

STUDENTS' PERCEPTIONS AND EFFECTIVENESS OF E-LEARNING IN HIGHER EDUCATION

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ABSTRACT

Traditional methods of instruction have been significantly altered by the fast adoption of digital technology in universities. Students' views on the efficacy of the online classroom were the focus of the current research. We used a quantitative descriptive-correlational study approach and used a structured questionnaire to gather data from 260 college students. Overall, students had a very positive impression of the accessibility and flexibility of e-learning, as indicated by their score of 4.13 (SD = 0.76). Engagement and interaction were rated somewhat but favourably (M = 3.71, SD = 0.92), and e-learning systems were viewed as having good usability (M = 3.90, SD = 0.85). In addition, there was a strong positive correlation ($r = 0.68$, $p < 0.001$) between the perceived efficacy of the entire e-learning environment and its performance. The study emphasises the need of a digital learning environment that is accessible, adaptable, user-friendly, and engaging for students' good learning experiences.

Keywords: Perception, Accessibility, Effectiveness, Usability, Engagement

I. INTRODUCTION

The use of technology in the classroom has been a huge success. Global citizens in the classroom and in the classroom nowadays do not need to be tied down to a certain physical place. New technologies have made information exchange quick. Millennials and Gen Zers have grown up with technology and have embraced new ways of learning with ease, thanks to their extensive background knowledge. The notion of online education is making its way into secondary and tertiary institutions as the significance of technology continues to skyrocket. The term "e-learning" encompasses a broad range of practices and technologies that facilitate online education, including but not limited to: web-based learning, computer-based learning, virtual classrooms, and digital collaboration.

A number of socioeconomic factors, as well as the increasing need for education, have contributed to the meteoric rise in popularity of online education in the nation. When it comes to training, education, and knowledge upgrading, the traditional campus-based education system just can't keep up. At the grassroots level, e-learning has emerged as a practical solution for developing human resources and promoting lifelong learning. Teachers and policymakers throughout the world are starting to see the value of online education for the possibility it offers to expand access to higher degrees. Education is a force for good because it can benefit individuals from all walks of life. Basically, it's the process of learning new things by way of guided, mediated teaching and information. It promotes the value of continuing education for all individuals and addresses all technological developments.

These days' students are more digitally savvy and quicker to adjust than their parents' generation. A new generation of students and educators has entered the classroom, and although there is no longer a generational difference, there is a digital divide. We start with a set of assumptions when we analyse the dynamics of schooling. Teachers from the 20th century, pupils from the 21st, and a curriculum from the 19th century all assemble here. Modest methods will not provide desired results. Thanks to technological advancements, we now have access to a wealth of information and expertise. Looking forward, online education will be all the rage. Perhaps the most significant benefit of technology in education is its ability to reach underserved populations and regions.

II. REVIEW OF LITERATURE

Kesumawati, Nila et al., (2024). This study aims to investigate the perceptions of Teacher Professions Graduate (PPG) students on hybrid learning using the Indonesian network learning system (SPADA). A qualitative survey method was used by the researchers for this investigation. There were 87 students in PPG Daljab 1 Batch 1, however only 82 took part in the research. Data was collected using instruments including interviews and questionnaires. The information gathered from the survey will be used to assess the quality of online content and the effectiveness of online learning. We conducted interviews to double-check the answers on the questionnaire and make sure the data sets were consistent with each other. This inquiry employed both quantitative and qualitative techniques for data analysis, keeping in mind the goals of the research. In terms of high-quality content, accessibility, ease of use, clear understanding, and overcoming geographical and temporal constraints, the results showed that online learning accomplished the aims of PPG implementation.

