



Impact on Learning of Students of Parishadiya Vidyalaya due to COVID 19

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Abstract

Closure of schools due to COVID 19 has led to trepidations about repercussions for students' learning. In the present study researchers have studied the effect of shutdown of Parishadiya Vidyalaya (schools governed by Uttar Pradesh Basic Shiksha Parishad) on learning of students in the Uttar Pradesh state of India. Parishadiya Vidyaalayas remain closed from 14th March 2020 to 1 March 2021 (for classes 1 to 5) and from 14th March 2020 to 10th Feb 2021 for classes 6 to 8. Schools were shut down again on 20th April 2021 to 23rd August for classes 6 to 8 and 20th April, 2021 to 1st September 2021 for classes 1 to 5. To assess the impact of this closure on students studying in class 6th to 8th SAT 2 exams were conducted on the students studying in class 6th, class 7th and class 8th. Same paper was administered on these students when they were studying in class 5th, 6th and 7th before lockdown. As the schools remained closed almost for a year hence the students were promoted to next class without any examinations. It was not expected from them that they can perform at the level of the class they were promoted to, hence they were subjected to the examination of previous year to know the retention of their learning. It was observed that the majority of students were not able to repeat their performance as they forgot what they had learned in the previous class.

Introduction

In wake of COVID19 a nationwide lockdown was imposed in India. This lockdown has impacted several sectors adversely. Education is one of them. Students coming in Parishadiy Vidyalayas usually come from the underprivileged families. Unavailability of online facilities of learning and poor education of parents are two major hurdles in the learning of students during lockdown. However various measures were taken to facilitate education for these students like connecting students with Whatsapp groups, giving homework to students coming to school premises in small groups for short duration, and arranging Mohalla Pathshala by the school teachers in different localities. However it is revealed by many studies that all these measures remained insufficient and students made no progress while learning from home.

A field study by Azim Premji University shows that long term closure of schools has had a negative impact on the learning of students in India. The study revealed that, 92% and 82% of students' on average have lost at least; one specific ability from the preceding year for language and mathematics, respectively.

Even in the developed countries education was hit adversely due to shut down of schools during COVID 19. Dorn, E. *et al* in their study on the lingering effect of COVID 19 found that in elementary schools in the USA, students are five months behind in maths and four months behind in reading. These inferences were made on comparing the scores of present students with the scores of students of the same age and grades who were studying in normal school years. This loss was more for students of deprived sections, as the study revealed that students in majority-Black schools lost more knowledge than students in majority-white schools.

Objectives of the study

- To study the impact of school closure on learning of students, studying in class 6 to class 8 in Parishadiya Vidyalaya.
- To compare the impact of school closure on learning of students studying in class 6 to class 8 in Parishadiya Vidyalaya of district Shravasti, Jaunpur and Mathura.

Methodology

This study is based on a statewide examination to assess the desirable basic skills of primary students in UP India. The HRD ministry of India has designed the Performance Grading Index to evaluate the status of school education in states and union territories. In the year 2017-18 Uttar Pradesh achieved 132 out of 180 points on learning outcome indicators based on the National Achievement Survey. To improve its position on the Performance Grading Index, the state government of Uttar Pradesh has prepared a framework for scoring better on learning outcome indicators. SAT (Students Assessment Test) examinations were thus introduced for assessment of students' learning outcomes. These exams are to be conducted twice in a year in the months of September and February.

Students who have appeared for the SAT 2 exams held on 14th February 2020 were taken for the study. The SAT 2 exam was conducted in March 2021 on children from 80 junior schools, studying in class 6th, 7th and 8th run by Basic Shiksha Parishad, Uttar Pradesh. Scores obtained by the students were compared with the scores obtained by them on the same set of question papers earlier in February 2020 when they were studying in class 5th, 6th, and 7th respectively. Scores obtained by the students were converted into grade norms for analysis. Researchers also took the responses from teachers and parents to make significant inferences.

