

An Interaction Effect of Boys Cognitive Ability, Emotional Maturity and Creativity on Academic Achievement among Secondary School Students

Sanglikar Kuretulain Nafeesa

&

Dr. Prakash Sannakkanavar

Research Scholar

Assistant Professor & Research Guide

Department of Education

Department of Education

Karnataka State Akkamahadevi Women University, Torvi Campus, Vijayapura-586108

Abstract:

The purpose of the study was to analyze independent and combined effects of variables viz., Cognitive Ability (high and low), Emotional Maturity (high and low) and Creativity (high and low) on Academic achievement in Geography. The sample of the present study includes 224 boys studying in 9th standard were drawn using stratified random sampling technique. Among the other things, the study revealed that, i) the Boys with high Cognitive ability have more influence on Academic achievement in geography than the Boys with low Cognitive ability in Geography; ii) The Boys with high Cognitive ability and high Emotional maturity have more influence on Academic achievement in geography than the Boys with high Cognitive ability and low Emotional Maturity; iii) The Boys with high Cognitive ability, high Emotional maturity and high Creativity have more influence on Academic achievement in geography than the Boys with high Cognitive ability, low Emotional maturity and high Creativity.

Keywords: Cognitive Ability, Emotional Maturity, Creativity, Academic Achievement

Introduction

Education could be a defensively very important tool that's employed in the times to succeed. It is vital as a result of its accustomed mitigate most of the challenges moon-faced in life. The knowledge that's earned through education helps open doors to plenty of opportunities for better prospects in career growth. Education plays a good role within the lifetime of everybody for the duration of the life. Getting proper education is incredibly necessary to induce success and happy life a bit like food is important for healthy body. It develops temperament of the individuals, provides physical and mental normal and transforms people's living standing. It promotes the sensation of physical, mental and social prosperity by providing higher life. Smart education is constructive in nature that constructs our future. It helps an individual to enhance his/her standing of mind, body and spirit. It provides us tons of confidence by giving us bulk of information in several fields. It's one in the entire obligatory manner to success similarly as personal growth. Education provides us numerous forms of data and skills. It's an eternal, slow

and secure method of learning that helps us in getting knowledge. It's an eternal method that starts once we take birth and ends once our life ends. Education cultivates the data, skills, and also the ability needed for continuing participation in intellectually rigorous activities (e.g., reading, writing, drawback resolution and reasoning etc.).

Objectives of the Study

The present study was designed with the following specific objectives in view;

1. To study the effect of Boys' Cognitive ability on Academic achievement in geography
2. To study the effect of Boys' Emotional maturity on Academic achievement in geography
3. To study the effect of Boys' Creativity on Academic achievement in geography
4. To study the interaction effect of Boys' Cognitive ability and Emotional maturity on Academic achievement in geography
5. To study the interaction effect of Boys' Cognitive ability and Creativity on Academic achievement in geography
6. To study the interaction effect of Boys' Emotional maturity and Creativity on Academic achievement in geography
7. To study the interaction effect of Boys' Cognitive ability, Emotional maturity and Creativity on Academic achievement in geography

Hypotheses

1. H₀₁: There is no significant difference between the effects of high and low cognitive ability of Boys students' differ significantly in terms of their influence on Academic achievement in geography.
2. H₀₂: There is no significant difference between the effects of high and low emotional maturity of Boys students' differ significantly in terms of their influence on Academic achievement in geography.
3. H₀₃: There is no significant difference between the effects of high and low creativity of Boys students' differ significantly in terms of their influence on Academic achievement in geography.
4. H₀₄: There is no significant difference between the interaction effects of Boys students' Cognitive ability X Emotional maturity differ significantly in terms of their influence on Academic achievement in geography.

5. H₀₅: There is no significant difference between the interaction effects of Boys students' Cognitive ability X Creativity differ significantly in terms of their influence on Academic achievement in geography.
6. H₀₆: There is no significant difference between the interaction effects of Boys students' Emotional maturity X Creativity differ significantly in terms of their influence on Academic achievement in geography.
7. H₀₇: There is no significant difference between the interaction effects of Boys students' Cognitive ability X Emotional maturity X Creativity differ significantly in terms of their influence on Academic achievement in geography.

