INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL SCIENCES REVIEW
Volume 1, Issue 1, 2024

PERCEPTIONS AND EXPERIENCES OF E-LEARNING EFFECTIVENESS AMONG INSTRUCTORS AND STUDENTS IN HIGHER EDUCATION

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Keywords
E-learning, E-learning adoption, E-learning implementation, E-learning in higher education, E-learning effectiveness

Article History
Received: 29 October, 2024
Accepted: 11 December, 2024
Published: 31 December, 2024

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Abstract
With technological advances and globalization reshaping higher education, e-learning has become a vital tool offering flexible and dynamic instructional delivery. This study explores the perceptions and experiences of both students and instructors regarding the effectiveness of e-learning systems. Data collected from higher education participants focused on satisfaction, productivity, usage patterns, and challenges encountered. Findings reveal that e-learning positively impacts student learning outcomes. Instructors primarily use these tools for content preparation and delivery, with most acknowledging that e-learning enhances teaching and learning processes. The study underscores the importance of evaluating user experiences to optimize e-learning implementation in higher education.

INTRODUCTION

E-learning systems have emerged as a popular educational tool, offering an alternative to conventional classroom-based learning. By bridging the gap between education and technology, e-learning has gained traction in leading universities around the world. The integration of educational technologies into learning processes is now considered essential for effective knowledge acquisition. Compared to traditional face-to-face instruction, e-learning provides a faster delivery model, utilizing various technological tools such as writing software, communication platforms, visualization technologies, and data storage solutions. Historically, direct interaction between teachers and students in physical classrooms was the standard. However, advancements in computer technology and internet access have gradually transformed traditional teaching into e-learning (Baloch, Naz, & Naqvi, 2023). This new approach enables learners to connect with instructors and peers through electronic networks, offering more personalized support tailored to individual needs. E-learning also facilitates scheduling and managing the learning process more efficiently (Ahmed, Chandio, & Naqvi, 2023). In developing nations, old learning traditions are evolving as innovative learning materials and advanced technologies keep getting introduced. E-learning is taking a particularly fast pace in distance learning, and it is offering real-world solutions for problems encountered in today's learning environment. Colleges and universities use e-learning increasingly in order to enhance learning in a classroom and deliver content on the Internet. Although adoption of e-learning remains in its growing phase, growth is steady. The potential for e-learning has a favorable influence for educators as well as for students. Students tend to perform better with the addition of online learning, as it makes it possible for in-depth learning as well as for fostering more collaboration as well as communication between students, peers, as well as lecturers, than in a lecturing environment face-to-face. E-learning is capable of significantly lowering

cost-of-operations, including cost for paper materials, for instance, for laboratory manuals as well as for paper-based pamphlets.

Current students and educators, who have experience with digital media and mobile devices, benefit from including technology in everyday practice, learning materials, and daily activities, which leads towards enhanced learning achievement. However, despite having a wealth of benefits, e-learning has its equal number of challenges, which, for the most part, are faced by those who have no expertise and experience in utilizing e-learning platforms in an effective manner. However, by strategic proliferation, special training, and strengthened institutional support—involving investment in physical infrastructure—students and educators can take advantage of e-learning's efficiencies in a maximized form. Despite e-learning having a wealth of opportunities, it necessitates educators to find innovative ways of learning. Despite e-learning resources existing in profuse number on the Internet, sustained practice and usage are needed for educators to gain expertise in using these resources. This paper presents the outcomes of a study that investigates the influence of e-learning systems on students and educators in the higher education sector, in particular Balochistan's virtual campuses.

Statements of the problems:

The large-scale implementation of e-learning systems in higher education has significantly changed the traditional methodologies of learning and instructions. Nevertheless, a careful evaluation of their actual impacts on both instructors and learners is essential. While there are advantages of e-learning platforms in flexibility, accessibility, and non-traditional approaches to education, there are still drawbacks in digital literacy, student engagement, infrastructure in technology, and information retention. Also, instructors may have difficulty keeping up with emerging technologies, and students have issues related to self-discipline, motivation, and interaction in a distance-learning curriculum. The research aims to examine e-learning systems' advantages and disadvantages, assess how they are effective in delivering quality learning, and how they have a universal influence on learning performance and effectiveness in instruction.

Objectives of the study:

This study aims to:

1. **To investigate** how instructors, perceive the role of e-learning in shaping their teaching methodologies and workload.
2. **To analyze** students' experiences with e-learning, focusing on engagement, satisfaction, and perceived learning outcomes.
3. Provide recommendations for improving the adoption and implementation of e-learning systems in higher education.

