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Impact of School-Related Factors on Female Education in India

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Abstract:
Education is a powerful tool for human resource development. Every individual has the fundamental right to be educated in a country like India without discrimination. However, due to some social, economic, geographical, school-related factors, the females are deprived of this right. The present study examines the status of female education in India and the impact of the school-related factors on female education for the year 2010-2011. The study have found that in 2011, the overall literacy rate along with male and female literacy rate have increased to double the rate in 1971, but the growth rate in literacy has reduced. Further, the gender parity index (GPI) depicting the proportion of female literacy rate to male literacy rate is approaching to 1. But still, male-female gap in literacy rates is more than 15 per cent in 2011. A comparison between states with high literacy rate and states with low literacy rate showed that the amenities provided in school have more significantly explained the variation in female literacy rate of states with high literacy rate than states with low literacy rate. The schools with basic amenities have increased over the three decades. By 2016, almost every school have a facility of separate girls' toilet. Further, considering the availability of female teacher in school, there are still 25.5 per cent schools without any female teacher. By 2016, maximum schools have drinking water facility, common toilet, separate girls' toilet and computer facilities in states with high literacy while States with low literacy rate, lack electricity, computer facilities and drinking water facilities. Regression analysis showed that schools without female teacher and common toilet have significant impact on literacy rate of women in states with high literacy rate where drinking water facility, ratio of female teacher to total teacher are some factors affecting positively female education in states with lower literacy rate.

Keywords: female education, government of India, literacy rate, Schools, enrolment

Introduction

"*Literacy unlocks the door to learning throughout life, is essential to development and health and opens the way for democratic participation and active citizenship."*(Kofi Annan)

Literacy opens up endless prospects for an individual. Women literacy opens up prospects not only for her but also for her family. As women are performing household chores as well as professional chores, they need education more than anyone else. The women education in ancient India was quite good but in the middle

age it was deteriorated because of many restrictions against women. Social norm, poverty, gender norm are some of the restrictions that limit women opportunities. Moreover, many studies showed that illiterate women face problems like high levels of fertility, poor nutritional status, low earning potential and little autonomy within the household (Singh, 2015). However, presently there is a significant progress in the performance of women education as modern people in India are realizing that the development of country is not possible without the growth and development of its female population. A woman in India has come a long way by achieving a significant position for her in various fields. She is not only doing her household chores perfectly but at the same time performing excel in her offices, research, science, technology, administration etc. Even the Indian constitution has granted equal rights to women, considering them legal citizens of the country and an equal to men in terms of freedom and opportunity. Women have equal right in education. Still some factors are there which are negatively affecting women literacy. We are unable to completely eradicate these ancient seeds of gender biasness which are still prevailing in the technological minds.

Factor affecting Female Literacy in India based on available literature:

Previous studies have examined various factors which tremendously impact female literacy rate in India and other countries. Kamir & Shahidul (2015) revealed that various inter-related social, economic, school and cultural factors play a significant role in increasing dropout rate especially for girls which lowers the literacy rate of female. Singh (2015) discussed that poor school environment for girls, lower enrolment, Dowry system, early marriage, priority to son's education compared to daughter's education and poverty are some obstruction for women education and literacy campaigns for female literacy, Gender equity, beti bachao beti padaao like strategies can help in girls enrolment in education. Similarly, Huisman, Rani & Smits (2010) studied the role of socio-economic and cultural factors and characteristics of the educational infrastructure on primary school enrolment using data for 70,000 children living in 439 districts of 26 states of India and found that wealth and parental education play important role in more enrolment in schools and better primary schools ensure more educational participation of girls. Yadav (2015) found moderate and positive correlation between sex ratio and literacy.

Studies have also showed that gender discrimination is one of the biggest reasons for low literacy rate of females. Okafor (2010) found that there is a clear discrimination between the male and female when it comes to education. Out of the total respondents 67.39 per cent agreed that parents and the society prioritized male child education over female child education and 86.96 per cent agreed that the parents' neglect towards women education is a factor affecting against women education.76 per cent of total sample agreed that harmful traditional practices like early marriages contribute to parental backwardness towards women education. 83 per cent of total sample agreed that poverty contributes to the backwardness of women education in Borno State.

Likewise in India, the socio-economic factors include parental income, family wealth, parental education and parents' employment (Huisman, Rani & Smits, 2010; Kamir & Shahidul, 2015). An educated parent realizes the importance of education in the social

and economic life of their children. They always motivate the children to gain more and more education in life. Moreover, an educated father in the family gives equal right to the girl child to be educated. Samudra (2014) also showed that the female literacy rate increased with the increase in male literacy rate. Jindal & Pandey (2011) found that increased male literacy rate, decreased female work participation as marginal and main worker have positive effect on female literacy rate. However, sometimes financial constraints and low family income become a reason for gender discrimination when it comes to education. According to Chronic Poverty Report (2004-05), "Approximately one third population of world's chronically poor population live in India and 44 per cent population in India lives below the international US dollar 1 per day poverty line." It is noteworthy that poverty is the root cause of many problems in India and also of gender discrimination. As in such a situation, a male child is always given priority to get education as they will be the bread-earner for the family in future. This negative attitude of parents towards the girl child and her education results in low female literacy rate in India. Further, caste and gender also affect the enrolment in education. Huisman, Rani & Smits (2010) found that in the rural areas, boys and girls belonging to backward caste were less in school. The various other studies have even mentioned that domestic preferences, caring of younger ones, early marriage were some of the other reasons that obstruct the right to education of women.