Research Design

Ex Post Facto research design was used in the present study (Kerlinger, 1964, p. 379). Ex Post Facto research is a 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 manipulability. Inferences about relations among variables are made, without direct intervention, from concomitant variation of independent and dependent variables.

Sample

The sample of the present study includes 224 boys studying in IX standard were drawn using stratified random sampling technique among the Government and Private Secondary schools in Urban and Rural areas of Vijayapura district forms the sample.

Tools

The following tools were used to collect the essential data:

- i. Cognitive ability Test (CAT) Developed by Madhu Gupta and Bindiya Lakhani.
- ii. Emotional Maturity Scale (EMS) Developed by Tara Sabapathy.
- iii. Passi Test of Creativity (PTC) Developed by B. K. Passi.
- iv. Academic Achievement in Geography was constructed by the investigator.

Procedure

Data relating to Cognitive ability, School Emotional Maturity, Creativity and Academic achievement in Geography were collected by administering the above tools to 9th standard students studying in Vijayapura district.

Results

To test the above stated null hypotheses against the same 3-way Analysis of Variance technique was used. The steps of 3-way ANOVA followed in the previous section are applied here in order to analyze the data with regard to boys. The F-ratios thus calculated are presented in the following summary.

Table: Summary of 3-way ANOVA with Respect to ‘Boy students

Source of Variation	df	Sum of Squares	Mean of Sum of Squares	F – Ratios	P - Value	Significance
Main effects						
Cognitive ability (A)	1	4925.78	4925.78	1856.3281	0.0001	S
Emotional maturity (B)	1	1822.26	1822.26	686.7368	0.0001	S
Creativity (C)	1	882.55	882.55	332.5992	0.0001	S
2 way interactions						
CA x EA (A x B)	1	1.22	1.22	0.4588	0.4986	NS
CA x CR (A x C)	1	84.51	84.51	31.8503	0.0001	S
EA x CR (B x C)	1	248.31	248.31	93.5789	0.0001	S
3way interactions						
CA x EA X CR (A x B xC)	1	10.30	10.30	3.8816	0.0495	S
Error	428	1135.70	2.65			
Total	435	9110.64				

Findings

1. There is a significant difference between the effects of high and low cognitive ability of boy students’ in terms of their influence on Academic achievement in geography. However, the means (SD) of cognitive ability scores of boy students’ with high and low cognitive ability are 65.22 (3.05) and 56.90 (3.65) respectively. The two means clearly reveals that the boy students with high cognitive ability have a greater mean than that of the mean of the boy students’ with low cognitive ability. Thus, it can be interpreted that the boy students with high cognitive ability have more influence on Academic achievement in geography than the boy students’ with low cognitive ability in geography.

2. There is a significant difference between the effects of high and low emotional maturity of boy students' in terms of their influence on Academic achievement in geography. However, the means (SD) of Emotional maturity scores of boy students' with high and low Emotional maturity are 64.43 (4.50) and 58.88 (4.20) respectively. The two means clearly reveals that the boy students' with high Emotional maturity have a greater mean than that of the mean of the boy students' with low Emotional maturity. Thus, it can be interpreted that the boy students' with high Emotional maturity have more influence on Academic achievement in geography than the boy students' with low Emotional maturity.
3. There is a significant difference between the effects of high and low Creativity of boy students' in terms of their influence on Academic achievement in geography. However, the means (SD) of Creativity scores of boy students' with high and low Creativity are 64.15 (4.57) and 59.75 (4.81) respectively. The two means clearly reveals that the boy students' with high Creativity have a greater mean than that of the mean of the boy students' with low Creativity. Thus, it can be interpreted that the boy students' with high Creativity have more influence on Academic achievement in geography than the boy students' with low Creativity.
4. There is no significant difference between the interaction effects of high/low cognitive ability and high /low emotional maturity of boy students' in terms of their influence on Academic achievement in geography.
5. There is a significant difference between the interaction effects of high/low cognitive ability and high /low creativity of boy students' in terms of their influence on Academic achievement in geography.
6. There is a significant difference between the interaction effects of high/low emotional maturity and high /low creativity of boy students' in terms of their influence on Academic achievement in geography.
7. There is a significant difference between the interaction effects of high/low cognitive ability, high/low emotional maturity and high/low creativity of boy students' in terms of their influence on Academic achievement in geography.