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Significance of the study:

This study holds academic importance as it provides critical insights into the effectiveness of e-learning systems within higher education institutions. By evaluating the impact on both instructors and students, this research enhances understanding of the advantages and challenges associated with digital learning environments.

Students: The research analyzes the influence of e-learning on student engagement, learning experiences, and academic performance. By identifying potential challenges, such as digital accessibility, motivation, and interaction, the study aims to contribute to the enhancement of student support services.

Higher Education Institutions: The study's findings support institutional leaders and policymakers in making informed decisions regarding the integration and advancement of e-learning systems. It provides evidence-based recommendations for improving digital infrastructure, faculty training, and student support mechanisms to maximize the effectiveness of online education.

Future Research: This study serves as a foundational reference for subsequent research on the effectiveness of e-learning, offering data-driven insights that guide the development of more effective policies and best practices in technology-enhanced education.

Literature review

The integration of E-Learning has significantly transformed and enhanced teaching and learning practices in higher education (Cappel & Hayen, 2004; Filimban, 2008). As Zaid (2009) defines it, "E-Learning is a term for all types of technology-

enhanced learning (TEL), where technology is used to support the learning process." Numerous academic institutions that adopt E-Learning technologies experience substantial impacts and establish a strong presence in the educational landscape (Sahin & Thompson, 2007; Selim, 2007). While some students report improved academic performance and positive attitudes toward E-Learning (Kirby et al., 2007), others express concerns due to usability challenges, increased workload, limited technological skills, and the lack of face-to-face interaction (Picciano, 2002).

To define the characteristics of effective E-Learning, a review of previous research and best practices in both traditional and online education was necessary. A successful E-Learning environment includes high-quality course design and delivery by the instructor (Rovai, 2002; Wright & Lawson, 2005; Ally, 2008; Smith & Ragan, 1999; Wakefield, 2009), the implementation of suitable assessment strategies (Leshowitz et al., 1999; MacKnight, 2000; Siragusa, 2002), and the promotion of collaborative learning (Murphy & Cifuentes, 2001; Tu & McIsaac, 2002; Garrison & Anderson, 2003). Additionally, instructors should adopt effective teaching strategies that cater to students' needs. Providing technical support to educators (Zhao, 2007; Haitham, 2009; Wang & Wang, 2009) facilitates the smooth integration of their teaching practices into the E-Learning framework (Cuban, 2001; Sonwalkar, 2002; Hayes, 2007).

Students benefit from E-Learning by taking greater control of their learning process, gaining technological proficiency, building networks, enhancing critical thinking, and applying their knowledge to real-life scenarios. Furthermore, E-Learning enables them to deepen their understanding of both themselves and the world while mastering course content (Filimban, 2008). Online course offerings allow students to learn at their own convenience, free instructors from repetitive classroom tasks, and enable institutions to broaden their educational reach globally (Anderson, 2011).

Materials and Methods

Research Design

To address the research objectives, this study adopted a descriptive survey design. Data were collected from instructors and students using a modified questionnaire comprising Likert-scale items. This methodological approach is deemed appropriate, as it enables the quantitative assessment of the effect of the E-learning system on instructors and students in higher education.

Participants

The sample in this study includes 100 students who had already enrolled in the virtual university sub-campus in Turbat and Quetta, Balochistan. The students who participated in the study were undergraduates from the three departments: education, Biotechnology, and computer science. There were (75) Females and (25) Males. The 25 instructors were the sample of the study.

Procedure:

Data were collected on the second and third semesters, respectively, of the years 2023 and 2024. Each student had some exposure to traditional and online e-learning. The questionnaire was adapted from the study "Impact of e-learning in Further Education: Survey of Scale and Breadth" (ESSB) (S. Golden 2006). The questionnaire comprised sections on respondents' demographic profiles, usage patterns of the E-learning system, frequency of E-learning system utilization, instructors' perspectives on E-learning, and satisfaction levels. The researchers distributed the questionnaires to the respondents, allowed sufficient time for completion, and subsequently retrieved the completed instruments. The collected data were then tabulated and interpreted. The responses were statistically analyzed using descriptive statistics, specifically frequency counts and percentage distributions, to quantify the satisfaction and impact of E-learning on both teachers and students.

Results and Discussion

Profile of the Research Participants

Twenty-five (25) teachers and one hundred (100) students participated in the study. The demographic information of the respondents is shown below.

