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DIGITAL LITERACY IN INDIAN SCHOOLS: A COMPREHENSIVE ANALYSIS OF CURRENT PRACTICES

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Abstract

This EViews investigation examines digital literacy in Indian schools using a large dataset. It investigates variables such as digital equipment availability, internet connectivity, teacher training hours, and student digital competencies in various regions and grade levels. Using rigorous statistical approaches, the study identifies significant changes and relationships in the dataset. The findings highlight the significance of addressing inequities and adopting tailored interventions to improve digital literacy nationwide. The findings help to better understand the dynamics of digital education in India and influence policy actions targeted at increasing equal access to digital resources and education. Moving forward, further research is needed to investigate emerging patterns and assess the effectiveness of interventions in enhancing digital literacy outcomes in Indian classrooms.

1. Introduction

The presentation from the study explores the methods employed using EViews. The test looked into a data set consisting of some markers that were associated with digital competence in Indian schools. These behaviors are used to show the respondents that they are respectful and match the appropriate way. The methods include the Augmented Dickey-Fuller test, correlation examination, heteroskedasticity test, and Generalized Autoregressive Conditional Heteroskedasticity (GARCH) modeling which are employed to investigate the impact of foreign institutional investors (FIIs) on the randomness of the Indian capital market. These actions were used, and a review of the association between FIIs' operating, and supply volatility was conducted.

2. Literature Review

The report study using the dataset by employing EViews which shows a considerable amount of research conducted on the many issues concerning digital literacy in educative contexts.

Studies have examined different accessibilities of digital equipment, connection to the Internet, teacher training, or digital knowledge of students which altogether influence the results in digital literacy (Cetindamar *et al.* 2021). In addition to this, it is noted in the literature that it is not sufficient to develop digital literacy once and then consider the issue closed. It is necessary to continuously monitor the results of the activities and make changes to the digital literacy programs to meet the new needs of the digital era. Thus, the research gives out important lessons towards using the technology method to improve understanding and exploit its benefits.

3. Data

The review employed a dataset featuring school IDs, work programs, the human resource features of education, type, and accessibility of digital equipment, internet connectivity, training hours of the teachers, student capabilities in digital skills, overall digital literacy ratings, and regions (Farias-Gaytan *et al.* 2023). This data was entered into the estimator of the process by using reasonable values. It was validated using the relevant methods processed and cleaned. The stationarity of the series was tested via augmented Dickey-Fuller tests, and mean-reversion effects were identified via heteroskedasticity tests. Next, the concept of precariousness was based on the GARCH model. This method helped to achieve the real factual appraisal and analyzing the data, as a result, the credibility and the reliability of the discoveries were greatly increased.

3.1 Research Methodology

According to the research works of Kumar (2021), the dataset included characteristics, for example, the complete number of students, grade level, accessibility of technological equipment, internet connection, teacher training hours, student digital abilities, all-out digital literacy score, and area.

Equation Name	Equation
Asset Return	
Variance Equation	

Table 1: Estimated equations of the process

The Asset Return (Rt) equation determines the return on assets at time t using coefficients C0 and C1, as well as the delayed return (Rt-1) and residual returns (εt). The Variance Equation calculates the contingent variance (σt^2) using parameters α0, α1, and β, notwithstanding the net FII investment (Net_FIIt) along with the news coefficient (u^2t-1). Stationarity is determined using Augmented Dickey-Fuller (ADF) evaluations, and heteroskedasticity is identified using the Heteroskedasticity Test (ARCH). GARCH modeling analyses unanticipated designs within monetary information.

