ABSTRACT

Education Commission (1966) has rightly observed that the progress, welfare and prosperity of a nation depend on a rapid, planned and sustained growth in the quality and extent of education and research in science and technology. Similar views have also been expressed by National Policy of Education (NPE, 1986). It has emphasized that science education should be strengthened to develop well-defined abilities and values such as the spirit of enquiry, creativity, objectivity, the courage to question and an aesthetic sensibility among the children which guarantees a well equipped human resource development for a nation. In the present day, science education occupies a very important place in curriculum both at school and university stages of education in India. The development during the post independence period in science education and research in science and technology have led to the over all growth and greater application of science in contemporary society. As a matter of fact science has become a priority area in education both at the compulsory as well as at the level of specialization.

The Hon’ble President of India A.P.J. Abdul Kalam, speaking at the international conference on ‘World View on Physics Education in 2005’ has said, “For the students between the age of 14 and 17, it is very important to inject the beauty of science, challenge of science and the bliss of science ………..,” (The Hindu, 23rd August, 2005). To promote science education in India, three policies have been framed during post independence period: (i) Scientific Resolution Policy of 1958, (ii)
Technology Policy Statement of 1983, and (iii) Science and Technology Policy of 2003. One of the first recommendations of the Science Advisory Committee to the Prime Minister of India has focused on scientific literacy through emphasis on teaching of science and mathematics at all levels (Ramachandaran, 2005). But the progress in this sphere at the national level is not satisfactory. “India has produced, and continues to produce outstanding scientists, engineers and doctors, yet science teaching in school is in poor shape,” (The Hindu, 23rd March, 2005). A broad based empirical study on the secondary school students of India has revealed that the achievement in the science subject is significantly less than the achievement in the other school subjects (National Council of Educational Research and Training, NCERT, New Delhi, 1997).

In India, the main religious groups with their unique traditions and cultures are Muslims and the Non-Muslims. Muslims are the largest minority, constitutes 13.4% of the total population in India (Census of India, 2001). The literacy among Muslims is 59.1% being the lowest among all the other religious groups. Also, it is lagging behind the total literacy of Indian population which is 64.8% (Census of India, 2001). Inspite of various provisions in the Constitution of India for the Muslims, Muslims are backward in the field of education, especially in the field of science and technology as compared to their counterparts, i.e., Non-Muslim. NPE (1986) has also endorsed the gravity of the problem by saying, “Muslims and Neo-Buddhists are the most backward both educationally and economically.” In this alarming situation, the Hon’ble Prime Minister of India has appointed a High
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Level Committee (HLC) in March 2005, for preparation of report on social, economic and educational status of the Muslim community of India (Government of India, 2005).

The attitudes are positively or negatively directed towards a particular subject and thus considered to promote or inhibit student behaviour in the classroom, home, peer group, and ultimately learning and choice of career (Husen and Postlethwaite in the International Encyclopedia of Education, 1994). Thus, the students possessing favourable attitude towards science could accrue the benefit of science more as compared to those who lacked it. Due to various religious, cultural, social and personality factors, the difference in the attitude towards science and science achievement is a common phenomenon among the adolescents. Conger and Peterson (1984) have identified certain cognitive and non-cognitive factors which influence the learning of the students. These include intelligence, socio-economic status, gender, adjustment and creativity along with several other factors. There are various studies which have been conducted on attitude towards science and science achievement in India and abroad and have quite considerably succeeded in identifying predictors of attitude towards science and science achievement, but much is yet to be done to the extent and magnitude of such relationship in this important area of educational research especially in a developing country like India which is striving to be a forward nation by 2020.

In the present scenario, the investigator feels an urge to statistically identify the significant cognitive and non-cognitive predictors of and their extent of predictability (relationship) with
adolescents' attitude towards science and science achievement, both among the Muslim and Non-Muslim randomly selected groups, as this kind of comparison has also not been conducted so far.

OBJECTIVES OF THE STUDY:

For the present study, two important cognitive variables - intelligence and creativity; and two important non-cognitive variables - socio-economic status and adjustment have been taken as independent or predictive variables to see the effect of these variables on attitude towards science and science achievement.

Keeping in view the above-mentioned variables, the investigator started the work with the following objectives:

1. To identify the significant predictors of attitude towards science and their extent of predictability for the total sample.

2. To identify the significant predictors of attitude towards science and their extent of predictability for the Muslim and Non-Muslim samples.