Sampling

This study was conducted in three districts of Uttar Pradesh i.e. Mathura, Jaunpur and Shravasti. Multistage sampling was done to collect the data. District Mathura has 1536 schools in 13 blocks; district Shravasti comprises 984 schools in 5 blocks and district Jaunpur has 2799 schools in 22 blocks. Two schools were chosen from each block. Thus a total 80 schools were chosen out of 5319 schools of 40 blocks of three districts. In these eighty schools SAT 2 exam was given to all the students present on that day in the school. Thus researchers were able to get a truly randomised and representative sample of students from a vast area.

Tool

Question paper for SAT 2 (Students Assessment Test) exams was set by the State Council of Educational Research and Training Uttar Pradesh with the help of trained experts to assess the learning outcomes for four subjects in class 5th – Hindi, English, Mathematics and Environmental Study. For class 6th and class 7th the question paper was prepared by the State Council of Educational Research and Training Uttar Pradesh to assess the learning outcomes for five subjects - Hindi, English, Mathematics, Science and Social Study.

In the question paper for class 5th out of total 40 questions 20 multiple choice and 20 very short answer type questions were included. 2.5 marks were allocated for each question. For class 6th and class 7th fifty questions carrying 2 marks for each question were given. Out of fifty 25 questions were multiple choice and 25 were short answer types.

Hypothesis

H₀₁: There is no significant difference in the impact of lockdown on the learning of students of district Mathura, Jaunpur and Shravasti.

H₀₂: There is no significant difference in the impact of lockdown on the learning of students of class 6th, 7th and 8th.

