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# THE RELATIONSHIP BETWEEN BASIC SCIENCE PROCESS SKILLS AND SCIENCE ATTITUDE AMONG SECONDARY SCHOOL STUDENTS IN RANIPET DISTRICT

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## ABSTRACT

This study explores the relationship between basic science process skills and the science attitude of secondary school students. Furthermore, to determine whether there is any significant difference in basic science process skills and science attitudes among secondary school students based on the type of management of school and educational qualification of their parents. A descriptive survey method was conducted on 600 secondary school students using a stratified random sampling technique in the Arakkonam educational block, Ranipet district, Tamil Nadu, India. The study used a 60-item Basic Science Process skills test and a 20 item science attitude questionnaire. The correlation between basic science process skills and science attitude was significant with a correlation coefficient of .978. The results of the study show that there was a significant difference in basic science process skills and science attitude in terms of the type of school management favouring private school students; and in terms of parent's educational qualification favouring college-level parents.

**Keywords:** Basic Science Process Skills, Science Attitude, Secondary School Students, Type of management of school and Parent's educational qualification.

## INTRODUCTION

The role of science in our daily lives is well known to everyone. No nation regardless of its size or population would be able to survive without science. Every person should have at least a basic understanding of science because it allows us to live a better and more fulfilling life. The study of science consists of observing, identifying, describing, conducting experiments, and exploring natural phenomena theoretically and experimentally. These skills are collectively called science process skills. According to Rezba et al., (2003), science process skills are the skills we use when we do science. Children utilize these skills to investigate the characteristic world effectively (Online-alantis.press.com). They use their senses to observe objects and events, and look for patterns in those observations. These skills benefit students in learning activities during the classroom process and in solving real problems in daily life (Anita Herda et al; (2020). Agreeing to Sukarno et al., (2013) (cited in Ongowo, R.O. (2017), science process skills and mastery of science concepts are inseparably entwined, interrelated, and mutually reinforcing (Online-academia.edu).

Padilla, (1990), Keil, (2009) and Anita Herda, (2020) categorized science process skills into basic and integrated skills. Observing, Communicating, Classifying, Measuring, Inferring, and predicting come under the title of basic science process skills. These skills follow the

action without any particular order. Applying these skills one can conduct an objective investigation and reach conclusions, based on the results. These are integrated when scientists design and carry out experiments. All these basic skills are important individually as well as when they are integrated. These basic science process skills provide the foundation for learningintegrated skills**.** The integrated science process skills are controlling variables, defining operationally, formulating hypotheses, interpreting data, experimenting, and formulating models (Ongowo, R.O. (2017). Process skills are basic skills for science and they will positively influence the academic achievement of students in science subjects (Maneer V. and Arshitha P. (2019).

On other hand, Science attitude refers to the beliefs, values, and feelings thatindividuals hold toward science and its practices. It encompasses their attitudes towards scientific knowledge, scientific inquiry, and the role of science in society. A positive science attitude involves curiosity, open-mindedness, skepticism, and an appreciation for the scientific method.

Science attitude is defined as a generalized attitude towards the universe of science content and is measured in terms of its favourableness or unfavourableness estimated from the scores obtained by the subjects on an attitude scale toward science (Daisy Nambikkai, (2014). According to Keeves, 1992, Science attitude reflects a person's interest in or feeling towards studying science. It is the student's disposition towards 'likes' or 'dislikes' science while attitude in science means the scientific approach assumed by an individual for solving problems, assessing ideas, and making decisions.

According to Astalini, A. (2019), and Liaghatdar, M.J., Soltani, A., & Abedi, A. (2011), attitudes toward science are considered important because they can affect the performance of students in a science subject. As students exhibit positive and negative attitudes toward science, attitudes play a significant role in science learning (Dwi Agus Kurniawan, 2019). It is reflected in a positive attitude that students are more diligent at learning so their results are satisfactory, while it is reflected in a negative attitude that students are less diligent at learning resulting in less satisfactory results (Rijai and Bachtiar (2015).

