

Analysis of Evaluation System (A case study of Board of School Education, Haryana)

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Introduction:

The marking of the answer books of examinees are the great challenge to the authorities, as the stakeholders should be satisfied up to the maximum level. If the marking is not up to the mark it will not only creates hardships amongst the students, parents and class teachers but it will also give burdensome to the parents in the form revaluation charges (fees) as well as time consuming process and even delays the admission in the institute of repute.

The purpose of the present study is to find out, whether there is any significant difference between the original marking awards and the marking awards after the revaluation. The present study is based on the 10th class and 12th class of Board of School Education Haryana.

The researcher has taken the sample of 530 students of 10th class and 582 of 12th class, as they were not satisfied with the original marking and applied for revaluation of their answer books.

To analyze the data the researcher has applied the tools of statistics, such as, the test of difference between means, analysis of variance(ANOVA), coefficient of variance etc. and test with t-statistics calculated values and compares them with the tabulated values.

Objectives of the Study

1. To analyze the marking pattern of different examiners on same answer book.
2. To find out whether there is any significant difference between the two or more examiners on the answer book.

Hypothesis

The study will test the hypothesis that there is no significant difference between the marking patterns of all examiners.

For the purpose of simplification of the variables, the researcher has used-

X – The original marking examiner

Y – The 1st marking examiner

Z – The 2nd marking examiner

Results and Discussion

The results are shown in tables given below. Table 1-5 corresponds to analysis of data of class 10th and tables 6-10 of class 12th analysis.

Table 1: Mean and Standard Deviation

Type	Mean	N	Std. Deviation
Original Marks	25.83	530	19.733
1 st marking	30.49	530	20.894
2 nd marking	5.25	530	15.150
Total	20.52	1590	21.720

Table 2: ANOVA Results

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	191291.447	2	95645.723	271.851	.000
Within Groups	558357.283	1587	351.832		
Total	749648.730	1589			

Table 3: Independent samples test (original marks x 1st marking)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
marks	Equal variances assumed	2.817	.094	-3.733	1058	.000	-4.660	1.248	-7.110	-2.211
	Equal variances not assumed			-3.733	1054.558	.000	-4.660	1.248	-7.110	-2.211

Table 4: Independent samples test (1st marking x 2nd marking)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
marks	Equal variances assumed	121.779	.000	19.049	1058	.000	20.585	1.081	18.464	22.705
	Equal variances not assumed			19.049	991.824	.000	20.585	1.081	18.464	22.705

Table 5: Independent samples test (original marking x 2nd marking)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
marks	Equal variances assumed	121.779	.000	19.049	1058	.000	20.585	1.081	18.464	22.705
	Equal variances not assumed			19.049	991.824	.000	20.585	1.081	18.464	22.705

Table 6: Mean and Standard Deviation

Type	Mean	N	Std. Deviation
original Marking	34.47	582	18.273
1 st marking	38.72	582	18.887
2 nd marking	42.50	60	14.649
Total	38.56	1224	23.017

Table 7: ANOVA Results

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	398510.345	2	199255.172	660.369	.000
Within Groups	525921.069	1743	301.733		
Total	924431.414	1745			

Table 8: Independent samples test (original marks x 1st marking)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
marks	Equal variances assumed	.837	.360	-3.904	1162	.000	-4.253	1.089	-6.390	-2.115

Equal variances not assumed			-3.904	1160.732	.000	-4.253	1.089	-6.390	-2.115
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Table 9: Independent samples test (1st marking x 2nd marking)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
marks	Equal variances assumed	151.721	.000	34.279	1162	.000	33.962	.991	32.018	35.906
	Equal variances not assumed			34.279	1094.275	.000	33.962	.991	32.018	35.906

Table 10: Independent samples test (original marking x 2nd marking)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
marks	Equal variances assumed	136.719	.000	30.604	1162	.000	29.710	.971	27.805	31.614
	Equal variances not assumed			30.604	1109.508	.000	29.710	.971	27.805	31.614

The findings of the study have been shown in the tables given above and results as well as description are mentioned below.

To examine the objectives of the study, the researcher has taken the data of two/three examiners, who marked the same answer book, we wish to test whether; these examiners have given the same marks.

The results shown above reveal that $N_1 = N_2 = 530$ answer books have been marked by the original and the revaluation examinees.

