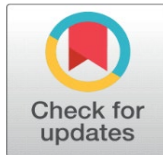
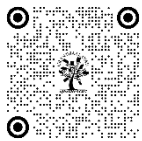


E-LEARNING ATTITUDE OF COLLEGE STUDENTS IN IMPHAL, MANIPUR: A DEMOGRAPHIC PERSPECTIVE

Konsam Rebika Devi¹, Konjengbam Rashitombi Devi²

¹Department of Education, Manipur University, Canchipur, Imphal, India

²Department of Education, Imphal College, Imphal, India



DOI

[10.29121/shodhkosh.v5.i7.2024.4080](https://doi.org/10.29121/shodhkosh.v5.i7.2024.4080)

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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ABSTRACT

A study was conducted on a random sample of 500 undergraduate students from Arts, Science, and Commerce streams across ten colleges in Imphal East and West districts of Manipur. The research utilized a well-validated inventory developed by Dimpal Rani to assess students' attitudes toward e-learning. This inventory consisted of 65 items rated on a five-point Likert scale. The collected data were analysed using descriptive statistics and an independent sample test. The results provided valuable insights into various factors influencing students' attitudes toward e-learning. Key findings highlighted that students' attitudes were independent of variables such as the type of college, family structure, gender, and guardian literacy. However, the study also pointed out the dependence of students' attitudes on the quality of network connectivity, emphasizing its critical role in shaping e-learning experiences. The research underscores the need to address infrastructural challenges, particularly network quality, to enhance the effectiveness of e-learning. Moreover, it suggests that factors like gender, family background, and guardian literacy do not significantly impact students' receptiveness to e-learning, reflecting a more inclusive approach to digital education. These findings can guide policymakers and educators in implementing targeted interventions for improving e-learning outcomes.

Keywords: E-learning, Attitude, Graduate, Parrent, Accessibility, AI, Internet



1. INTRODUCTION

A learning system based on formalized teaching but with the help of electronic resources is known as E-learning. It has an impact on student academic achievement, as seen from the results of good assessments or exams, as well as the positive attitude of students in general. Interesting elements of e-learning enable students to acquire basic skills and competencies and take the initiative to learn more ^[1]. The growth in the use of e-learning no doubt adds to globalization in educational institutions are trying their utmost to break down geographical and social boundaries to offer distance learning education, this leads to integrations of academic standards and views. The internet has become one of the vital ways to make available resources for research and learning for both teachers and students to share and acquire information ^[2]. E-learning and the application of Information and Communication Technology (ICT) into the traditional education systems India has continued to lag behind that of many industrialized nations. However, most of the countries in the recent past adopted the implementation of E-learning and as a result, the online student population is increasing a relatively high rate. For this reason, the need to adopt this new system in India has become highly inevitable as the traditional model has proven to be quite inappropriate in equipping the students from the complexities, they are likely to encounter in the rapidly developing society. The Government of India and the University Grants Commission (UGC) has come to realization that information and communication technology (ICT) in higher education would bring the

benefits into the current higher education system. The use of ICT as a facilitator in learning e-learning enables students to learn and reach broadly by accessing information from outside. Technological developments are the main drivers of various learning models, improving learning and teaching with technology addresses the digital divide [3]. Technology online to address organizational leadership challenges in promoting the context of creative learning and team performance [4] also understand the user's perception of the effectiveness of the success factors in the adoption of the use of e-learning and inhibiting factors of organizations in adopting and diffusion of e-learning innovations [5]. Digitally competent people, capable in a constantly changing technology and online environment slow internet and lack of relevant information is also a challenge in the use of online resources [6] to create awareness and encourage higher education institutions in an effort to integrate continuing education into the curriculum, faculty operations [7].

In regions like Imphal East and West districts of Manipur, the adoption of e-learning has gained momentum, driven by the need for continuous education despite geographical and infrastructural challenges. This study investigates the attitudes of graduate students in these districts towards e-learning, aiming to understand their perceptions, preferences, and the hurdles they encounter.

2. METHODOLOGY

The present study utilizes a mixed-methods approach, integrating both quantitative and qualitative data. A structured questionnaire, developed by Dimple Rani was administered to 100 graduate students in the Imphal East and West districts, concentrating on their experiences and attitudes towards e-learning.