## REVIEW OF RELATED LITERATURE

To conduct effective research in any field it is essential to evaluate past studies on the topic at hand in order togain valuable insights about it before proceeding further. Basic science process skills and scientific attitude are factors that have been explored by different researchers who have identified significant associations between these factors along with other important outcomes. Mirana (2019); Wiwin, E; Kustijono, R. (2018); Maranan, (2017); Aktamis et al. (2016) and Ahmet Gures et al. (2014) have all conducted investigations that provide evidence to support the correlation between these variables in various contexts. Furthermore, Zeidan and Afif Hafez's study from 2015 discovered a notable correlation coefficient of .69 between science process skills and attitude towards science suggesting their interrelated nature. Manoj and Devanathan (2010) also found similar results concerning the relationship between individuals' attitudes toward science and their development of process skills.

## NEED OF THE STUDY

According to Johnston (2009), science process skills are significant in improving students' cognitive development and facilitating students' active participation during the teaching and learning process. Development of certain science-related skills is considered essential for attaining the aims of science education as per the studies of some researchers (Sapna Suman, 2020, Anita Herda, 2020, Muneer; 2019, Richard Owino Ongowo, 2017, Zeidan and Jayosi,

2015). In some studies, it was observed that students' mastery of science process skills can have a good effect on students, attitudes toward learning. Developing mastery in basic science process skills and a positive attitude toward science is aiming for quality student performance. Hence assessment of both will help teachers to know their student's capacity and which teaching method is useful for improving them. Hence this paper focuses on the relationship between science process skills and science attitude by secondary school students.

## OBJECTIVES OF THE STUDY

1. The key objective of the study is to reveal the relationship between basic science process skills and the science attitude among secondary school students.
2. To explore the significant differences if any in the basic science process skills and science attitude of secondary school students based on the type of management of school and parents'educational qualification.

## HYPOTHESES OF THE STUDY

The following hypotheses were formulated based on the objectives of the study.

1. There is no significant relationship between basic science process skills and science attitudes of secondary school students of Ranipet district.
2. There is no significant difference in the basic science process skills of secondary school students of Ranipet district based on difference in theirschool management type.
3. There is no significant difference in the basic science process skills of secondary school students of Ranipet district based on difference in their father's educational qualification.
4. There is no significant difference in the basic science process skills of secondary school students of Ranipet district based on difference in their mother's educational qualification.
5. There is no significant difference in the science attitude of secondary school students of Ranipet district based on difference in their schoolmanagement type.
6. There is no significant difference in the science attitude of secondary school students of Ranipet district based on difference in their father's educational qualification.
7. There is no significant difference in the science attitude of secondary school students based ondifference in their mother's educational qualification.

## METHODOLOGY

### Sample

A normative survey method was adopted on a sample of 600 secondary school students (both boys and girls belonging to IX and X standard) selected from government, government aided, and private secondary schools in the Arakkonam educational block, Ranipet district of Tamil Nadu, India using a stratified random sampling technique. The total sample has been divided equally on the basis ofthe type of management of the school.

### Tools Used

The following tools were employed in the present study.

### 1. Basic Science Process Skills Test

The investigator developed and standardized a tool (2018) for collecting data for assessing basic science process skills of secondary school students with the help of her research supervisor. The BSPS test consists of 60 multiple-choice questions with six sub-dimensions namely observing, classifying, measuring, communicating, inferring and predicting. The questions were selected in a manner that covered the basic science process skills. For each question, one mark was allotted. The total mark for the BSPS test was 60.

**2. Science Attitude Scale**

In the present study, Science Attitude Scale by Dr. Avinash Grewal, 2012 was used as a tool to measure how a student thinks and behaves toward science.

**Statistical techniques used**

1. Correlation analysis between basic science process skills and science attitude
2. ANOVA- to see the significant difference.

## RESULTS AND DISCUSSION

**Hypothesis: 1** "There is no significant relationship between basic science process skills and the science attitude of secondary school students of Ranipet district."

**Table 1:**showsthe Pearson correlation co-efficient between the different types of basic science process skills and Science Attitude.

| Types of Basic Science Process Skills | Science Attitude (r-value) | P-value | Remarks |
|---|---|---|---|
| Observing skill | .801** | .000 | S |
| Classifying skill | .831** | .000 | S |
| Measuring skill | .789** | .000 | S |
| Communicating skill | .803** | .000 | S |
| Inferring skill | .797** | .000 | S |
| Predicting skill | .755** | .000 | S |
| Overall | .978** | .000 | S |

**Note**: ** indicates correlation is significant at 0.01level of significance.

The above table reveals the correlation between basic science process skills and science attitude. The result indicates that science attitude shows a significant positive correlation with all the types and overall basic science process skills of secondary school students at 0.01level. The result clearly shows that any increase or decrease in science attitude is followed by a corresponding increase or decrease in basic science process skills performance of secondary students. Hence, the hypothesis that there is no significant relationship exists between basic science process skills and the science attitude of secondary students of Ranipet district cannot be accepted.

