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An Analytical Framework on Perceived Satisfaction with Present Status of Rural School Education in an Indian State

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ABSTRACT

Present study aims to identify the most dominating factors in rural school education in an Indian state, West Bengal, to investigate the impact of those factors on overall satisfaction level in rural school education system in West Bengal. In this regard a descriptive research is performed to identify the factors of importance to rural people for pursuing education. Reliability Test has been done checking internal consistency of data, Principal Component Analysis is used to identify major factors, Confirmatory Factor Analysis is applied to frame a model hypothesised on the factors to check the goodness of fit of the model, ANOVA and Two Way MANOVA along with Regression Analysis is executed to investigate their influence level and to frame an equation on the basis of the same. Then an overall framework has been established with the help of the findings of the above analysis for Governmental policy implementation.

Keywords: *Rural School Education, Overall Satisfaction*, *Confirmatory Factor Analysis*, *ANOVA*, *Two Way MANOVA*

INTRODUCTION

Education in the Rural Bharat is the most important to exterminate poverty and illiteracy and there also exists a variety of other socio, economic, cultural as well as political reasons. After independence, Indian Government gradually recognized that education is the most convincing means to initiate social reforms for overall development of the country. Both the rural and urban education plays a pivotal role in growth of the Indian economy. Though education in the urban areas has stepped forward rapidly during the last few decades, Rural Bharat is still lagging behind as there, till date, education is not given sufficient priority. There are several reasons as to enforce education in Rural Bharat efficiently, even in the most remote regions. First is political reason -due to the Panchayati Raj in rural areas, it is important for rural people to have adequate education so that they can better understand the principles of Panchayati system and may able to recognise relevant programs for their overall improvement and policies of the ruling bodies and may enable themselves to elect worthy representatives. Economic Causes are Indian villages act as major segments of the national economy with respect to production of agrarian, industrial and other goods, for national and international markets. As such, it's obvious to have a perfect understanding of international price movements, the complex structure of global economy for which the Indian rural people need to be educated. There is Cultural Reasons as well-Today's culture is accelerating fast, with the introduction and availability of contemporary gadgets. To handle and make use of the benefits of these advanced gadgets, education is the basic requirement. Social Reasons of education depict that right to education is a major aspect in Indian constitutions amongst other rights; to understand the significance and functioning of these rights, modern education is the necessary and sufficient condition.

Till date in West Bengal and many other states the level of rural education is not so encouraging. In this regard, present study aims to investigate the quality of school education in the rural areas of West Bengal. By this study the perception of the rural people towards

education and the factors that led them to join and continue with the education can be analysed. The tendency of a common rural individual's perspective towards education is reflected by this study. A support from government can not only lead to development of growth of education in rural India but also our country's overall development.

LITERATURE REVIEW

Michael L. Arnold, John H. Newman, Barbara B. Gaddy, and Ceri B. Dean(2005) conducted a study on secondary data on rural education research of 12 years in U.S.A. in order to identify the quality of rural research. Of the total 106 papers only 10 papers were considered as high quality research papers and 48 were considered as substandard papers.

AbrishamAref and KhadijehAref(2012) performed a research on the education system prevailing in the rural areas of Iran. The major barriers found out to be lack of understanding of education system at the national level, the very bad shape of rural schools and scarcity of infrastructural facilities. The findings suggested that main hindrance may be eliminated if government can implement better education laws. Niraj Kumar Roy (2012) studied identified that there are not sufficient number of rural schools available in India but government is taking steps so that enough schools are available for providing rural education. The study demonstrated that the number of rural schools is increasing in India. Sunny Rawat , AshishChettri (2013) conducted a research in the rural areas of Darjeeling regarding the quality of education and observed that it is growing gradually . The government's role in providing free education to the students up to 14 years is magnificent. Teachers are motivating the people to send their children to schools but still there are a lot of problems which needed to be improvised to increase the quality of education and life. Nitu Konwar & Subhadeep Chakraborty (2013) researched on the gross enrolment ratio in rural areas for higher education and found that the GER is very poor in rural areas especially in case of females. The source of problems has been identified and steps are suggested to improvise the ratio. J.G. Sreekanthachari and G. Nagaraja (2013) studied to identify the role of education in our country especially in rural sector and tried to discuss the present scenario of education in rural areas , the difference between rural and urban education , the problems faced in rural area and steps taken by the government to improve their condition. A comparative study is also done to differentiate in the condition between the facilities that the urban students are getting as compared to rural.

