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Factors Affecting Learning Outcomes at the Elementary School Level

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Abstract

India is a democratic, socialistic republic country and committed to provide quality elementary education to all children including deprived children in the age group of 6 to 14 in the society. The slum children come from most deprived and down trodden sections of the population in urban areas. As such the country has a special responsibility for their education and welfare. In order to provide quality elementary education to slum children, adequate school resources, effective teachers, conducive physical-natural environment and quality in classroom instruction should be ensured in elementary schools in urban slum areas. Also, learning outcomes of students should be satisfactory. This research paper examines and analyses the effect of school and home factors on the learning outcomes in elementary schools in urban slums of Varanasi city. The paper also assesses the learning outcomes of students of these elementary schools. Descriptive survey method was used in the study. The study was conducted in randomly selected sample of 62 elementary schools (29 government and 33 private) in urban slums of Varanasi city. The subjects of the study were 62 headmasters/principals (29 government school headmasters and 33 private school principals), 62 teachers teaching in Class V students, and 620 students of Class V of these sampled elementary schools. Furthermore, the instruction methods adopted by teachers were observed in 62 classes of Class V. For collecting information in accordance with the objectives of the study, four tools — School Questionnaire, Teacher Questionnaire, Home Environment Questionnaire and Classroom Observation Form — were developed by the investigator. For assessing learning outcomes in elementary schools, Competency-based Mathematics and Language (Hindi) tests developed by the Department of Educational Measurement and Evaluation, NCERT (2006), were also used in the study. Data were analysed using multiple linear regression analysis, percentage, grouped-bar-diagram and Mann-Whitney 'U' test.

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The results of the study revealed discernible effect of five school and home factors (i.e., basic facility available in school, instructional method adopted by teacher in curriculum transaction, teacher's behaviour in classroom in order to accelerate learning among students, physical-natural environment of classroom and parents' socio-economic status) and five other school and home factors (i.e., school-community co-operation, co-curricular activity organized in school, teachers' interest and satisfaction, evaluation procedure and teaching-learning environment at home) did not significantly affect the learning outcomes at elementary stage of education in urban slums of Varanasi city. Furthermore, three school factors — teaching-learning materials available in school, maintenance of school records and supervision and teacher's qualifications — were found obstructing insignificantly the learning outcomes at elementary stage of education in urban slums of Varanasi city. The learning outcomes of elementary schools in slum areas were found not satisfactory. Learning outcomes in government elementary schools in slum areas were found significantly less than learning outcomes of private elementary schools. Also, learning outcomes of elementary schools in slum areas were found significantly less than learning outcomes of elementary schools at national level.

Introduction

The elementary education lays the foundation of physical, intellectual, social and emotional developments in the life of every human being. Being the foundation of the entire edifice of education, our commitment should be for providing quality elementary education to all children including deprived children of our society. The Government of India is committed to provide free and compulsory elementary education to all children. The Right to Education Act (RTE Act, 2009) declared free and compulsory education from age 6 to 14 as a fundamental right of children. The Government of India is also committed for the development of weaker sections of society. In its Directive Principles of State Policy, the Constitution of India (Article 46) states: "The State shall promote educational and economic interests of the weaker sections of Indian society, specially the Scheduled Tribe and Scheduled Castes".

To fulfil the commitment, the Government of India has launched various programmes and schemes concerning quality education objected to deprived children community. The *Sarva Shiksha Abhiyan* launched in 2002, has laid special focus on disadvantaged groups of children in 6-14 age group like children from rural and difficult areas, children from SC, ST, minority communities, children with disabilities and all those who are out-of school, girls cut across all sections of society. The other programmes and schemes

are: Operation Blackboard Scheme, the Alternative, Innovative and Education Guarantee Scheme (EGS/ AIE), the National Programme for Education of Girls at Elementary Level (NPEGEL), Kasturba Gandhi Balika Vidyalaya (KGBV), the Mid-day meal Scheme, etc. These initiatives have had considerable impact on children's access to education but issue of elementary education with satisfactory learning outcomes is still a major concern. In reality, learning outcomes of students belonging to disadvantaged groups dwelling in slum areas 'including poor children, girls, children from Scheduled Caste (SC), Scheduled Tribe (ST) and Other Backward Class (OBC) groups are comparatively low. Most of the students are not attaining minimum level of learning in slum areas. The students cannot properly read or write even they have completed their elementary education. Without ensuring elementary education with adequate learning outcomes in children belonging to these deprived slum community, the national as well as international commitments cannot be fulfilled.

Article 28 of the United Nations (UN) Convention stated that "state parties recognize the right of the child to education with a view to achieving this right progressively, they shall in particular (a) make primary education compulsory and available to all". The World Conference on "Education for All" in Jomtien, Thailand (5-9 March 1990) adopted the vision that all children, young people and adults have the fundamental human right to basic education to develop their talents, improve their lives and transform their vision. The declaration insisted that universalisation of access to basic education had to mean universalisation of access to learning. The focus of basic education must, therefore, be an actual learning acquisition and outcomes rather than exclusively upon enrolment. The world Dakar framework for action, 'Education for All: Meeting Our Collective Commitments-2000, reaffirmed the world to improve access with quality of education and ensuring excellence of all so that measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills (World Education Forum [WEF], 2000).

A good deal of research has been conducted on effectiveness of various school factors and on relationship between school factors and pupil performance. The findings of these researches supported significant relationship between school resources and pupil performance (Benson, 1965; Card and Krueger, 1992; Kartzman, 1968; Krueger, 1999; Krueger and Lindahl, 2002; Thomas, 1962).

There is general agreement among researchers that the child's early home experiences are part and parcel of his or her learning and education. Several researchers (Marjoribanks,

1972; Burns and Homel, 1985) have detected a relationship between home environment and pupils' academic achievement. Most of the studies, conducted in India, found strong relationship between socio-economic status of parent and academic performance (Chopra, 1964; Mathur, 1963). Bradley (1985) said that home environment shows generally stronger relation to cognitive development.