**Hypothesis: 2**

"There is no significant difference in the basic science process skills of secondary school students of Ranipet districtbased on the difference in their school management type".

To test the above null hypothesis, the 'F'-value is calculated.

**Table2:** shows ANOVA for significant differences in basic science process skills of secondary schoolstudents based on their school management type.

| Types of Basic Science Process Skills. | Categories | Source of variance | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|---|
| Observing | Government Aided Private | Between Within Total | 21.690 1157.450 1179.140 | 2 597 599 | 10.845 1.939 | 5.594 | .004 |
| Classifying | Government Aided Private | Between Within Total | 82.840 1421.425 1504.265 | 2 597 599 | 41.420 2.381 | 17.396 | .000 |
| Measuring | Government Aided Private | Between Within Total | 53.320 1407.305 1460.625 | 2 597 599 | 26.660 2.357 | 11.310 | .000 |
| Communicating | Government Aided Private | Between Within Total | 73.973 1638.320 1712.293 | 2 597 599 | 36.987 2.744 | 13.478 | .000 |
| Inferring | Government Aided Private | Between Within Total | 193.773 1700.185 1893.958 | 2 597 599 | 96.887 2.848 | 34.021 | .000 |
| Predicting | Government Aided Private | Between Within Total | 178.973 2157.545 2336.518 | 2 597 599 | 89.487 3.614 | 24.761 | .000 |
| Overall | Government Aided Private | Between Within Total | 3209.923 15143.750 18353.673 | 2 597 599 | 1604.962 25.366 | 63.271 | .000 |

From the above table,the calculated 'F' value of all the types and overallbasic science process skills is significant as the 'p' value is showing .000 but one-way ANOVA cannot explain which group is highly significant and which group is not. Hence, theinvestigator followed Scheffe's Post Hoc Test.

The details of these are presented in the following table.

**Table2.1:Comparison of the significance of the differencesinoverall basic science process skills of secondary school students based on their school management type.**

| | Sub sample | N | Subset for alpha =0.05 | | |
|---|---|---|---|---|---|
| Scheffe | Government | 200 | 39.3350 | | |
| | Aided | 200 | | 42.0950 | |
| | Private | 200 | | | 45.0000 |
| | Sig | | 1.000 | 1.000 | 1.000 |

Based on the above table, looking at the mean scores it is clear that there is a significant difference between government, government-aided, and private school students, hence the null hypothesis is rejected and it is concluded that private school students are better than the government and government-aided school students in their basic science process skills.

**Hypothesis: 3**

"There is no significant difference in the basic science process skills of secondary school students of Ranipet district based on the difference in their father's educational qualification".

In order to test the above null hypothesis,the 'F'-value is calculated.

**Table 3: shows the significance of the differencesin basic science process skills of secondary students based on their father's educational qualification.**

| Types of Basic Science Process Skills. | Categories | Source of variance | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|---|
| Observing | Illiterate<br>School level<br>College level | Between<br>Within<br>Total | 17.659<br>1161.481<br>1179.140 | 2<br>597<br>599 | 8.829<br>1.946 | 4.538 | .011 |
| Classifying | Illiterate<br>School level<br>College level | Between<br>Within<br>Total | 23.882<br>1480.383<br>1504.265 | 2<br>597<br>599 | 11.941<br>2.480 | 4.815 | .008 |
| Measuring | Illiterate<br>School level<br>College level | Between<br>Within<br>Total | 18.932<br>1441.693<br>1460.625 | 2<br>597<br>599 | 9.466<br>2.415 | 3.920 | .020 |
| Communicating | Illiterate<br>School level<br>College level | Between<br>Within<br>Total | 15.965<br>1696.328<br>1712.293 | 2<br>597<br>599 | 7.983<br>2.841 | 2.809 | .061 |
| Inferring | Illiterate<br>School level<br>College level | Between<br>Within<br>Total | 70.220<br>1823.738<br>1893.958 | 2<br>597<br>599 | 35.110<br>3.055 | 11.493 | .000 |
| Predicting | Illiterate<br>School level | Between<br>Within | 55.216<br>2281.303 | 2<br>597 | 27.608<br>3.821 | 7.225 | .001 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | College level | Total | 2336.518 | 599 | | | |
| Overall | Illiterate<br>School level<br>College level | Between<br>Within<br>Total | 954.134<br>17399.539<br>18353.673 | 2<br>597<br>599 | 477.067<br>29.145 | 16.369 | .000 |