OBJECTIVES

1. To identify the most dominating factors in rural school education in West Bengal
2. To investigate the impact of those factors on overall satisfaction level in rural school education system in West Bengal
3. To develop a framework on overall satisfaction level in rural school education system on the basis of those significant factors by establishing their association which may help in policy implementation.

METHODOLOGY

A questionnaire is designed to gather data from the 359 rural people from all over the state to identify the factors that are of prime concern to them for sending their children to schools. A descriptive research is done to identify the factors of importance to rural people for pursuing education.

RELIABILITY TEST has been done checking internal consistency of data, PRINCIPAL COMPONENT ANALYSIS is used to identify major factors, CONFIRMATORY FACTOR ANALYSIS is applied to frame a model hypothesised on the factors to check the goodness of fit of the model, ANOVA is used to observe the effect of school and environmental factors on overall satisfaction, TWO WAY MANOVA is applied to check the relation between two major factors, REGRESSION ANALYSIS is performed on the major factors identified to investigate their influence level and to frame an equation on the basis of the same.
Then an overall model has been established with the help of the findings of the above analysis.

DATA ANALYSIS:

➢ RELIABILITY ANALYSIS

Table 1: Reliability Statistics

Cronbach's Alpha	N of Items
.748	15

The Cronbach's Alpha value of .748 reflects a good internal consistency to proceed with the analysis.

INTERPRETAION OF PRINCIPLE COMPONENT ANALYSIS:

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.883
Bartlett's Test of Sphericity	Approx. Chi-Square	2478.459
	df	91
	Sig.	.000

Here, from the perspective of Barlett's test of spericity, factor analysis is significant and feasible as p value is .000 i.e. less than .05. As Bartlett's test is significant, a more discriminating index of factor analyzability is the KMO. For this data set, KMO value is .883 (very close to 1.0), which is very high, so the KMO also supports factor analysis.

FACTOR IDENTIFICATION:

Determination based on eigenvalues:

In this approach, only those factors with eigenvalues greater than 1 are considered. Other factors are not included in this model. Here, from the SCREE PLOT and the table TOTAL VARIANCE EXPLAINED, 2 factors can be identified whose eigenvalues are more than 1.

Determination based on percentage of variance:

The number of factors extracted can also be determined in a way so that the cumulative percentage of variance extracted by the factors reaches a satisfactory level. Here according to the analysis, the cumulative percentage of variance extracted by the 2 factors is 63.256 %(from the table TOTAL VARIANCE EXPLAINED), which is quite satisfactory.

FACTOR INTERPRETATION:

Factor interpretation is facilitated by identifying the variables that have large loading on the same factor. That factor can be interpreted in terms of variables that load high on it.

In the ROTATED COMPONENT MATRIX,

Factor 1 has high coefficients .818 for variables Books, .782 for Interaction with Teachers and .711 for Syllabus which are renamed as school factor.