3. To identify the significant predictors of attitude towards science and their extent of predictability for the male and female samples.

4. To identify the significant predictors of attitude towards science and their extent of predictability for the Muslim male, Muslim female, Non-Muslim male and Non-Muslim female samples.

5. To identify the significant predictors of science achievement and their extent of predictability for the total sample.
6. To identify the significant predictors of science achievement and their extent of predictability for the Muslim and Non-Muslim samples.

7. To identify the significant predictors of science achievement and their extent of predictability for the male and female samples.

8. To identify the significant predictors of science achievement and their extent of predictability for the Muslim male, Muslim female, Non-Muslim male and Non-Muslim female samples.

HYPOTHESES:

Corresponding to the objectives of the present research, the following null hypotheses were framed for empirical verifications:

H.01: None of the cognitive and non-cognitive variables will be found to be the significant predictors of attitude towards science for the total sample.

H.02: None of the cognitive and non-cognitive variables will be found to be the significant predictors of attitude towards science for the Muslim and Non-Muslim samples; and the two groups would show no significant difference with respect to their predictors or predictability strength.

H.03: None of the cognitive and non-cognitive variables will be found to be the significant predictors of attitude towards science for the male and female samples; and the two groups would show no significant difference with respect to their predictors or predictability strength.
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H.04: None of the cognitive and non-cognitive variables will be found to be the significant predictors of attitude towards science for the Muslim male and Non-Muslim male samples; and the two groups would show no significant difference with respect to their predictors or predictability strength.

H.05: None of the cognitive and non-cognitive variables will be found to be the significant predictors of attitude towards science for the Muslim female and Non-Muslim female samples; and the two groups would show no significant difference with respect to their predictors or predictability strength.

H.06: Muslim male and Muslim female groups would show no significant difference with respect to their predictors of attitude towards science or predictability strength of the significant predictors.

H.07: Non-Muslim male and Non-Muslim female groups would show no significant difference with respect to their predictors of attitude towards science or predictability strength of the significant predictors.

H.08: None of the cognitive and non-cognitive variables will be found to be the significant predictors of science achievement for the total sample.

H.09: None of the cognitive and non-cognitive variables will be found to be the significant predictors of science achievement for the Muslim and Non-Muslim samples; and the two groups would
show no significant difference with respect to their predictors or predictability strength.

**H.10:** None of the cognitive and non-cognitive variables will be found to be the significant predictors of science achievement for the male and female samples; and the two groups would show no significant difference with respect to their predictors or predictability strength.

**H.11:** None of the cognitive and non-cognitive variables will be found to be the significant predictors of science achievement for the Muslim male and Non-Muslim male samples; and the two groups would show no significant difference with respect to their predictors or predictability strength.

**H.12:** None of the cognitive and non-cognitive variables will be found to be the significant predictors of science achievement for the Muslim female and Non-Muslim female samples; and the two groups would show no significant difference with respect to their predictors or predictability strength.

**H.13:** Muslim male and Muslim female groups would show no significant difference with respect to their predictors of science achievement or predictability strength of the significant predictors.

**H.14:** Non-Muslim male and Non-Muslim female groups would show no significant difference with respect to their predictors of science achievement or predictability strength of the significant predictors.
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METHOD AND PROCEDURE:

As far the nature of the design of the present study is concerned, it is an exploratory one. Population in the present study refers to all the students of Aligarh district studying in class X during the academic session 2002-03 in any institution located in urban area and affiliated to any board. There are 411 Secondary/High Schools (including Senior Secondary schools and Intermediate Colleges where Secondary/High School sections are attached) in the district Aligarh as per the records obtained from websites of UPB, CISE, CBSE and AMU. Total 82 schools are situated in urban areas. Keeping in view the feasibility and other resource conditions, 19 schools are selected by stratified random sampling procedure in such a way that Muslims, Non-Muslims, males and females may get equal representation. From each selected school, the sections of class 10th are identified through random sampling. Finally, the adolescent students of class 10th are taken from the selected sections by the cluster sampling technique. Thus, the sample for the present study constitutes of 804 students (199 Muslim males, 190 Muslim females, 210 Non-Muslim males and 205 Non-Muslim females).