4. Results and Findings

	TEACHER_TRAINING_HOURS	TOTAL_STUDENTS
Mean	43.61000	16236.00
Median	45.00000	16175.00
Maximum	60.00000	19800.00
Minimum	25.00000	12500.00
Std. Dev.	10.42810	1431.466
Skewness	-0.182206	0.056974
Kurtosis	1.744507	2.288779
Jarque-Bera	7.121072	2.161750
Probability	0.028424	0.339298
Sum	4361.000	1623600.
Sum Sq. Dev.	10765.79	2.03E+08
Observations	100	100

Table 2: Descriptive statistics

The mean number of instructional hours is 43.61, having a range of 25 to 60 hours. Complete student enrollment varies between 12,500 to 19,800, including an average of 16,236. The dataset shows moderate negative skewness in training for educators' hours and a near-typical distribution in overall student counts.

	DIGITAL_EQUIPMENT_AVAILABLE	INTERNET_ACCESS
DIGITAL_EQUIPMENT_AVAILABLE	1.000000	0.983348
INTERNET_ACCESS	0.983348	1.000000

Table 3: Correlation

EViews' correlation study demonstrates a substantial positive relationship between digital equipment accessibility and internet connectivity in the dataset (Pangrazio *et al.* 2020). This shows that schools with more digital technology are likely to have better internet connections, emphasizing the dependency on specialized resources.

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.939172	0.1556
Test critical values:	1% level	-4.064453	
	5% level	-3.461094	
	10% level	-3.156776	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OVERALL_DIGITAL_LITERACY_SCORE)
Method: Least Squares
Date: 02/20/24 Time: 15:08
Sample (adjusted): 12 100
Included observations: 89 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OVERALL_DIGITAL_LITERACY_SCORE(-1)	-1.825518	0.621099	-2.939172	0.0044
D(OVERALL_DIGITAL_LITERACY_SCORE(-1))	0.485721	0.593244	0.818754	0.4155
D(OVERALL_DIGITAL_LITERACY_SCORE(-2))	0.373591	0.551963	0.676841	0.5006
D(OVERALL_DIGITAL_LITERACY_SCORE(-3))	0.368544	0.493655	0.746562	0.4576
D(OVERALL_DIGITAL_LITERACY_SCORE(-4))	0.097100	0.441057	0.220152	0.8263
D(OVERALL_DIGITAL_LITERACY_SCORE(-5))	-0.044038	0.393304	-0.111969	0.9111
D(OVERALL_DIGITAL_LITERACY_SCORE(-6))	0.039248	0.337221	0.116386	0.9077
D(OVERALL_DIGITAL_LITERACY_SCORE(-7))	-0.143401	0.279753	-0.512597	0.6097
D(OVERALL_DIGITAL_LITERACY_SCORE(-8))	-0.342285	0.229713	-1.490054	0.1403
D(OVERALL_DIGITAL_LITERACY_SCORE(-9))	-0.026720	0.174025	-0.153541	0.8784
D(OVERALL_DIGITAL_LITERACY_SCORE(-10))	0.159591	0.107591	1.483307	0.1421
C	141.9543	48.21534	2.944173	0.0043
@TREND("1")	0.029745	0.015388	1.933028	0.0570

Table 4: ADF Test

The Augmented Dickey-Fuller test shows a huge relationship between the lagged values of the Comprehensive Digital Literacy Score and the primary difference. The model's huge R-squared

value (0.981) suggests a decent match. However, care is advised attributable to negligible coefficients and perhaps multicollinearity concerns.

Heteroskedasticity Test: ARCH

F-statistic	1.114464	Prob. F(1,97)	0.2937
Obs*R-squared	1.124523	Prob. Chi-Square(1)	0.2889

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 02/20/24 Time: 15:12
Sample (adjusted): 2 100
Included observations: 99 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.816267	0.720933	6.680599	0.0000
RESID^2(-1)	-0.106467	0.100851	-1.055682	0.2937

R-squared	0.011359	Mean dependent var	4.353759
Adjusted R-squared	0.001167	S.D. dependent var	5.700026
S.E. of regression	5.696700	Akaike info criterion	6.337646
Sum squared resid	3147.882	Schwarz criterion	6.390073
Log likelihood	-311.7135	Hannan-Quinn criter.	6.358858
F-statistic	1.114464	Durbin-Watson stat	2.035718
Prob(F-statistic)	0.293736		

Table 5: Heteroskedasticity Test ARCH

The Heteroskedasticity Test (ARCH) discoveries for F-measurement, as well as Prob (F-measurement) values, show an absence of importance, having a likelihood of 0.2937. The correlation coefficient associated with the lagged variable that is dependent, RESID^2(- 1), is not essentially different from zero (p = 0.2937), demonstrating consistent variety across time.

