

TODAY'S FOUNDATION TOMORROW'S FUTURE

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ABSTRACT

Stronger the foundation , stronger is the structure. Who doesn't want to perform well in higher education? But the process begins in primary education. Every parent wants their children to do well in studies and get educated from the best institution. But to get into the best institution, one needs good grades and the key to good grades is ones performance in exams. Most of the times the reason students don't perform well in exams is because they don't have proper basic understanding of the subject which begins at the primary level. Hence this paper focuses on finding out is there any direct correlation between a student's performance in primary level to that of higher education?

For this purpose, Mathematics was taken as the base subject because that is one subject which a student has to study right from primary education till higher education. So the researcher has tried to find out if the student has performed well in Mathematics in school, how was his/her performance in class XII. Is there any correlation between the two?

Through this data, this paper also tries to find out which board is the best for imparting primary & secondary education, keeping mathematics as the key factor.

Key words

Additional Coaching: Private coaching offered by coaching classes.

Grades: Marks obtained in the subject of Mathematics in class XII.

SSC: Secondary School Certificate (Maharashtra State Board)

ICSE: Indian Certificate of Secondary Education

CBSE: Central Board of Secondary Education

IGCSE: International General Certificate of Secondary Education

IB: International Baccalaureate

INTRODUCTION

Overview of Education System in India

"Education is the most powerful weapon which you can use to change the world."

Nelson Mandela.

Quality Concern in Education

Locating the term quality in educational discourse is now a universal concern today. “Quality is somewhat problematic: like beauty, it lies in the eyes – or rather the mind of the beholder” (Cliff. et al. (1987). Quality has been extensively defined by Dewney et al. (1994) as, “meeting, exceeding and delighting customer’s needs and expectations with the recognition that these needs and desires will change over time.” Its practice in the sphere of education demands that the education available to all children in different regions and sections of society has a comparable quality. J. P. Naik describes equality, quality and quantity as the elusive triangle of Indian education. Dealing with this metaphorical triangle requires a deeper theoretical understanding of quality in education than has been what available in schools today. United Nations educational, Scientific and Cultural Organization’s (UNESCO) recently published global monitoring report which discusses systematic standards as the appropriate context of the quality debate (see Global Monitoring Report 2006 – Literacy for Life, UNESCO, 2006). From this point of view, the child’s performance needs to be treated as an indicator of systematic quality. With reference to education, quality is a relative term and hard to define and even more difficult to measure.

School Education System under Different Boards

In the minds of many people, school boards have considerable influence over educational decisions and provide a key social and political connection to the schooling process. In India, though there is the provision of central authority, but primary education is a state system and power officially resides with the states. A school board functions locally, within the confines of the state’s delegation of power and the geographical boundaries of the district, but is a legal agency of the state and thus derives its power from the state’s constitution, laws, and judicial decisions. By state legislative enactment, school boards delegate power and authority to develop policies, rules, and regulations to control the operation of the schools, including system organization, school site location, school finance, equipment purchase, staffing, attendance, curriculum, co-curricular activities, and other functions essential to the day-to-day operation of schools within the district’s boundaries.

School Boards in India

There are 33 different educational boards in the country, including the Central Board of Secondary Education (CBSE), Council for the Indian School Certificate Examinations (CISCE) which is the umbrella for ICSE and ISC and the various State Educational Boards.

However, our major focus in this study is on the Central Board of Secondary Education (CBSE), Indian Council of Secondary Education (ICSE), International Baccalaureate Organizations (IBOs), The International General Certificate of Secondary Education (IGCSE) and Secondary School Certificate (SSC).

Project objectives and Research Questions:

Objectives

To study the impact of primary and secondary education on the performance of the students in the subject of mathematics in higher education

To guide parents in selecting the right board of schooling for their child.

Research Questions:

Does primary and secondary education have any impact on the performance of the students in higher education?

Which board has the best syllabus in the subject of Mathematics?

Project Scope and Limitations

Project Scope

The main focus of the project is to enable the parents to choose the best suitable board for their child keeping mathematics as core deciding factor. Hence the scope of the project includes preparation of questionnaire, data collection and analysis of data collected, review of existing literature, findings and recommendations. The field work involves visiting a few students' houses and interviewing their parents.