Based on the above table it is inferred that the 'F' value of all the types and overallbasic science process skillsis significant with P at 0.01level. This clearly indicates that there is a significant difference in the basic science process skills scores of secondary students with respect to their Father's educational qualification. Hence the null hypothesis is rejected. The 'F' value does not pinpoint exactly where the differences are in a pairwise way. Hence investigator used Scheffe post hoc test to find out where the differences occurs with respect to the father's educational qualification.The details of these are presented in the following table.

**Table 3.1:Comparison of the significance of the differences in overall basic science process skills of secondary school students based on their father's educational qualification.**

| | Qualification of Father | N | Subset for alpha = 0.05 | |
|---|---|---|---|---|
| | | | 1 | 2 |
| Scheffe | Illiterate | 13 | 39.8462 | |
| | School level | 344 | 41.1628 | 41.1628 |
| | College level | 243 | | 43.6543 |
| | Sig | | .588 | .150 |

From the above table, since the mean value is significant at 0.05 level for the secondary students with illiterate & College level educated fathers and not significant for the secondary students with illiterate & school level educated and school level & College level educated fathers. Hence the null hypothesis is partially accepted and it is concluded that there is a significant difference in the basic science process skills scores of secondary students with respect to their father's educational qualification as illiterate& college level educated father and there is no significant difference in basic science process skills scores of secondary students with respect to their father's educational qualification as illiterate& school level fathers and school level & college level educated.

**Hypothesis: 4** "There is no significant difference in the basic science process skills of secondary school students of Ranipet districtbased on the difference in their mother's educational qualification".

In order to test the above null hypothesis, the 'F'-value is calculated.

**Table 4:shows the significance of the differences in basic science process skills of secondary student based on their mother's educational qualification.**

| Types of Basic Science Process Skill. | Categories | Source of variance | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|---|
| Observing | Illiterate<br>School level<br>College level | Between<br>Within<br>Total | 19.518<br>1159.622<br>1179.140 | 2<br>597<br>599 | 9.759<br>1.942 | 5.024 | .007 |
| Classifying | Illiterate<br>School level<br>College level | Between<br>Within<br>Total | 18.752<br>1485.513<br>1504.265 | 2<br>597<br>599 | 9.376<br>2.488 | 3.768 | .024 |
| Measuring | Illiterate<br>School level<br>College level | Between<br>Within<br>Total | .957<br>1459.668<br>1460.625 | 2<br>597<br>599 | .479<br>2.445 | .196 | .822 |
| Communicating | Illiterate<br>School level<br>College level | Between<br>Within<br>Total | 9.193<br>1703.100<br>1712.293 | 2<br>597<br>599 | 4.596<br>2.853 | 1.611 | .201 |
| Inferring | Illiterate<br>School level<br>College level | Between<br>Within<br>Total | 42.819<br>1851.140<br>1893.958 | 2<br>597<br>599 | 21.409<br>3.101 | 6.905 | .001 |
| Predicting | Illiterate<br>School level<br>College level | Between<br>Within<br>Total | 49.970<br>2286.548<br>2336.518 | 2<br>597<br>599 | 24.985<br>3.830 | 6.523 | .002 |
| Overall | Illiterate<br>School level<br>College level | Between<br>Within<br>Total | 642.284<br>17711.390<br>18353.673 | 2<br>597<br>599 | 321.142<br>29.667 | 10.825 | .000 |

Based on the above table, it is inferred that the 'F' value is significant with P at 0.01 level. This clearly indicates that there is a significant difference inthe basic science process skills score of secondary students with respect to their mother's educational qualification.Hence the null hypothesis is rejected and concluded that there is a significant difference in the basic science process skillsscores of secondary students with respect to their mother's qualification.