On the geographical basis, the census reports have shown that female literacy rate in urban areas is higher as compared to rural India. Rajasthan is the state where most of the rural women are illiterate. However, Sharmila & Dhas (2010) studied the development of women education in India and revealed that there had been significant progress in the performance of women education. They also showed that the gaps between rural and urban female literacy rates were narrowing down. It is said that the rural/urban dichotomy cause a massive migration from rural to urban areas, creating increasingly complicated cultural mixtures with which schools are required to cope. Nevertheless, urbanization had been playing a beneficial role in the attainment of women's education in India. Further, the state-wise census reports (2011) showed that Kerala has the highest female literacy rate of 87.7 per cent in India. On the other hand, Uttar Pradesh and Bihar have recorded the lowest female literacy rate of 43 per cent and 33.1 per cent respectively. This is directly related to the health and infant mortality in the states. Kerala has the lowest infant mortality whereas states of Bihar and Uttar Pradesh have a high mortality rate. Gaur & Manchanda (2016) compared the educational status of women in two agrarian states of India, Punjab and Haryana and found that Punjab had more female literacy rate than Haryana. However, it was witnessed that female literacy was improving in both states and gender gap was minimizing.

Government of a nation also have remarkable contribution in improving female literacy. There are many schemes and plans which were implemented by Government of India for encouraging education in India. From Kothari commission (1964) to RTE act (2009), Government is providing different kind of facilities to encourage enrolment, retention. Some of schemes are as follows:

1. National Programme of Mid -day Meals in Schools was launched on 15th August 1995 with a view to enhancing enrolment, retention and attendance and nutritional levels among children (MHRD, 2012-2017).
2. Sarva Shiksha Abhiyaa (2001) give emphasis to universal access and retention, bridging of gender and social category gaps in elementary education. It focuses on elementary education of satisfactory quality with emphasis on education for life. The SSA especially focuses on girls (SCs and STs) and children of weaker section (MHRD, 2017).
3. The Right of Children to Free and Compulsory Education (RTE) Act, 2009 became operational in the country on 1 April, 2010 in which Constitution of India guaranteed the Right of Children to Free and Compulsory education ("Right to education", 2013). Rashtriya Madhyamik Shiksha Abhiyan (RMSA) was launched in March, 2009 with the objectives of enhancing access to secondary education and improving its quality (MHRD, 2016-a).
4. Saakar Bharat mission was formulated in 2009 with the objective of focusing on adult women literacy and to reduce the gap between male and female literacy up to 10 percentage points (MHRD, 2016-b).
5. National Programme for education of Girls at Elementary Level (NPEGEL) is a holistic effort to address obstacles to girls' education at micro level through flexible, decentralized processes and decision making ("NPEGEL- National Programme", 2017). As per Nanda (2017), "Union Budget 2017-18 has pegged an outlay of Rs. 79,685.95 crore for the education sector for financial year 2017-18, up from Rs72,394 crore in 2016-17—a 9.9 per cent rise. Of the total outlay, Rs. 46,356.25 is for the school sector and the rest for higher education." This budget is used in providing drinking water to schools, making girl's toilet, electricity, computers, mid-day meal, and infrastructure of schools which plays essential role in more enrolments of students. Accessibility of school will enforce not only boy's enrolment but also girl's enrolment.

The yet another reason for low female literacy rate in India is unsafe environment for women in the country. According to the National Crime Record Bureau, crime against women is continuously increasing. The crime rate for crime against women in 2015 was recorded to be 53.9 and Delhi has been reported to have highest crime rate of 184.3. Since 2011, cases of crime against women have increased by 43.2 per cent. This is the reason that even though the Indian government is putting efforts to make the primary education free and provide various other facilities to students in school yet the parents are afraid of sending their girls to school, especially in rural areas. Moreover, where schools are located at a far distance from their village or home, parents prefer not to send their daughters to school.

Besides all the above factors, there are various school-related factors that play a significant role in improving female literacy rate in a country. Investment in schools and teachers do pay off in terms of enrolment. Separate girl's toilet, schools nearby house, water facilities in schools to some extent facilitate girl's enrolment and encourage women education. According to study by Devi (2015), number of elementary school increased to amount 216,054 schools from 2000 to 2005 and expenditure on education increased by 78,224.37 crore rupees from 2007-2012. In

addition, the percentage of schools having drinking water, common toilets, separate girl's toilet, computers and school with ramp facilities have also increased. The study found that during 2000-2005, enrolment in Elementary schools also increased from 156.64 million to 184.2 million. However, lack of female teachers proves to be a barrier. As India is a gender segregated society, this adversely affects girls' enrollment in schools. With this background, it can be said that these school facilities not only impact the quality of school and education provided but also motivate people especially females to come to school. The present study is focused on such school related factors that impact the female education in India.

Objectives

The objectives include:

1. To study the trend in female literacy rate in India and calculate the gender parity index for female literacy rate.
2. To study the trend in female literacy rate and calculate the gender parity index for literacy rate of top five states with highest literacy rate and top five states with lowest literacy rate.
3. To examine the impact of school related factors on female literacy rate for top five states with highest literacy rate and top five states with lowest literacy rate.