Limitations of the study

Sample Distribution: Though the sample size was large, I wasn't able to obtain sufficient students from IB and IGCSE board. As a result, the study focuses more on three boards viz. SSC, CBSE and ICSE.

Access: Due to unavailability of sufficient funds, I had to use Microsoft Excel for statistical analysis which is not as comprehensive as SPSS.

Time Factor: Due to paucity of time, I could not visit each respondent's house and take the interviews.

Project Benefits

Relevance to Society: This is a pioneering study in the field. It will analyze the performance of those children in higher education i.e. Class XII to judge the impact of primary and secondary education on the performance in Mathematics in Class XII. This research project will be extremely helpful to all parents who are right now confused about the selection of the board of schooling for their children.

Relevance to Educational Boards: This study will determine the syllabus of which board is conducive for better performance in the subject of Mathematics in higher education. Hence it will act as a guideline for other boards to mould their syllabus accordingly.

RESEARCH METHODOLOGY

Study Design

This research is primarily about students who had opted for Mathematics as a subject in class XII. This research is to try and find out whether the students performance in Mathematics in Class XII is influenced by the primary schooling board. Hence I have used the method of primary data collection via questionnaires to obtain information about the marks. The data so collected was then analyzed using various statistical techniques and conclusions were drawn from the results.

Study Setting

Students from H. R. College of Commerce and Economics who had opted for Mathematics in class XII and who have passed class XII were included in the primary study. The reason for selecting students only from one institution was to eliminate external influencing factors like teachers quality which could impact their performance in class XII. Since they are from the same college, it would mean they have studied Mathematics in class XII from the same teachers, which in turn would mean that that is a constant factor.

Sampling

The sample was selected through a method of Systematic Sampling. 30 questionnaires were distributed to each of the 8 divisions of F.Y.B.Com. Out of 240 forms so distributed, 193 students submitted the forms, out of which 26 forms were rejected because of incomplete information. Hence, the final sample size for the study was 157 students.

Also, since the sample was chosen from a single college, almost all had the same socio-economic status and hence had the same exposure to information.

Variables

For the purpose of statistical analysis, following variables were taken into consideration. No control variables were taken in the study.

Dependent Variable:

Marks: This is the marks obtained in the subject at the yearend examination, a quantitative variable.

Independent Variables:

Schooling Board: This is a qualitative variable, to know if the student has studied from SSC, CBSE, ICSE, IB or IGCSE board. It is a dummy variable. Whichever board the student has studied in, value of variable is 1, for all the other boards, value of the variable is 0.

Study Methods

Questionnaire: A short, simple and objective type of questionnaire was prepared and distributed among the classes of F.Y.B.Com of H. R. College of Commerce and Economics. It contained various questions in order to provide the necessary data to carry out this survey.

Data Collection

Data was collected from a sample of 157 students which included 59 boys and 98 girls through the questionnaires.

RESULTS

Representation of data collected

Once the data is collected, it is easier to draw patterns in the data via representation through diagrams. Based on my data, I have represented them through pie diagrams and bar diagrams wherever applicable. Further conclusions are drawn once the data is analyzed.

Data was collected from 157 students of first year B.Com which included 59 boys and 98 girls. The following diagram represents this distribution:

