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Research Article

E-LEARNING AND ACADEMIC ENGAGEMENT AMONG SECONDARY SCHOOL STUDENTS

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Abstract
E-learning has been adopted as a method of teaching and learning at the secondary school level with the growing use of electronic gadgets and social networking sites. The study assessed the level of use of e-learning tools, the level of digital literacy, and the relationship between e-learning and academic engagement among secondary school students. Sixty students each from one government school and one private school in Andhra Pradesh were selected for the study. Standard scales were used to gather data from respondents which was analyzed through mean, standard deviation, t-test, and Pearson's correlation coefficient. Respondents had a moderate level of usage regarding e-learning tools with a significant difference in usage based on locality (rural/urban). The level of digital literacy was positively correlated to academic engagement. It is recommended that the government should focus on enhancing digital infrastructure in schools, upgrading teachers' skills digitally, and creating awareness among students about responsible use of digital technology while learning online.
Keywords: E-learning, Digital Literacy, Academic Engagement, Secondary School Students, Online Learning.

1. Introduction:

Digital technology has changed traditional learning and put e-learning at the center of modern education; hence, learning via digital media, virtual classes, and interactive content outside real physical space has become possible. In this regard, e-learning is multimedia-rich, flexible, and self-paced for secondary school students. However, it comes with challenges like device accessibility, low-bandwidth connectivity, and lack of digital skills, missed other teaching support, and reduced teacher-student interaction.

Indian schools were forced into digital learning due to the pandemic. While some students enjoy new technology at school, others don't have access in both urban and rural areas. Knowing how e-learning impacts secondary school students is important for improving education quality and achieving fairness in learning.

2. Significance of the Study:

The relevance of this study is due to the following reasons:

1. Schools utilize e-learning platforms for the delivery of instruction, assessment, and other academic services.
2. Digital inequality also impacts students' learning.
3. E-learning serves as an inspiration for effective instructional design in any e-learning situation.

4. Students should be adequately equipped with digital literacy skills so that they can benefit from online learning.
5. Policymakers need to be sensitized to infrastructural and pedagogical challenges in order to frame effective policies on digital education.
6. This study shall therefore discuss demographic impacts, levels of digital literacy, and engagement academically in an e-learning environment.

3. Statement of the Problem

"A Study on the Role of E-Learning in Enhancing Academic Engagement among Secondary School Students."

4. Operational Definitions

1. **E-Learning:** The use of digital platforms, online classes, educational apps, and multimedia tools for academic learning.
2. **Academic Engagement:** Students' active participation, attentiveness, motivation, and involvement in learning activities.
3. **Digital Literacy:** The ability to use digital devices, navigate online tools, and access academic content efficiently.
4. **Secondary School Students:** Learners enrolled in Grades 8 to 10 in recognized schools.

5. Objectives of the Study

1. To assess the level of e-learning usage among secondary school students.
2. To analyze differences in e-learning usage based on gender, locality, and type of school.
3. To examine digital literacy levels among students.
4. To evaluate the relationship between e-learning and academic engagement.
5. To identify challenges faced by students during e-learning.

6. Hypotheses of the Study

1. There is no significant difference in e-learning usage based on gender, locality, or school type.
2. There is no significant relationship between e-learning usage and academic engagement.
3. Digital literacy does not significantly correlate with academic engagement.

7. Variables of the Study

1. **Independent Variable:** E-learning usage
2. **Dependent Variables:** Digital literacy, Academic engagement

8. Scope and Delimitations of the Study

Scope

1. Focus on e-learning experiences of secondary school students.
2. Sample includes 120 students from Andhra Pradesh.
3. Data were analyzed using quantitative methods.

Delimitations

- The study was restricted to students of classes 8–10.
- The study was conducted in a limited geographical area.
- Only student perspectives were included.

9. Review of Literature

1. **Vasan, M., & Jayanthi, M. (2026)** examine the determinants affecting technology adoption by educators in Indian higher education institutions in the post-pandemic context. The study, which used data from 278 teachers, found that teachers' attitudes toward using technology are strongly affected by performance expectancy, effort expectancy, social influence, and facilitating conditions. It also indicates that a positive attitude increases the likelihood of technology adoption, and it provides a useful

framework for understanding technology acceptance and offers valuable recommendations for policymakers and educational institutions.