In order to find out the significant difference between sub-samples, the Schffe test was conducted. The details of these are presented in the following table

**Table 4.1:Comparison of the significance ofthe differences in overall basic science process skillsof secondary school students based on their mother's educational qualification.**

| | Qualification of Mother | N | Subset for alpha=0.05 | |
|---|---|---|---|---|
| | | | 1 | 2 |
| Scheffe | Illiterate | 18 | 38.8889 | |

| | | | | |
|---|---|---|---|---|
| | School level | 409 | | 41.6748 |
| | College level | 173 | | 43.5896 |
| | Sig. | 1.000 | | .235 |

From the above table, it is concluded that there is a significant difference in basic science process skill scores of secondary school students with respect to their mother's educational qualification as illiterate &school level, illiterate & college level educated mothers and there is no significant difference in basic science process skills scores of secondary school students with respect to their mother's educational qualification as school level&college level educated.

**Hypothesis: 5**"There is no significant difference in the science attitudeof secondary school students of Ranipet district based on the difference in their school management type".

**Table 5:shows ANOVA for significant differences in the science attitude of secondaryschools students based on their school management type.**

| | Sum of Squares | df | Mean square | F- value | P-value | Remarks |
|---|---|---|---|---|---|---|
| Between Groups | 4426.123 | 2 | 2213.062 | 32.400 | .000 | Significant |
| Within Groups | 40777.395 | 597 | 68.304 | | | |
| Total | 45203.518 | 599 | | | | |

Based on the above table, it is inferred that the 'F' value is significant with $p<0.01$ level. This clearly indicates that there is a significant difference in the science attitude of secondary students with respect to their school management type. But one-way ANOVA cannot explain which group is highly significant and which group is not. Hence, the researcher followed Scheffe's Post Hoc Test.

The details of these are presented in the following table.

**Table 5.1:**shows the comparison of the significance of differencesin science attitude of secondary school students based on their school management type.

| | Sub sample | N | Subset for alpha =0.05 | | |
|---|---|---|---|---|---|
| Scheffe | Government | 200 | 50.9350 | | |
| | Government aided | 200 | | 53.8300 | |
| | Private | 200 | | | 57.5700 |
| | Sig | | 1.000 | 1.000 | 1.000 |

| | | | | | |
|---|---|---|---|---|---|

Based on the above table, looking at the mean scores it is clear that there is significant differences existamong government, government-aided, and private school students, hence the null hypothesis is rejected and it is concluded that private school students are better than government and government-aided school students in their science attitude.

**Hypothesis: 6** "There is no significant difference in the science attitude of secondary school students of Ranipet district based on the difference in their father's educational qualification".

**Table6:shows the significance of the differencesin the science attitude of secondary students based on their father's educational qualification.**

| | Sum of Squares | df | Mean Square | F-Value | P-Value |
|---|---|---|---|---|---|
| Between groups | 2593.497 | 2 | 1296.749 | 18.168 | .000 |
| Within groups | 42610.021 | 597 | 71.374 | | |
| Total | 45203.518 | 599 | | | |

Based on the above table it is inferred that the obtained 'F' value is significant with P value at 0.01level of significance. This clearly indicates that there is a significant difference in the science attitude of secondary students with respect to their father's educational qualification. Hence the null hypothesis is rejected. In order to find out the significant difference between sub-samples, a Scheffe test was conducted. The details of these are presented in the following table.

**Table: 6.1Comparison of the significance of differences in science attitude of secondary school students based on their father's educational qualification.**

| | Qualification of Father | N | Subset for alpha = 0.05 | |
|---|---|---|---|---|
| | | | 1 | 2 |
| Scheffe | Illiterate | 13 | 51.1538 | |
| | School level | 344 | 52.4506 | 52.4506 |
| | College level | 243 | | 56.6214 |
| | Sig | | .810 | .114 |

From the above table, the mean value is significant at 0.05 level for the secondary students with illiterate & College level educated fathers and not significant for the secondary students with illiterate & school level educated and school level& college level educated fathers. Hence the null hypothesis is partially accepted and it is concluded that there is a significant

difference in science attitude of secondary students with respect to their father's educational qualification as illiterate & college level educated fathers and there is no significant difference in scientific attitude scores of secondary students with respect to their father's educational qualification as illiterate & school level fathers and school level & college level educated.