School circumstances and home environment play vital role in learning achievement of students. In this context, several studies (Card and Krueger, 1992; Krueger and Lindahl, 2002; Kundu and Tutoo, 2000) have proved positive impact of school and home on pupil's performance. It was hypothesised that some school factors may contribute significantly in the development of achievement in some social setting but not for others and some social factors may lead high achievement in some school setting but not for others. The review of literature revealed the lack of such type of studies on deprived children especially on slum dwellers. Without studying the effect of school and home factors on learning outcomes of slum children, the target of providing quality education to all children, especially deprived children, cannot be assured. The present study is an attempt to explore and focus upon the effect of school and home factors on the learning outcomes of slum children at elementary stage of education.

Methodology

Sample

Multistage stratified random sampling technique was used for selection of sample of the study. At the first stage of sampling, all nine educational wards in Varanasi city were selected for the study, and then from each ward fifteen slum areas were randomly selected. In case of less than 15 slum areas in any ward, all the slum areas, available in the ward, were selected for the study. From the sampled slum areas, 4 government and 4 private elementary schools were randomly selected from each ward. In case of less than 4 elementary schools available in any sampled slum areas, all the elementary schools, available, were included in the sample. For the purpose of collecting information regarding schools, the headmasters of selected elementary schools were included in the sample of respondents. Further, one of the teachers, teaching in Class V, was selected by consulting headmaster of sampled schools during field visit for providing information in teacher questionnaire and for observing his classroom instructional strategy. Furthermore, for providing information regarding home environment and for assessing learning outcomes at elementary stage of education, 10 students, studying in Class V, were randomly selected from each elementary school. In this way, the sample consisted of 62 elementary schools (29 government and 33 private), 62 headmasters/

principals (29 government school headmasters and 33 private school principals), 62 teachers teaching in Class V, 62 Classes of Standard V and 620 students of Class V (10 students from each Class).

Tools

The following tools were used to collect the data:

(i) School questionnaire developed by the investigator.
(ii) Teacher questionnaire developed by the investigator.
(iii) Home environment questionnaire developed by the investigator.
(iv) Classroom observation form developed by the investigator.
(v) Competency-based Mathematics and Language (Hindi) test developed by the Department of Educational Measurement and Evaluation, NCERT (2006).

School questionnaire was developed to collect factual information about elementary schools. This information was related with basic facilities available in schools, teaching-learning materials available in school, information about school-community co-operation, organization of co-curricular activities, evaluation procedure adopted by school and maintenance of school records and supervision. The questionnaire contains 31 items related with basic facilities available in schools, 2 items related with teaching-learning materials available in the school, 7 items related with school-community co-operation, one item with organization of co-curricular activities in schools, 8 items with evaluation procedure adopted by school and 3 items with maintenance of school records and supervision.

Teacher questionnaire was developed to collect the information about teachers' qualification, their interest and satisfaction in teaching profession. This questionnaire consisted of 15 items, related with teacher's qualification and teacher's interest and satisfaction in teaching-elementary schools' children in slum areas. The information regarding this questionnaire was collected from teachers in the school.

Home environment questionnaire was developed to assess teaching-learning environment available to slum children at their homes. This questionnaire consisted of 27 items related with parent's socio-economic status and teaching-learning environment available to slum children at their homes.

Classroom observation form was developed to assess the effectiveness of instructional strategy adopted by teachers in curriculum transaction and to examine the teacher's behaviour in accelerating learning among students during classroom interaction. The classroom observation form also assesses the physical-natural environment of classroom and teaching-learning material displayed in classroom. The classroom observation form consisted of 55 items, in which, 35 items were related with instructional

method, 11 items were related with physical-natural environment of classroom, 8 items were related with teaching-learning materials displayed in classroom and one item was related with teacher's behaviour in accelerating learning of students during classroom interaction. This form was one of the major instruments developed for observing teaching-learning process in real situation.

In order to ensure the trustworthiness of the tool, pilot study has been conducted and content validity was examined. The reliability coefficient of questionnaires—school questionnaire, teacher questionnaire, home environment questionnaire, examined through test-retest method, were found 0.73, 0.69 and 0.64, respectively. The inter-observer reliability of classroom observation form was established by employing Cohen's Kappa coefficient, which was found 0.69.

Data Analysis

Multiple linear regression analysis, percentage and grouped-bar-diagram and Mann-Whitney 'U' tests were used for analyzing the data. Multiple regression equation was developed between learning outcomes as dependent variable and thirteen school and home factors as independent variables. Mann-Whitney 'U' Test was used for examining the significance of difference in learning outcomes at elementary stage of education of government elementary schools with that of private elementary schools.

Results and Discussion

School and Home Factors Affecting Learning Outcomes at the Elementary School Level

In the perspective of effect of school and home factors in the learning outcomes, the results of multiple regression coefficients b and ß, standard error of regression coefficients, p-value, correlation coefficients r and ßr values for thirteen school and home factors have been given in Table 1.

As can be seen from the Table1 that un-standardized multiple regression coefficients b's for 5 school and home factors, i.e., basic facilities available in the schools, physical-natural environment of classroom, instructional method adopted by teacher in curriculum transaction, teacher's behaviour in classroom and socio-economic status of parents were found 0.254, 0.973, 0.627, 1.249 and 0.686, respectively. p-value for these factors were found 0.031, 0.047, 0.003, 0.049, 0.044, respectively, as a result, these b's values were found significant at .05 level of significance. It implies that individual variation in these five school and home factors are simultaneously being accompanied with variation in learning outcomes. Furthermore, ßr's values for these 5 school and home factors, i.e., basic facilities available in the schools, physical-natural environment of classroom, instructional method adopted by teacher in curriculum transaction, teacher's behaviour in classroom and socio-economic status

Table 1
Multiple regression coefficients b and ß, correlation coefficients r and ßr values for thirteen school and home factors (N=62)