- **STUDY VARIABLES:** (i) Response/dependent variable: Mean percentage score of e-learning. (ii) Prognostic/independent variables: factors related to Educational and socio-demographic profile including Type of college, Sex, Type of family, Guardian literacy & Network quality.
- **TOOLS:** A well-validated Inventory for Attitude Towards e-learning Scale with five-point Likert scales, developed by Dimpal Rani of National Psychological Corporation, Ug-1, Nirmal Heights, Agra- 282007 is administered as tool of the study. The inventory has consisting of 65 items/ questions.
- **SAMPLING:** The sampling for the purposed study is *Two-stage Sampling* where *Simple Random Sampling* is adopted in each stage. A brief sampling procedure is also mentioned hereunder. The present study is confined within Government colleges, including co-education and girls' colleges, in Imphal East and Imphal West districts of Manipur. In the first stage 15 colleges were selected out of the Government colleges in the districts through Simple Random Sampling and in the second stage, the 50 number of undergraduate students is selected from each designated college through Simple Random Sampling with 25 female and 25 male students from each college. Finally, the primary sample consists of 500 undergraduate students.
- **STATISTICAL ANALYSIS:** The information regarding the e-learning of 500 undergraduate students of Government colleges in Imphal East and Imphal West districts of Manipur, were elicited through the Pre-tested inventory consisting of 65 items under 5 points Likert scale having strongly agree, agree, undecided, disagree, and strongly disagree with corresponding scores of 5, 4, 3, 2, and 1. The information was first transferred to Microsoft Excel Worksheet and then to SPSS (Statistical Package for Social Sciences) Data Document. Then after thorough scrutiny and checking of the data, statistical analysis was performed by using IBM: SPSS Statistics Version 20. Numerical/continuous variables are presented as Mean \pm SD (standard deviation) and qualitative/categorical variables are again described as number of cases and percentages. *Independent sample test (t-test)* is used for test of significance between two means and ANOVA (F-test) is also applied as test of significance among the more than two means as parametric test for quantitative data.

3. RESULTS AND OBSERVATIONS:

There are two divisions on attitude of undergraduate students of Government colleges towards E-learning in Imphal East and west districts of Manipur. They are I. Educational and socio-demographic profile; II. Analysis on percentage score of e-learning.

A. EDUCATIONAL AND SOCIO-DEMOGRAPHIC PROFILE:

These tables provide a snapshot of the demographic and academic characteristics of the students in the present study.

There are 10 colleges out of 15 colleges selected from Imphal East and West districts of Manipur that constitute study sample and again 50 students are selected from each selected college. Table-1 shows that the students are evenly distributed across 10 colleges, suggesting that the sample is representative of the colleges in Imphal East and West districts.

Table-1: Type of college-wise distribution of students

Type of College	Frequency	Percent
Co-education	450	90.0
Female college	50	10.0
Total	500	100.0

Table-1. reveals that the majority of students (90%) attend co-educational colleges, while a smaller percentage (10%) attends female colleges. This might indicate that co-educational colleges are more common in the region or that they have a larger student intake.

Table-2: Access to e-learning-wise distribution of students

Access to e-learning	Frequency	Percent
Access	500	100.0

Table-2 suggests that all the students in the sample have access e-learning facility; it means e-learning is universally accessible to students, which is a positive indicator of the colleges' commitment to technology-enabled learning.

Table-3: Sex-wise distribution of students

Sex	Frequency	Percent
Male	250	50.0
Female	250	50.0
Total	500	100.0

In order to remove sex bias for the analysis, the sample is blind to gender, taking 50% students of each sex. Eventually, Table-3 shows that the sample has an equal number of male and female students, ensuring that the study's findings are not biased towards one gender.

Table-4: Type of family-wise distribution of students

Type of family	Frequency	Percent
Joint	474	94.8
Nuclear	26	5.2
Total	500	100.0

In terms of type of family, the Table-4 reveals that the majority of students (94.8%) come from joint families, which is consistent with the traditional family structure in many parts of India in general and in Manipuri society in particular.

Table-5: Guardian literacy-wise distribution of students

Guardian literacy	Frequency	Percent
Illiterate	23	4.6
Literate	477	95.4
Total	500	100.0

Most of the students are from educated family which is witnessed in Table-5 that the majority of students' guardians (95.4%) are literate in comparison with the illiterate of only 4.6%; which is a positive indicator of the families' emphasis on education.

Table-6: Network quality-wise distribution of students

Network Quality	Frequency	Percent
Good	222	44.4
Poor	278	55.6
Total	500	100.0

Only 44.4% of the students access good network quality while more than half of the students (55.6%) experience poor network quality, which could be a limitation in their e-learning experience.