Research methodology

The study is primarily based on secondary data and the required data is collected from reports of various government ministries and agencies like the Ministry of Human Resource Development (MHRD), Ministry of Statistical and Program Implementation (MOSPI), Census Survey of India, UDISE, etc. The study focuses on the educational status of women in India and its top five states having high female literacy rate and top five states having low literacy rate. The data covers the five censuses years from 1971 to 2011.

In addition, the study aimed to find impact of school amenities provided to students in India on the female literacy rate of top five states having high literacy rate and top five states having low literacy rate where union territories are excluded. For applying the regression analysis, data for the year 2010-2011 is used and is collected from the website of U-dise.in. The variables selected include:

Female Education: In the study, female education is measured by the female literacy rate. Indian Census (1991) states "literacy rate is the total percentage of the population of an area at a particular time aged seven years or above who can read and write with understanding in any language." Literacy rates for 1971 Census relates to population aged five years and above and whereas rates for the 1981, 1991 and 2001 Censuses relate to the population aged seven years and above. As per the census of 2011, a literacy rate for men was 80.90 per cent whereas for women was 64.60 per cent. Although there has been seen a substantial increase in the number of literate women and this gap is narrowing, but still it persists.

Gender Parity Index: Gender Parity Index is calculated as the quotient of the number of females by the number of males enrolled at a given stage of education.

States with high literacy rate: States (union territories excluded) having high female literacy rate according to census 2011 were taken as sample. Kerala with literacy rate of 92.1 per cent, Mizoram with 89.3 per cent, Goa with 84.7 per cent, Maharashtra

with 75.9 per cent, and Himachal Pradesh with 75.9 per cent literacy rate were taken as sample. Further, census data of all districts of each state are included in regression analysis.

States with low literacy rate: States (union territories excluded) having low female literacy rate according to census 2011 were taken as sample. Bihar with 51.5 per cent, Jharkhand with 55.4 per cent, Uttar Pradesh with 57.2 per cent, Arunachal Pradesh with 57.2 per cent, Rajasthan with 52.1 per cent, Madhya Pradesh with 59.2 per cent literacy rate. All the above states were taken as sample excluding Rajasthan (due to non-availability of data). Further, census data of all districts of each state are included in regression analysis.

School-related factors: The school-related factors include the amenities provided in the school to the students. Such amenities include drinking water, common toilets, girls' toilet, playground, ramp, boundary wall, electricity, computer, female teachers, blackboard, female teachers and classrooms.

Results and Discussion:

The present study aimed to examine the education status of female population in India with respect to male population. For this purpose, the data related to literacy rate has been collected from different census survey reports and gender parity index and growth in literate population are calculated. Based on the data, the following tables and graphs are constructed:

Table 1 shows the literacy rate in India from the census year 1971 to 2011. In addition, gender parity index and growth in literacy rate have been calculated.

Table: 1

Literacy rate in India (1971- 2011)

Years	Total	Male	Female	Gender Parity Index (GPI)*	Growth in literacy rate		
					Total*	Male*	Female *
1971	34.45	45.96	21.97	0.48	-	-	-
1981	43.57	56.38	29.76	0.53	26.47	22.67	35.46
1991	52.21	64.13	39.29	0.61	19.83	13.75	32.02
2001	64.80	75.30	53.70	0.71	24.11	17.42	36.68
2011	73.00	80.90	64.60	0.80	12.65	7.44	20.30

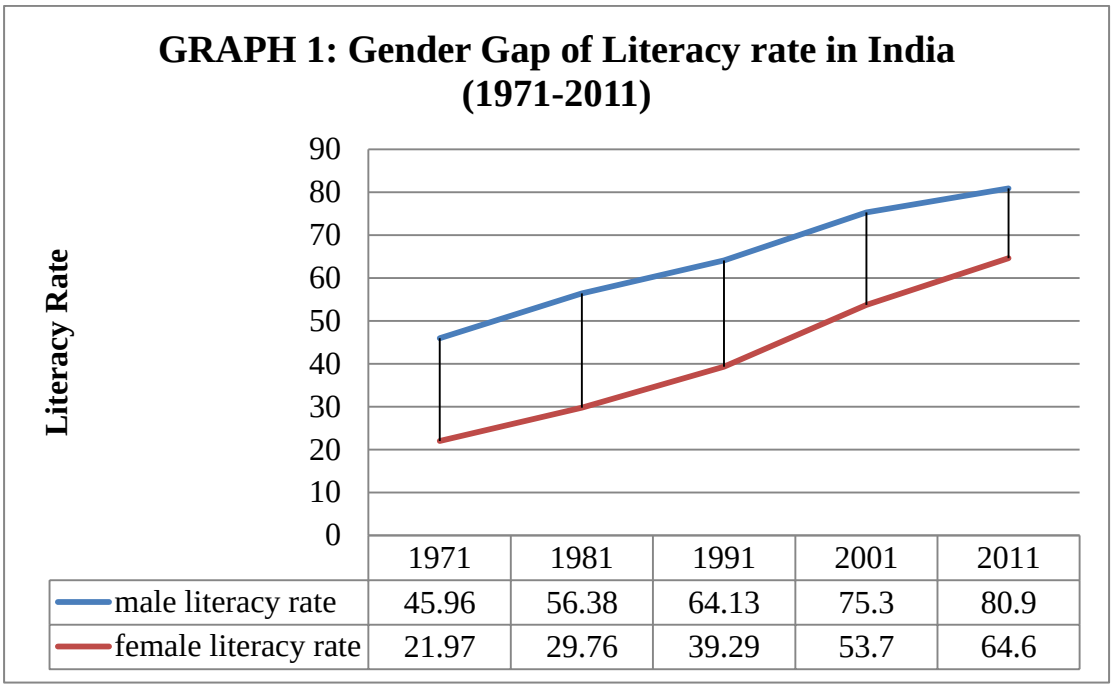
Source: Census survey reports, Government of India.