**Hypothesis: 7** "There is no significant difference in the science attitude of secondary school students of Ranipet districtbased on the difference in their mother's educational qualification".

**Table7:shows the significance of the differencesin the mean science attitude scores of secondary students based on their mother's educational qualification.**

| | Sun of squares | df | Mean Square | F-value | p-value |
|---|---|---|---|---|---|
| Between groups | 1027.849 | 2 | 513.925 | 6.945 | .001 |
| Within groups | 44175.669 | 597 | 73.996 | | |
| Total | 45203.518 | 599 | | | |

Based on the above table it is inferred that the obtained 'F' value is significant with P value at 0.01level. This clearly indicates that there is a significant difference in the science attitude scores of secondary students with respect to their mother's educational qualification. Hence the null hypothesis is rejected. In order to find out the significant difference between sub-samples, a Scheffe test was conducted. The details of these are presented in the following table.

**Table: 7.1Comparison of the significance of differences in science attitude of secondary school students based on their mother's educational qualification.**

| | Qualification of Mother | N | Subset for alpha=0.05 | |
|---|---|---|---|---|
| | | | 1 | 2 |
| Scheffe | Illiterate | 18 | 49.8889 | |
| | School level | 409 | 53.5306 | 53.5306 |
| | College level | 173 | | 55.9249 |

From the above table, it is concluded that there is a significant difference in science attitude of secondary school students with respect to their mother's educational qualification as illiterate & college level, and school level & college level educated mothers and there is no significant difference in science attitude scores of secondary school students with respect to their mother's educational qualification as illiterate & school level educated.

## FINDINGS AND DISCUSSION

1. Correlation analysis shows a significant positive relationship exists between basic science process skills and science attitude of secondary school students. This finding is in consonance with the findings of Mirana (2019); Maranan (2017); Aktamis et al., (2016), and Zeidan (2015).
2. The testing of the hypothesis based on the data analysis indicates that secondary school students differ significantly in basic science process skills scores with respect to the type of management of school, father's educational qualification, and mother's educational qualification. Based on type of management of school this result falls in line with the findings of Muneer V. (2019); and Sheeba M.N (2012) who revealed that a significant difference among government, government-aided, and private school students in basic science process skills. Concerning the father's and the mother's educational qualification, the result of the study falls in line with the findings of Karer and Yenice (2012); Ozture et al., (2010); Dokeme and Aydin (2009). On the contrary, Kalayanasundaram R.M (2018) identified no significant differences among secondary school students with respect to their parental educational qualification.
3. The verification of the hypotheses based on the data analysis indicates that secondary school students differ significantly in science attitude test scores with respect to the type of school management, the father's educational qualification, and the mother's educational qualification. Based on the type of management of school this result falls in line with the findings of Rao and Reddy (2016); Reddy and Harinath (2014) and Revati N. & Dr. K.P Meera (2017) who revealed that a significant difference among government, government-aided and private school secondary students in science attitude. Concerning the father's and the mother's educational qualification, the result of the study falls in line with the findings of Hacieminoglu, E. (2016).who revealed that parents' educational level had a significant effect on students' attitude toward science. On the contrary, Daisy Nambikkai C. (2018) identified no significant differences in science attitude among secondary school students with respect to their parental educational qualification.

## CONCLUSION

Based on the findings, it is concluded that secondary school students possess a marked relationship with basic science process skills and science attitude. Hence any increase or decrease in science attitude is followed by a corresponding increase or decrease in basic science process skills of secondary student's vice-versa. According to the type ofschool management, private school students are better than government and government-aided school students in respect of their basic science process skills and science attitude.In numerous instances, parents with the financial means to enroll their children in private schools tend to exhibit more proactive involvement in their child's educational pursuits, resulting in a potentially beneficial effect on the academic performance of the student. Private schools, in general, tend to possess superior infrastructure, employ well-seasoned educators, maintain smaller class sizes, and prioritize personalized instruction, thereby contributing to higher levels of success and accolades.

Based on parents' educational qualification of secondary school students indicates that students with college-level educated parents have higher scores in basic science process skills and science attitude than students with illiterate parents and students with school-level educated parents.While the father and mother's academic level increases the students' science process skills and science attitude also increase. Thus, parent's educational level has a positive and statistically significant effect on their children's educational attainment.

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