For the purpose of data collection, the standardized tools used are Intelligence Test: Culture Fair (Scale 2, Form A) by Cattell and Cattell, Verbal Test of Creative Thinking by Mehdi., Socio-Economic Status Scale (Form A, Urban) by Srivastava, Adjustment Inventory for School Students by Sinha and Singh, and Science Attitude Scale by Grewal. The marks obtained by the students in the Science subject (Including Physics, Chemistry, and Biology with practical) in the board examination (Class 10th) are taken as the measure of Science Achievement.
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For collection of data, the researcher sought the help of principals and staff of the selected schools. The importance of the honest and frank responses of the students was discussed and the students were motivated to act sincerely. The respondents were ensured that the data would be used only for the research purposes. All the five tests namely intelligence, creativity, socio-economic status, adjustment and attitude towards science were administered by the investigator himself adhering strictly the instructions given in the manual of the tests. Each data sheet was scrutinized for correction, if any. The data for Science Achievement were the marks obtained by the respondents in the annual examination (10th class) and were noted from the office records.

All the tests employed for the present investigation are standardized. The scoring of the tests, i.e., attitude towards science, creativity, intelligence, socio-economic status and adjustment was done strictly according to the guidelines and instructions provided by the author(s) in the manuals and keys of the respective tests.

Keeping in view the objectives and hypotheses of the study, the nature of the data required the use of advance statistical techniques. So, the collected data were processed by computer using software package SPSS (Statistical Package for Social Sciences). A comprehensive data sheet was prepared with proper coding of the dependent and independent variables taking care of the need of the package. After that the data was fed in the software worksheet and also crosschecked to weed out mistakes.
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STATISTICAL TECHNIQUES:

The main statistical technique used for the treatment of data is stepwise multiple regression analysis. In this technique, according to Kerlinger (2002), "The computer first selects the independent variable, $X_a$ that has the highest correlation with the dependent variable, $Y$, and calculates regression statistics. It then selects the variable $X_b$ that, after the first variable will contribute most to the variance of $Y$. It then stops to evaluate what it has done. That is, it examines the contribution the first variable would have made had it been entered second. If this contribution turns out to be statistically significant, the variable is dropped. The process is continued until a statistical test of significant strikes a variable, $X_m$ that does not contribute significantly to $R^2"."

A brief description of the statistical techniques used in the analysis of the data is given below:

1. Pearson Product Moment correlation coefficient ($r$) to find out the correlations between the paired variables

$$r_{xy} = \frac{\Sigma XY - \Sigma X \Sigma Y}{\sqrt{[\Sigma X^2 - (\Sigma X)^2][\Sigma Y^2 - (\Sigma Y)^2]}}$$

2. t-test to see the significance of $r$

$$t_r = \frac{r\sqrt{N - 2}}{\sqrt{1 - r}}$$

3. Mean

$$M = \frac{\Sigma X}{N}$$
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4. Standard Deviation

\[ \sigma = \sqrt{\frac{\sum X^2}{N} - \left( \frac{\sum X}{N} \right)^2} \]

5. t-test to see the significance of difference between two means

\[ t = \frac{|M_1 - M_2|}{\sqrt{\frac{N_1\sigma_1^2 + N_2\sigma_2^2}{N_1 + N_2 - 2} \left( \frac{1}{N_1} + \frac{1}{N_2} \right)}} \]

6. z-test to see the significance of difference between two proportions or percentages

\[ z = \frac{|P_1 - P_2|}{\sqrt{P_1(1-P_1) \left( \frac{1}{N_1} + \frac{1}{N_2} \right)}} \]

7. Multiple correlation (R) in terms of partial coefficients of correlation for n variables

\[ R_{1(234...n)} = \sqrt{1 - [(1-r_{12}^2)(1-r_{13}^2)\ldots\ldots\ldots(1-r_{1n,234...n})]} \]

8. Partial r in terms of the coefficients of lower order -n variables

\[ r_{12,34...n} = \frac{r_{12,34...n} - r_{1n,34...n}(n-1) r_{2n,34...n}(n-1)}{\sqrt{1-r_{1n,34...n}(n-1)} \sqrt{1-r_{2n,34...n}(n-1)}} \]

9. Partial \( \sigma \) for n variables

\[ \sigma_{1,234...n} = \sigma_1 \sqrt{1-r_{12}^2} \sqrt{1-r_{13}^2} \sqrt{1-r_{14,23}^2} \sqrt{1-r_{1n,23...n}(n-1)} \]
10. Partial (unstandardized) regression coefficients in terms of partial coefficient of correlation and standard errors of estimates-n variables

\[ b_{12,34,...,n} = r_{12,34,...,n} \frac{\sigma_{1,234,...,n}}{\sigma_{2,34,...,n}} \]