Factor 2 has high coefficients .**854** for variables Discipline, .735 for Uniform and .698 for Extracurricular Activities which are renamed as Environmental factors

As factor 1 is treated as principal component, so, in this case, school factor is the most significant factor followed by the Environmental factor with respect Rural School Education**.**

CONFIRMATORY FACTOR ANALYSIS

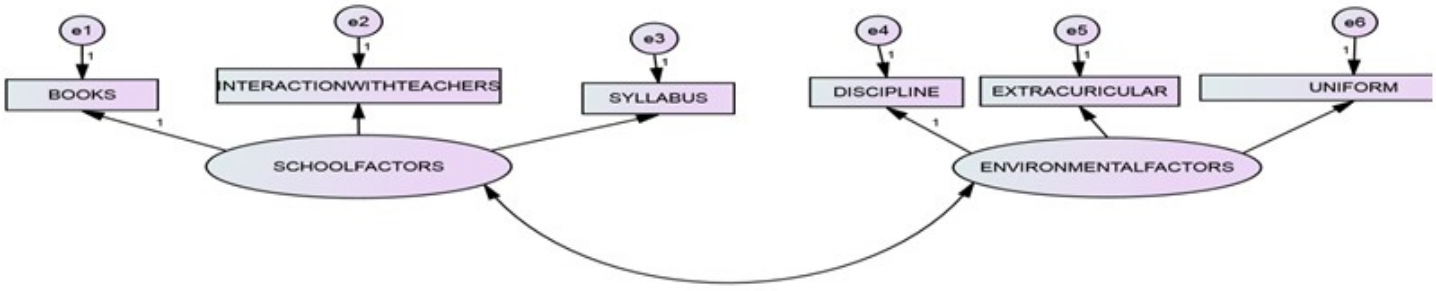

Figure 1: CFA Result (Default model)

Minimum was achieved ,
Chi-square = 66.741
Degrees of freedom = 8
Probability level = .000

Table 3: Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	13	66.741	8	.000	4.343
Saturated model	21	.000	0		
Independence model	6	1339.259	15	.000	89.284

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.040	.959	.892	.365
Saturated model	.000	1.000		
Independence model	.400	.467	.254	.334

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.950	.907	.956	.917	.956
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.001	.095	.149	.000
Independence model	.421	.402	.440	.000

This model indicates a good fit. The CMIN table shows a value of less than .5 indicating a good fit for the model. The GFI shows an acceptable value of .more than .95. The NFI and CFI score (.950 and .956 respectively) also indicates a good fit of the model. The RMSEA value of (.001) confirms a good fit of the hypothesised model. This shows minimum difference between the sample covariance and the original covariance of the model.

ANOVA 1: To Test the Impact of School Factors on Overall Satisfaction

Table 4: ANOVA 1

Levene's Test of Equality of Error Variances

Dependent Variable:OVERALL SATISFACTION

F	df1	df2	Sig.
356.379	3	495	.000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Design: Intercept + interactionteachers

Tests of Between-Subjects Effects

Dependent Variable:OVERALLSATISFACTION

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	131.145[a]	3	43.715	604.552	.000
Intercept	1587.598	1	1587.598	21955.592	.000
Interaction with teachers	131.145	3	43.715	604.552	.000
Error	35.793	495	.072		
Total	4994.000	499			
Corrected Total	166.938	498			

a. R Squared = .786 (Adjusted R Squared = .784)

By performing ANOVA of interaction of teachers on the overall satisfaction level . The F Ratio of 604.552 with 3,495 df differ significantly. This shows that there exists a significant difference between means of school factors and overall satisfaction. From the post Hoc analysis it can be seen that there are 4 groups which differ significantly. From the outputit can be interpretted that as the parents interaction with teachers increases the overall satisfaction also increases.

ANOVA 2 : To Test the Impact Of Environmental Factors On Over All Satisfaction

Table 5: ANOVA 2

Levene's Test of Equality of Error Variances[a]

Dependent Variable:OVERALLSATISFACTION

F	df1	df2	Sig.
19.828	8	490	.000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + environmentalfactors

Tests of Between-Subjects Effects

Dependent Variable :OVERALLSATISFACTION

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	20.274[a]	8	2.534	8.467	.000
Intercept	3434.696	1	3434.696	11475.190	.000
Environmental factors	20.274	8	2.534	8.467	.000
Error	146.664	490	.299		
Total	4994.000	499			
Corrected Total	166.938	498			

a. R Squared = .121 (Adjusted R Squared = .107)

By looking at the Levene's test of equality table it can be interpreted that it is significant and the assumption of equality has been violated. By performing ANOVA of interaction of teachers on the overall satisfaction level . The F Ratio of 8.467 with 8,490 df differ significantly. This shows that there exists a significant difference between means of environmental factors and overall satisfaction.