S. No.	*School and home factors*	*Un-standardized multiple regression coefficients b*	*Standard error of regression coefficients*	*p-value*	*Standardized multiple regression coefficient ß*	*Correlation Coefficient r*	*ß r*
1	Basic facility in school	0.254	0.114	0.031	.227	0.678	0.154
2	TLM	-0.166	0.089	0.068	-.135	0.381	-0.051
3	Physical-natural environment	0.973	0.470	0.047	0.193	0.672	0.130
4	School-community co-operation	0.123	0.538	0.820	.016	0.433	0.007
5	Co-curricular activity	0.248	0.201	0.223	.093	0.532	0.049
6	Instructional method	0.627	0.198	0.003	.282	0.697	0.197
7	Teacher's behaviour in classroom	1.249	0.610	0.049	0.184	0.619	0.114
8	Teacher's qualification	-0.006	0.061	0.918	-.006	0.091	-0.001
9	Teacher's interest and satisfaction	0.124	0.412	0.765	.022	0.402	0.009
10	Evaluation procedure	0.184	0.356	0.608	0.041	0.516	0.021
11	Maintenance of school records and supervision	-0.253	0.148	0.095	-0.241	0.139	-0.034
12	Parent's SES	0.686	0.336	0.044	0.206	0.667	0.137
13	Home teaching-learning environment	0.021	0.268	0.938	0.006	0.487	0.003

of parents were found 0.154, 0.130, 0.197, 0.114, and 0.137, respectively. It reveals that these five school and home factors, i.e., basic facilities available in the schools, physical-natural environment of classroom, instructional method adopted by teacher in curriculum transaction, teacher's behaviour in classroom and socio-economic status of parents separately contribute 15.4, 13, 19.7, 11.4, 13.7 per cent, respectively in the learning outcomes at elementary stage of education in urban slums of Varanasi city. In the present study, instructional method adopted by teacher in curriculum transaction has made maximum contribution in learning outcomes. Basic facility available in school has made second largest contribution while, socio-economic status of parents has made third largest contribution in the learning outcomes at elementary stage of education in urban slums of Varanasi city. In continuation, physical-natural environment of classrooms has made fourth largest contribution and fifth largest contribution was made by teachers' behaviour during instruction in order to accelerate learning among students.

Table 1 further shows that multiple regression coefficients (bs) for school-community co-operation, co-curricular activity organized in school, teacher's interest and satisfaction, evaluation procedure and home teaching-learning environment factors were found 0.123, 0.248, 0.124, 0.184 and 0.021, respectively. p-values for these factors were found 0.820, 0.223, 0.765, 0.608 and 0.938, respectively. Consequently, these values were not found significant at .05 level of confidence. It implies that variation in school-community co-operation, co-curricular activity organized in school, teacher's interest and satisfaction, evaluation procedure, and home teaching-learning environment factors individually are not significantly being accompanied with variation in learning outcomes score. Furthermore, ßr value for school-community co-operation, co-curricular activity organized in school, teacher's interest and satisfaction, evaluation procedure and home teaching-learning environment factors were found 0.007, 0.049, 0.009, 0.021 and 0.003, respectively. It reveals that contribution made by school-community co-operation, co-curricular activity organized in school, teacher's interest and satisfaction, evaluation procedure and home teaching-learning environment factors in learning outcomes score were only 0.7, 4.9, 0.9, 2.1 and 0.3 per cent, respectively, that have been considered as insignificant. Multiple regression coefficients (bs) for teaching-learning material available in school, teacher's qualification, and maintenance of school records and supervision factors were found -0.166, -0.006 and -0.253, respectively. p-value for these factors were found 0.068, .918 and 0.95, respectively, consequently (bs) values for these school factors were

found not significant at 0.05 level of confidence. Furthermore, ßr value for teaching-learning material available in school, teacher's qualification and maintenance of school records and supervision factors were found -0.051, -0.001 and -0.034, respectively. It reveals that teaching-learning material in school, teacher's qualification and maintenance of school records and supervision factors do not obstruct significantly. Instructional materials, used within the classroom to facilitate the teaching-learning process, obstruct learning outcomes comparatively higher than maintenance of school records and supervision and teacher's qualifications. Teacher's qualification obstructs least in the learning outcomes of children in slum areas of Varanasi city.

Multiple Linear Regression Model and its Significance

Results of multiple correlations R, level of significance and coefficient of multiple determination (R^2) and index of forecasting efficiency for different linear regression models have been given in Table 2.

Table 2 indicates a strong positive association (R=0.857, SE of R= 0.038) between thirteen school and home factors and learning outcomes score. 'F' value (F=9.311) for multiple correlation R between learning outcomes score and thirteen factors (school and home) was found to be significant at 0.05 level of significance with dfs=47, 14. This indicates that these thirteen predictor variables are strongly associated with learning outcomes at elementary stage of education. Furthermore, 73.5 per cent of variance in learning outcomes was accounted for by all thirteen factors (school and home) considered together in the study, eliminating double consideration of things that they have in common. The remaining percentage of variance as well as contribution in learning outcomes,

Table 2
Multiple correlation coefficient R, level of significance and index of forecasting efficiency for combined thirteen factors, eleven school and two home factors, five positive significant factors, five positive non-significant factors and three negative non-significant factors respectively (N=62)

Factors	*Multiple Correlation Coefficient R*	*SE of R*	*F Value*	*dfs*	*P*	R^2	*Index of forecasting efficiency*
Total thirteen school and home factors	0.857	0.038	9.311	14,47	.05	0.735	0.485
Eleven school factors	0.772	0.057	5.999	12,49	.05	0.595	0.364
Two home factors	0.374	0.112	3.147	3,58	NS	0.140	0.073

which is 26.3 per cent, attributed by some other factors is still to be accounted for.

The index of forecasting efficiency for thirteen school and home factors was found to be very high, i.e., 48.5, indicating that prediction of learning outcomes at elementary stage of education through these school and home factors, by means of regression equation, is 48.5 per cent better than those made merely from the knowledge of means of learning outcomes scores only.