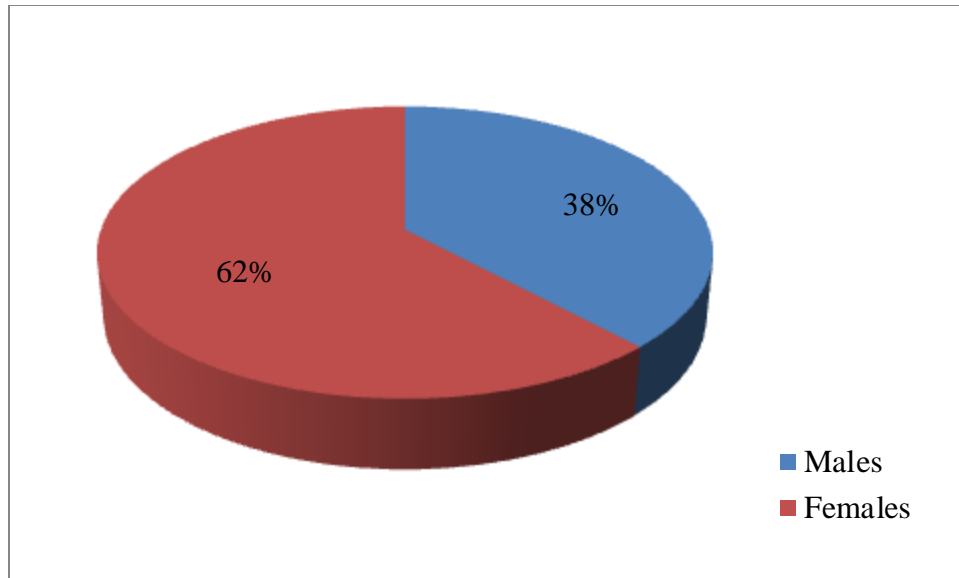


Figure 1: Distribution of boys and girls in the data collected

Four boards emerged from the data collected. These were

- SSC
- ICSE
- CBSE
- IGCSE

The questionnaire also included the IB board. However, there were no students from that board in the data collected. Hence they are not represented in the results.

It is seen that maximum students are from SSC board: 103 students, followed by ICSE: 47 students. CBSE and IGCSE had 5 and 2 respondents respectively.

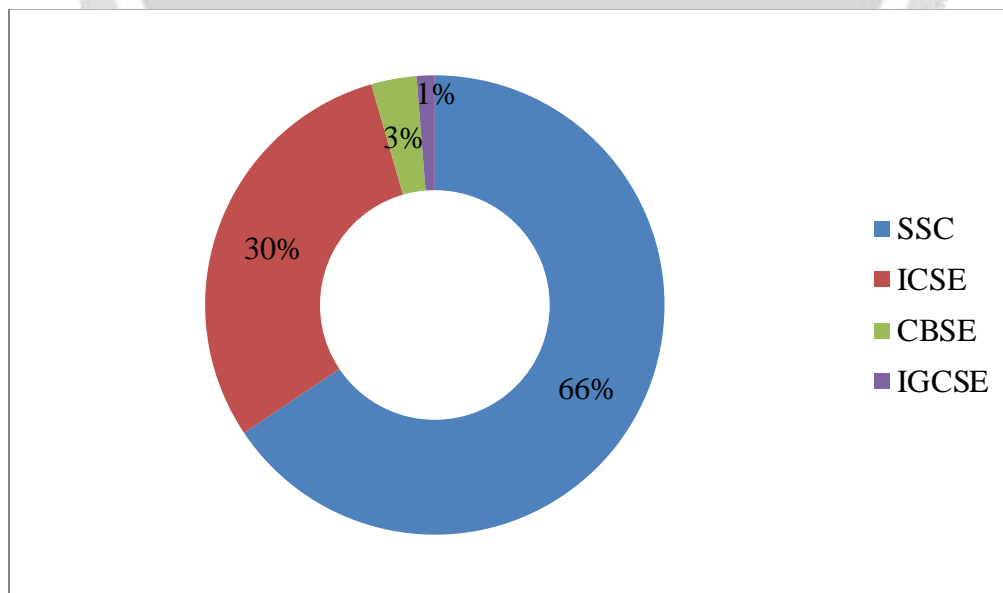


Figure 2: Distribution of students in different boards

In order to determine the correlation between students who have scored high marks in Class X and the marks obtained by them in Mathematics in Class XII, the students were asked their percentages in the class X examination. It was seen that maximum students fall in the range 90% - 95%.

The percentage of students who scored higher than 95% and lower than 90% were 11% and 20% respectively. This is represented in figure 3.

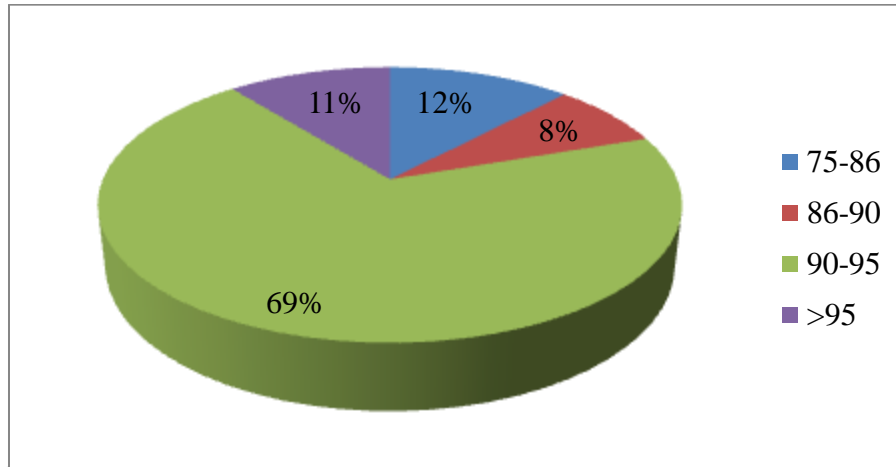


Figure 3: Distribution of marks scored in Class X examination

The following figure gives the distribution of marks of students in Mathematics in Class XII. It is seen that maximum students have scored more than 90% marks.