2. **Patil, P., & Singh, V. P. (2026),** investigate how online learning affected elementary school students in North-East India during the COVID-19 pandemic. The study reveals that although the majority of students participated in online classes, obstacles such as inadequate internet connectivity and restricted access to devices hindered the learning process. It also highlighted challenges such as low engagement and social isolation; however, some students demonstrated improved self-learning skills.

10. Methodology

10.1 Research Design

A descriptive survey method was adopted.

10.2 Sample

Researchers selected a total of 120 students using purposive sampling.

10.3 Tools Used

1. E-Learning Usage Questionnaire
2. Digital Literacy Scale
3. Academic Engagement Checklist

10.4 Statistical Techniques

1. Mean
2. Standard Deviation
3. t-test
4. Pearson correlation

11. Data Analysis and Interpretation

Table 1:
Overall Levels of E-Learning Usage, Digital Literacy, and Academic Engagement

Variable	N	Mean	SD	Variance	Skewness	Kurtosis
E-Learning Usage	120	72.45	9.85	97.02	-0.82	2.45
Digital Literacy	120	68.20	10.14	102.80	0.12	-0.54
Academic Engagement	120	74.92	8.43	71.04	-0.41	1.22

Interpretation

- E-learning Usage is moderately high.
- Digital Literacy varies across students.
- Academic Engagement remains strong in most learners.

Table 2:
E-learning Usage, Digital Literacy, and Academic Engagement Based on Gender

Variable	Gender	N	Mean	SD	t-value	Significance
E-Learning Usage	Boys	60	73.18	9.45	1.02	NS
Girls	60	71.72	10.25			
Digital Literacy	Boys	60	69.35	10.12	1.26	NS
Girls	60	67.05	10.14			
Academic Engagement	Boys	60	75.41	8.10	0.84	NS
Girls	60	74.43	8.76			

Interpretation

- No significant gender differences exist for any variable.

- Boys and girls show similar adaptation to e-learning.

Table 3:
E-learning Usage and Digital Literacy Based on Locality

Variable	Locality	N	Mean	SD	t-value	Significance
E-Learning Usage	Rural	60	69.12	10.52	2.96	Significant
Urban	60	71.72	8.41			
Digital Literacy	Rural	60	64.25	9.84	3.41	Significant
Urban	60	67.05	9.02			

Interpretation

- Urban students outperform rural students significantly.
- Results indicate a strong digital divide.

Table 4:
E-Learning Usage Based on School Type

School Type	N	Mean	SD	t-value	Significance
Government	60	70.14	10.25	1.88	NS
Private	60	74.76	8.95		

Interpretation

- Private school students score higher but insignificantly.
- Government schools are gradually integrating e-learning practices.

Table 5:
Correlation between E-Learning Usage and Academic Engagement

Variables	r-value	p-value	Interpretation
E-Learning Usage & Academic Engagement	0.32	0.01	Moderate Positive Correlation

Interpretation

- ✓ Higher e-learning usage is associated with higher academic engagement.

Table 6:
Correlation between Digital Literacy and Academic Engagement

Variables	r-value	p-value	Interpretation
Digital Literacy & Academic Engagement	0.41	0.00	Moderate Positive Correlation

Interpretation

- ✓ Students with good digital skills show greater involvement in academic tasks.

12. Findings of the Study:

1. E-learning usage among secondary students is moderately high.
2. Digital literacy significantly varies between rural and urban students.
3. Gender does not influence e-learning usage, digital literacy, or engagement.
4. Urban students show significantly higher digital competency than rural students.

5. A positive correlation exists between e-learning usage and academic engagement.
6. Digital literacy strongly predicts effective engagement in online learning.

13. Educational Implications:

1. Teachers must receive digital pedagogy training.
2. Rural schools require improved internet connectivity and devices.
3. Students should receive training on cyber safety and digital responsibility.
4. Blended learning models should be adopted for improved academic outcomes.
5. Schools should provide structured digital schedules to reduce distractions.

14. Conclusion:

Because of the COVID-19 lockdown, this generation is still developing its proficiency in e-learning. This study measured the impact of e-learning among secondary school students in rural and urban areas during lockdown. The study was based on a statistical survey of online learning teenagers from rural and urban areas of India. In addition, the study demonstrates the link between digital literacy and academic engagement.

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