Table 2 further indicates a strong positive association between learning outcomes score and eleven school factors (R= 0.772, SE of R= 0.057) considered in the study. 'F' value (F=5.999) for multiple correlation R between learning outcomes and eleven school factors was found to be significant at .05 level of significance with dfs = 12,49, which indicates that the linear regression model between learning outcomes as dependent variable and these eleven school factors as independent variables are highly associated. Furthermore, 59.5 per cent of variance in learning outcomes scores was accounted for by these eleven schools factors. The index of forecasting efficiency for eleven school factors was found to be high i.e., 0.364, indicating that prediction of quality of elementary education through these eleven school factors, by means of regression equation, is 36.4 per cent better than those made merely from the knowledge of means of learning outcomes scores only.

In the context of linear regression model considering two home factors as independent variables and learning outcomes as dependent variable, table 2 shows weak association (R=0.374, SE of R=0.112). Also multiple correlation R was found not significant (F=3.147) at .05 level of confidence with dfs = 3,58 which indicates that the linear regression model between learning outcomes as dependent variable and these two home factors as independent variables are not considerable. Furthermore, these two home factors contributed only 14 per cent (R^2 =0.140) in learning outcomes. The remaining contribution in learning outcomes, which is 86 per cent, has been attributed by some other factors except to these two home factors.

The index of forecasting efficiency for two home factors was found to be 0.073, indicating that prediction of learning outcomes at elementary stage of education through two home factors, by means of regression equation, is very less i.e., only 7.3 per cent better than those made merely from knowledge of the means of learning outcomes scores.

Equation of Regression Line

Table 1 presents the b coefficients for thirteen school and home factors. Also, intercept value was found 1.392. Using values of b coefficients and intercept, the regression equation between learning outcomes at elementary stage of education as dependent variable and thirteen

school and home factors as independent variables are as under:

$LOS = 1.392 + .254X_1 - .166X_2 + .973X_3 + .123X_4 + .248X_5 + .627X_6 + 1.249X_7 - .006X_8 + .124X_9 + .184X_{10} - .253X_{11} + .686X_{12} + .021X_{13}$

Where LOS= learning outcomes score, X_1=basic facility, X_2=teaching-learning material, X_3=physical-natural environment, X_4=school-community co-operation, X_5= co-curricular activity, X_6=instructional method, X_7=teacher's behaviour during teaching, X_8=teacher's qualification, X_9=teacher's interest and satisfaction, X_{10}=evaluation procedure, X_{11}=maintenance of school records and supervision, X_{12}=parent's socio-economic status and X_{13}=home teaching-learning environment.

With this regression equation, one could predict learning outcomes in the elementary school in urban slums, knowing thirteen school and home factor's scores.

Learning Outcomes of Elementary Schools Students in Urban Slums of Varanasi City

Table 3 shows that there was not a single student found in mastery grade either from government or private schools. In excellent grade only 8.788 per cent of students were found in private schools. In good grade 11.698, 16.970 and 14.334 per cent of students were found in government, private and total schools, respectively. In average grade, 14.734, 22.121 and 18.428 percentages of students were found from government, private and total schools, respectively. In minimum grade, the percentage of students' frequencies of government, private

Table 3
Percentage of elementary schools' students' frequencies in different grades of learning outcomes

Learning outcomes (range)	*Description of grade*	*Percentage of students' frequency (government school)*	*Percentage of students' frequency (private school)*	*Percentage of students' frequency (all sampled schools)*
0-34	Below minimum grade	63.369	39.091	51.230
35-39	Minimum grade	10.189	13.030	11.610
40-49	Average grade	14.734	22.121	18.428
50-59	Good	11.698	16.970	14.334
60-79	Excellent	0	8.788	4.394
80-100	Mastery grade	0	0	0
0-100	Total	100	100	100

and total schools were found 10.189, 13.030 and 11.610, respectively. Table 3 also shows that, maximum number of students was found in below minimum grade. The percentage of frequencies in below minimum grade, from government, private and total schools was found to be 63.369, 39.091 and 51.230 per cent respectively. The results indicate that, in higher grades of learning outcomes, the percentages of students of private schools are comparatively higher than the percentage of students of government schools. While in lower grades of learning outcomes, the percentage of students of government schools was found comparatively higher than the percentage of students of private schools. This reveals the fact that in urban slums of Varanasi city, private education is comparatively better than the government education.

The bar diagram, given in Figure 1, depicts the facts that in below minimum grade the concentration of students are maximum and in minimum grade, percentage of students are low. In upper grades the percentages of students' of government, private and total sampled schools continuously decrease. Bar diagram also depicts that in upper grades, the percentage of students in private school was found comparatively higher than percentage of students in government schools.

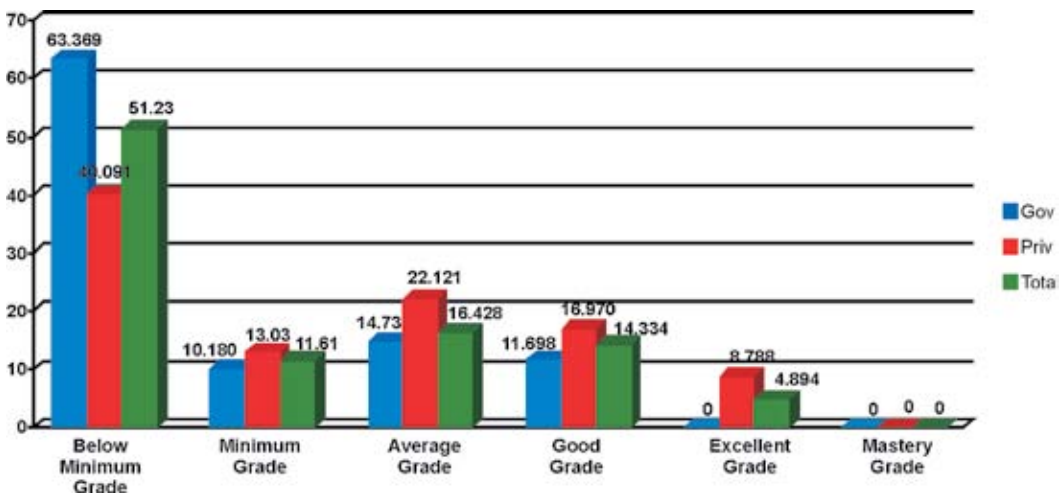

Figure 1: *Percentage of students frequencies of government, private and total sampled schools in different grades of learning outcomes*