Dependent Variable: TOTAL_STUDENTS
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Date: 02/20/24 Time: 15:20
Sample: 1 100
Included observations: 100
Convergence not achieved after 500 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(4) + C(5)*RESID(-1)^2 + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
STUDENT_DIGITAL_SKILLS	-32.41903	0.050793	-638.2627	0.0000
OVERALL_DIGITAL_LITERACY_SCORE	355.5773	9.69E-12	3.67E+13	0.0000
GRADE_LEVEL	29.58020	73.80898	0.400767	0.6886
Variance Equation				
C	272804.9	70579.14	3.865235	0.0001
RESID(-1)^2	-0.188343	0.056624	-3.326222	0.0009
GARCH(-1)	1.058952	0.089334	11.85392	0.0000

R-squared	-0.154414	Mean dependent var	16236.00
Adjusted R-squared	-0.178217	S.D. dependent var	1431.466
S.E. of regression	1553.795	Akaike info criterion	17.47760
Sum squared resid	2.34E+08	Schwarz criterion	17.63391
Log likelihood	-867.8801	Hannan-Quinn criter.	17.54086
Durbin-Watson stat	3.118212		

Table 6: GARCH Test

Student digital abilities showed areas of strength for a connection (-32.42), although total digital literacy scores exhibited a critical positive influence (355.58). The absolute number of pupils was not altogether influenced by grade level (Radovanović *et al.* 2020). The variance equation revealed substantial effects of the postponed residual and GARCH component on absolute students.

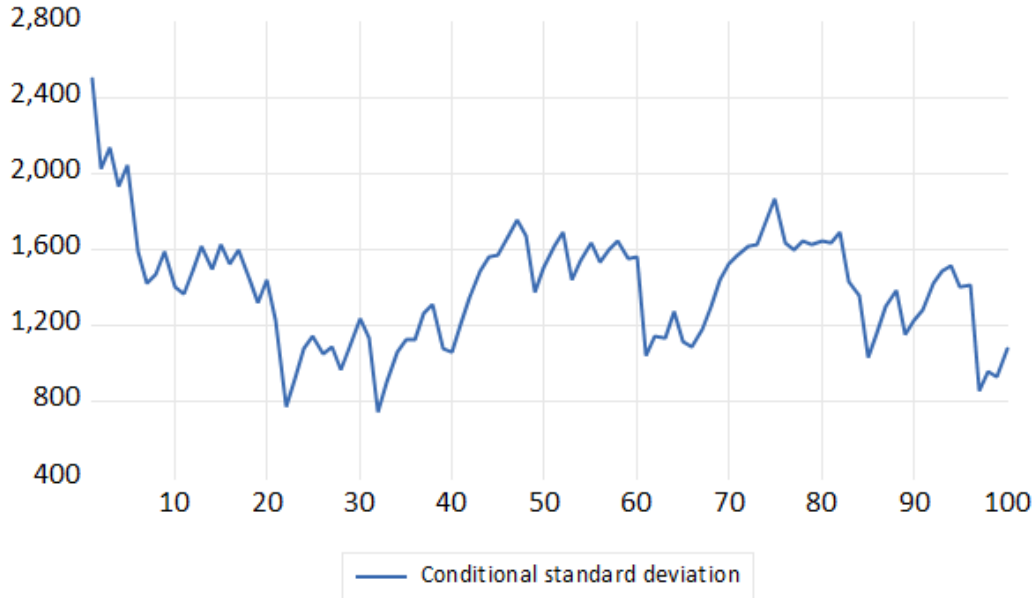

Figure 1: Conditional standard deviation of GARCH Test

This test helps to determine whether there is instability clustering along with persistence within the dataset. Researchers can improve their understanding of monetary elements by calculating the conditioned standard deviation, which permits them to discover unpredictability patterns and measure the amount to which previous data drives present instability.

