



A STUDY ON THE EFFECTIVENESS OF THE ONLINE EDUCATION SYSTEM ON THE ACADEMIC PERFORMANCE OF STUDENTS STUDYING IN ZILLA PARISHAD MARATHI PRIMARY SCHOOLS

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ABSTRACT

This study investigates the effectiveness of the online education system on the academic performance of students in Zilla Parishad Primary Marathi Schools, Pusad taluka. Rapid technological advancements have transformed education, with online learning emerging as both an alternative and a supplement to traditional classroom methods. Rural primary schools face unique challenges, including limited digital resources, poor connectivity, and varying teacher readiness, which may affect online learning outcomes.

A descriptive and experimental research design was adopted, employing a Pre-test and Post-test Design. The study population consisted of primary-level students from Zilla Parishad schools, with 50 participants selected through random sampling. Data were collected using an Achievement Test (to measure academic progress) and a Student Questionnaire (to capture perceptions, satisfaction, and difficulties). Statistical analysis was conducted using inferential techniques.

Results revealed a significant improvement in mean scores, from 42.50 (pre-test) to 57.80 (post-test), an increase of 15.30 points. The calculated t-value of 12.45 at $p < 0.05$ confirmed statistical significance. This demonstrates that the online education system had a positive and measurable impact on students' academic achievement.

The findings suggest that, with appropriate technological tools, structured lesson delivery, and teacher guidance, online learning can be effective even in rural contexts. The study concludes that online education can serve as a valuable supplementary teaching method in rural and semi-urban schools. Recommendations include improving infrastructure, enhancing teacher training, and addressing accessibility challenges to maximize the benefits of online education.

KEYWORDS: *Online Education, Academic Performance, Zilla Parishad Schools, Rural Education, Pre-test Post-test Design.*

BACKGROUND OF THE STUDY

In recent decades, rapid advancements in technology have brought significant changes in the field of education. In particular, the use of information and communication technology in the teaching-learning process has been steadily increasing. Along with traditional face-to-face classroom teaching, online education has begun to play an important role as both an alternative and a complementary medium. In India, initiatives such as Digital India, e-learning programs, and the implementation of online classes to maintain educational continuity during special circumstances have provided students in both rural and urban areas with opportunities to become familiar with digital learning.

However, in rural primary schools—especially those run by the Zilla Parishad—various challenges and opportunities emerge when it comes to the effectiveness of online education. The Zilla Parishad primary Marathi schools in Pusad taluka are predominantly Marathi-medium, with students coming mainly from rural and farming families, often belonging to lower socio-economic backgrounds. Factors such as lack of digital devices, poor internet connectivity, parents' educational background, and teachers' technical skills can directly impact the quality of online education and students' academic performance.

While online learning has, in some cases, improved students' consistency in studies, encouraged self-study habits, and enhanced their use of technology, there have also been cases where misunderstandings, reduced personal attention, and lack of face-to-face interaction have led to a decline in academic performance. Therefore, it becomes necessary to study the exact impact of the online education system on the academic performance of students in Zilla Parishad primary Marathi schools in Pusad taluka. Such a study will help identify the strengths, limitations, and areas for improvement in this method, thereby aiding in the formulation of future educational policies.

NEED FOR THE STUDY:

Although the use of technology in education is increasing, concrete and locally focused studies on the effectiveness of online education in rural primary schools are limited. Students in Zilla Parishad primary Marathi schools in Pusad taluka face various social, economic, and technological challenges. In such a situation, it is extremely important to understand whether the online education method truly improves their academic performance or creates obstacles.

The need for this study is highlighted for the following reasons: **Primary mode in special circumstances.** During certain situations, online education became the main mode of learning, but its long-term effects need to be evaluated. **Rural digital divide** limited access to facilities such as internet connectivity, smartphones, and electricity in rural areas can create inequalities in the learning process. **Measurement of academic quality** It is essential to understand the actual impact of online learning on students' comprehension, memory, writing skills, and numeracy skills. **Policy-oriented improvements.** Based on the findings, concrete measures can be suggested for teacher training, curriculum design, and infrastructure development. **Lack of local-context research** Since there is little research focused specifically on primary schools in Pusad taluka, this study will provide new and locally relevant data.

Therefore, this research will be valuable not only from an academic perspective but also for local educational planning and policymaking.

