" An Interaction Effect of Gilrs School Adjustment, Attitude and Socio-Economic Status on Academic Achievement in Science among Secondary School Students in Chikodi Educational District."

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ABSTRACT

The purpose of the study was to analyse Independent and Combined effects of Variables viz., School Adjustment (High and Low), Attitude Towards Science (Favourable and Unfavourable) and Socio-Economic Status(Rich and Poor) on Academic Achievement in Science. The sample of the present study includes 500 students selected randomly from 50 secondary schools. The study revealed that, (i) The Girls with favorable attitude towards science will influence more on academic achievement of students in science than the Girls with unfavorable attitude towards science; (ii) The Girls with high school adjustment & favorable attitude towards science will influence more on academic achievement of students in science than the Girls with low school adjustment & unfavorable attitude towards science and (iii) The Girls with high school adjustment, favorable attitude towards science and rich socio-economic status will influence more on academic achievement of students in science than the Girls with low school adjustment, unfavorable attitude towards science and poor socio-economic status.

Introduction

The 21st Century is the age of science. Modern science has achieved wonder's. It has brought about far reaching changes in every walk of life. It has increased human comforts. The present age of science has changed the face of the world beyond recognition.

Science is the breath of our nostril, Science is the thought of our day and the content of our dream at night, we live, move & have our being in an age of science. The impact of science on everyday life is so much that it is difficult to imagine of our existence without science.

Science Education suffers basically from the gap between its content and living experience of its pupils, between the systems of values that it preaches and the goals setup by the society between its ancient curricula and modernity of science link education to life, associate it with concrete goals, establish a close relation between society and economy surely that is where the solution be sought.

Rationale for the study

i.. School Adjustment

George (1966) studied comparative study of the adjustment and achievement of 10 years and 11 years schooling in Kerala state and found that, the pupils with high intelligence were identified as better adjusted and higher achievers in all the groups studied. Reddy (1978) studied that related academic adjustment of scholastic achievement of secondary school pupils and found that, academic adjustment was significantly related scholastic performance. Walgerg et.al. (1986) collected data from national sample and found that, academic achievement was related to ability, motivation amount of home work, school and class environment, home environment, sex and race.

ii. Attitude towards Science

Darchingpui (1989) Studied science achievement science attitude and problem solving ability among secondary school students in Aizawal and found that, significant relationship between scientific attitude and achievement in science.

Kar, D. K. (1990) Studied relationship between attitude towards and achievement in general science of class IX students of Cuttack city and found that there was positive relationship between attitude and achievement ; Girls were found to be more favorably disposed towards science than Girls.

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iii. Socio-economic Status

Rao (1978) studied 428 urban adolescents belonging to middle and upper socio-economic status in the age group of 13 to 16 years and revealed that, academic performance and psychiatric morbidity were inversely related. Misra (1986) conducted a study on influence of socio-economic status on academic achievement of higher secondary students and revealed that, there was a positive relationship between SES and academic achievement of students. Brook (1991) measured the achievement of 168 Israeli high school students and found that, there is a significant difference between the achievement of students coming from low-income families and those coming from higher income families. Cherian (1992) investigated the relationship between parents' education and academic achievement and found that positive significant relationship between academic achievement and parental education.

Objectives

The present study was designed with the following objectives in view :

1. To study the effect of Girls school adjustment on academic achievement in science
2. To study the effect of Girls attitude towards science on academic achievement in science
3. To study the effect of Girls socio-economic status on academic achievement in science
4. To study the interaction effect of Girls school adjustment and attitude towards science on academic achievement in science.
5. To study the interaction effect of Girls school adjustment and socio-economic status on academic achievement in science.
6. To study the interaction effect of Girls attitude towards science and socio-economic status on academic achievement in science
7. To study the interaction effect of Girls school adjustment, attitude towards science and socio-economic status on academic achievement in science.

Hypotheses

In pursuance of the objectives 1 to 7 the following null hypotheses were set up:

- Ho_1: There is no significant difference between the effects of high and low school adjustment of Girls in terms of their influence on academic achievement of students in science.
- Ho_2: There is no significant difference between the effects of favorable and unfavorable attitude towards science of Girls in terms of their influence on academic achievement of students in science.
- Ho_3: There is no significant difference between the effects of Rich and Poor Socio-economic status of Girls in terms of their influence on academic achievement of students in science.
- Ho_4: There is no significant difference between the effects of School adjustment X attitude towards science of Girls in terms of their influence on academic achievement of students in science.
- Ho_5: There is no significant difference between the effects of School adjustment X Socio-Economic status of Girls in terms of their influence on academic achievement of students in science.
- Ho_6: There is no significant difference between the effects of attitude towards science X Socio-Economic status of Girls in terms of their influence on academic achievement of students in science.
- Ho_7: There is no significant difference between the interaction effects of school adjustment X attitude towards science X Socio-economic status of Girls in terms of their influence on academic achievement of students in science.

Research Design

Ex Post Facto research design was used in the present study (Kerlinger, 1964 p. 379). Ex Post Facto research is systematic empirical inquiry in which the investigator does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulateble. Inferences about relations among variables are made, without direct intervention, from concomitant variation of independent and dependent variables.

Methodology

Sample

Random sampling technique was used to select the sample

The sample consisted of 500 secondary students (250 Girls and 250 Girls) belonging to secondary schools (Urban –Rural and Govt.-Private) from Chikkodi Educational District, Karnataka. Thus 500 students of class IX, those who are studying Science as a compulsory subject were included in the sample.