Analysis of 10th Class

The Test of Difference between Means

As shown in table – 1, the mean value ($\bar{x}$) of original marking and 1st marking (revaluation) is 25.83 and 30.49 and standard deviation (σ) is 19.733 and 20.894 respectively. Now the researcher has to establish whether the difference between the means is significant or whether it may be attributed by chance.

The calculated 't' value |3.733| is greater than the table value 't' 1.64 in a two tailed test. We reject the null hypothesis (H_0) and conclude that there is significant difference between the two mean levels of marking.

Analysis of Variance (ANOVA)

The ANOVA test has been applied on the sample data of marking pattern by calculating sum of squares (between groups and within groups) and mean square value which have been shown in table – II.

The observed F^* variance ratio has been compared with the theoretical value of F at 5% level of significance.

Here the study reveals that $F^* = 271.85$ and F theoretical value is 3.00, ($F^* > F$), therefore we reject the null hypothesis (H_0) and conclude that the difference between the marking of two examiners is significant.

Coefficient of Variance (C.V)

Coefficient of Variance (C.V) is an important statistical tool for measuring variability, consistency, homogeneity and stability between two or more series. Hence the researcher has used C.V for analyzing the variations amongst the original examiners making and 1st marking examiner in this study.

$$C.V. = \frac{\sigma}{\bar{X}} * 100$$

X- C.V. of original marking

Y- C.V. of 1st marking

$$C.V._x = \frac{19.733}{25.83} * 100 = 76.40\%$$

$$C.V._y = \frac{20.894}{30.49} * 100 = 68.53\%$$

The X.V. results shows that C.V of original marking (76.40%) is greater than 1st marking (68.53%), which reveals that the coefficient of variation is less in revaluation marking, it is more uniform and homogenous, then the original marking.

Analysis of 12th Class

Test of Difference between Means

We have the examiners of same answer book, we wish to test whether these three (different) examiners give the same marks, and we want to compare the given marks by all examiners.

We have taken the data of 12th class students who have applied for reevaluation. The sample size is 582 students. $N_1 = N_2 = 582$ & $N_3 = 60$ with means 34.47, 38.72 and 42.50 of original marking, 1st marking and 2nd marking. The researcher's problem is to establish whether the difference between these means is significant or whether it may be attributed to chance. Calculated 't' value 4.253 is greater than tabulated 't' value 1.64. We reject the null hypothesis (H_0) and conclude that there is significant difference between the two mean levels of marking.

Analysis of Variance (ANOVA)

The ANOVA test is applied on the sample data of marking pattern by calculating the sum of squares (between groups and within groups) and mean square which is shown in tables.

The observed F^* variance ratio is compared with theoretical value of F at 5% level of significance. Here $F^* = 660.39$ and $F = 3.00$ (i.e. $F^* > F$). We reject the null hypothesis (H_0) i.e. we accept that the difference between the means is significant.

Coefficient of Variance (C.V)

The coefficient Variance (C.V.) can also be used for the purpose to compare the variations in the original marking and marking in revaluation (i.e. 1st marking)

$$C.V. = \frac{\sigma}{\bar{X}} * 100$$

$$C.V. \text{ of original marking} = \frac{18.273}{34.47} * 100 = 53.01 \%$$

$$C.V. \text{ after revaluation} = \frac{18.887}{38.72} * 100 = 48.78 \%$$

This tool is used to measure the uniformity, consistency and homogeneity between the two series of data i.e. original marking and marking after revaluation.

The C.V. of original marking (53.01%) is greater than the revaluation marking (48.78). The C.V. is less in revaluation marking hence it is more uniform and homogenous, then the original marking.

Conclusion

The results as discussed above conclude that in both the classes, the students who were not satisfied with their marks obtained in the original marking system have applied for revaluation. The study reveals that there is a significant difference between these two marking examiners of the same answer book.

References

Bachman, L. F. (1990). Fundamental considerations in language testing. Oxford University Press

Mahmoodi-Shahrehabaki, M. (2014). Using Self-assessment Checklists to Make English Language Learners Self-directed. International Journal for Education, 3(6), 9-20.

Mahmoodi-Shahrehabaki, M. (2015). Relationships between Language Teachers' Time-management Skills, Creativity, and Burnout: A Mediation Analysis. Alberta Journal of Educational Research, 61(1), 20-39

Palomba, C. A., & Banta, T. W. (1999). Assessment essentials. San-Francisco, California, Jossey-Bass Inc., Publishers.

Sattler, J. M. (1988). Assessment of children. Jerome M. Sattler.