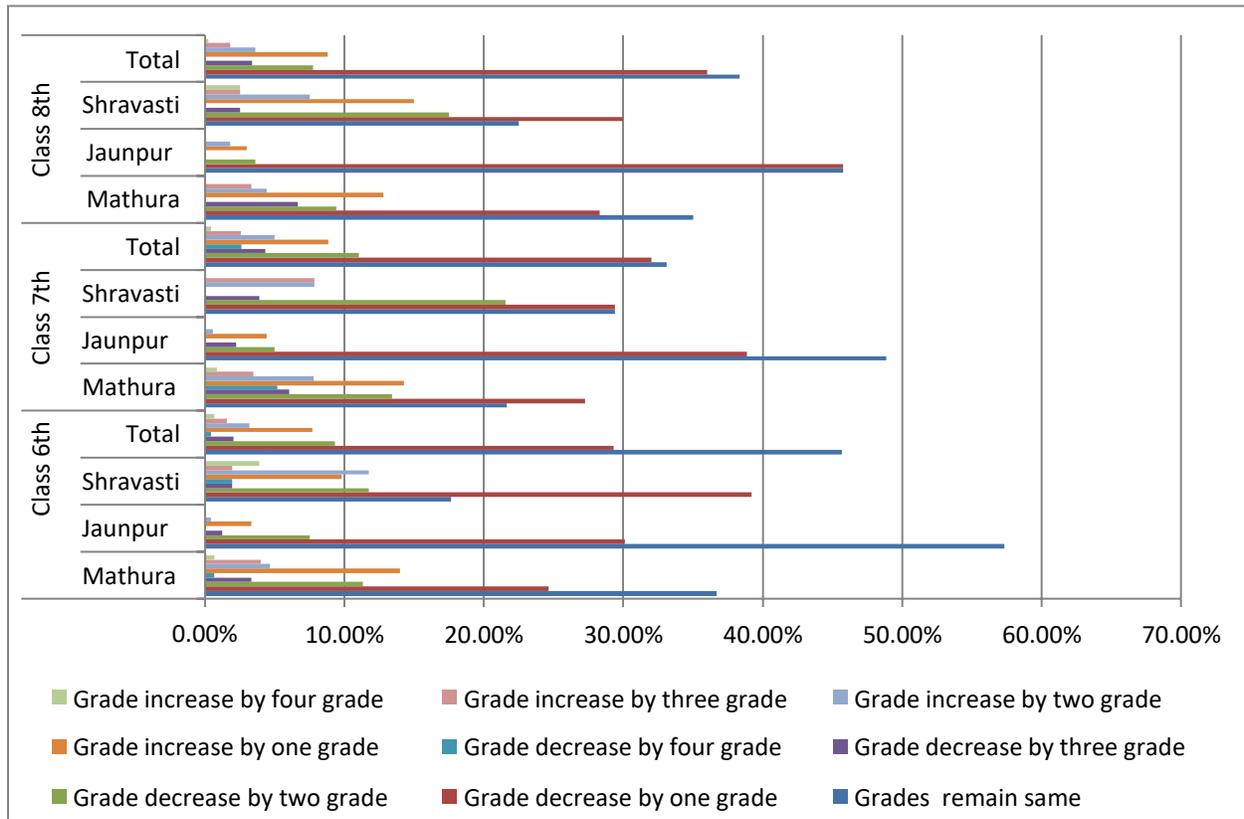
Data analysis

First objective of the present study is investigating the impact of school closure on learning of students studying in class 6 to class 8 in Parishadiya Vidyalaya. To understand the district wise and class wise impact of lockdown on learning of students, number of students was counted in nine categories-

- Students whose grades were increased by four grades
- Students whose grades were increased by three grades
- Students whose grades were increased by two grades

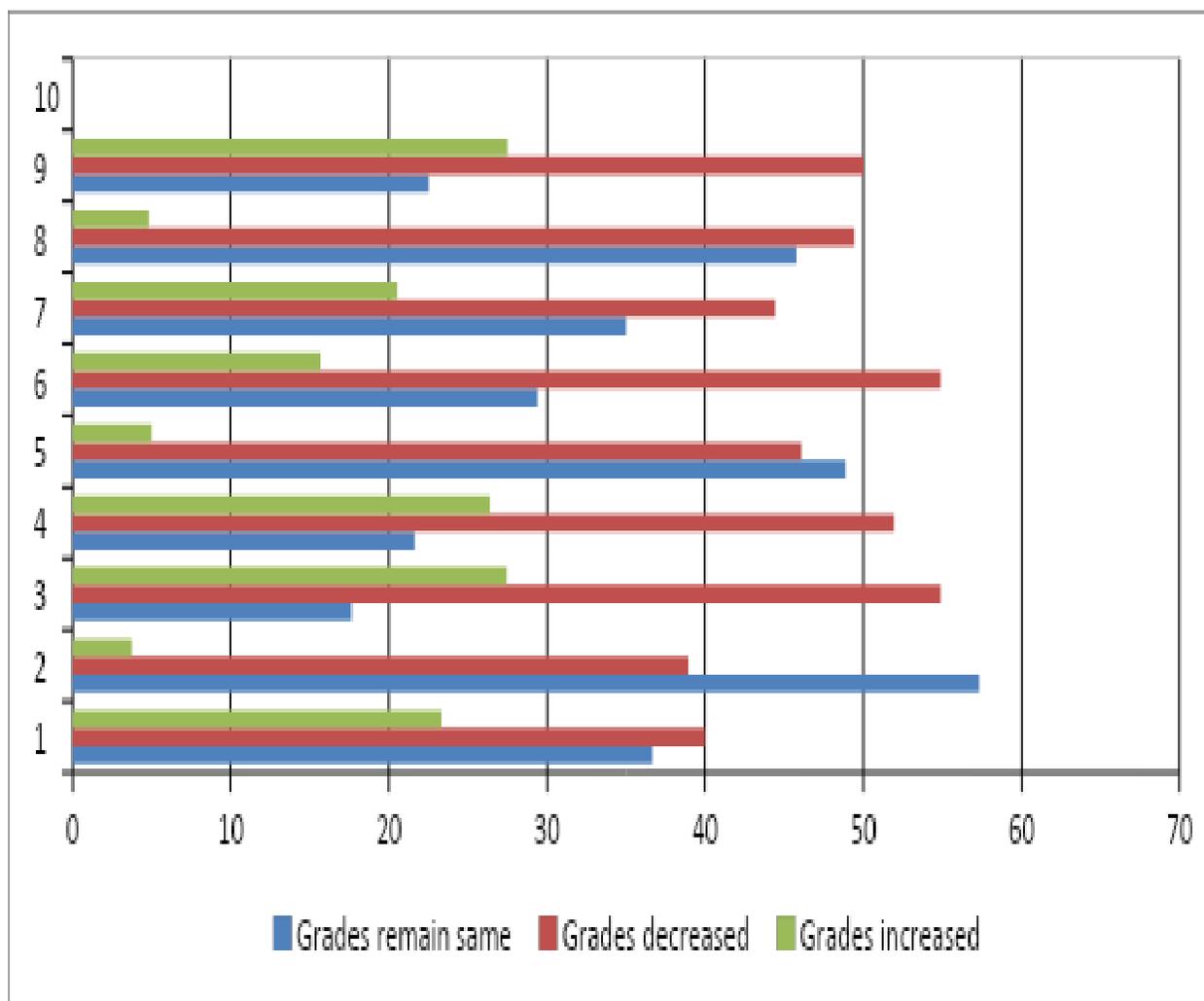
- Students whose grades were increased by one grade
- Students whose grades remained unaffected
- Students whose grades were decreased by four grades
- Students whose grades were decreased by three grades
- Students whose grades were decreased by two grades
- Students whose grades were decreased by four grades
- Students whose grades were decreased by one grade These numbers are then presented graphically in graph no. 1