Parajuli, Maujud, Fathul et al., (2024). This study investigates the perspectives and experiences of students using Learning Management Systems (LMS) and the effectiveness of online learning at two Malaysian and Indonesian educational institutions. The primary objective of this research is to examine how online learning impacts traditional classroom settings, specifically looking at how much it boosts engagement and retention. The study population consists of students registered for the 2023–2024 academic year in two different programs: one at an Indonesian university for Arabic Language Education and another at a Malaysian institution for Islamic History and Language. A combination of a random sampling strategy and the Slovin technique was used to determine the sample size. The data was gathered via surveys, face-to-face meetings, and written reports. The data was presented statistically and visually in tables and graphs after analysis of the collected questionnaire scores. The results demonstrate that the students at both institutions have a positive attitude toward e-learning. According to the findings, students have a positive perception of LMS and believe it will greatly enhance their college experience. These results show that online classrooms have the potential to pique students' attention and help them succeed academically. The findings of this study have significant implications for the direction of e-learning strategy development going forward and for the enhancement of university-level OLs.

Mankumari & Thapa, Ajay. (2023). The main objective of this study was to investigate the perceptions of Nepalese college students on the efficacy of online education. A quantitative research approach was used in the study. The information was gathered from 83 students registered in the School of Development and Social Engineering at Pokhara University using an online questionnaire. In the examination of the data, both descriptive and inferential statistical methods were used. The research indicates that the majority of students perceive e-learning positively. Research revealed that students'

perceptions, sense of efficacy, and user-friendliness of the e-learning platform were profoundly influenced by their proficiency in using the system. The most substantial impact on positive attitudes, perceived usefulness, and user-friendliness of e-learning was attributed to the collaboration and support of instructors. The study identified a positive correlation among students' perceptions of e-learning, the quality of e-learning systems, their usefulness, and their simplicity of use. The proliferation of internet accessibility and advancements in information and communication technology have positioned e-learning as a legitimate substitute for traditional educational techniques worldwide. The poll indicated that college students mostly favour online education, presenting Nepalese institutions with a significant chance to entirely transform their teaching methodologies via the use of online learning.

Talal, Shaban et al., (2022). The aim of this study was to gauge students' perceptions of the online education they experienced at Sultan Qaboos University in Oman. A research study used a 48-question questionnaire including six domains of e-learning provision. A total of one thousand eight hundred fifty-eight students, both male and female, from various schools participated in the poll. In four of the assessed domains, the results indicated that the e-learning service exhibited a moderate quality level. Despite male students excelling over female students in every category except for System Effectiveness, the results indicated no significant disparity in the other areas or the overall score. Following the examination of the data, the researchers proposed many recommendations that might facilitate the proliferation and improvement of e-learning culture and its incorporation into education.

Nandedkar, Tarika & Mahawar, Sanju. (2019). Online learning facilitates access to a diverse array of courses, competency-driven education, and the pursuit of professional goals. Learners possess the autonomy to engage in their studies at any time and location of their preference via the self-directed courses offered by e-learning. Learners may customise their academic experience according to their preferences by selecting from an array of courses with different levels and lengths. This article examines students' perceptions of online education in contrast to traditional classroom environments. The methodology used for the investigation was descriptive in nature. A questionnaire was administered to 200 students for the study. In the examination of data, instruments such as T-tests and correlation analyses are used. The study indicates that digital learning positively influences students' academic achievement. A primary factor contributing to the success of E-learning is its convenience and adaptability.

III. RESEARCH METHODOLOGY

Research Approach

The study adopted a quantitative research approach.

Sources of Data Collection

Primary and secondary data were also used in the research. A structured questionnaire was used to gather primary data in order to gauge their views on the efficacy of the online learning environment. To back up the theoretical framework and literature review, secondary data was gathered from scholarly publications such as books, journals, papers, and research articles as well as pertinent web resources.

Sampling Technique

A purposive sampling technique was used to select the respondents.

Sample Size

A total of 260 university students constituted the sample for the study.

Research Tool

The major research instrument for data collection in the study was a structured, self-administered questionnaire. The efficacy of e-learning, accessibility, usability, engagement, and interactivity were all included in the items. A five-point Likert scale, from "strongly disagree" to "strongly agree," was used to record the responses. Additionally, the survey asked participants about their demographics and how often they used e-learning.

Data Analysis

Statistical methods such as percentage, mean, and standard deviation were used to examine the gathered data. To find out how students felt about the e-learning environment and how successful it was, we used Pearson's correlation coefficient. A significance threshold of 0.05 was used.