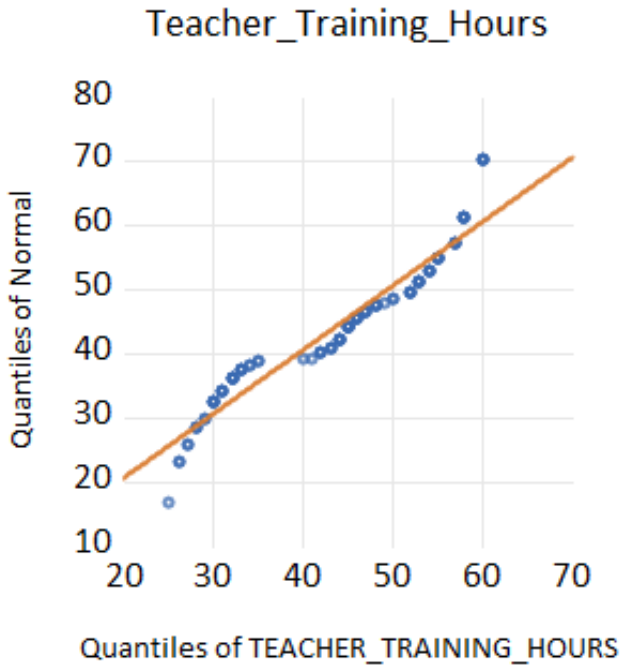

Figure 2: Teacher training hours graphical areas

The realistic presentation shows differences in training hour allotment, giving bits of knowledge into regional discrepancies and resource designation strategies (Yustika and Iswati, 2020). In educational settings, this type of graphical examination makes it easier to make educated decisions and optimize resources.