11. Beta coefficients (standardized regression coefficient or \( \beta \)-weight) calculated from partial regression coefficients

\[ \beta_{12,34,...,n} = b_{12,34,...,n} \frac{\sigma_2}{\sigma_1} \]

12. F-test to check the statistical significance of \( R^2 \) with n independent variables

\[ F = \frac{R^2 / k}{(1-R^2) / (N-k-1)} \]

13. F-test to see the significance of difference between multiple \( R' \)s

\[ F = \frac{(R_1^2 - R_2^2) (N-m_1-1)}{(1-R_1^2) (m_1-m_2)} \]

14. F-test to see the significance of variance attributed by the prediction model due to the regression

\[ F = \frac{SS_{reg} / df_1}{SS_{res} / df_2} \]

15. SE of a multiple regression coefficient, \( b \)

\[ \sigma_{b_{12,34,...,m}} = \frac{\sigma_{1,234,...,m}}{\sigma_{2,34,...,m} \sqrt{N-m}} \]
16. Multiple Regression equation in score form for n variables

The criterion variable is expressed as weighted linear combination of the predictive variables. The mathematical model can be expressed as follows:

\[ X_i = b_{12.34...n} X_1 + b_{13.24...n} X_2 + ... + b_{1n.23...(n-1)} X_n + K \]

The formulae which are mentioned above are inbuilt in the software SPSS, only necessary commands are given to do the calculations.

FINDINGS OF THE STUDY:

In the quest to find out the significant predictors of attitude towards science and science achievement and predictability extent of the cognitive (intelligence and creativity) and non-cognitive (socio-economic status and adjustment) significant predictive variables among the Muslim and Non-Muslim adolescents, the investigator has humbly arrived at the certain significant results as given below:

SIGNIFICANT PREDICTORS OF ATTITUDE TOWARDS SCIENCE

Total sample

1. Intelligence, SES and creativity are found to be the significant predictors of attitude towards science for the total sample and have the predictability strength of 18.3%.

2. The maximum of the predictable variance is shared by intelligence (13.8%) followed by SES (3.5%) and creativity (1.0%).
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Muslim and Non-Muslim samples

3. Intelligence, SES and creativity are found to be the significant predictors of attitude towards science for the Muslim sample and have the predictability strength of 26.5%.

4. For the Muslim sample, the maximum of the predictable variance is shared by intelligence (21.2%) followed by SES (3.0%) and creativity (2.3%).

5. Intelligence and SES are found to be the significant predictors of attitude towards science for the Non-Muslim sample and have the predictability strength of 12.5%.

6. For the Non-Muslim sample, the maximum of the predictable variance is shared by intelligence (9.1%) followed by SES (3.4%).

7. Intelligence and SES are found to be the common significant predictors for the two groups; intelligence playing more important role for the Muslims whereas SES being the equally important for both the groups.

8. Creativity emerges as an additional significant predictor only for the Muslim adolescents.

Male and female samples

9. Intelligence, SES and creativity are found to be the significant predictors of attitude towards science for the male sample and have the predictability strength of 18.5%.

10. For the male sample, the maximum of the predictable variance is shared
by intelligence (11.2%) followed by SES (5.3%) and creativity (2.0%).

11. Intelligence and SES are found to be the significant predictors of attitude towards science for the female sample and have the predictability strength of 19.2%.

12. For the female sample, the maximum of the predictable variance is shared by intelligence (14.5%) followed by SES (4.7%).

13. Intelligence and SES are found to be the common significant predictors for the two groups; and have the same predictability strength.

14. Creativity emerges as an additional significant predictor only for the male sample.

**Muslim male and Non-Muslim male samples**

15. Intelligence, creativity and SES are found to be the significant predictors of attitude towards science for the Muslim male sample and have the predictability strength of 33.4%.

16. For the Muslim male sample, the maximum of the predictable variance is shared by intelligence (18.7%) followed by creativity (9.9%) SES (4.8%).

17. Intelligence, creativity and SES are found to be the significant predictors of attitude towards science for the Non-Muslim male sample and have the predictability strength of 11.2%.

18. For the Non-Muslim male sample, the maximum of the predictable variance is shared by intelligence (7.0%) followed by SES (4.2%).
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19. Intelligence and SES are found to be the common significant predictors for the two groups; intelligence playing more important role for the Muslim males whereas SES being the equally important for both the groups.