IV. DATA ANALYSIS AND INTERPRETATION

Table 1: Distribution of University Students According to Age

Age Group	Frequency	Percentage
Below 20 years	42	16.2
20–22 years	105	40.4
23–25 years	78	30.0
Above 25 years	35	13.5
Total	260	100.0

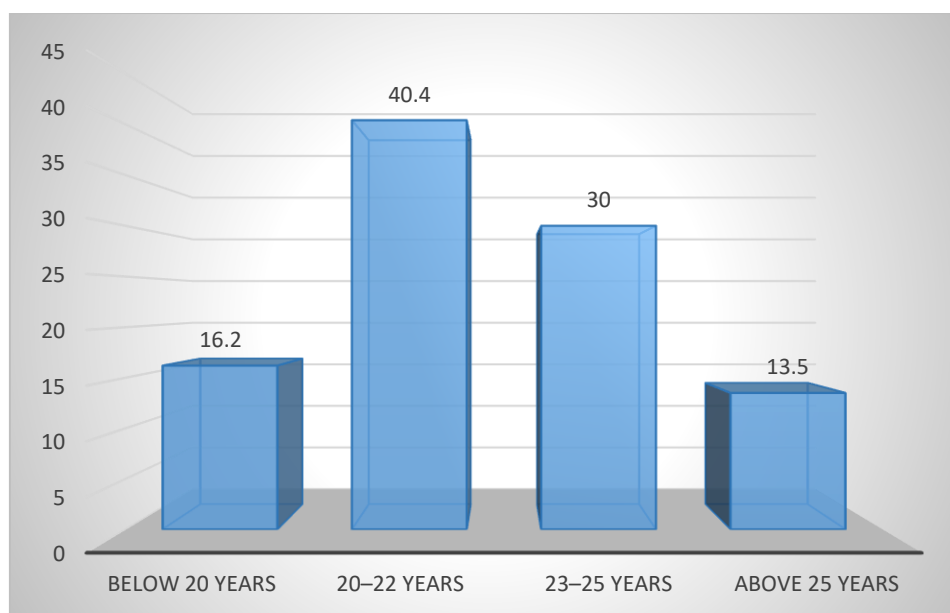


Figure 1: Distribution of University Students According to Age

The data indicates that the highest percentage of participants, 40.4%, were within the 20–22 years age range. Subsequently, those aged 23 to 25 years constituted 30.0% of the sample. Individuals under 20 years comprised 16.2%, and those over 25 years represented 13.5%.