B. ANALYSIS ON PERCENTAGE SCORE OF E-LEARNING:

As mentioned erstwhile, in order to test the significant difference between two mean percentage scores, independent sample t-test (commonly known as t-test) is adopted. When more than two mean percentage scores are involved, analysis of variance ratio (commonly known as F-test) is applied. The following tables provide insights into the factors that influence the students' attitudes towards e-learning.

Table-7: Type of college-wise mean \pm SD of percentage scores with test values

Type of College	No. of cases	Mean \pm SD	t-value	d. f.	P-value
Co-education	450	68.57 \pm 6.22	1.490	498	.137
Female college	50	69.93 \pm 4.79			
Total	500	68.71\pm 6.10			

Mean \pm SD: mean percentage score \pm standard deviation of percentage score;

t: independent sample test; df: degree of freedom; P: probability of difference due to chance factors

The mean percentage score of e-learning among students from co-educational colleges is 68.57% with a standard deviation of 6.22%, while that of female colleges is respectively 69.93% and 4.79%. Although the mean score of female colleges is slightly higher but the difference is not statistically significant as evident by $t=1.490$ with $P=0.137$. This suggests that the type of college does not affect students' attitude towards e-learning which is shown in Table-7.

Table-8: Sex-wise mean \pm SD of percentage scores with test values

Sex	No. of cases	Mean \pm SD	t-value	d. f.	P-value
Male	250	68.25 \pm 6.19	1.670	498	.096
Female	250	69.16 \pm 5.99			
Total	500	68.71\pm 6.10			

Mean \pm SD: mean percentage score \pm standard deviation of percentage score;

t: independent sample test; df: degree of freedom; P: probability of difference due to chance factors.

The mean percentage score of e-learning among male students is 68.25 with standard deviation of 6.19, while that of female students is 69.16 with 5.99. The difference is not statistically significant ($t=1.670$, $p=0.096$) as evident by the insignificant t-value at 5% probability level. It indicates that there is no significant difference in the attitude towards e-learning between male and female students. And the visible difference observed is due to chance factor. In one sense it is a positive sign indicating that both genders have similar attitudes towards e-learning.

Table-9: Type of family-wise mean \pm SD of percentage scores with test values

Type of family	No. of cases	Mean \pm SD	t-value	d. f.	P-value
Joint	474	68.75 \pm 6.10	.672	498	.502
Nuclear	26	67.92 \pm 6.17			
Total	500	68.71\pm 6.10			

n: number of cases; df: degree of freedom; mean \pm standard deviation (Mean \pm SD);

t: independent sample test; P: probability of difference due to chance factors

The mean percentage score of e-learning among students from joint families is 68.75 with SD of 6.10, while that of students from nuclear families is 67.92 with SD of 6.17. Though the male has little bit higher mean than that of female, the difference is not statistically significant ($t=0.672$, $p=0.502$), indicating that family structure does not influence students' attitude towards e-learning. The findings with the test value are shown in Table 9.

Table-10: Guardian literacy-wise mean \pm SD of percentage scores with test values

Guardian literacy	No. of cases	Mean \pm SD	t-value	d.f.	P-value
Illiterate	23	67.49 \pm 3.78	.982	498	.327
Literate	477	68.77 \pm 6.19			
Total	500	68.71\pm 6.10			

n: number of cases; df: degree of freedom; mean \pm standard deviation (Mean \pm SD);

t: independent sample test; P: probability of difference due to chance factors

Table 10 shows that there is no significant difference in the percentage score of e-learning between students whose guardians are literate and illiterate. This suggests that guardian literacy does not influence students' attitudes towards e-learning. Despite the fact that percentage mean score for students whose guardians are literate (68.77) is higher than that for students whose guardians are illiterate (67.49), the visible variation might be due to coincident or by chance factor. This statement is withheld by the insignificant value i.e., $P=0.327$ which is more than 0.05, the significant level adopted.

Table-11: Network Quality-wise mean±SD of percentage scores with test values

Network Quality	No. of cases	Mean±SD	t-value	d.f.	P-value
Good	222	69.32± 6.66	2.010	498	.045
Poor	278	68.22± 5.59			
Total	500	68.71± 6.10			

It is also worthwhile to mention that a significant P-value ($P=0.045$) which less than 0.05 proves that there is a significant difference in the mean percentage score of e-learning between students with good and poor network quality, with students experiencing good network quality performing better. This is expected, as poor network quality can hinder the e-learning experience. In this regards, Table 11 shows that the mean percentage score of e-learning among students with good network quality is 69.32 ± 6.66 , while that of students with poor network quality is 68.22 ± 5.59 .