Graph no. 1 bar diagram showing district wise and class wise performance of students in nine categories



It is clear from the graph no. 1 that in class 6th, 7th, and 8th only a few students could manage to improve their grades after one year of home study. Most of the students either achieved the same or lower grades after spending a whole year. Bar diagram shown above represents a complex view of students of class 6th, 7th, and 8th in three districts. However it can be seen that most of the students of three districts studying in class 6th, 7th, and 8th either got declined or unimproved over time. However it seems that in district Jaunpur more students could manage to save their grades over time.

For the sake of convenience and to have a comprehensive view of these results researchers further classified students in three categories. First category contained the students whose grades remained unaffected before and after lockdown. In the second category only those students were included whose performance affected adversely and they got lower grades after lockdown. In the third category those students were placed who performed better after lockdown.



Graph no. 2 bar diagram showing district wise and class wise performance of students in three categories

Graph no. 2 shows district wise and class wise performance of students. It is evident from the above graph that in Mathura, grades of 36.67% students of class 6th remain unaffected while 40% students achieved lower grades than a year ago. However, 23% of students improved their performance. In Jaunpur grades of 57.32% students of class 6th remain unaffected while 38.91% students achieved lower grades than a year ago. However, 3.70% of students improved their performance. In Shravasti grades of 22.5% students of class 6th remain identical while 50% students obtained lower grades than a year ago. However, 3.70% of students upgraded their performance.

In Mathura 21.67% of class 7th students could secure their grades and 52% students achieved lower grades than a year ago. Whereas in Jaunpur In class 7th 48.88% students could secure their grades and 46.11% students achieved lower grades than a year ago. In Shravasti 29.41% of class 7th students could lock their grades and 54.90% students achieved lower grades than a year ago.

In Mathura 44.44% of class 8th students could secure their grades and 35% students achieved lower grades than a year ago. In Jaunpur 45.78% students of class 8th could secure their grades and 49.39% students achieved lower grades than a year ago. In Shravasti 45.78% of class 8th students could secure their grades and 49.39% students achieved lower grades than a year ago.

To understand whether these differences seen in graphs are statistically significant or not, a non-parametric test was applied, as the researcher had to study categorical variables.