Multiple Comparison of Means (SD) Using Tukeys multiple posthoc procedures-Boys students'

The interaction effects for factors AB, AC, BC and ABC were found to be significant by F-test. Once F test showed significant among factors. However, it is not clear from the findings that, which of the comparisons of the treatment groups differ significantly in terms of their influence on academic achievement in geography. Hence, to know this, pair wise comparison of means of all the treatment group was carried out by using Tukeys multiple posthoc procedures. The mean of academic achievement in geography for all possible treatment groups pertaining to the entire sample are given below:

Table: Comparison of means (SD) of treatment groups on Academic achievement in Geography by Tukeys multiple posthoc- boys' students

Comparison of treatment groups		Corresponding means		Corresponding SDs		P-value	Significance
a1xb1	a1xb2	66.81	62.13	2.29	1.65	0.0001	S
a1xb1	a2xb1	66.81	58.99	2.29	3.44	0.0001	S
a1xb1	a2xb2	66.81	54.49	2.29	2.04	0.0001	S
a1xb2	a2xb1	62.13	58.99	1.65	3.44	0.0001	S
a1xb2	a2xb2	62.13	54.49	1.65	2.04	0.0001	S
a2xb1	a2xb2	58.99	54.49	3.44	2.04	0.0001	S
a1xc1	a1xc2	66.13	63.61	3.04	2.35	0.0001	S
a1xc1	a2xc1	66.13	59.15	3.04	3.95	0.0001	S
a1xc1	a2xc2	66.13	54.90	3.04	1.68	0.0001	S
a1xc2	a2xc1	63.61	59.15	2.35	3.95	0.0001	S
a1xc2	a2xc2	63.61	54.90	2.35	1.68	0.0001	S
a2xc1	a2xc2	59.15	54.90	3.95	1.68	0.0001	S
b1xc1	b1xc2	66.61	61.32	2.96	4.51	0.0001	S
b1xc1	b2xc1	66.61	60.05	2.96	3.79	0.0001	S
b1xc1	b2xc2	66.61	57.33	2.96	4.24	0.0001	S
b1xc2	b2xc1	61.32	60.05	4.51	3.79	0.0001	S
b1xc2	b2xc2	61.32	57.33	4.51	4.24	0.0001	S
b2xc1	b2xc2	60.05	57.33	3.79	4.24	0.0001	S
a1xb1xc1	a1xb1xc2	68.07	64.62	1.16	2.13	0.0001	S

a1xb1xc1	a1xb2xc1	68.07	62.42	1.16	1.81	0.0001	S
a1xb1xc1	a1xb2xc2	68.07	61.59	1.16	1.16	0.0001	S
a1xb1xc1	a2xb1xc1	68.07	62.15	1.16	2.22	0.0001	S
a1xb1xc1	a2xb1xc2	68.07	56.12	1.16	0.79	0.0001	S
a1xb1xc1	a2xb2xc1	68.07	55.61	1.16	2.18	0.0001	S
a1xb1xc1	a2xb2xc2	68.07	53.53	1.16	1.31	0.0001	S
a1xb1xc2	a1xb2xc1	64.62	62.42	2.13	1.81	0.0001	S
a1xb1xc2	a1xb2xc2	64.62	61.59	2.13	1.16	0.0001	S
a1xb1xc2	a2xb1xc1	64.62	62.15	2.13	2.22	0.0001	S
a1xb1xc2	a2xb1xc2	64.62	56.12	2.13	0.79	0.0001	S
a1xb1xc2	a2xb2xc1	64.62	55.61	2.13	2.18	0.0001	S
a1xb1xc2	a2xb2xc2	64.62	53.53	2.13	1.31	0.0001	S
a1xb2xc1	a1xb2xc2	62.42	61.59	1.81	1.16	0.2457	NS
a1xb2xc1	a2xb1xc1	62.42	62.15	1.81	2.22	0.9933	NS
a1xb2xc1	a2xb1xc2	62.42	56.12	1.81	0.79	0.0001	S
a1xb2xc1	a2xb2xc1	62.42	55.61	1.81	2.18	0.0001	S
a1xb2xc1	a2xb2xc2	62.42	53.53	1.81	1.31	0.0001	S
a1xb2xc2	a2xb1xc1	61.59	62.15	1.16	2.22	0.8185	NS
a1xb2xc2	a2xb1xc2	61.59	56.12	1.16	0.79	0.0001	S
a1xb2xc2	a2xb2xc1	61.59	55.61	1.16	2.18	0.0001	S
a1xb2xc2	a2xb2xc2	61.59	53.53	1.16	1.31	0.0001	S
a2xb1xc1	a2xb1xc2	62.15	56.12	2.22	0.79	0.0001	S
a2xb1xc1	a2xb2xc1	62.15	55.61	2.22	2.18	0.0001	S
a2xb1xc1	a2xb2xc2	62.15	53.53	2.22	1.31	0.0001	S
a2xb1xc2	a2xb2xc1	56.12	55.61	0.79	2.18	0.8781	NS
a2xb1xc2	a2xb2xc2	56.12	53.53	0.79	1.31	0.0001	S
a2xb2xc1	a2xb2xc2	55.61	53.53	2.18	1.31	0.0001	S