Table 4
Mean, SE of means, SD, variance and ranges of learning outcomes of government, private and total sampled elementary school students in urban slums of Varanasi city

Statistical Values	*Government School*	*Private School*	*Total Sampled School*
Mean of learning outcomes	28.650	36.267	32.875
Standard Error of Mean	0.771	0.678	0.531
Standard Deviation of learning outcomes	12.545	12.319	12.944
Variance of learning outcomes	157.384	151.766	167.538
Range of learning outcomes	0-52	7-69	0-69

Table 4 indicates that the mean of learning outcomes of students of government and private elementary schools was found 28.650 and 36.267, respectively while average learning outcomes of students of total sampled schools was found 32.875, which shows that mean learning outcomes of government elementary schools is comparatively lower than mean learning outcomes of private-managed elementary schools. Besides, Table 4 also shows that the standard error of mean for government, private and total schools students were found 0.771, 0.678 and 0.531, respectively. Standard deviation of learning outcomes were found 12.545, 12.319 and 12.944, respectively and the variance of learning outcomes of government, private and total schools students were found 157.384, 151.766 and 167.538, respectively. The learning outcomes vary from 0 to 52, 7 to 69 and 0 to 69 for government, private and total sampled schools, respectively. Higher variance in learning outcomes of students of government schools indicate that scores obtained by students in government schools are distributed widely than in private schools. Here it can be deduced that learning outcomes in private elementary schools is comparatively better than that of government schools.

Table 5
Significance of difference in means of average learning outcomes of government and private elementary schools in urban slums of Varanasi city.

Types of School	*Mean of learning outcomes*	*No of Schools*	*Sum of Ranks* $\sum R$	*Value of U*	*Value of Z*	*SIG*
Government School	28.650	29	552.5	117.5	5.093	$\leq .05$
Private School	36.267	33	1400.5			

Table 5 reveals that obtained Z value was found to be significant at 0.05 level of confidence with df=60. It means that the group of students of government and private schools differ significantly with respect to the learning outcomes of elementary education. The above table further shows that the mean learning outcomes score of private schools was found to be higher than that of government schools. It means that learning outcomes at elementary stage of education in private elementary schools are significantly better than that of government elementary schools in urban slums of Varanasi city.

Learning Outcomes of Elementary School Students in Urban Slums as compared to Learning Outcomes of Elementary School Students at National Level

Table 6 presents the facts that in the learning outcomes range of 0-49, the percentage of students at national level, government school level and private school level were found to be 44.50, 88.292 and 74.242, respectively. In the middle range of learning outcomes 50-59, the percentage of students at national level, government school and private school levels were found to be 16.02, 11.698 and 16.970 per cent respectively. In upper range of learning outcomes (60-100), the percentage of students at national, government and private students were found to be 39.48, 0 and 8.788 per cent respectively. From these results, it can be deduced that in low range of learning outcomes (0-49) the percentage of students in sampled elementary schools is comparatively higher than that of at national level. In learning outcomes range (50-59), the percentage of the students in sampled elementary schools is comparatively low than that of at national level. In higher range of learning outcomes (60-100) the percentage of students in sampled

Table 6
Percentages of sampled elementary school and national levels elementary school students' frequencies in different ranges of learning outcomes

Learning Outcomes (Range)	*Percentage of students (government school)*	*Percentage of students (private school)*	*Percentage of students (total sampled schools)*	*Percentage of students (national level)**
0- 49	88.292	74.242	81.268	44.50
50-59	11.698	16.970	14.334	16.02
60-100	0	8.788	4.394	39.48
Total 0-100	100	100	100	100

* National level students' frequencies are taken from learning achievement of students at the end of Class V, NCERT, 2000.

elementary schools is very low than that of at national level.

The bar diagram given in Figure 2 also depicts that in lower grade (0-49) the concentration of students is maximum and comparatively higher

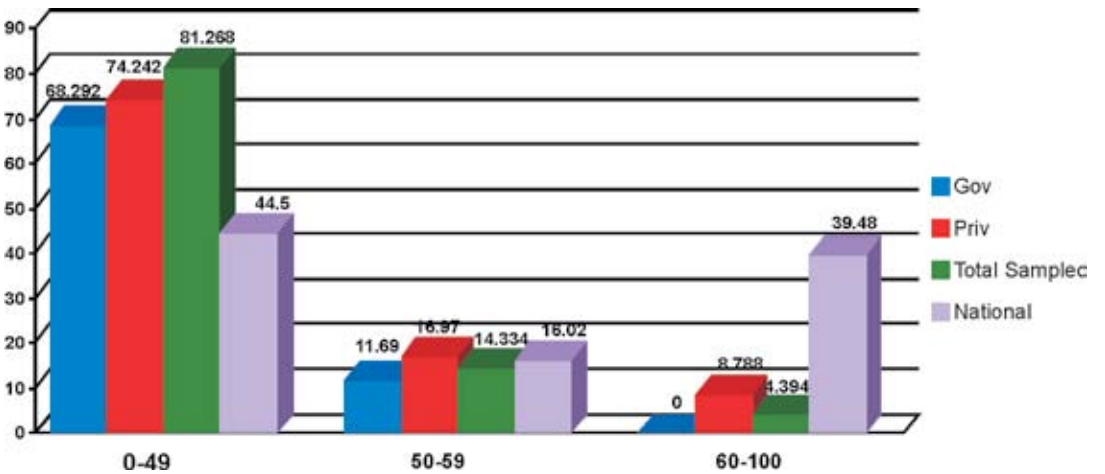

Figure 2: *Proportion of elementary schools students frequencies in different learning outcomes' range*

than national level. In middle grade (50-59), the percentages of students are low and almost same as it was found at national level. In upper grades, the percentages of students are comparatively less than it was found at national level. Here, it may be deduced that learning outcomes at elementary stage of education in urban slums of Varanasi city is not satisfactory as it compared to national level.