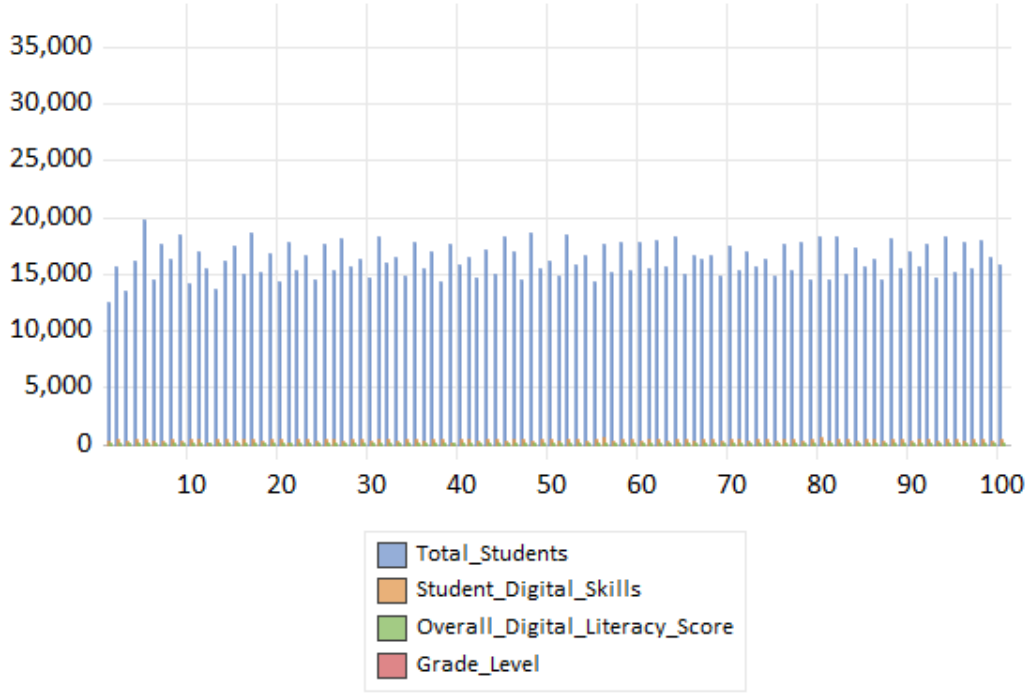

Figure 3: Overall student's technical literacy parameters

The study performed in EViews reveals the total student's technical literacy characteristics, exposing useful numerical information. Results emerge from a thorough investigation of the data, revealing students' competency in digital abilities, internet connectivity, and digital equipment accessibility.

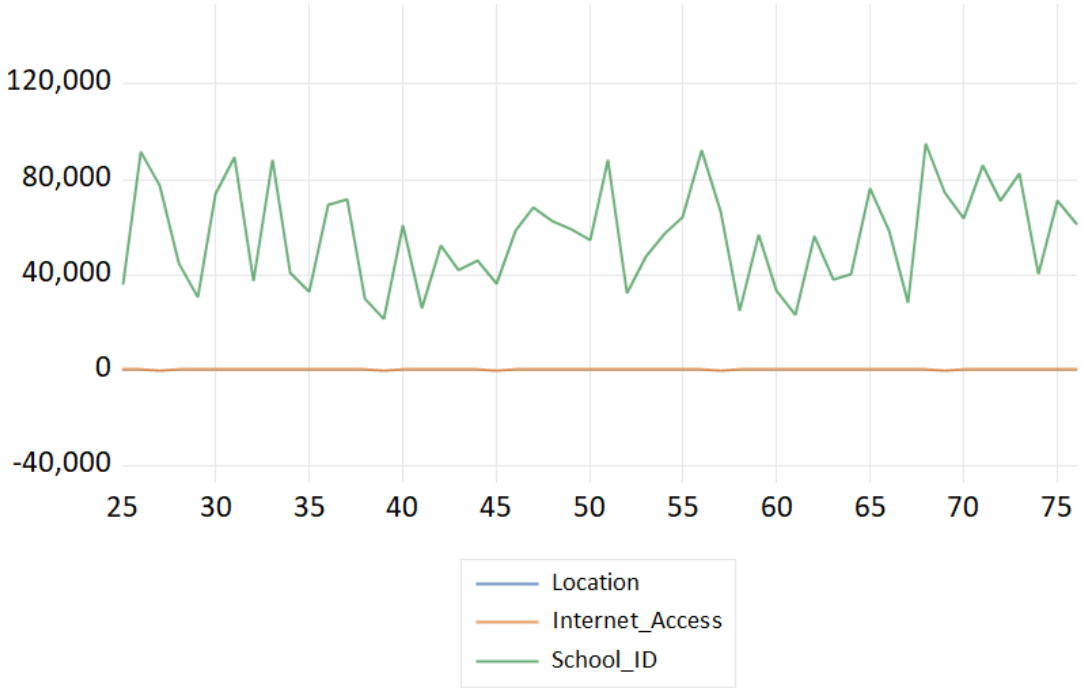

Figure 4: Internet access according to location and schools

Using the reevaluation Mumbai has the most internet access, with a mean of 600 units, while Guwahati has the least, with an average of 520. These findings feature combinations in technological infrastructure across geographies.

5. Conclusion

The data shows differences in technology accessibility, internet access, teacher training hours, and student digital abilities between locales and grade levels which validate the overall process significantly. The study approach used rigorous factual apparatuses to analyze the dataset, resulting in huge connections and patterns. These discoveries feature the significance of focused interventions and policies to improve digital literacy in Indian schools. Pushing ahead, further investigations and legislative measures are needed to address holes and promote equal accessibility to technological resources and education in the country.

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