The result of the above table reveals the following:

1. The mean \pm SD of the treatment groups a1b1 (66.81 \pm 2.29) and a1b2 (62.13 \pm 1.65) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group a1b1 is greater than the mean of the treatment group a1b2. This further implies that the boy students with high cognitive ability and high emotional

maturity have more influence on Academic achievement in geography than the boy students' with high cognitive ability and low emotional maturity.

2. The mean \pm SD of the treatment groups a₁b₁ (66.81 \pm 2.29) and a₂b₁ (58.99 \pm 3.44) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group a₁b₁ is greater than the mean of the treatment group a₂b₁. This further implies that the boy students with high cognitive ability and high emotional maturity have more influence on Academic achievement in geography than the boy students' with low cognitive ability and high emotional maturity.
3. The mean \pm SD of the treatment groups a₁b₁ (66.81 \pm 2.29) and a₂b₂ (54.49 \pm 2.04) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group a₁b₁ is greater than the mean of the treatment group a₂b₂. This further implies that the boy students with high cognitive ability and high emotional maturity have more influence on Academic achievement in geography than the boy students' with low cognitive ability and low emotional maturity.
4. The mean \pm SD of the treatment groups a₁b₂ (62.13 \pm 1.65) and a₂b₁ (58.99 \pm 3.44) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group a₁b₂ is greater than the mean of the treatment group a₂b₂. This further implies that the boy students with high cognitive ability and low emotional maturity have more influence on Academic achievement in geography than the boy students' with low cognitive ability and high emotional maturity.
5. The mean \pm SD of the treatment groups a₁b₂ (62.13 \pm 1.65) and a₂b₂ (54.49 \pm 2.04) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group a₁b₂ is greater than the mean of the treatment group a₂b₂. This further implies that the boy students with high cognitive ability and low emotional maturity have more influence on Academic achievement in geography than the boy students' with low cognitive ability and low emotional maturity.

6. The mean \pm SD of the treatment groups a2b1 (58.99 \pm 3.44) and a2b2 (54.49 \pm 2.04) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group a1b2 is greater than the mean of the treatment group a2b2. This further implies that the boy students with low cognitive ability and high emotional maturity have more influence on Academic achievement in geography than the boy students' with low cognitive ability and low emotional maturity.
7. The mean \pm SD of the treatment groups a1c1 (66.13 \pm 3.04) and a1c2 (63.61 \pm 2.35) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group a1c1 is greater than the mean of the treatment group a1c2. This further implies that the boy students with high cognitive ability and high creativity have more influence on Academic achievement in geography than the boy students' with high cognitive ability low creativity.
8. The mean \pm SD of the treatment groups a1c1 (66.13 \pm 3.04) and a2c1 (59.15 \pm 3.95) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group a1c1 is greater than the mean of the treatment group a2c1. This further implies that the boy students with high cognitive ability and high creativity have more influence on Academic achievement in geography than the boy students' with low cognitive ability high creativity.
9. The mean \pm SD of the treatment groups a1c1 (66.13 \pm 3.04) and a2c2 (54.90 \pm 1.68) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group a1c1 is greater than the mean of the treatment group a2c2. This further implies that the boy students with high cognitive ability and high creativity have more influence on Academic achievement in geography than the boy students' with low cognitive ability low creativity.
10. The mean \pm SD of the treatment groups a1c2 (63.61 \pm 2.35) and a2c1 (59.15 \pm 3.95) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean

of the treatment group a1c2 is greater than the mean of the treatment group a2c1. This further implies that the boy students with high cognitive ability and low creativity have more influence on Academic achievement in geography than the boy students' with low cognitive ability high creativity.

11. The mean \pm SD of the treatment groups a1c2 (63.61 \pm 2.35) and a2c2 (54.90 \pm 1.68) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group a1c2 is greater than the mean of the treatment group a2c2. This further implies that the boy students with high cognitive ability and low creativity have more influence on Academic achievement in geography than the boy students' with low cognitive ability low creativity.
12. The mean \pm SD of the treatment groups a2c1 (59.15 \pm 3.95) and a2c2 (54.90 \pm 1.68) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group a2c1 is greater than the mean of the treatment group a2c2. This further implies that the boy students with low cognitive ability and high creativity have more influence on Academic achievement in geography than the boy students' with low cognitive ability low creativity.
13. The mean \pm SD of the treatment groups b1c1 (66.61 \pm 2.96) and b1c2 (61.32 \pm 4.51) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group b1c1 is greater than the mean of the treatment group b1c2. This further implies that the boy students with high emotional maturity and high creativity have more influence on Academic achievement in geography than the boy students' with high emotional maturity and low creativity.
14. The mean \pm SD of the treatment groups b1c1 (66.61 \pm 2.96) and b2c1 (60.05 \pm 3.79) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group b1c1 is greater than the mean of the treatment group b2c1. This further implies that the boy students with high emotional maturity and high creativity

have more influence on Academic achievement in geography than the boy students' with low emotional maturity and high creativity.

15. The mean \pm SD of the treatment groups b1c1 (66.61 \pm 2.96) and b2c2 (57.33 \pm 4.24) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group b1c1 is greater than the mean of the treatment group b2c1. This further implies that the boy students with high emotional maturity and high creativity have more influence on Academic achievement in geography than the boy students' with low emotional maturity and low creativity.
16. The mean \pm SD of the treatment groups b1c2 (61.32 \pm 4.51) and b2c1 (60.05 \pm 3.79) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group b1c2 is greater than the mean of the treatment group b2c1. This further implies that the boy students with high emotional maturity and low creativity have more influence on Academic achievement in geography than the boy students' with low emotional maturity and high creativity.
17. The mean \pm SD of the treatment groups b1c2 (61.32 \pm 4.51) and b2c2 (57.33 \pm 4.24) differ significantly in respect of their influence on Academic achievement in geography (p=0.0001). However, the observation of the two means clearly indicates that, the mean of the treatment group b1c2 is greater than the mean of the treatment group b2c1. This further implies that the boy students with high emotional maturity and low creativity have more influence on Academic achievement in geography than the boy students' with low emotional maturity and low creativity.
18. The mean \pm SD of the treatment groups a1b1c1 (68.07 \pm 1.16) and a1b1c2 (64.62 \pm 2.13) differ significantly in respect of their influence on Academic achievement in geography. However, the observation of the two means clearly indicates that, the mean of the treatment group a1b1c1 is greater than the mean of the treatment group a1b1c2. This further implies that the Boy students' with high cognitive ability, high emotional maturity and high creativity have more influence on Academic achievement in geography than the boy students' with high cognitive ability, high emotional maturity and low creativity.