Table-12: Type of college-wise mean±SD of percentage scores with test values

Type of college	No. of cases	Mean±SD	F-value	d.f.	P-value
Arts	50	71.28± 8.07	9.089	(3, 496)	.001
Arts & Science	350	69.04± 5.87			
Commerce	50	66.33± 4.72			
Science	50	66.18± 5.21			
Total	500	68.71± 6.10			

n: number of cases; *df*: degree of freedom; mean ± standard deviation (Mean ± SD);

t: independent sample test; *F*: ANOVA (analysis of variance);

P: probability of difference due to chance factors

As mentioned earlier, F-test is applied in both table 12 as there are the comparison of more than two means, and respective findings are set forth in the respective tables. It is witnessed from Table 12, that the mean percentage score of e-learning among Arts students is 71.28 with SD of 8.07, followed by Arts & Science students (69.04 ± 5.87), Commerce students (66.33 ± 4.72), and Science students (66.18 ± 5.21). After the test the difference is statistically a very highly significant as P-value is much less than 0.01 ($F=9.089$, $p=0.001$), indicating that Arts students have a more better and positive attitude towards e-learning than students from other subjects.

4. DISCUSSIONS

From table-7 it is his suggests that the type of college does not affect students' attitude towards e-learning, which is contradict with the result obtained⁸, it may be due to (i) E-learning platforms and tools are often uniform, offering the same content, resources, and features regardless of the institution. This uniformity minimizes the influence of the college type. (ii) Graduate students typically rely on personal devices like smartphones, laptops, or tablets and internet connectivity for e-learning. Access to such resources might not differ significantly between students of different colleges and (iii) Graduate programs in many regions follow standardized curricula or guidelines. This similarity might lead to comparable experiences with e-learning tools and methods.

The influence of family support on student e-learning engagement is more obvious^{9,10}, which is contradict with table -9 which indicates that family structure does not influence students' attitude towards e-learning, because in Imphal, like in many parts of the Northeast, students may face common challenges, such as inconsistent internet connectivity or lack of technical infrastructure. These regional factors play a major role in shaping attitudes toward e-learning than family structure. Another factor is that,

E-learning primarily depends on the availability of personal gadgets (smartphones, laptops) and internet connectivity, which are often individually accessed by students regardless of their family structure. Whether a student comes from a joint or nuclear family, their access to these tools is usually personal and not determined by family size.

Table -8 indicating that both genders have similar attitudes towards e-learning which is consistent with the results obtained earlier^{11,12}.

Table 10 suggests that guardian literacy does not influence students' attitudes towards e-learning which is contradict with previous workers^{7f}, because Government initiatives and NGOs in Manipur and other parts of Northeast India have worked toward improving digital access and training for students, minimizing the need for literate guardians to facilitate e-learning. Another factor is that, many colleges and communities in Imphal provide additional support systems such as online tutorials, mentorship programs, and peer learning groups. These help students adapt to e-learning without needing assistance from their guardians.

The dependent of network quality on students' attitudes towards e-learning are consistent with the previous work reported^{7f}, as reliable network quality is the backbone of e-learning. For students in Imphal, where internet infrastructure may vary widely, their attitude toward e-learning is shaped significantly by the consistency and quality of their network experience. Improving network quality is key to fostering positive attitudes and ensuring equitable access to education

5. CONCLUSIONS

The study reveals significant insights into the attitudes of undergraduate students in Government colleges in Imphal East and West districts towards e-learning, shaped by educational, socio-demographic, and infrastructural factors. While access to e-learning is universal, challenges such as poor network quality—affecting 55.6% of students—limit the overall experience. Statistical analysis shows no significant differences in attitudes based on sex, marital status, family type, or guardian literacy, highlighting a uniformity in perceptions. However, network quality significantly impacts e-learning performance, with students experiencing good network quality scoring higher ($P=0.045$). Additionally, students from Arts disciplines exhibit a notably more positive attitude towards e-learning compared to their peers in Commerce and Science, as indicated by a highly significant P-value ($P=0.001$). These findings underscore the importance of improving infrastructure, particularly network quality, and tailoring e-learning approaches to address discipline-specific needs for a more inclusive and effective learning environment.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

None.

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