The mean and standard deviation of learning outcomes of sampled elementary schools students were found 32.875 and 12.944, while, at national level (NCERT, 2000), mean and standard deviation were found 52.54 and 19.80, respectively. It shows that the mean learning outcomes of elementary education at national level is comparatively higher than that of elementary education in slums of Varanasi city.

Discussion

The present study attempted to find out and focus upon the effect of thirteen school and home factors in learning outcomes of elementary school children of slum areas. The results of the study supported discernible effect of five school and home factors (i.e., basic facility available in school, instructional method adopted by teacher in curriculum transaction, teacher's behaviour in classroom in order to accelerate learning among students, physical-natural environment of classroom and parents' socio-economic status) on the learning outcomes at elementary stage of education in urban slums of

Varanasi city. The result regarding the discernible effect of basic facilities on the learning outcomes is in agreement of the findings of the earlier studies by (Bonesronning, 2003; Fuller, 1987; Heyneman and Loxely, 1983); however, the results contradicts the findings of the other studies by Hanushek and Kimko (2000), and Hanushek and Luque (2003) that have shown insignificant effect of school resources on pupils' test scores. It seems that the present study, conducted in one of the deprived area of a developing country like India, basic amenities in all sampled slum schools (government and private) were found in disparity; hence, variation in basic amenities was observed to exert influence on the learning outcomes at elementary stage of education.

Teacher directly influences learners by his teaching strategies and behaviour. The results regarding the effect of instructional method adopted by teacher in curriculum transaction on the quality of elementary education is in agreement of the earlier findings of the survey conducted by the Central Advisory Council on Education (1969) and studies conducted by Heyneman and Loxley (1983), and Robinson and Sink (2002). Furthermore, the result regarding the effect of teachers' behaviour during instructional process in order to accelerate learning among students was similar to the results obtained in recent studies conducted by Capraro, 2001 and Ziengler and Yan, 2001. These studies have formerly shown the positive impact of instruction on learner's outcomes. In the present study, the variation in learning outcomes was discernible in those elementary schools where learner-centered approach has been followed by teacher in curriculum transaction. Since learner-centred approach in teaching encourages students' active engagement in academic material, questioning, experimenting, reflecting, discussing and creating personal meaning (Smith, 1999) and this approach has also been supported in most of the earlier research studies (Capraro, 2001; Robinson and Sink, 2002; and Ziegler and Yan, 2001). Learning outcomes in those elementary schools was found better where teachers had adopted appropriate strategy of teaching-learning process based on learner-centred approach. In this context, mono grade teaching inside classroom, learner-centred approach of teaching, interactive classroom, encouraging group works, use of adequate teaching-learning materials, methodological skill-based teaching, adopting diagnosis and remedial measures, friendly behaviour with children affected learning outcomes.

It is usually accepted that physical-natural environment of a school such as indoor air quality, ventilation and thermal comfort, lighting and acoustics affect learning outcomes of students. Since clean,

quiet, safe, comfortable and healthy environments are important components of successful teaching and learning. A number of studies have shown that the elements of physical-natural environment of classroom such as poor lighting (Dunn et al., 1985; Phillips, 1997), inappropriate ventilation (Phillips, 1997), inoperative heating and cooling systems, noisy external environments, availability and quality of classroom equipments and furnishings, as well as ambient features such as climate control and acoustics affect achievement of students. The results of the present study regarding the effect of physical natural environment of classroom on the learning outcomes validate the results obtained in previous studies conducted by Hortons (1972), Luckiesh and Moss (1940), Phillips, (1997). It seems that many schools, running in high-poverty slum areas of Varanasi city have poor physical-natural environment in classrooms. The variation in physical-natural environment factors, especially in private schools, exerts discernible positive influence in the learning outcomes of children.

Family, being the first and major agency of socialization, has great influence and bearing on the development of the child. It is the home, which sets the pattern for the child's attitude towards people and society, aids intellectual growth in the child and supports his aspirations and achievements. Research studies have previously revealed the importance of family background characteristics, such as Socio-Economic Status (SES) of the family, and teaching-learning environment at home in explaining variation in students' achievement, and the relatively small impact of school characteristics on students' achievement (Colman, 1966; Kundu and Tutoo, 2000; Maicibi, 2005; Teddlie and Reynolds, 2000). The result regarding the effect of parents' socio-economic status on quality are in agreement of the findings of earlier studies conducted by Chopra (1964), Colman et al. (1966), Kulkarni (1970), Mathur (1964), Prakash (1975), Shukla (1994) and Singh and Saxena (1995). Many of the parents that live in slums are illiterate. Because of their illiteracy, uncertainty of job and low income and seeing little use for their children to go to school than to help in their work they put their children to work for little wages. It seems that the parents, whose socio-economic statuses are comparatively better and are motivated toward benefit of education, ensure private elementary education to their wards. Due to comparatively better education, given in private schools, the learning outcomes correspondingly vary in elementary schools of Varanasi slum areas. It also seems that the learning outcomes score varies due to variation in parents' residence, education and their occupation. The residence in safe and vigorous natural environment, higher education

of parents and their better financial position were the possible causes for variation in learning outcomes. Five other school and home factors (i.e., school-community co-operation, co-curricular activity organized in school, teachers' interest and satisfaction, evaluation procedure and teaching-learning environment at home) did not significantly affect the learning outcomes at elementary stage of education in urban slums of Varanasi city. The importance of school-community co-operation has been strongly recognised in *Sarva Shiksha Abhiyan*. The present study did not support the significant effect of school-community co-operation on learning outcomes of children. It seems that, in slum areas, schools were not properly organizing parent-teachers meeting at regular intervals. Due to poor socio-economic status of the community, the slum dwellers contributed insignificantly in school development. Also the guardians, due to their low standard of education, in slum areas were insincere with continuous and comprehensive development of their wards. They did not regularly attend parent-teacher meetings organized in school.