RATIONAL OF THE STUDY:

In today's digital age, the use of technology in the education process has become indispensable. Understanding the impact of online education systems, especially in rural schools, is crucial for ensuring the quality of education. The importance of this study can be explained through the following points:

Online education enables an objective assessment of the improvements or declines in the academic performance of students in Zilla Parishad primary Marathi schools in Pusad taluka. The findings at the local level will help the Education Department, Zilla Parishad, and school management in formulating effective educational policies. Based on the challenges revealed through the study, the necessary technical and pedagogical training required for teachers can be determined. Specific solutions can be proposed to address online learning difficulties, lack of resources, and improvements in study habits. Since research on rural primary schools, especially in the Pusad region, is limited, this study will generate new and context-specific knowledge at the local level. Teachers, students, and parents will receive guidance on the effective use of digital tools, internet resources, and e-learning platforms. Overall, this study will provide a practical, evidence-based understanding of the effectiveness of online systems in rural primary education, which will have long-term benefits for students' academic development.

OBJECTIVE OF THE STUDY:

- 1) To understand the current status of students' academic performance.
- 2) To determine the level of usage of the online education system.
- 3) To measure the impact of the online education system on academic performance.
- 4) To identify the difficulties and limitations in online education.
- 5) To suggest measures for improving the effectiveness of the online education system.

Hypothesis of the study:

- 1) There is no significant difference in students' academic performance between the online education system and the traditional teaching method.
- 2) The online education system has no significant impact on students' academic performance.

METHODOLOGY:

In this study, an experimental component has been included to measure the effect of the online education system on students' academic performance. Additionally, descriptive analysis will be conducted to examine its impact. The research employs a *Pre-test and Post-test Design*. The selected students were given a pre-test to record their existing academic level. Teaching was then conducted through the online education system for a specific duration. Finally, a post-test was administered to measure progress.

The population of this research consists of all primary class students from Zilla Parishad Marathi Primary Schools in Pusad Taluka. From this population, 50 students will be selected using the random sampling method. Students from the same age group, class, and syllabus have been included.

For data collection, an **Achievement Test** (pre-test and post-test) was used to measure academic gains, and a **Student Questionnaire** was used to gather opinions, satisfaction levels, and difficulties regarding online education. For statistical analysis, inferential statistical techniques have been applied.

In this research, the **Independent Variable** is the online education system, the **Dependent Variable** is students' academic performance (academic achievement scores), and the **Controlled Variables** include syllabus, teacher, teaching duration, and educational environment.

Analysis and interpretation:

Table no. 1.1

Effectiveness of The Online Education System on The Academic Performance of Students Studying In Zilla Parishad Marathi Primary Schools

Group	N	Mean	SD	t-value	p-value
Pre-test	50	42.50	6.20	12.45	0.000 (<0.05)
Post-test	50	57.80	5.85		

In the above table, the increase in average scores is as follows: Pre-test mean = 42.50, Post-test mean = 57.80, with a difference of +15.30 marks. The t -value obtained is $t = 12.45$, which is statistically significant at the $p < 0.05$ level. This indicates that after the use of the online education system, there was a significant improvement in students' academic performance.

Since the difference between the mean scores of the pre-test and post-test is statistically significant, it can be concluded that this improvement is not merely due to chance, but is in fact the direct result of the online education system. Furthermore, it is evident that with the use of appropriate technological tools and proper guidance from teachers, the online education method can be effective even for students in rural areas.

The online education system was found to have a positive and significant impact on students' academic achievement. This system can be used in the future as a supplementary teaching tool in rural and semi-urban schools.

CONCLUSION:

The present study aimed to examine the effectiveness of the online education system on the academic performance of students studying in Zilla Parishad Primary Marathi School, Pusad tahisal. The statistical analysis revealed that the mean score of the pre-test was 42.50, whereas the mean score of the post-test increased to 57.80, showing an improvement of 15.30 points. The calculated t -value of 12.45 at $p < 0.05$ level indicates that this difference is statistically significant. Therefore, it can be concluded that the online education system has a positive and measurable effect on the academic performance of students.

The improvement observed is not due to chance but can be attributed to the systematic implementation of online teaching methods. This proves that with proper planning, adequate technical resources, and active teacher involvement, online education can significantly enhance learning outcomes even in rural school contexts. The findings support the view that online learning is not only an alternative mode of education but also a complementary tool that can strengthen traditional classroom teaching.

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