Value of science to society, Perception of scientists, and Overall attitude.

MANAGEMENT-3

HYPOTHESIS-3

There is no significant difference among three different management of colleges of the UG science students in Overall attitude and its dimensions.

Table -3

Mean difference among three different management of colleges of the UG science students in Overall attitude and its dimensions.

Variable	Dimensions	Groups	Sum Squares	of Mean Square	Df	F-value	p value & Sig. at 0.05 level
Attitude	Attitude toward science class	Between	461.624	230.812	2	2.98	0.052 &NS
		Within	57943.524	77.568	747		
		Total	58405.148		749		
	Desire to become a scientist	Between	6.152	3.076	2	0.73	0.483 &NS
		Within	3150.648	4.218	747		
		Total	3156.800		749		
	Value of science to society	Between	201.699	100.849	2	2.05	0.130 &NS
		Within	36811.668	49.279	747		
		Total	37013.367		749		
	Perception of scientists	Between	147.296	73.648	2	3.05	0.048 &S
		Within	18048.956	24.162	747		
		Total	18196.252		749		

	Between	2513.091	1256.545	2		
Overall	Within	287398.068	384.736	747	3.27	0.039 &S
	Total	289911.159		749		

The table reveals that the calculated F values for Attitude toward science class, Desire to become a scientist, and Value of science to society are **2.98**, **0.73**, and **2.05** respectively, which are less than the table value **3.01** at **0.05** level of significance. The formulated null hypothesis is **accepted**. Hence there is no significant difference among three different management of colleges of the UG science students in Attitude toward science class, Desire to become a scientist, and Value of science to society. And also, the calculated F value for Perception of scientists is **3.05** which is greater than the table value **3.01** at **0.05** level of significance. The formulated null hypothesis is **rejected**. Hence there is a significant difference among three different management of colleges of the UG science students in Perception of scientists.

The above table also reveals that the calculated F value for Overall attitude is **3.27** is greater than the table value **3.01** at **0.05** level of significance. The formulated null hypothesis is **rejected**. Hence there is a significant difference among three different management of colleges of the UG science students in overall attitude.

MAJOR FINDINGS OF THE STUDY

1. There is no significant difference between male and female UG science students in Attitude toward science class, Desire to become a scientist, Value of science to society, and Perception of scientists. there is no significant difference between male and female UG science students in overall Attitude.
2. There is no significant difference between rural and urban UG science students in overall Attitude.
3. There is a significant difference among three different management of colleges of the UG science students in overall Attitude.

CONCLUSIONS

In the light of the findings the following conclusions are drawn management have significant difference in overall attitude.

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