*Computed

As per Table 1, over the five decades, the overall literacy rate including literacy rate of male and female have increased to double the rate in 1971. A significant development in the literacy rate of female has been seen over these decades. The female literacy rate which was 21.97 per cent in 1971 rose to 64.60 per cent in 2011. In addition to this, the gender parity index (GPI) also improved over these decades to 0.80 in 2011 from 0.48 in 1971. This shows that the difference in the literacy rate of males and females is continuously reducing and is likely to reach to zero (i.e. GPI = 1) in future.

The results also depict that although the literacy rate in India is increasing continuously, yet the growth rate in literacy has reduced in 2011. The growth in literacy rate was 24.11 per cent, 17.42 per cent and 36.68 per cent for overall literacy

rate, male literacy rate and female literacy rate in 2001 which reduced to 12.65 per cent, 7.44 per cent and 20.30 per cent respectively. This is however, a serious concern as still a significant difference exists in the literacy rate of male and female in 2011. Graph 1 titled 'Gender gap of Literacy rate in India (1971-2011)' represents the growth in the performance of both male and female literacy.



Source: Prepared from data available in Census survey reports, Government of India.

On observing the literacy rate in the graph, it is interpreted that literacy rate of both male and female have increased tremendously. Moreover, the gender gap is slowly reducing from approximately 50 per cent in 1971 to 20 per cent in 2011. Still, the female literacy rate is lower than the male literacy rate and efforts need to be made. Table 2 represents the top five states of India having highest female literacy rate and the calculated values of gender parity index of these states.

Table: 2
Top Five States with high Female Literacy Rates in India

State	1981			1991			2001			2011			GENDER PARITY INDEX (GPI)*			
	F	M	Total	F	M	Total	F	M	Total	F	M	Total	1981	1991	2001	2011
Kerala	75.7	87.7	81.6	86.1	93.6	89.8	87.9	94.2	90.9	92.1	96.1	94.0	0.86	0.92	0.93	0.96
Mizoram	68.6	79.4	74.3	78.6	85.6	82.3	86.8	90.7	88.8	89.3	93.3	91.3	0.86	0.92	0.96	0.96
Goa	55.2	76.0	65.7	67.1	83.6	75.5	75.4	88.4	82.0	84.7	92.6	88.7	0.73	0.80	0.85	0.91
Maharashtra	41.0	69.7	55.8	52.3	76.6	64.9	67.0	86.0	76.9	75.9	88.4	82.3	0.59	0.68	0.78	0.86
Himachal Pradesh	37.7	64.3	51.2	52.1	75.4	63.9	67.4	85.4	76.5	75.9	89.5	82.8	0.59	0.69	0.79	0.85

Source: Census survey reports, Government of India.

*Computed

F = Female, M= Male

According to the table, Kerala has the highest rate of 94 per cent in 2011 among all states in India with female literacy rate of 92.1 per cent and male literacy rate of 96.1 per cent. Other states with high literacy rate include Mizoram (91.3 per cent in 2011), Goa (88.7 per cent in 2011), Maharashtra (82.3 per cent in 2011) and Himachal Pradesh (82.8 per cent in 2011). The results show that the overall literacy rate, male literacy rate and female literacy rate has remarkably progressed over these years. In addition to this, the gender parity index (GPI) has also improved in all five states and reached to 0.96 (Kerala), 0.96 (Mizoram), 0.91 (Goa), 0.86 (Maharashtra) and 0.85 (Himachal Pradesh).

Table 3 represents the top five states of India having lowest female literacy rate and the gender parity index of these states.

Table: 3
Top Five States with low Female Literacy Rates in India

State/Union Territory	1981			1991			2001			2011			GENDER PARITY INDEX (GPI)*			
	F	M	Total	F	M	Total	F	M	Total	F	M	Total	1981	1991	2001	2011
Bihar	16.5	46.6	32.0	22.0	51.4	37.5	33.1	59.7	47.0	51.5	71.2	61.8	0.35	0.43	0.55	0.72
Jharkhand	-	-	-	-	-	-	38.9	67.3	53.6	55.4	76.8	66.4	-	-	0.58	0.72
Uttar Pradesh	17.2	47.4	33.3	24.4	54.8	40.7	42.2	68.8	56.3	57.2	77.3	67.7	0.36	0.44	0.61	0.74
Arunachal Pradesh	24.2	46.8	35.7	29.7	51.5	41.6	43.5	63.8	54.3	57.7	72.6	65.4	0.52	0.58	0.68	0.79
Rajasthan	14.0	44.8	30.1	20.4	55.0	38.6	43.9	75.7	60.4	52.1	79.2	66.1	0.31	0.37	0.58	0.66
Madhya Pradesh	19.0	48.4	34.2	29.4	58.5	44.7	50.3	76.1	63.7	59.2	78.7	69.3	0.39	0.50	0.66	0.75