Table 2: Distribution of University Students According to Gender

Gender	Frequency	Percentage
Male	124	47.7
Female	136	52.3
Total	260	100.0

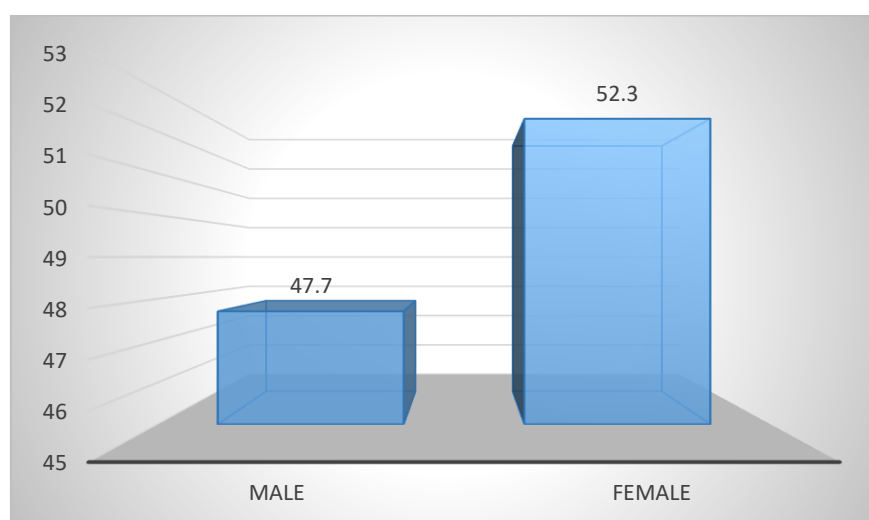
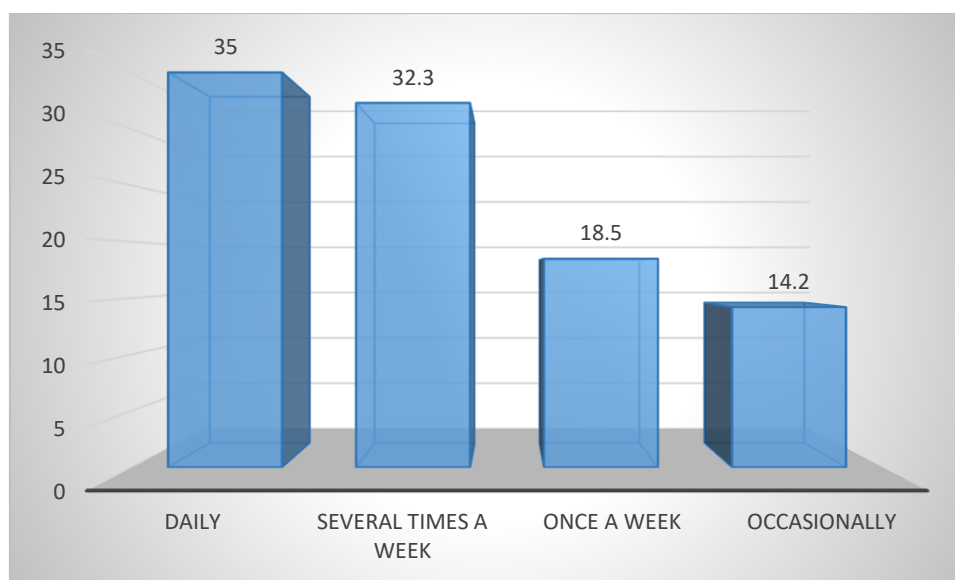


Figure 2: Distribution of University Students According to Gender

Among the people who participated in the survey, 52.3% were female, while 47.7% were male, according to the data.

Table 3: Frequency of E-Learning Use among University Students

Frequency of Use	Frequency	Percentage
Daily	91	35.0
Several times a week	84	32.3
Once a week	48	18.5
Occasionally	37	14.2
Total	260	100.0

**Figure 3: Frequency of E-Learning Use among University Students**

The data reveals that 35.0% of students used e-learning platforms every day, while 32.3% did so multiple times weekly. About 18.5% participated in e-learning on a weekly basis, while 14.2% did so intermittently.

Table 4: Students' Perception of Accessibility and Flexibility of E-Learning

Statement	Mean	SD
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E-learning allows me to access study materials easily.	4.12	0.76
I can access learning resources at a convenient time.	4.18	0.71
E-learning provides flexibility in learning.	4.09	0.79
Recorded materials help me revise lessons.	4.21	0.70
E-learning allows me to learn at my own pace.	4.05	0.82
Overall Mean	4.13	0.76