TWO WAY MANOVA

Table 6: Levene's Test of Equality of Error Variances[a]

	F	df1	df2	Sig.
Books	51.718	221	277	.000
Teachers	15.073	221	277	.000
Syllabus	29.458	221	277	.000
Interaction with teachers	91.697	221	277	.000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + infrastructure + discipline + uniform + staff + hygeine + classrooms + extracuricular + foodprogramme + accessibilitytotheschool + anualhealthprogramme

Table 7: Multivariate Table

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.855	685.814[a]	4.000	465.000	.000
	Wilks' Lambda	.145	685.814[a]	4.000	465.000	.000
	Hotelling's Trace	5.899	685.814[a]	4.000	465.000	.000
	Roy's Largest Root	5.899	685.814[a]	4.000	465.000	.000
Infrastructure	Pillai's Trace	.058	2.291	12.000	1401.000	.007
	Wilks' Lambda	.943	2.303	12.000	1230.566	.007
	Hotelling's Trace	.060	2.311	12.000	1391.000	.006
	Roy's Largest Root	.045	5.240[b]	4.000	467.000	.000
Discipline	Pillai's Trace	.062	2.476	12.000	1401.000	.003
	Wilks' Lambda	.938	2.490	12.000	1230.566	.003
	Hotelling's Trace	.065	2.500	12.000	1391.000	.003
	Roy's Largest Root	.047	5.521[b]	4.000	467.000	.000
Uniform	Pillai's Trace	.084	3.358	12.000	1401.000	.000
	Wilks' Lambda	.918	3.369	12.000	1230.566	.000
	Hotelling's Trace	.087	3.369	12.000	1391.000	.000
	Roy's Largest Root	.054	6.278[b]	4.000	467.000	.000
Staff	Pillai's Trace	.068	2.711	12.000	1401.000	.001
	Wilks' Lambda	.933	2.736	12.000	1230.566	.001
	Hotelling's Trace	.071	2.756	12.000	1391.000	.001
	Roy's Largest Root	.057	6.674[b]	4.000	467.000	.000
hygeine	Pillai's Trace	.145	5.910	12.000	1401.000	.000
	Wilks' Lambda	.860	5.992	12.000	1230.566	.000
	Hotelling's Trace	.156	6.040	12.000	1391.000	.000
	Roy's Largest Root	.104	12.198[b]	4.000	467.000	.000
classrooms	Pillai's Trace	.058	2.315	12.000	1401.000	.000
	Wilks' Lambda	.942	2.338	12.000	1230.566	.000
	Hotelling's Trace	.061	2.357	12.000	1391.000	.000
	Roy's Largest Root	.052	6.111[b]	4.000	467.000	.000
Extra-curricular	Pillai's Trace	.053	2.118	12.000	1401.000	.000
	Wilks' Lambda	.947	2.144	12.000	1230.566	.000
	Hotelling's Trace	.056	2.166	12.000	1391.000	.000
	Roy's Largest Root	.052	6.127[b]	4.000	467.000	.000
food programme	Pillai's Trace	.143	5.850	12.000	1401.000	.000
	Wilks' Lambda	.862	5.929	12.000	1230.566	.000
	Hotelling's Trace	.155	5.972	12.000	1391.000	.000
	Roy's Largest Root	.097	11.271[b]	4.000	467.000	.000
Accessibilitytoth eschool	Pillai's Trace	.087	3.494	12.000	1401.000	.000
	Wilks' Lambda	.915	3.507	12.000	1230.566	.000
	Hotelling's Trace	.091	3.509	12.000	1391.000	.000
	Roy's Largest Root	.053	6.226[b]	4.000	467.000	.000
Annual healthprogramm e	Pillai's Trace	.106	4.267	12.000	1401.000	.000
	Wilks' Lambda	.897	4.290	12.000	1230.566	.000
	Hotelling's Trace	.111	4.296	12.000	1391.000	.000
	Roy's Largest Root	.068	7.954[b]	4.000	467.000	.000