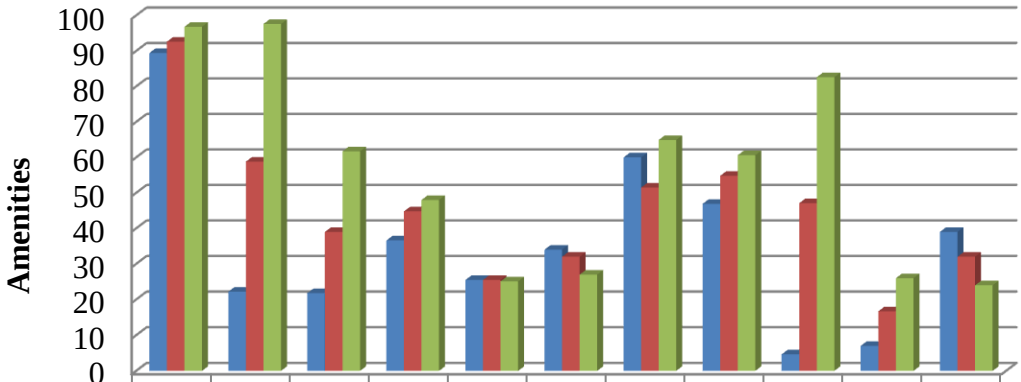
Source: Census survey reports, Government of India.

*Computed

According to the table, Bihar has the lowest literacy rate of 61.8 per cent in India among all states in India with female literacy rate of 51.5 per cent and male literacy rate of 71.2 per cent. Other states with low literacy rate in 2011 include Uttar Pradesh (67.7 per cent), Arunachal Pradesh (65.4 per cent), Rajasthan (66.1 per cent) and Madhya Pradesh (69.3 per cent). The results show that the overall literacy rate, male literacy rate and female literacy rate has remarkably progressed over these years. In addition to this, the gender parity index (GPI) has also improved in all five states and reached to 0.72 (Bihar), 0.74 (Uttar Pradesh), 0.79 (Arunachal Pradesh), 0.66 (Rajasthan) and 0.75 (Madhya Pradesh).

Graph 2 represents the school characteristics covering percentage of schools in India with amenities provided to the student in 2003, 2010 and 2016.

Graph 2: Percentage of school in india with amenities for student (2003, 2010 & 2016)

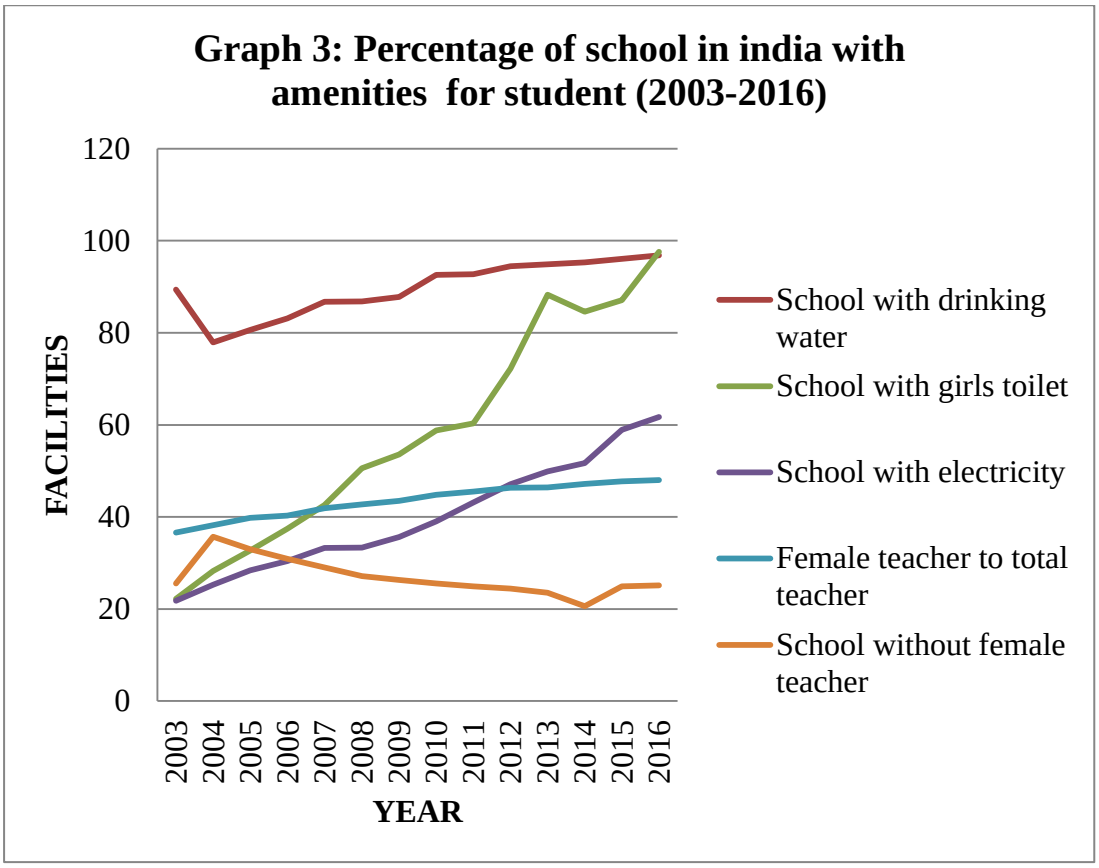


	School with drinking water	School with girls toilet	School with electricity	Female teacher to total teacher	School without female teacher	student classroom ratio	school with boundarywall	school with playground	school with ramp	school with computer	pupil teacher ratio elementary
2003	89.4	22.22	21.8	36.6	25.5	34	59.99	46.9	4.63	7.02	39
2010	92.6	58.8	39	44.8	25.5	32	51.5	54.8	47.1	16.7	32
2016	96.8	97.6	61.7	48	25.1	27	64.9	60.6	82.6	26	24

