An analysis of dropout students in education system of Kerala

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Abstract— at a time when Kerala achieved hundred percentage primary education status, the state Education Department has reported a sharp increase in the dropout rates of Dalit students in the state. Educational experts criticize that the lack of coordination and poor realization of schemes by the government were the reasons for the rising number of dropouts from schools. The highest dropout rate was recorded in the border districts of Wayanad, Idukki and Kollam. The overall aim of this paper is to provide the scenario of drop outs students of scheduled cast (boys and girls). Also, we interpret the analysis of variance among the drop out students in different classes.

Keywords— drop out, education system, correlation, Anova

1. INTRODUCTION

Education is an important asset in everybody’s life and only few gets to own it. Education literally means building opinions and views about life from our perspective with a positive attitude towards everything. It plays a key role in transforming lives of many. Education is also a tool of transmission of culture, accumulated knowledge and experience of a society. In our developing nation, the great divide seems to be between the rich and the poor. The literacy rate of tribal community and their development in education system cannot be justified. The social, economic and educational development of the tribals is entirely different. As of now if we take a census on the tribal literacy rate, it would have comparatively gone higher than the previous years. Education is the most effective instrument for ensuring quality of opportunity. Keeping in view of this assumption, the government has been making several efforts towards their education by extending special educational institution as per the provisions of the constitution of India. Therefore kids who doesn’t know any purpose of going to school, except obligation. This would make them exposed to local surroundings which in turn force them to move out in search of another life and finally end up reaching nowhere. Our old education system contains a pathetic condition when compared with our current education system. The survey of the drop out details for scheduled tribe and scheduled caste students for the year of 2003-04 is entirely different in the year 2011-12. In 2003, huge number of students dropped out their education. But in 2015, less number of students dropped out their education as compared to old years.

2. SOME COMMON REASONS OF DROP OUT HIGH SCHOOL STUDENTS IN KERALA

1. Family and Socio-Economic needs: A research reveals that students belonging to low income groups are more likely to drop out school. They may have to work to support their family. Some children may need to stay back at home to take care of their siblings while the parents go out to work. Divorce or separation of parents also affects the education of children adversely.

2. Bad Influence: Bad influence of children is the most common reason for kids dropping out of school. Early or unlimited exposure to alcohol, drugs child marriage etc leads to this.
3. Poor Health: The health of a child greatly affects his learning ability and performance at school. Illnesses that occur during childhood and continue lifelong may curb child’s ability to complete school. These are due to lack of nutritious food.

4. Retention: Retention has a negative impact on the self-esteem of children. They feel bad being older than their classmates and tend to drop out of schools.

5. Transition: Studies indicate that a transition from the cohesive environment of middle school to the anonymity of high school may take a toll on the academic interest of students. The relationship with the teachers is not as strong as it was in the middle school.

6. Academic Difficulty: Inability to cope with the academic pressure is another reason for kids to dropout from school. Studies prove that kids who do not read proficiently by fourth grade are four times more likely to drop out school.

3. RESEARCH OBJECTIVES

1. Recognize whether any relation between dropout students of boys and girls (Scheduled Cast) in high school classes.
2. Use the regression analysis to interpret the relation based on the above data with p-value.
3. Check whether if there is any significance difference between average dropout rates of three different group of students.

4. METHODOLOGY

A. Using Correlation and Regression

The word correlation means degree of relationship between the variables. That is if there any cause and effect relationship between the two variables in the case of bivariate population. The effect and cause can be studied through simple linear regression. Karl Pearson’s correlation coefficient is known as product moment correlation coefficient. The value of the correlation coefficient lies between -1 and +1. Positive value of the correlation coefficient indicate the positive correlation, where as negative value indicates negative correlation. That is the changes of two variable takes place in the same direction (positive correlation) and changes taking in the opposite direction (negative correlation). A zero value indicates there is no association between the variables. When correlation coefficient is +1 there exists perfect positive correlation and -1 indicates perfect negative correlation.

B. Analysis of variance

Analysis of variance is a technique used to test equality of means, when two or more populations are considered. This technique introduced by R.A Fisher. If the null hypothesis that three population means ($\mu_1$, $\mu_2$, $\mu_3$) are equal is true then both, the variation among the sample means ($\bar{X}_1$, $\bar{X}_2$, $\bar{X}_3$) and the variation within these groups use chance errors of the sampling process.