a. Exact statistic
b. The statistic is an upper bound on F that yields a lower bound on the significance level.
c. Design: Intercept + infrastructure + discipline + uniform + staff + hygeine + classrooms + extracuricular + foodprogramme + accessibilitytotheschool + anualhealthprogramme

By examining the multivariate table it can be seen that Wilks' Lambda row showing a significant value ($p<0.05$) of .17. By looking at the significance level of all the factors it can be said that environmental factors and school factors has a significantly effecting each other. In each of the case Wilk'sLamda is interpreting almost 90% of the effect on each other.

REGRESSION ON ALL FACTORS EXTRACTED FROM PRINCIPAL COMPONENT ANALYSIS:

Table 8: Regression Table

Model Summary

Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
						R Square Change	F Change	df1	df2	Sig. F Change
dimension0	1	.855[a]	.730	.727	.302	.730	222.095	6	492	.000

a. Predictors: (Constant), discipline, syllabus, interactionwithteachers, books, uniform, extra-curricular

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1(Constant)	1.340	.078		17.274	.000					
uniform	-.017	.019	-.027	-.892	.373	.073	-.040	-.021	.585	1.710
Extra-curricular	.437	.024	-.069	-1.551	.122	.161	-.070	-.036	.280	3.571
books	-.040	.019	-.061	-2.065	.039	-.051	-.093	-.048	.624	1.602
Interactionwithteachers	.532	.017	.041	1.408	.160	.303	.063	.033	.653	1.533
syllabus	.032	.022	.881	33.034	.000	.837	.830	.773	.770	1.299
discipline	-.038	.024	-.071	-1.595	.111	.139	-.072	-.037	.277	3.607

a. Dependent Variable: OVERALLSATISFACTION

A regression analysis is done on the major factors extracted by factor analysis to find its impact on the overall satisfaction level. It can be seen that there exist a significant impact of interaction with teachers and extra-curricular activities in assessing the overall satisfaction level.
It is observed from the table that interaction with teachers (53.2%) and extracurricular activities(43.7%) are the most dominating factors influencing overall satisfaction level with respect to education which corroborates with the result of factor analysis.

So the regression equation can be drawn as :

OVERALL SATISFACTION = 1.340 + 0.532 Interaction with Teachers +0.437 Extra-curricular Activities