Source: Prepared from data available from U-dise.in

Observing the bar graph, it is interpreted that since 2003 a growth is recorded in the percentage of school providing basic amenities to the student to total schools in India. By 2016, 96.8 per cent of schools in India have drinking water facilities. Further, the bar graph also depicted that a tremendous growth is seen in schools' providing girls' toilet. By 2016, 97.6 per cent schools have girls' toilet. Similarly, year 2016 has recorded improvement in the schools having electricity (61.7 per cent), playground (60.6 per cent), ramp (82.6 per cent) and computer facilities (26 per cent). In addition, ratio of female teacher to total teacher has also increased from 36.6 to 44.8 in time period from 2003 to 2010 and further to 48 in 2016. However, there exist 25.5 per cent schools without any female teacher and not much improvement is witnessed on this aspect. On the other hand, student classroom ratio and pupil teacher ratio has reduced over these years. It is noteworthy that such improvement in the facilities provided by schools in India not only enhanced the quality of schools but also motivated the students to come to schools.

Graph 3 represents school characteristics covering percentage of school with amenities provided to the students in India for the years 2003 to 2016.



Source: Prepared from data available from U-dise.in

Observing the graph, an incredible growth could be seen in the percentage of schools in India providing amenities to the students in elementary and secondary classes to total schools in India. A significant growth could be seen in the percentage of schools having girls' toilet from 22.22 per cent in 2003 to 97.6 per cent in 2016. This signifies that almost every school in India today has girl's toilet. Similarly, a substantial progress could be recorded in the number schools providing drinking water and electricity. Further, the percentage of female teacher to total teacher has increased from 36.6 times in 2003 to 48 times in 2016. On the other hand, there is reduction in percentage of schools without female teacher from 35.71 per cent in 2004 to 20.6 per cent in 2014.

Descriptive Statistics:

The study examines the impact of school-related factors on female literacy rate of five states with high female literacy rate and five states with low female literacy rate for the year 2011 using two different regression models. Since a sample of five states is very small, the regression model includes data available for literacy rate and school-related factors of all the district of the above mention states on the website 'udise.in' for the year 2011. However, the states (Rajasthan) and districts having missing data have been excluded. The final sample for running regressions models includes observations as shown in Table 4.

Table: 4
District composition for States with High Female Literacy Rate and States with Low Female Literacy Rate

States with High Female Literacy Rate	No. of Districts	States with Low Female Literacy Rate	No. of Districts
Kerala	15	Uttar Pradesh	69
Mizoram	8	Bihar	37
Goa	2	Jharkhand	15
Maharashtra	35	Arunachal Pradesh	13
Himachal Pradesh	12	Madhya Pradesh	45
Total	72	Total	179

Source: Computed

For states with high literacy rate, the variables include

1. Female literacy rate (HFLR)
2. Percentage of school with common toilets to total school (SCT),
3. Percentage of school with girls' toilets to total school (SGT),
4. Percentage of school with drinking water to total school (SDW),
5. Percentage of schools without female teacher to total school (SWFT),
6. Percentage of school with electricity to total school (SE),
7. Percentage of school with computer facility to total school (SC),
8. Percentage of female teacher to total teacher (FT_TT)

For states with low female Literacy rate, variables include

1. Female literacy rate (LFLR).
2. Percentage of school with common toilets to total school (SCT1),
3. Percentage of schools with girls' toilets to total school (SGT1),
4. Percentage of schools with drinking water to total school (SDW1),
5. Percentage of school with electricity to total school (SE1),
6. Percentage of schools without female teacher to total school (SWFT1),
7. Percentage of school with computer facility to total school (SC1)
8. Percentage of female teacher to total teacher (FT_TT1)

Table 5 represents the descriptive statistics for states with high female literacy rate for the year 2010-2011. The descriptive statistics include number of observation, mean and standard deviation.

Table: 5

Descriptive Statistics for States with High Female Literacy Rate (Percentage)

States	Kerala			Mizoram			Goa			Maharashtra			Himachal			Total		
Variables	Obs.	mean	Std. dev	Obs.	mean	Std. dev	Obs.	Mean	Std. dev	Obs.	mean	Std. dev	Obs.	mean	Std. dev	Obs.	mean	Std. dev
HFLR	15	87.28	4.81	8	82.63	12.65	2	75.20	2.12	35	64.07	9.06	12	65.71	7.45	72	71.33	12.91
SCT	15	54.62	5.49	8	71.67	14.95	2	41.26	3.98	35	30.79	13.40	12	35.32	9.76	72	41.15	18.24
SGT	15	94.37	4.12	8	91.57	9.27	2	89.36	0.50	35	90.77	3.82	12	85.56	11.08	72	90.65	6.74
SDW	15	99.35	0.45	8	86.66	14.15	2	99.00	0.40	35	92.05	5.61	12	95.67	7.52	72	93.69	7.69
SWFT	15	0.68	0.54	8	17.98	10.79	2	1.53	0.65	35	32.48	11.10	12	28.78	9.79	72	23.08	15.90
FT_TT	15	90.33	4.41	8	43.10	24.30	2	97.14	1.32	35	74.38	14.50	12	62.28	23.14	72	72.60	21.17
SE	15	74.52	10.46	8	37.77	8.09	2	77.97	5.12	35	40.05	13.44	12	43.40	7.90	72	48.22	18.39
SC	15	93.01	5.10	8	21.39	9.49	2	31.86	0.38	35	41.10	13.44	12	17.90	4.97	72	44.93	27.72