Tools

The following tools were used to collect the essential data :

I) Adjustment Inventory for School Students (2004) by A. K. P. Sinha and R. P. Singh. The inventory consists of total 60 items with three areas, 20 items in each area of adjustment.

ii) Science Attitude Scale (1990) by Avinash Grewal. It consists of 20 items with ten positive and ten negative items (favourable and unfavourble). The administration of the test reveals that the scores ranged from 25 to 70 with 5-point scale. Reliability was estimated by the Split-half method and found to be 0.86. The test-retest reliability coefficients after the interval of 3 months are found to be 0.75.

iii) Socio-Economic Status Scale (2004) By Meenakshi. It consists of total 7 parts viz., Education, Profession, Monthly income, Total wealth in cash or Debts, Property, Surrounding Locality and Social Status. The test-retest reliability has been found to be 0.82. The validity of two groups (N_1=37 and N_2=42) of students were found to be 116.8 and 54.8 with S.D.'S of 35.9 and 20.1 and differentiating 't' standing at 9.29 significant at 0.01.

iv) Academic Achievement in Science, it was constructed by the investigator. It consists of 55 items and the coefficient of reliability was found to be 0.9197 (n=100) which is significant at 0.05 level and consistency reliability was found to be 0.8135 (n=100) which is significant at 0.05 level.

Procedure

Data pertaining to students school adjustment, attitude towards science, socio-economic status and academic achievement in science were collected by administering the above tools to the 500 students studying in 50 secondary schools of Chikkodi educational district.

Results

The data were analyzed using 3 –way ANOVA technique with a view to identify independent and combined effect of selected variables on Academic Achievement. The results of the analysis are given in Tables 1 to 2.

Analysis of Data Pertaining to 'Girls'

Table – 1
Summary Table of ANOVA With Respect to 'Girls'

Source variation	DF	SS	MSS	F-value	P-value	Signi.
Main effects						
Adjustment (A)	1	1888.5153	1888.5153	25.3571	<0.01	S
Attitude (B)	1	581.6599	581.6599	7.8099	<0.01	S
SES (C)	1	299.1606	299.1606	4.0168	<0.05	S
2way interactions						
Adj. x Atti (A x B)	1	308.9651	308.9651	4.1485	<0.05	S
Adj. x SES (A x C)	1	24.8481	24.8481	0.3336	>0.05	NS
Atti. x SES (B x C)	1	72.7784	72.7784	0.9772	>0.05	NS
3way interactions						
Adj. x Atti. x SES(AxBxC)	1	348.6933	348.6933	4.6819	<0.05	S
Error	242	18023.3946	74.4768			
Total	249	21548.0152				

NS- Not Significant

Findings

1. The Girls with high school adjustment will influence more on academic achievement of students in science than the Girls with low school adjustment.

2. The Girls with favorable attitude towards science will influence more on academic achievement of students in science than the Girls with unfavorable attitude Science.
3. The Girls with rich Socio-Economic status will influence more on academic achievement of students in science than the Girls with poor Socio-Economic status.
4. There is a significant difference between interaction effects of high / low School Adjustment & favorable / unfavorable attitude towards science of Girls in terms of their influence on academic achievement of students in Science.
5. There is no significant difference between the interaction effects of high / low school adjustment and rich / poor Socio-economic status of Girls in terms of their influence on academic achievement of students in Science.
6. There is no significant difference between the interaction effects of favorable / Unfavorable attitude towards science and rich / poor Socio-economic status of Girls in terms of their influence on academic achievement of students in Science.
7. There is a significant difference between the interaction effects of high / low School adjustment, favorable / unfavorable attitude towards science and rich & poor Socio-economic status of Girls in terms of their influence on academic achievement of students in Science.

Multiple Comparison of Means – 'Girls'

Scheffe's simultaneous confidence intervals for all the possible treatment groups pertaining to the Girls are given below:

Table –2
Comparison of Means of Treatment Groups on Girls – Scheffe's Simultaneous Confidence Intervals

Sl. No.	Comparison of treatment groups	Corresponding means		95% CI		p-value	Significance
1	a_1b_1 & a_1b_2	46.3286	36.8691	6.2273	12.6917	<0.05	S
2	a_1b_1 & a_2b1	46.3286	31.8878	11.3864	17.4952	<0.05	S
3	a_1b_1 & a_2b_2	46.3286	28.9232	14.6527	20.1580	<0.05	S
4	a_1b_2 & a_2b_1	36.8691	31.8878	1.5099	8.4527	<0.05	S
5	a_1b_2 & a_2b_2	36.8691	28.9232	4.7367	11.1550	<0.05	S
6	$a2b_1$ & a_2b_2	50.6000	29.7755	9.4064	32.2425	<0.05	S
7	a_1c_1 & a_2c_1	50.6000	32.2813	10.1336	26.5039	<0.05	S
8	a_1c_1 & a_2c_2	50.6000	25.5652	17.0197	33.0498	<0.05	S
9	a_1c_2 & a_2c_1	42.0571	29.7755	9.1112	15.4520	<0.05	S
10	a_1c_2 & a_2c_2	42.0571	32.2813	6.1438	13.4080	<0.05	S
11	$a_1b_1c_1$ & a_2 b_2c_2	42.0571	25.5652	13.2613	19.7225	<0.05	S
12	$a_1b_1c_2$ & a_1 b_2c_2	38.2381	34.0000	0.6589	7.8173	<0.05	S
13	$a_1b_1c_2$ & a_2 b_1c_1	38.2381	25.5652	3.7663	21.5794	<0.05	S

Note:

1. Comparison of other treatment groups of Girls were found to be not significant.
2. Higher the mean scores indicates higher influence of predictor variables on criterion variable.

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