PROPOSED MODEL ON THE FACTORS INFLUENCING THE SATISFACTION LEVEL OF RURAL SCHOOL EDUCATION IN WEST BENGAL

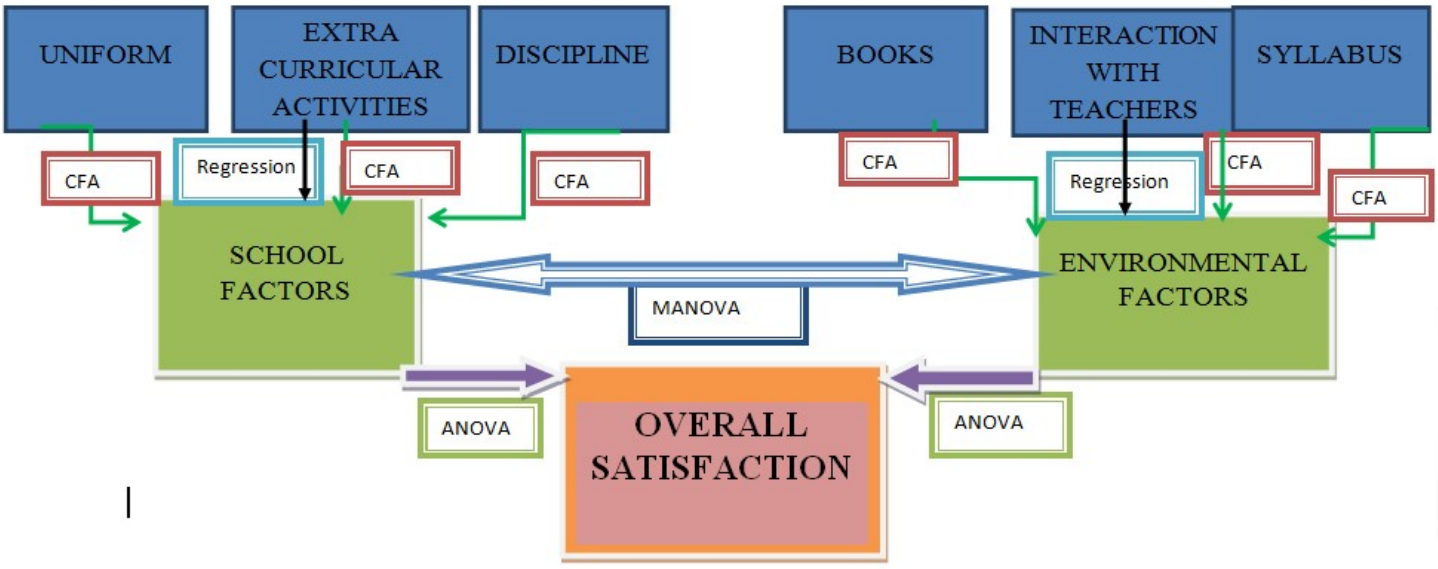

Figure 2

CONCLUSION

From the study it can be assessed that the perception of rural people towards education is changing in a rapid space.in this regard the study is significant as the villagers are now becoming more concern about the type of books their children are reading and they want their children to lead a more disciplined life. The study indicates the introduction of latest communication system like mobiles and television; they are becoming well informed about the latest developments and technologies result of which some of them are able to understand the importance of school education for sustaining. According to Principal Component Analysis there are total six factors which influence the villagers most to send their children the school. They are Books, Interaction with Teachers and Syllabus which are renamed as school factor; Discipline, Uniform and Extracurricular Activities which are renamed as Environmental factors. Anova test the impact of school factors and environmental factors on overall satisfaction. Two Way Manova depicts that these environmental factors and school factors are significantly effecting each other. Multiple Regression is showing that they are mainly interested in communicating with the teachers and their children's extracurricular activities.

From the aforementioned proposed model illustrates that the significant factors determining the satisfaction level of rural school education in West Bengal. As the model suggests that both the school factors as well as environmental factors are influencing the overall satisfaction of the villagers and simultaneously they are also affecting each other. Moreover, in field survey, face to face interaction reveals that they are becoming more aware of the improvement in education systems that are been taken place in the urban societies. Most of the villagers have expressed that they want their children to get out of the backward life they are leading for ages. Government has started many schools and night schools for the children as well as adults of different remote villages of our country. The villagers are now trying to utilise these resources fully and to get maximum benefitted from these plans. They now understanding the need of education and they are looking forward to educate their children from the schools set up by government. But for this they want more empathetic teachers with whom they and their wards may interact freely. Moreover, the little kids of village are more prone to extracurricular activities like sports and cultural programs than monotonous school routine. So if government is taking adequate steps and providing them with funds and infrastructure they will also prosper as the people in urban areas do.

Thus this research lays the foundation for future investigation on the satisfaction level in Indian rural school education. One desired step may be to scale up the research by expanding the target area through including more state wise and nation wise comparison to evaluate and benchmark their perception level with the help of perceptual mapping and GAP analysis.

Further, efficiency- productivity study of the rural schools may also be carried out with the help of Data Envelopment Analysis crossing the border of the nation and finally after a benchmarking study, Scenario and Causal analysis may be executed using Bayesian Probabilistic Network for Governmental policy implementation.

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