Source: Computed

As per the table, Kerala shows the highest female literacy rate with mean value of 87.28 per cent followed by Mizoram (82.63 per cent), Goa (75.20 per cent), Himachal Pradesh (65.71 per cent) and Maharashtra (64.07 per cent). The overall mean value is found to be 71.33 per cent with standard deviation of 12.91. Observing the school

related factors, Mizoram have recorded highest mean value of 71.67 per cent for schools with common toilets followed by Kerala (54.62 per cent). Further, mean value of schools with girls' toilet for all the five states found to be greater than 85 per cent where Kerala recorded with highest mean of 94.37 per cent and standard deviation 4.12. One of the basic need of a living beings, drinking water is provided in nearly every school as data shows that total mean value for percentage of school with drinking water facility to total schools is 93.69 per cent with mean value of 99.3 per cent in Kerala (standard deviation 0.45) followed by Goa (mean value of 99 per cent and S.D. 0.4).

However, Mizoram recorded the lowest with mean value 86.7per cent. Schools without female teacher are low as total mean is 23.08 with S.D. 15.90. Mean value of schools without female teacher in Kerala is 0.68 per cent and in Goa is 1.53 per cent, which is a good sign. The total mean value of schools with electricity and computer is 48.22 per cent, 44.93 per cent respectively.

Table 6 represents the descriptive statistics for states with low female literacy rate for the year 2010-2011. The descriptive statistics include number of observation, mean and standard deviation.

Table: 6

Descriptive Statistics for States with Low Female Literacy Rate (Percentage)

States	Uttar Pradesh			Bihar			Jharkhand			Arunachal Pradesh			Madhya Pradesh			Total		
Variables	Obs.	Mean	Std. dev	Obs.	mean	Std. dev	Obs.	Mean	Std. dev	Obs.	mean	Std. dev	Obs.	mean	Std. dev	Obs.	mean	Std. Dev
LFLR	69	41.73	9.85	37	32.46	7.99	18	35.93	10.63	13	42.09	9.89	45	49.32	9.72	214	41.31	10.79
SCT1	69	45.69	30.48	37	44.18	15.30	18	21.56	18.43	13	36.84	16.15	45	49.13	19.55	214	36.75	27.33
SGT1	69	89.15	14.27	37	63.04	13.98	18	72.96	13.50	13	54.13	20.96	45	72.07	16.00	214	77.95	18.57
SDW1	69	98.13	2.36	37	91.28	5.70	18	86.66	6.91	13	80.01	24.93	45	91.21	5.48	214	92.86	8.85
SWFT1	69	22.58	7.87	37	18.03	4.88	18	43.72	11.16	13	17.27	5.47	45	32.37	6.50	214	27.46	11.35
FT_TT1	69	30.42	14.81	37	4.51	2.49	18	9.90	6.41	13	23.14	8.52	45	21.19	10.44	214	23.29	16.34
SE1	69	32.90	8.28	37	37.58	3.84	18	29.55	9.76	13	34.39	7.88	45	38.49	10.63	214	34.13	9.29
SC1	69	5.59	4.41	37	1.47	1.00	18	6.98	3.76	13	17.78	7.24	45	10.48	6.20	214	33.83	9.59

Source: Computed

As per the table, Bihar shows the lowest female literacy rate with mean value of 32.46 per cent followed by Jharkhand (35.93 per cent), Utter Pradesh (41.73 per cent), Arunachal Pradesh (42.09 per cent) and Madhya Pradesh (49.32 per cent). The overall mean value is found to be 41.31 per cent with standard deviation of 10.79. Looking at the school related variables, Jharkhand have lowest mean value of 21.56 per cent for schools with common toilets and total mean value is 36.75 per cent. Further, for percentage of schools with girls' toilet to total teacher, the mean value is greater than 50 per cent for all five states which mean approximately half of schools still do not have separate girl's toilet. Drinking water facility is provided in approximately every school as data shows that total mean value is 92.86 per cent and mean value for percentage of schools providing drinking water to total schools in Utter Pradesh is 98.13 (standard deviation 2.36) followed by Bihar (mean 91.28 per cent and S.D. 5.7). The mean value for Arunachal Pradesh (80.01 per cent) is the lowest among all the five states.

The total mean for percentage of schools without female teacher to total schools is 27.46 per cent with S.D. 11.35. Further, the mean value of schools without female teacher in Jharkhand is 43.72 per cent and in Arunachal Pradesh is 17.27 per cent. Lastly, the mean value of schools with electricity and computer is 34.13 per cent and 33.83 per cent respectively.