20. Creativity emerges as an additional significant predictor only for the Muslim male sample.

Muslim female and Non-Muslim female samples

21. Intelligence, SES and adjustment are found to be the significant predictors of attitude towards science for the Muslim female sample and have the predictability strength of 30.5%.

22. For the Muslim female sample, the maximum of the predictable variance is shared by intelligence (22.9%) followed by SES (5.8%) and adjustment (1.8%).

23. Intelligence and SES are found to be the significant predictors of attitude towards science for the Non-Muslim female sample and have the predictability strength of 12.4%.

24. For the Non-Muslim female sample, the maximum of the predictable variance is shared by intelligence (9.2%) followed by SES (3.2%).

25. Intelligence and SES are found to be the common significant predictors for the two groups; intelligence playing more important role for the Muslim females whereas SES being the equally important for both the groups.

26. Adjustment emerges as an additional significant predictor only for
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the Muslim female sample.

**Muslim male and Muslim female samples**

27. Intelligence and SES are found to be the common significant predictors for the Muslim male and Muslim female samples, and have the same predictability strength.

28. Creativity for the Muslim males and adjustment for the Muslim females emerge as an additional significant predictor.

**Non-Muslim male and Non-Muslim female samples**

29. Intelligence and SES are found to be the significant predictors for the Non-Muslim males as well as Non-Muslim females and have the same predictability strength.

**SIGNIFICANT PREDICTORS OF SCIENCE ACHIEVEMENT:**

**Total sample**

1. Intelligence and SES are found to be the significant predictors of science achievement for the total sample and have the predictability strength of 23.1%.

2. For the total sample, the maximum of the predictable variance is shared by intelligence (21.8%) followed by SES (1.3%).

**Muslim and Non-Muslim samples**

3. Intelligence, creativity and SES are found to be the significant predictors of science achievement for the Muslim sample and have the predictability strength of 24.6%.
4. For the Muslim sample, the maximum of the predictable variance is shared by intelligence (20.4%) followed by creativity (2.3%) and SES (1.9%).

5. Intelligence and SES are found to be the significant predictors of science achievement for the Non-Muslim sample and have the predictability strength of 24.0%.

6. For the Non-Muslim sample, the maximum of the predictable variance is shared by intelligence (23.1%) followed by SES (0.9%).

7. Intelligence and SES are found to be the common significant predictors for both the groups; and have the same predictability strength.

8. Creativity emerges as an additional significant predictor only for the Muslim sample.

**Male and female samples**

9. Intelligence, SES and adjustment are found to be the significant predictors of science achievement for the male sample and have the predictability strength of 29.5%.

10. For the male sample, the maximum of the predictable variance is shared by intelligence (21.5%) followed by SES (7.1%) and adjustment (0.9%).

11. Only intelligence is found to be the significant predictor of science achievement for the female sample and have the predictability strength of 19.9%.

12. Intelligence is found to be the only common significant predictor for
both the groups; and have the same predictability strength.

13. SES and adjustment emerge as the additional significant predictors only for the male sample.

**Muslim male and Non-Muslim male samples**

14. Intelligence, SES and creativity are found to be the significant predictors of science achievement for the Muslim male sample and have the predictability strength of 34.5%.

15. For the Muslim male sample, the maximum of the predictable variance is shared by intelligence (26.0%) followed by SES (6.3%) and creativity (2.2%).

16. Intelligence, SES and adjustment are found to be the significant predictors of science achievement for the Non-Muslim male sample and have the predictability strength of 25.6%.

17. For the Non-Muslim male sample, the maximum of the predictable variance is shared by intelligence (17.3%) followed by SES (6.3%) and adjustment (0.2%).

18. Intelligence and SES are found to be the common significant predictors for both the groups; and have the same predictability strength.

19. Adjustment emerges as an additional significant predictor only for the Non-Muslim males.
Muslim female and Non-Muslim female samples

20. Intelligence and SES are found to be the significant predictors of science achievement for the Muslim female sample and have the predictability strength of 15.3%.

21. For the Muslim female sample, the maximum of the predictable variance is shared by intelligence (12.8%) followed by SES (2.5%).

22. Intelligence, adjustment and creativity are found to be the significant predictors of science achievement for the Non-Muslim female sample and have the predictability strength of 31.0%.

23. For the Non-Muslim female sample, the maximum of the predictable variance is shared by intelligence (27.2%) followed by adjustment (2.2%) and creativity (1.6%).