19. The mean \pm SD of the treatment groups a1b1c1 (68.07 \pm 1.16) and a1b2c1 (62.42 \pm 1.81) differ significantly in respect of their influence on Academic achievement in geography. However, the observation of the two means clearly indicates that, the mean of the treatment group a1b1c1 is greater than the mean of the treatment group a1b2c1. This further implies that the Boy students' with high cognitive ability, high emotional maturity and high creativity have more influence on Academic achievement in geography than the boy students' with high cognitive ability, low emotional maturity and high creativity.
20. The mean \pm SD of the treatment groups a1b1c1 (68.07 \pm 1.16) and a1b2c2 (61.59 \pm 1.16) differ significantly in respect of their influence on Academic achievement in geography. However, the observation of the two means clearly indicates that, the mean of the treatment group a1b1c1 is greater than the mean of the treatment group a1b2c2. This further implies that the Boy students' with high cognitive ability, high emotional maturity and high creativity have more influence on Academic achievement in geography than the boy students' with high cognitive ability, low emotional maturity and low creativity .
21. The mean \pm SD of the treatment groups a2b1c1 (62.15 \pm 2.22) and a2b2c1 (55.61 \pm 2.18) differ significantly in respect of their influence on Academic achievement in geography. However, the observation of the two means clearly indicates that, the mean of the treatment group a2b1c1 is greater than the mean of the treatment group a2b2c1. This further implies that the Boy students' with low cognitive ability, high emotional maturity and high creativity have more influence on academic achievement in geography than the boy students' with low cognitive ability, low emotional maturity and high creativity.
22. The mean \pm SD of the treatment groups a2b1c1 (62.15 \pm 2.22) and a2b2c2 (53.53 \pm 1.31) differ significantly in respect of their influence on Academic achievement in geography. However, the observation of the two means clearly indicates that, the mean of the treatment group a2b1c1 is greater than the mean of the treatment group a2b2c2. This further implies that the Boy students' with low cognitive ability, high emotional maturity and high creativity have more influence on academic achievement in geography than the boy students' with low cognitive ability, low emotional maturity and low creativity.
23. The mean \pm SD of the treatment groups a2b1c2 (56.12 \pm 0.79) and a2b2c1 (55.61 \pm 2.18) do not differ significantly in respect of their influence on Academic achievement in geography. However, the observation of the two means clearly indicates that, the mean of

the treatment group a2b1c2 is equal as the mean of the treatment group a2b2c1. This further implies that the Boy students' with low cognitive ability, high emotional maturity and low creativity have similar influence on academic achievement in geography than the boy students' with low cognitive ability, low emotional maturity and high creativity.

24. The mean \pm SD of the treatment groups a2b1c2 (56.12 \pm 0.79) and a2b2c2 (53.53 \pm 1.31) differ significantly in respect of their influence on Academic achievement in geography. However, the observation of the two means clearly indicates that, the mean of the treatment group a2b1c2 is greater than the mean of the treatment group a2b2c2. This further implies that the Boy students' with low cognitive ability, high emotional maturity and low creativity have more influence on academic achievement in geography than the boy students' with low cognitive ability, low emotional maturity and low creativity.
25. The mean \pm SD of the treatment groups a2b2c1 (55.61 \pm 2.18) and a2b2c2 (53.53 \pm 1.31) differ significantly in respect of their influence on Academic achievement in geography. However, the observation of the two means clearly indicates that, the mean of the treatment group a2b2c1 is greater than the mean of the treatment group a2b2c2. This further implies that the Boy students' with low cognitive ability, low emotional maturity and high creativity have more influence on Academic achievement in geography than the boy students' with low cognitive ability, low emotional maturity and low creativity.

Discussion and Conclusions

In the present study the researcher hypothesized that boys with high and low cognitive ability differs significantly in-terms of their effects on Academic achievement in geography. Findings of the study clearly revealed that students with high cognitive ability have more influence on Academic achievement in geography than the students with low cognitive ability this may due to the reason that, mentally healthy person is self acceptant and has reasonably high self-esteem, feels generally adequate, but recognizes his own short comings and seeks to improve, is well balanced, flexible and consistent in his attitudes, goals and deals attempts to solve his problems, rather than to escape them or to employ defence mechanisms excessively. These characteristics help in higher achievement.

In the present study, the researcher hypothesized that the students with high and low emotional maturity differ significantly in terms of their effects on Academic achievement in geography. Findings of the study clearly reveal that students with high emotional maturity has

more influence on the achievement in geography than the students with low emotional maturity. This may be ascribed to the following reasons; Students well adjusted to school have characteristics of overcoming blocks, reading goals, satisfying motives, relieving frustration and maintaining equilibrium and has own mechanism of maintaining balance in his personality.