Regression Results:

Table 7 explains the impact of school-related factors on female literacy rate of five states with high female literacy rate and five states with low female literacy rate for the year 2011 using two different regression models. The cross-sectional models formulated are:

Model 1: $HFLR = \beta + \beta_2 (SCT) + \beta_3 (SGT) + \beta_4 (SDW) + \beta_5 (SE) + \beta_6 (SWFT) + \beta_7 (FT\_TT) + \beta_8 (SC) + \varepsilon$

Model 2: $LFLR = \beta + \beta_2 (SCT1) + \beta_3 (SGT1) + \beta_4 (SDW1) + \beta_5 (SE1) + \beta_6 (SWFT1) + \beta_7 (FT\_TT1) + \beta_8 (SC1) + \varepsilon$

Model 1 test the impact of school characteristics such as percentage of school with common toilets to total school (SCT), percentage of school with girls' toilets to total school (SGT), percentage of school with drinking water to total school (SDW), percentage of school with electricity to total school (SE), percentage of schools without female teacher to total school (SWFT), percentage of school with computer facility to total school (SC) and percentage of female teacher to total teacher (FT_TT) on women's literacy rate of states having high literacy rate (HFLR).

Likewise, Model 2 test the impact of school characteristics such as percentage of school with common toilets to total school (SCT1), percentage of schools with girls' toilets to total school (SGT1), percentage of schools with drinking water to total school (SDW1), percentage of school with electricity to total school (SE1), percentage of schools without female teacher to total school (SWFT1), percentage of school with computer facility to total school (SC1) and percentage of female teacher to total teacher (FT_TT1) on literacy rate of states having low literacy rate (LFLR).

Table: 7
Regression Analysis Summary for School-related Factors Predicting Female Education in India

HFLR (Dependent Variable)	B	Std. Error	LFLR (Dependent Variable)	B	Std. Error
(Constant)	76.79	14.49	(Constant)	-3.80	8.18
SCT	0.13*	0.05	SCT1	0.01	0.03
SGT	0.08	0.11	SGT1	-0.02	0.04
SDW	0.01	0.11	SDW1	0.14	0.08
SWFT	-0.72*	0.11	SWFT1	0.30	0.07
FT_TT	-0.10	0.09	FT_TT1	0.22	0.06
SE	0.04	0.05	SE1	0.53	0.09
SC	0.00	0.04	SC1	0.28	0.13
R square	0.84		0.44		
Adjusted R square	0.83		0.42		
F statistics	48.43*		19.37*		

*p< 0.05, **p< 0.10.

Based on the analysis, following results have been found:

Model 1: HFLR = 76.79 + 0.13 (SCT) + 0.08 (SGT) + 0.01 (SDW) + 0.04 (SE) – 0.72 (SWFT) – 0.10 (FT_TT) + 0.00 (SC) + ε

Model 2: LFLR = (-3.80) + 0.01 (SCT1) – 0.02 (SGT1) + 0.14 (SDW1) + 0.22 (SE1) + 0.30 (SWFT1) + 0.53 (FT_TT1) + 0.28 (SC1) + ε

According to the results of Model 1, the model is considered as the model of good fit with R square value 0.84 and adjusted R square value of 0.83. This means that variation in female literacy rate in states with high literacy is 83 per cent explained by the selected independent variable. The model predicts that female literacy rate is high when schools provide facilities of common toilet, girls' toilet, drinking water, computer and electricity whereas it reduces where schools are not having female teachers. Among these variables, school with common toilet and school with no female teacher are the dominant factors having significant impact on literacy rate (p< 0.05).

According to the results of Model 2, the model is considered as the model of good fit with R square value 0.44 and adjusted R square value of 0.42. This means that variation in female literacy rate in states with low literacy is 44 per cent explained by the selected independent variable. The model predicts that female literacy rate is high when schools provide facilities of common toilets, drinking water, electricity, school without female teacher and ratio of female teacher to total teacher. Among these variables, school with drinking water, school without female teacher and ratio of female teacher to total teacher are the dominant factors having significant impact on literacy rate (p< 0.05).

Conclusion

Women without minimum ability to read and write cannot adore her rights fully. Literacy is base for further education. In the lines of First Lady Michelle Obama, "When girls are educated, their countries become stronger and more prosperous." Girls will be educated if there is not any impediment in their way and provision of resources to its fullest. The present study examines the educational status of female in India and the role of school related factors on their education. The results revealed that over the five decades, the overall literacy rate along with male and female literacy rate have risen to double the rate in 1971. This result not only reflects the perseverance and initiatives of government in promoting education but also determination of individuals including female towards attaining education. Gender disparity index is approaching to one which is a good sign but still male-female gap in literacy rates has been more than 15 per cent. Regional difference is also there as Kerala is one of the Indian states with higher literacy rate and Bihar is the state with lowest literacy state.

The regression models predicting the impact of school related factors on female education showed that in states with high literacy rate, the schools with common toilets have a positive and significant impact on the female literacy rate. Contrary to this, schools with girls' toilet have positive but statistical insignificant relation with female literacy rate. This suggests that sanitation is one of the biggest issues obstructing female education in India. Further, ratio of female teacher to total teacher has a negative impact on female education, but female education is also reduced with the non-availability of female teachers in schools. On the other hand, in the states with low literacy rate, availability of common toilets, electricity and female teachers in schools plays a significant role in improving female education. Further, the study also found that in the states with low literacy rate, female literacy rate has positive relation with percentage of schools with no female teacher. Nevertheless, it must be noted that as the model could explain only 40 per cent of variation in female literacy rate, there could be other factors which could be responsible for this increase.

Based on the results, it is concluded that besides other social, economic and geographical factors, school-related factors play an important role in improving female enrolment in schools especially, in states with high literacy rate. The government of India should therefore, take initiatives and formulate schemes for providing necessary amenities to school in India which could improve the literacy rate of the country.

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