Results regarding the insignificant effect of co-curricular activities on learning outcomes were not found in agreement with the results obtained in the studies conducted by Bauer and Liang (2003), Broc (2003), and Noam, Biancarosa and Dechausay (2003). These studies have shown that participation in extra-curricular activities positively influence pupils' performance. It seems that teachers, in slum areas, are not familiar with the objectives of extra-curricular activities and its role in all-round development of children; also these activities are not being properly organized due to poor economic status of elementary schools in slum areas of Varanasi city. It has been accepted that working condition in school affects teaching-learning process. The poor working conditions in school obstruct work of teachers; it reduced levels of effort; it is cause of low morale and finally it reduces job satisfaction. On the contrary, good working conditions result in enthusiasm, high morale, co-operation and acceptance of responsibility. The results regarding the inconsequential effect of teacher's interest and satisfaction in teaching profession on learning outcomes at elementary stage of education did not support the findings obtained in study conducted by Ladd (2009). It seems that the de-motivating conditions for teachers in slums like slum environment, insufficient salary, ad hoc post, etc., are the rationale of insignificant effect of teachers' interest and satisfaction on learning outcomes at elementary stage of education.

Evaluation has been an integral part of teaching-learning process. It is essential for good measurement of pupils' achievement as well as improving the measurement value and pedagogical value of instrument.

An effective evaluation helps in improving instruction and students' learning. Old system of evaluation has been ineffective due to organizing only terminal written examinations, evaluating only cognitive development and memory of learners, neglecting affective and psychomotor domain, giving more importance to summative evaluation and ignoring continuous and comprehensive nature of evaluation. The new system of evaluation focuses on continuous and comprehensive evaluation, evaluating all aspect of development through different methods, grading and semester system, and formative and summative evaluation leading to immediate feedback, knowledge of result, diagnosis, remediation, gradation and placement (National Education Policy, 1986). Since the new approach of evaluation is not being properly used in elementary schools in urban slum areas and elementary schools' teachers are not familiar with new trends of evaluation, traditional pattern of examinations are being followed for primarily maintaining records. The role of evaluation in learners' betterment and personality development is almost negligible in old pattern of evaluation system.

A good and compassionate environment at home enhances child's learning outcomes. It has also been exposed that most of the children who are successful, great achievers and well adjusted come from the families where wholesome relationships exist. The results regarding the insignificant effect of teaching-learning environment at home on the learning outcomes did not support the finding of earlier studies which have shown vital role of family background characteristics such as teaching-learning environment at home in explaining variation in student achievement (Coleman et al., 1966; Maani, 1990; Maicibi, 2005); also, highly significant positive relationship between the variables of academic achievement and family scores (Shaha and Sharma, 1984). It is quite possible that the weak association between home learning environment and quality scores, in present study, is due to quite similar deprived socio-economic condition of slum dwellers in Varanasi city. Consequently, these slum dwellers disburse minimum of their earning on the study of their wards. Therefore, high-quality teaching-learning environment at home in context of availability of teaching-learning materials, provision of home tuition, guidance at home, involvement and motivation by parents, availability of sufficient time for study at home, etc. is not available to slum children.

Further, the slum homes failed to provide a variety of objects, play things and stimuli to children's senses. The environmental deprivation in slum areas seems to result into a depression of learners' academic development and proficiency in various competencies. Also, a majority of slum parents were uneducated

or insufficiently educated and had little time or ability to develop the necessary language skills among their children through conversation and other verbal interaction. The deprivation in context of these characteristics seems to impact the learning outcomes of children.

From the results, three school factors insignificantly obstruct the learning outcomes at elementary stage of education in urban slums of Varanasi city. These factors are: teaching-learning materials available in school, maintenance of school records and supervision and teacher's qualifications. The result regarding the effect of teaching-learning material available in schools did not support the results obtained in previous study by Benson (1965), who has established positive association between instructional expenditure per pupil and pupil's achievement. But the result was found in agreement of the findings of some other studies, that have earlier shown either no or very limited impacts of teaching-learning materials such as textbooks (Glewwe et al., 2009) and flip charts (Glewwe et al., 2004) on student test scores. Here, it seems that teaching-learning materials available in school were mostly on record and in practice these materials are not being effectively used. Government schools have reported availability of maximum instructional materials but these materials were not being properly used in classroom transaction; while, a few instructional materials available in private elementary schools were being utilized comparatively better. Maintenance of school record and supervision is necessary for making conducive teaching-learning environment in school and stimulating teaching-learning process. There is a need for sound evaluation of education personnel since effectively educating students and achieving other related goals depends on the use of evaluation by educational institutions to select, retain, and develop qualified personnel and to manage and facilitate their work (Stufflebeam, 1993). The purpose of evaluation is to improve the performance of the individual and the organization (Reeves, 2004). Here, it seems that school records in elementary schools in urban slum areas of the city are made only for supervision purposes and these records were not functional for the purpose of learner assessment and perfection. Also the purpose of supervision is not clear to head of schools. Teachers' qualification was found not considerably affecting the learning outcomes at elementary stage of education. In previous research studies, teacher qualifications like experience, education and in-service training had little effect on students' achievement (Harris and Sass, 2006; Rivkin et al., 2005); while, in other studies, the effect of teacher's qualification on students' achievement was found positive (Aaronson et al.,

2007; Clotfelter et al., 2007), also the impact of teacher's efficiency variables such as teachers' reading and writing skills and professional knowledge (Ferguson, 1996; Strauss and Sawyer, 1986), teacher's verbal aptitude (Ehrenberg and Brewer, 1994), and pedagogical knowledge were found significantly affecting the students' achievement scores. The results obtained in the present study, regarding the negligible effect of teacher qualification, was not in agreement of the results obtained in the studies conducted by Clotfelter et al. (2007), Frome, Lasater and Cooney (2005), Goldhaber (2007), Rivkin et al. (2005), and Strauss and Sawyer (1986). But result of present study was identical to the results obtained in other studies conducted by Aaronson et al. (2007), and Rowan, Correnti and Miller (2002). In urban slums of Varanasi city, most of the teachers were working on ad hoc/daily basis at very low payment. They hold hardly graduate degree and very few of them were trained for teaching elementary school students. These were the possible reasons of insignificant negative association of teachers' qualification with the learning outcomes at elementary stage of education in urban slums of Varanasi city.