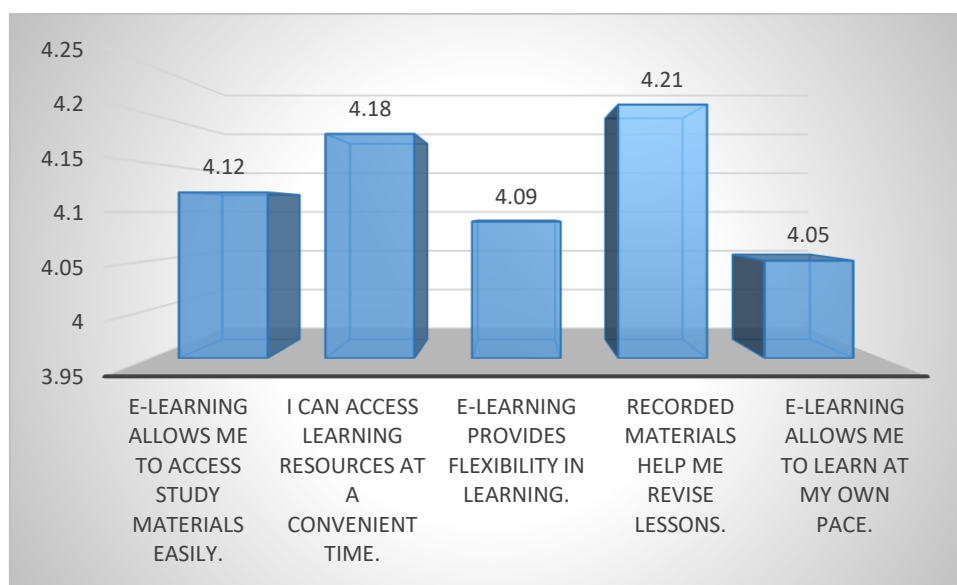


Figure 4: Students' Perception of Accessibility and Flexibility of E-Learning

The results shown in Table 4 indicate that university students had an exceedingly favourable view of the accessibility and adaptability of the e-learning environment, achieving an overall mean score of 4.13 (SD = 0.76). The peak average score was noted for recorded materials assisting students in lesson revision (M = 4.21, SD = 0.70), followed by easy access to educational resources (M = 4.18, SD = 0.71). Learners concurred that e-learning offered adaptability (M = 4.09) and enabled them to progress at their own speed (M = 4.05).

Table 5: Students' Perception of the Usability of E-Learning Platforms

Statement	Mean	SD
E-learning platforms are easy to use.	3.96	0.81
Learning materials are easy to locate.	3.91	0.84

Online assignments are easy to submit.	3.88	0.87
Digital resources are presented clearly.	3.94	0.82
I can use e-learning platforms without much technical assistance.	3.79	0.91
Overall Mean	3.90	0.85

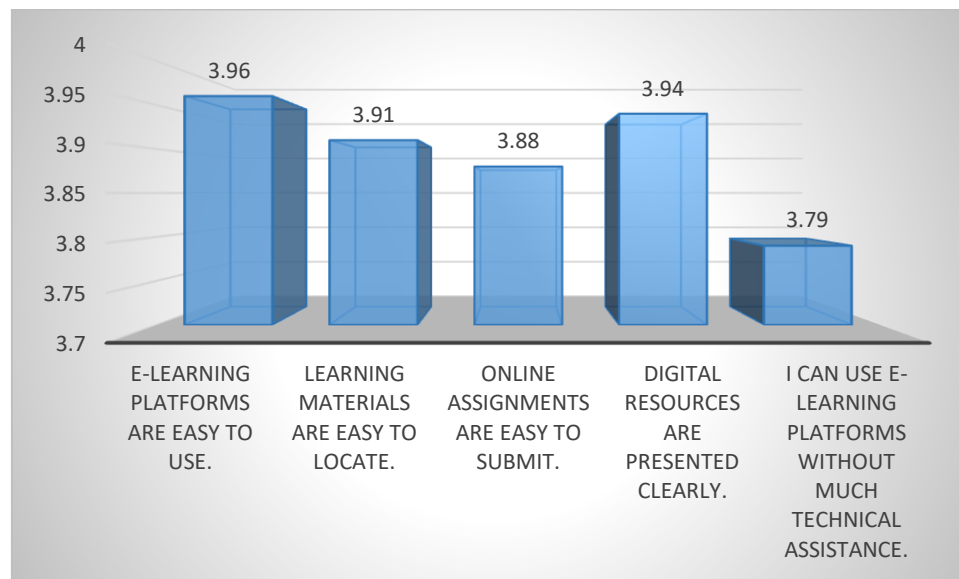


Figure 5: Students' Perception of the Usability of E-Learning Platforms

The results shown in Table 5 reveal that university students often had a favourable view on the usability of e-learning platforms, achieving an overall mean score of 3.90 (SD = 0.85). The greatest average score was noted for the user-friendliness of e-learning platforms ($M = 3.96$, $SD = 0.81$), followed by the lucid presentation of digital materials ($M = 3.94$, $SD = 0.82$). Learners found that educational resources were simple to find and that submitting online tasks was comparatively straightforward. The minimum average score was seen when using e-learning systems devoid of technical support ($M = 3.79$, $SD = 0.91$).