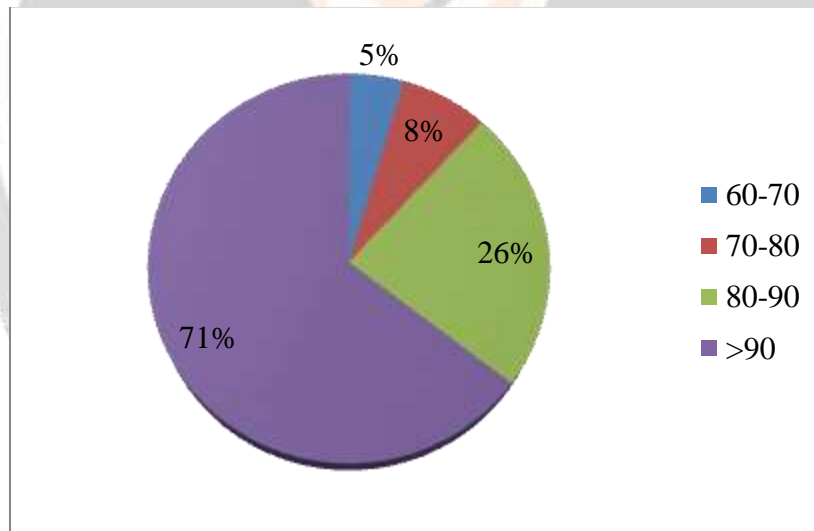


Figure 4: Distribution of marks scored by students in Mathematics in Class XII

As the objective of the paper is to determine whether boards impact the marks obtained in Mathematics in Class XII, averages marks were calculated for the different boards. Figure 5 shows the average marks obtained in the same. It is seen that average of CBSE is the highest, followed by ICSE & SSC.

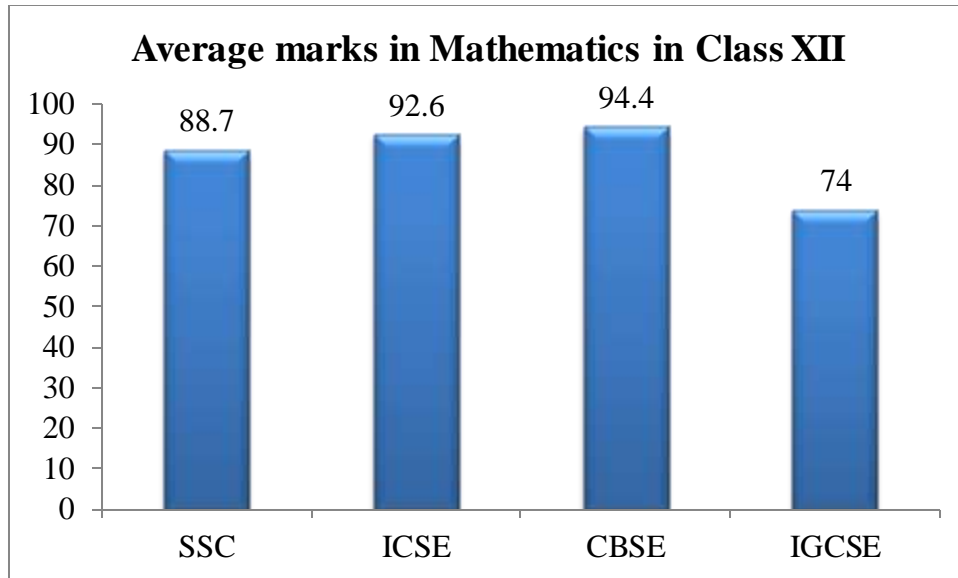


Figure 5: Average marks in Mathematics in class XII

Analysis of Data collected

Hypothesis

H_0 : Marks scored in Mathematics in Class XII is independent of the overall marks scored in Class X.