The results of coefficient of multiple determination (R^2) reveals the fact that multiple linear regression model between quality score considered as dependent variable and thirteen school and home factors as independent variables is significant. The higher value of forecasting index for these thirteen school and home factors indicate that prediction of quality of elementary education through regression equation is comparatively better than those made merely from knowledge of the means of quality scores. Here it can be deduced that these thirteen school and home factors are pertinent in regard to quality of elementary education. Previous research studies have exposed the importance of school inputs and family background characteristics in pupil performance (Bonesronning, 2003; Cash 1993; Coleman et al., 1966; Mollenkopf and Melville, 1956; Teddlie and Reynolds, 2000). These research studies have concluded that school inputs and family background characteristics play vital role in learning outcomes. In this context, the results obtained in the present study confirm the pivotal role of school inputs and home environment in quality determination. The study further revealed that school factors contributed comparatively higher than home background factors in the quality of elementary education in urban slums of Varanasi city. However, the results obtained, in this context, in previous studies were contradictory. Research studies have previously exposed the importance of family background characteristics, such as socio-economic status (SES) of the family, and teaching-learning environment at home in explaining

variation in student achievement, and relatively small impact of school characteristics on student achievement (Coleman et al., 1966). It seems that in present study, school inputs play foremost role in quality determination due to trivial variation in family background characteristics in comparison to variation in school circumstances in slum areas.

The present study has shown that the learning outcomes varied across schools in urban slums of Varanasi city. Most of the students could not achieve higher grades of learning. The finding by Jangira and Yadav (1994) and Singh and Saxena (1995) that there was a marked difference in achievement across schools are confirmed by this study. Furthermore, a number of research studies have shown that management and leadership affect the learning outcomes in schools. Privately-managed schools are more efficient than government-managed schools. In the present study, the learning outcomes of private elementary schools was found considerably better than the learning outcomes of government elementary schools in urban slums of Varanasi city. This finding conforms to that of the study by Kulkurni (1970). Private schools are comparatively better in providing basic facilities, utilizing teaching-learning material and conducive teaching-learning environment to their children. It seems that instructional method and teacher's behaviour in classroom were comparatively methodological in private schools, hence more efficient in achieving the goal set by school in context of learners' outcomes. In most of government schools teaching-learning materials and organization of co-curricular activities were on record only. Since, the purpose of evaluation is to improve the performance of the individual and the organization (Reeves, 2004), it seems that private schools were evaluating their students continuously and comprehensively in context of different personality aspects while in government schools, evaluation of students was not comprehensive. Possibly these were the foremost reasons of comparatively better learning outcomes of private elementary schools.

Concern to improve the learning outcomes at elementary stage of education has been highest priority agenda in almost all countries throughout the world. In earlier studies, it has been revealed that the schools, concentrated with minority or disadvantaged students, are negatively associated with achievement and these schools accounts for a substantial amount of variability in achievement (Bryk and Raudenbush, 1988). In particular, schools with higher proportions of minority and disadvantaged students have lower average achievement than other schools. Other school composition variables such as school SES are also signifcantly associated with student achievement (Lee and

Bryk, 1989). Higher SES schools have typically higher average achievement than lower SES schools. Major research studies and achievement surveys in India found the academic performance of primary schools' students, belonging to deprived community, to be disappointingly low. In the present study, the learning outcomes of elementary education provided to deprived section in slum area of Varanasi city was found qualitatively low than average learning outcomes of elementary education provided at national level. It obstruct in achieving the goal of universal elementary education of a satisfactory quality to all the children in country. The finding of the study, that slum children had low learning outcomes, are in agreement of the findings of earlier studies conducted by Chandrashekharaiah (1969), Chopra, 1964, Dave (1963), Shah, and Sharma (1984). These studies have already shown that academic achievement of children belonging to deprived categories dwelling in slum areas considerably differ with the academic achievement of children belonging to privileged categories. In slum areas of Varanasi city, the possible causes of low learning outcomes may be teachers using traditional method of teaching in curriculum transaction, unfamiliarity with innovative learner-centred method, inefficient teachers' behaviour during instruction in accelerating learning among students. In these schools, students were not given the opportunity to ask questions, express ideas and participate in open discussion during instruction. Since non-threatening interactions allow students to ask questions, practice the free expression of ideas, develop their own skills and improve class discussion (Paswan and Young, 2002). It further seems that, in slum elementary schools, students did not have access to sufficient basic facility in schools, qualified teachers having interest in teaching profession, conducive physical- natural environment and teaching-learning material. The co-curricular activities had been rarely organized in these schools.

Educational Implications of the Study

The present study will enrich the existing stock of knowledge in the field of elementary education, especially, in enhancing learning outcomes of deprived children. Further, the study will serve the purpose of academicians, professional, researchers, administrators, economists and planners concerned with elementary education. Consequently, it would also provide opportunity to the researchers to disseminate their knowledge and experience worldwide. As far as the applicability and usefulness of the study is concerned, the following are the thrust areas where the study may be helpful:

- The study may be beneficial for making policy decision and formulating special

programmes for achieving goal of universalisation of elementary education with satisfactory learning outcomes.

- The study may be beneficial for teachers, headmasters and parents in order to enhance learning outcomes of deprived children in the society.
- The present study reveals the fact that basic facilities available in schools, instructional method used in curriculum transaction, teacher's behaviour in classroom, physical-natural environment, and parent's socio-economic status significantly affect the learning outcomes at elementary stage of education in slum area of Varanasi city.

By improving status of these factors in slum areas, the learning outcomes of elementary education can be improved:

- There is considerable difference in learning outcomes of elementary education in slum areas and learning outcomes at national level. The study draws the attention and calls for intensifying school improvement programmes specifically in deprived areas.
- Government schools perform lower than the private-managed schools. Hence the improvement programmes should be designed keeping in view of the specific needs of the government schools.
- There is a positive association between mean SES of parents and outcomes of teaching-learning process. The deprived young parents in the low mean SES school need to have priority in adult literacy programmes.
- The results of the study may be useful in achieving the right of children to free and compulsory elementary education, as envisaged in RTE Act, 2009.

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