24. Intelligence is found to be the only common significant predictor for both the groups and is playing more important role for the Non-Muslim females.

25. SES for the Muslim females, and creativity and adjustment for the Non-Muslim females emerge as the additional significant predictors.

Muslim male and Muslim female samples

26. Intelligence and SES are found to be the common significant predictors for the Muslim male and Muslim female samples; intelligence playing the more important role for the Muslims whereas SES being equally important for both the groups.

27. Creativity emerges as an additional significant predictor only for the
Muslim male sample.

Non-Muslim male and Non-Muslim female samples

28. For the Non-Muslim male and Non-Muslim female samples, intelligence and adjustment are found to be the common significant predictors and have the same predictability strength.

29. SES for the Non-Muslim males and creativity for the Non-Muslim females emerge as an additional significant predictor.

EDUCATIONAL IMPLICATIONS:

1. In the light of the findings and discussion given above, it can now be said with a reasonable degree of confidence that intelligence and creativity have been found to be playing a vitally constructive role for the Muslims’ attitude towards science as well as science achievement. It is a sanguine sign in their behaviour which calls for immediate attention of the parents and teachers to provide extra care, educational efforts and encouragement to better utilize these potential abilities for upward movement with reference to their attitude towards science and science achievement.

2. Another encouraging result which more comprehensively intensifies and strengthens the above proposition is that creativity has again emerged as the additional significant predictor of attitude towards science for the male population holistically, as even historically proven a phenomenon already mentioned in the discussion. Since all innovative advancements depend on the creative potentials, it is advisable not to discourage the creative ideas and activities of
children right from the school days to the highest level of education (as it is the habit of the teachers in general to discourage, dampen and even punish and chastise the students exhibiting any kind of divergent thinking). Both parents and teachers should feel rather happy and try to boost up and encourage all sort of creative and innovative thoughts and behaviour of the children.

3. Another important conclusion that has a direct bearing on the qualitative and quantitative educational progress of children is that socio-economic status and adjustment are essential factors that demand more attention from all those involved in education, right from parental care to school environment and administrative milieu. Allout efforts should be made at all levels to provide better SES and adjustment to develop more consistent attitude towards science and science achievement.

4. The recent theory of emotional intelligence has emphatically brought out, supporting the present findings, that an emotionally and socially more conducive environment (SES) can boost up both the attitude and achievement levels not only of the upper rung but even of the average-ability children that constitutes the biggest chunk (60% to 66%) in the school going population (Goleman, 1995, 98). Thus, this recent discovery, stressing the emotional, social and economic well-being is worth paying attention for educational growth and development of the nation today and ever after.

SUGGESTIONS FOR FURTHER RESEARCH:

As the nature of man’s own self and his universe is very vast and
complicated, it shall ever remain challenging the researchers and explorers; and perhaps shall never be found fully discovered.

The present investigator has humbly presented and discussed his results to serve only as a threshold and a spring board for further and deeper explorations. The limitations, as such, have certainly stimulated the present researcher to motivate the future workers to take up the following residual areas and untrodden fields suggested as under:

1. The study has been conducted considering only two important cognitive variables (intelligence and creativity) and two important non-cognitive variables (socio-economic status and adjustment). As such there seems to be an urgent need to widen the spectrum of predictors in the cognitive and non-cognitive fields. Other important cognitive and non-cognitive variables may be fruitful in a more comprehensive determination of predictors for attitude towards science and science achievement.

2. There is also a resultant need to study the comparative effects of the individual components of creativity, i.e., fluency, flexibility and originality on attitude towards science and science achievement.

3. Similarly, it seems pertinent to study the effect of the main components of SES, i.e., education, occupation and income on attitude towards science and science achievement both individually and comparatively.

4. Adjustment has also been taken holistically in the present study. The effect of the various dimensions of it, i.e., educational adjustment,
emotional adjustment and social adjustment on attitude towards science and science achievement may also be studied.

5. The present study has been conducted only on the adolescent students of urban background under the title, "a study of certain cognitive and non-cognitive predictors of attitude towards science and science achievement among Muslim and Non-Muslim adolescents." A similar work may also be taken up for the students of Indian rural background to make the findings more comprehensive.

Thus, the present work humbly brings out various magnitudes of prediction for both the cognitive and non-cognitive factors in relation to attitude towards science and science achievement serving as an exploratory spade work to open up new vistas of knowledge for the future explorers in the field.