In the present study the researcher hypothesized that student with high and low creativity differs significantly in-terms of their effects on academic achievement in geography. Findings of the study clearly revealed that students with high creativity have more influence on Academic achievement in geography than the students with low creativity.

References

1. Abdellaoui, A., Borcan, O., Chiappori, P. & Hugh-Jones, D. Trading social status for genetics in marriage markets: Evidence from UK biobank. School of Economics Working Paper 2022-04, 1-63 (2022).
2. Bond, R. & Saunders, P. Routes of success: influences on the occupational attainment of young British males. *Brit. J. Sociol.* 50, 217-249 (1999).
3. Bowles, S., Gintis, H. & Osborne, M. The determinants of earnings: a behavioral approach. *J. Econ. Lit.* 39, 1137-1176 (2001).
4. Brinch, C. N. & Galloway, T. A. Schooling in adolescence raises IQ scores. *Proc. Natl. Acad. Sci.* 109, 425-430 (2012).
5. Brown, P. & Tannock, S. Education, meritocracy and the global war for talent. *J. Educ. Policy* 24, 377-392 (2009).
6. Deming, D. J. The growing importance of social skills in the labor market*. *Q. J. Econ.* 132, 1593-1640 (2017).
7. Engzell, P. & Tropf, F. C. Heritability of education rises with intergenerational mobility. *Proc. Natl. Acad. Sci.* 116, 25386-25388 (2019).
8. Hasl, A., Kretschmann, J., Richter, D., Voelkle, M. & Brunner, M. Investigating core assumptions of the "American Dream": Historical changes in how adolescents' socioeconomic status, IQ, and GPA are related to key life outcomes in adulthood. *Psychol. Aging* 34, 1055-1076 (2019).
9. Jokela, M., Pekkarinen, T., Sarvimäki, M., Terviö, M. & Uusitalo, R. Secular rise in economically valuable personality traits. *Proc. Natl. Acad. Sci.* 114, 6527-6532 (2017).

10. Kyvik, S. Te non-university higher education sector in Norway. In *Non-university Higher Education in Europe* (eds Taylor, J. S. et al.) 169–189 (Springer, 2008).
11. Lindqvist, E. & Vestman, R. Te labor market returns to cognitive and noncognitive ability: Evidence from the Swedish enlistment. *Am. Econ. J. Appl. Econ.* 3, 101–128 (2011).
12. Marks, G. N. Cognitive ability has powerful, widespread and robust effects on social stratification: Evidence from the 1979 and 1997 US National Longitudinal Surveys of Youth. *Intelligence* 94, 1–19 (2022).
13. Ng, T. W., Eby, L. T., Sorensen, K. L. & Feldman, D. C. Predictors of objective and subjective career success: A meta-analysis. *Personnel Psychol.* 58, 367–408 (2005).
14. Ritchie, S. J. & Tucker-Drob, E. M. How much does education improve intelligence? A meta-analysis. *Psychol. Sci.* 29, 1358–1369 (2018).
15. Spinath, B., Eckert, C. & Steinmayr, R. Gender differences in school success: what are the roles of students' intelligence, personality and motivation?. *Educ. Res.* 56, 230–243 (2014).
16. Strenze, T. Intelligence and socioeconomic success: A meta-analytic review of longitudinal research. *Intelligence* 35, 401–426 (2007).
17. Tuen, H. & Volckmar, N. Postwar School Reforms in Norway. *Oxford Research Encyclopedia of Education* 1–28 (2020).
18. Wiborg, S. Neo-liberalism and universal state education: the cases of Denmark, Norway and Sweden 1980–2011. *Comp. Educ.* 49, 407–423 (2013).
19. Zisman, C. & Ganzach, Y. In a representative sample grit has a negligible effect on educational and economic success compared to intelligence. *Soc. Psychol. Person. Sci.* 12, 296–303 (2021).
20. Zisman, C. & Ganzach, Y. Te claim that personality is more important than intelligence in predicting important life outcomes has been greatly exaggerated. *Intelligence* 92, 101631 (2022).