Under the null hypothesis that the population means are equal, between sample variations and within sample variation would be accepted not to differ significantly from one another after adjustment for degrees of freedom, since they both reflect the same type of chance sampling errors.

5. STATISTICAL INTERPRETATION OF DATA

A. Sample survey and its interpretation

Here we collect the secondary data [4] of dropout students of scheduled caste (boys and girls) from education department during the academic year 2003-2004 to 2011-2012
TABLE 1: YEAR WISE DROPOUT DATA

| Year      | Boys | Girls |
|-----------|------|-------|
| 2003-2004 | 2416 | 1412  |
| 2004-2005 | 2060 | 1263  |
| 2005-2006 | 1560 | 920   |
| 2006-2007 | 1874 | 1054  |
| 2007-2008 | 1747 | 983   |
| 2009-2010 | 1443 | 638   |
| 2010-2011 | 996  | 569   |
| 2011-2012 | 957  | 433   |

TABLE 2: CORRELATION ANALYSIS

| Regression Statistics |         |
|-----------------------|---------|
| Multiple R            | 0.979233|
| R Square              | 0.958897|
| Adjusted R Square     | 0.953026|
| Standard Error        | 107.9979|
| Observations          | 9       |

TABLE 3: F RATIO TABLE

|                | Regression | Residual | Total   |
|----------------|------------|----------|---------|
| Degrees of freedom | 1          | 7        | 8       |
| Sum of squares    | 1904724    | 81644.9  | 1986369 |
| Mean squares      | 1904724    | 11663.555|         |
| F                | 163.3      |          |         |
| Significance F    | 4.16426E-06|          |         |

Here the correlation coefficient is 0.979233. The two variables are highly correlated. The dropout rate of boys and girls in scheduled caste is highly correlated and the scatter plot is given below.

Here the P-value is 4.164E-06 and which is very small. The level of significance is 0.5%.
Fig. 1: scatter diagram

**TABLE 4: INTERPRETATION TABLE WITH P-VALUE**

|                | Intercept       | Girls            |
|----------------|-----------------|------------------|
| **Coefficients** | 317.6687188     | 1.442772951      |
| **Standard Error** | 104.9074387    | 0.112900909      |
| **t Stat**      | 104.9074387     | 12.77910835      |
| **P-value**     | 0.0191663       | 4.164E-06        |
| **Lower 95%**   | 69.60204512     | 1.175804723      |
| **Upper 95%**   | 565.7354        | 1.709741         |

**B. Setup an analysis of variance table relating to the drop out students of different category**

$H_0$: If there is any significant difference among the dropout rate of lower primary students (P), upper primary students (M), and secondary students (H).

From table VII P-value is 0.181323, at 5% level of significance F-value is 2.076587 and F-critical is 4.25649729. The P-value is less than or equal to the significance level, we reject the null hypothesis.

Hence we conclude that there is no difference in the dropout rate among the three categories of students.

**TABLE 5: DATA FOR THREE CATEGORIES**

|     | P   | M   | H   |
|-----|-----|-----|-----|
| 2007-08 | 1126 | 1101 | 986 |
| 2008-09 | 773  | 806  | 1047|
| 2009-10 | 540  | 572  | 721 |
| 2010-11 | 627  | 639  | 720 |
| 2011-12 | 805  | 876  | 1237|


### TABLE 6: SUMMARY OUTPUT

| Groups | Count | Sum  | Average | Variance  |
|--------|-------|------|---------|-----------|
| 1126   | 4     | 2745 | 686.25  | 15508.92  |
| 1101   | 4     | 2893 | 723.25  | 20051.58  |
| 986    | 4     | 3725 | 931.25  | 65237.58  |

### TABLE 7: ANOVA

| Source of Variation | SS   | df  | MS   | F      | P-value | F crit    |
|---------------------|------|-----|------|--------|---------|-----------|
| Between Groups      | 139544 | 2   | 69772 | 2.076587 | 0.181323 | 4.256494729 |
| Within Groups       | 302394.3 | 9   | 33599.36 |        |         |           |
| Total               | 441938.3 | 11  |       |        |         |           |

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