Table 6: Students' Perception of Engagement and Interaction

Statement	Mean	SD
E-learning encourages me to participate in academic activities.	3.72	0.91
Online discussions help me understand course topics.	3.68	0.94
E-learning provides opportunities to interact with teachers.	3.61	0.98
I actively participate in online learning activities.	3.75	0.88

Digital activities make learning more interesting.	3.77	0.89
Overall Mean	3.71	0.92

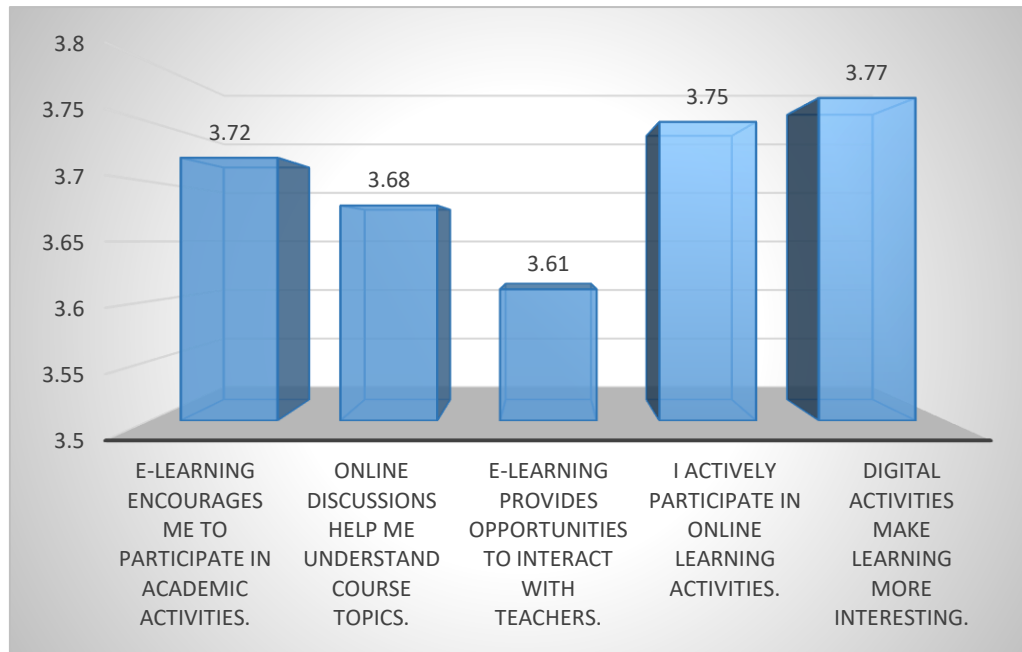


Figure 6: Students' Perception of Engagement and Interaction

The results shown in Table 6 reveal that university students exhibited a modestly elevated impression of involvement and interaction inside the e-learning setting, with a mean score of 3.71 (SD = 0.92). The statement indicating that digital activities enhanced the engagement of learning had the highest mean score ($M = 3.77$, $SD = 0.89$), closely followed by the mean score for active involvement in online learning activities ($M = 3.75$, $SD = 0.88$). Learners said that e-learning fostered engagement in scholarly pursuits ($M = 3.72$) and that virtual interactions enhanced their comprehension of subject matter ($M = 3.68$). The minimum average score was recorded for chances to engage with educators ($M = 3.61$, $SD = 0.98$).