H₀: There is no significant difference in the impact of lockdown on the learning of students of district

To test the null hypothesis that “There is no significant difference in the impact of lockdown on the learning of students of district Mathura, Jaunpur and Shravasti” χ^2 test was performed.

Table No. 1 result of Chi-Square Test for districts

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	125.053	4	.000
No. of Valid Cases	1288		

Table 1 shows that there is a significant difference in learning of students among districts due to closure of schools, as χ^2 value was found to be 125.05 whose p value at 4 degree of freedom is $< .05$ hence the null hypothesis that “there is no significant difference in impact of school closure on learning of students of district Mathura, Jaunpur and Shravasti” is rejected. Inter-district differences are present in impact of school closure on learning of students

Post-hoc analysis was carried out to find out where this difference is present. This analysis was carried out with the help of IBM SPSS 25. In crosstabs residuals were calculated and are given in table No. 2

Table 2 adjusted residual for district wise impact

district	Impact				
		Decreased	increased	unaffected	total
Jaunpur	Observed frequency	258	26	301	585
	Expected frequency	269.8	87.2	228.0	585.0
	Percentage	44.1%	4.4%	51.5%	100.0%
	Adjusted Residual	-1.3	-9.6	8.4	
Mathura	Observed frequency	260	133	168	561
	Expected frequency	258.7	83.6	218.7	561.0
	Percentage	46.3%	23.7%	29.9%	100.0%
	Adjusted Residual	.1	7.8	-5.8	
Shravasti	Observed frequency	76	33	33	142
	Expected frequency	65.5	21.2	55.3	142.0
	Percentage	53.5%	23.2%	23.2%	100.0%
	Adjusted Residual	1.9	3.0	-4.1	

These residuals given in table no.2 are actually z values were then converted to, chi square value and then P value of chi squares were calculated and are given below in table No. 3

Table No. 3 P value estimation (for districts)

Adjusted residual z score	Chi square	P value
-1.30	1.69	.19
-9.60	92.16	.00*
8.40	70.56	.00*
.10	.01	.92
7.80	60.84	.00*
-5.80	33.64	.00*
1.90	3.61	.06
3.00	9.00	.00*
-4.10	16.81	.00*

Analysis of residual scores revealed that the percentage of students with decreased grades was not significantly different across districts. However p value in six categories was found to be significant which revealed that percentage of students with increased grades was significantly

higher in Mathura than Jaunpur and percentage of students with increased grades was significantly lesser in Jaunpur than Mathura and Shravasti. The category of students whose grades remain unaffected was significantly higher in Jaunpur and significantly lesser for Mathura and Shravasti.

H₀: There is no significant difference in the impact of lockdown on the learning of students of class 6th, 7th and 8th.

To test the null hypothesis that “There is no significant difference in the impact of lockdown on the learning of students of class 6th, 7th and 8th” X² test was performed, results are presented in table No. 4

Table No. 4 result of Chi-Square Test for different classes

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	15.282	4	.004
No. of Valid Cases	1288		

The value of the Chi-Square is 15.282 and the p-value is .004, which is lesser than the standard alpha, hence the null hypothesis that “There is no significant difference in the impact of lockdown on the learning of students of class 6th, 7th and 8th” is rejected. The data suggests that the classes and impact on grades are associated with each other. These results indicate that in this contingency table there is a disproportionate number of students in one or more classes.

To analyse where these differences were significant, residual scores were calculated which are given in the table no.5.