H_1 : Greater the percentage obtained in Class X, higher are the marks obtained in Mathematics in Class XII

To establish my hypothesis, percentages in Class X and percentage of marks in Mathematics in Class XII were plotted on a scatter diagram. It is seen that there is a positive slope as shown in Figure 6.

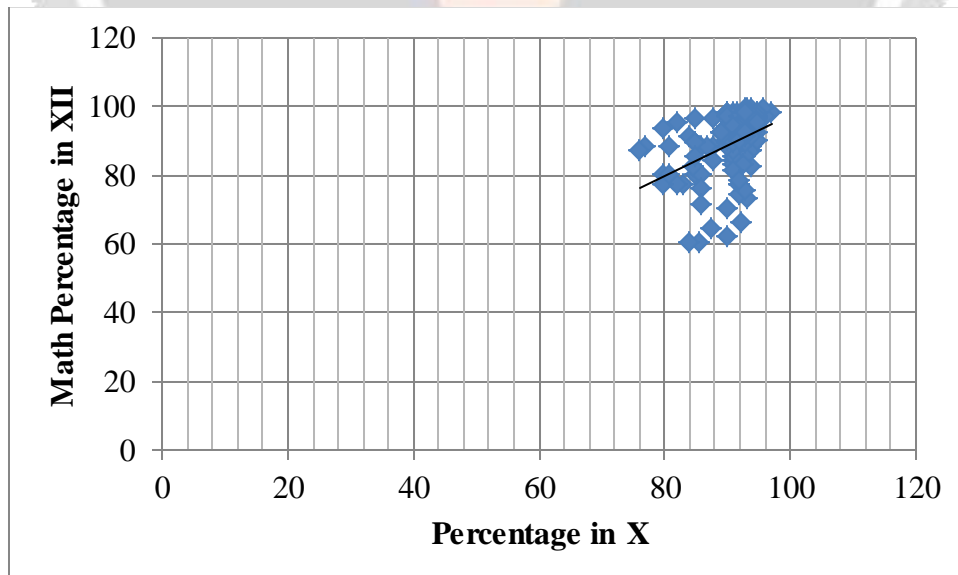


Figure 6: Correlation between % in X and XII % in Mathematics

Since the data is quantitative, I used Karl Pearson’s formula to calculate the correlation between them. The formula is given as:

$$r = \frac{\sum(X-\bar{X})(Y-\bar{Y})}{\sqrt{\sum(X-\bar{X})^2} \sqrt{\sum(Y-\bar{Y})^2}}$$

Where, \bar{X} - mean of X variable
 \bar{Y} - mean of Y variable

Here

variable X : the percentage obtained in Class X

variable Y : the percentage of marks obtained in mathematics in Class XII.

Karl Pearson's correlation coefficient for the data collected was found to be 0.1444. It shows that there is a positive correlation, but it's a very low degree of correlation.

For further study, marks of Class X in mathematics could also be collected and probably it will show a high degree of positive correlation.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions:

As the objective of the project was to determine whether boards impact the marks obtained in Mathematics in Class XII, averages marks were calculated for the different boards. It was seen that average of CBSE was the highest at 94.4%, followed by ICSE at 92.2%, SSC at 88.7% and IGCSE at 74%. But as the frequencies for the different boards were different, to further analyze this, an ANOVA test was applied. It was concluded that education imparted by the CBSE board results in better performance of the students in the subject of Mathematics in Class XII, very closely followed by ICSE board.

It can also be concluded that there is some correlation between the students percentage in class X and their marks in Mathematics in class XII. Majority of the students would score well in mathematics in class XII if they had scored well in class X.

Recommendations:

Based on my study, I would like to recommend the following:

The Central government and the Education Ministry should frame a common syllabus for subjects like Mathematics, Science & Social Science by taking the best of all the boards. Some content like language can be localized. The benefits of this will be far reaching. It will remove the confusion amongst parents regarding the board of schooling to be selected; all students will have the same knowledge base, going for higher education. Also, children of parents, having transferable jobs will benefit because they will be able to migrate to other boards very easily.

Future Scope:

Further research can be carried out regarding other subjects. One can find out which board syllabus is the best for which subject. This will help in framing of a common syllabus.

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