Table 7: Students' Perception of the Effectiveness of E-Learning

Statement	Mean	SD
E-learning improves my understanding of academic topics.	3.86	0.84
E-learning helps me prepare for examinations.	3.92	0.81
Digital resources improve my learning experience.	4.01	0.77
E-learning supports independent learning.	4.08	0.75

E-learning helps me manage my study time.	3.89	0.83
E-learning contributes to my academic performance.	3.82	0.87
Overall Mean	3.93	0.81

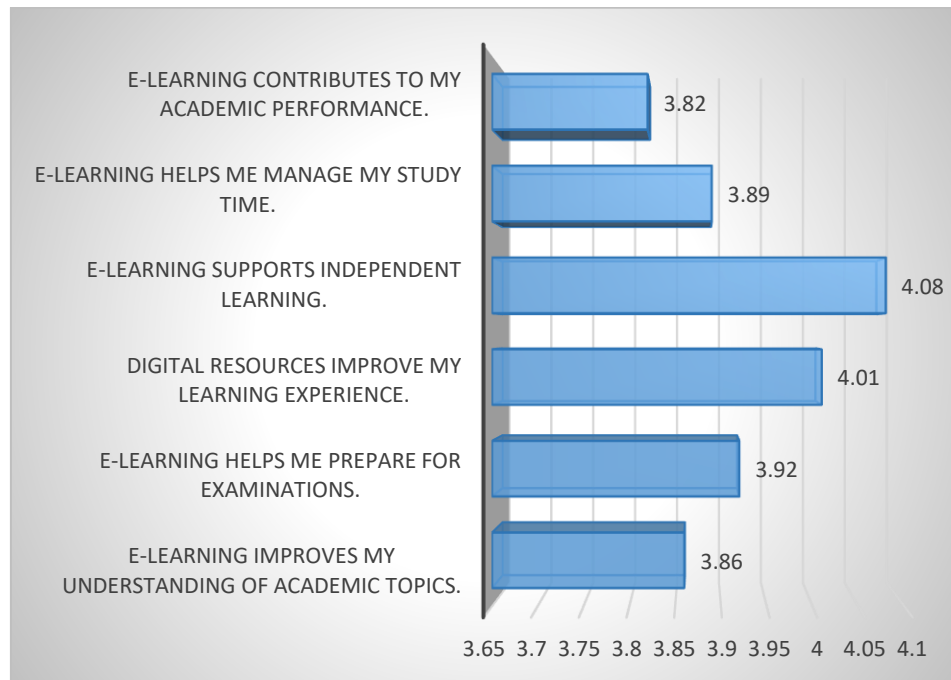


Figure 7: Students' Perception of the Effectiveness of E-Learning

The results shown in Table 7 reveal that university students had a favourable view of the efficacy of e-learning, achieving an average score of 3.93 ($SD = 0.81$). The statement indicating that e-learning facilitates autonomous learning received the highest average score ($M = 4.08$, $SD = 0.75$), closely followed by the enhancement of the learning experience via digital resources ($M = 4.01$, $SD = 0.77$). Learners agreed that online education facilitated their test preparation ($M = 3.92$) and aided in time management for their studies ($M = 3.89$). The minimum average score was noted about its impact on academic achievement ($M = 3.82$, $SD = 0.87$).

Table 9: Pearson's Correlation between Students' Perception of the E-Learning Environment and Its Perceived Effectiveness

Variables	Mean	SD	r-value	p-value	Result
Overall perception of e-learning environment	3.91	0.84	0.68	<0.001	Significant
Perceived effectiveness of e-learning	3.93	0.81			—

The findings shown in Table 9 reveal a favourable and statistically significant correlation between students' general view of the e-learning environment and their assessment of e-learning efficacy. The

general assessment of the e-learning environment yielded an average score of 3.91 (SD = 0.84), whilst the perceived efficacy of e-learning attained a mean score of 3.93 (SD = 0.81). The Pearson correlation value was $r = 0.68$, indicating a fairly robust positive association between the two variables. The association was statistically significant at $p < 0.001$, which is within the 0.05 significance threshold.

V. CONCLUSION

Students may easily access academic information, review courses as needed, and regulate their learning according to their particular requirements with the availability of digital resources and recorded learning materials. The advent of e-learning has allowed for a more adaptable and student-focused approach to education. Its value in helping students better grasp course material, be ready for exams, organise their study time, and gain a better grasp of the material was widely acknowledged. Meaningful teacher-student contact, online conversations, collaborative activities, and interactive digital learning practices should receive more emphasis than engagement and interaction, which garnered relatively lower scores.

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