Table 5 adjusted residual for class wise impact

district	Impact				
		Decreased	increased	unaffected	total
Eighth	Observed frequency	182	56	148	386
	Expected frequency	178.0	57.5	150.4	386.0
	Percentage	47.2%	14.5%	38.3%	100.0%
	Adjusted Residual	.5	-.3	-.3	
Seventh	Observed frequency	231	78	153	462
	Expected frequency	213.1	68.9	180.1	462.0
	Percentage	50.0%	16.9%	33.1%	100.0%
	Adjusted Residual	2.1*	1.5	-3.2*	
Sixth	Observed frequency	181	58	201	440
	Expected frequency	202.9	65.6	171.5	440.0
	Percentage	41.1%	13.2%	45.7%	100.0%
	Adjusted Residual	-2.6*	-1.3	3.6*	

These residuals were then converted to chi square scores. P value of chi square was calculated and are given in table No. 6

Table 6 P value estimation (for classes)

Adjusted residual z score	Chi square	P value
.50	.25	.62
-.30	.09	.76
-.30	.09	.76
2.10	4.41	.04*
1.50	2.25	.13
-3.20	10.24	.00*
-2.60	6.76	.01*
-1.30	1.69	.19
3.60	12.96	.00*

p value in four categories was found to be significant. In class 7th, the percentage of students with decreased grades was significantly higher (50%) and in class 6th the percentage of students with decreased grades (45.7%) was significantly lower. In 7th, the percentage of students with unaffected grades (33.1%) was significantly lower and in class 6th the percentage of students with unaffected grades (45.7%) was significantly higher.

Discussion

On the basis of present study it can be implied that more than a year - long shut down of schools has hampered the performance of students. There are inter-district differences in this adverse effect, which may be associated with different factors like literacy rate and mindset of that particular area. Class-wise

comparison revealed that students in class 7th performed worst among all the three classes. This may be attributed to the age of these students as in class 7th they are of thirteen years. This is the start of the teenage years. However further research is needed to reach a binding conclusion. One important disclosure of this study is that some students performed even better than earlier (4.4% in Jaunpur, 23.7 % in Mathura and 23.4% in Shravasti). In discussion with parents and teachers of the students, it was found that during lockdown there were some factors due to which these students kept learning and performed better. Parents of even rural areas are aware of the importance of education. When schools were open they were less concerned about the learning of their wards but the school shut down made them cautious about learning of their wards. They not only motivated their wards to learn but also sent them to private tuition which was available at a very cheap rate during lockdown (20 to 100 rupees/month). Even though one should keep it in mind that these improvements were shown when the students were evaluated for the skills which are expected to be gained by the students in the previous class.

Results of the present study are in congruence with the earlier researches conducted in India. As the study conducted by Azim Premji University reported, loss of a specific mathematical ability is 82% and loss of one specific language ability by 92% of children due to school closure. Inferences made by Azim Premji University are based on the comparison of assessment of abilities important for further learning of students by their teachers in March 2020 and by the researchers in January 2021. Banerji & Wadhwa have also reported substantial drop in learning levels for primary classes. However the results of their study is based on comparison between estimates found by the researchers in February- March 2021 for basic reading and arithmetic and estimates reported by ASER in 2018 on similar parameters.

On comparing the present study with above mentioned studies, all the three studies found learning loss due to forgetting by the students; however the percentage reported by the earlier two studies seems substantially higher than the present study. Reason of this difference may be due to differences in research methodology. As, for the present study assessment of learning of students was done with the same tool and on same students before and after lockdown whereas in the study by Azim Premji University assessment before lockdown was done by different teachers with the help of teacher made test and after lockdown test was made by the researchers hence equivalency of assessment cannot be assured. Similarly findings of research by Banerji & Wadhwa are based on comparison of performance of students with some other students of earlier years in the same class. Hence their study predicts only about a general trend and not specific. However in the present study researchers could replicate the same process after lockdown. Hence the results of present study are more specific and present a little different and precise picture of impact of lockdown.

Conclusion

Present study has revealed that school closure due to lockdown has negatively affected learning of students, studying in class 6 to class 8 in Parishadiy Vidyalayas of Uttar Pradesh India. However no particular trend was observed in the districts studied hence further studies are needed to understand the underlying reason of inter-district differences on impact of learning due to COVID19 to provide local solutions to local problems.

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