Table 1. Profile of the Teacher Participants (n =25)

Category	Groups	Frequency	Percentage

Gender	Male	15	60 %
	Female	10	40 %
Age	Up to 25	6	24%
	26-30	8	32%
	Above 30	11	44%
Departments	Education	12	48%
	Biotechnology	7	28%
	Computer Science	6	24%

The tabulated demographic data of the 25 teacher participants provides a foundational basis for analyzing the potential effects of e-learning systems in tertiary education. The observed gender imbalance, favoring male instructors (60%), necessitates a focused inquiry into potential gender-differentiated patterns of e-learning adoption, perceived effectiveness, and encountered obstacles, specifically examining if male instructors exhibit divergent e-learning behaviors compared to female instructors. The age distribution, with a significant proportion of instructors over 30 (44%), suggests a cohort with varied prior exposures to digital technologies, potentially influencing their perceptions of e-learning due to their experiences with traditional pedagogical methods. Conversely, younger instructors (25-30 and under 25) are hypothesized to possess higher levels of digital literacy, warranting an investigation of their efficacy in e-learning implementation. The diversity of departmental representation (Education, Biotechnology, Computer Science) allows for a comparative examination of e-learning implementation across disciplines. The dominance of the Education department (48%) highlights the centrality of pedagogical considerations in e-learning, potentially yielding insights into optimal online instructional practices.

Table 2. Profile of the students (n =100)

Category	Groups	Frequency	Percentage
Gender	Male	58	58%
	Female	42	42%
Age	Up to 25	35	35%
	26-30	28	28%
	Above 30	37	37%
Departments	Education	53	53%
	Biotechnology	32	32%
	Computer Science	15	15%

The table presents demographic data of the participants in the study, categorized by gender, age, and department. This information helps us understand the composition of the sample and how representative it is of the population being studied. The study has a slightly higher representation of males (58%) compared to females (42%) This suggests that the findings might be more reflective of male experiences with e-learning systems. The age distribution is relatively balanced across the three categories: "Up to 25" (35%), "26-30" (28%), and "Above 30" (37%). This indicates a diverse age range among the participants, which is beneficial for understanding the effects of e-learning systems across different age groups. The largest age group is those above 30 years of age.

Table 3: Learners' insight into the number of occurrences based on e-learning use.

Statements	Always	Frequently	Sometimes	Rarely	Never
Present written work/data	21	42	37	0	0
Research topics	22	43	35	0	0
Submission of work assignment	47	29	23	0	2

Engagement in classroom activities	30	44	23	0	3
E-learning helps them to do smart work	38	52	20	0	0

As shown in the Table, 47% of students consistently use the E-learning system to submit their assignments or work, which aligns with findings from the study "Student Awareness Towards E-Learning in Education" that indicate E-learning aids students in completing their homework efficiently and effectively. Additionally, 52% of students frequently feel that E-learning helps them stay well-organized with their work. Occasionally, students use the E-learning system to submit written work or research topics, possibly preferring personal interaction with instructors. It is also important to note that students often collaborate with peers in the classroom.

Introduction

One of the trending educational tools in the market today is the E-learning system which is used as an alternative to the traditional learning. E-learning connects two areas like learning and with the use of technology. Nowadays online teaching and learning are used in other prestigious universities. In achieving knowledge, a combination of learning and use of educational technology is a component of the learning processes. E-learning systems have faster delivery cycle time than traditional classroom-based instruction because system combined with tools such as writing technologies, communication technologies, visualization and data storage. [1]. As of now the perception of conducting classes is face to face interaction inside the classroom with teacher and group of students has been the common practice in some schools, however with the emergence of computer technology and internet the traditional approach is already starting evolving into e-learning. [2]. With the new approach and environment for learning the used of electronics networked allowed learners to interact between instructors, teachers and
peers will receive individualized support that is suitable for the students [3]. E-learning will also support the scheduling and time management for the learning process of the learn .

Table 4. Use of E-learning by Instructors

Statements	Always	Frequently	Sometimes	Rarely	Never
Give one-to-one consultations to students in the classroom	70	25	12	0	2
Make course content available to students	65	18	13	2	0
Discuss the information in the class	55	15	10	0	0
Increase learners' understanding of the subject knowledge.	40	20	9	2	1
Interact with students outside of the classroom	56	23	6	0	0
Assess the student's understanding level	40	20	10	0	0

The findings indicate that instructors mainly utilize e-learning to design and deliver their lessons. They view it as a means to make course content readily available to students and to support in-class instruction, thereby improving students' understanding of the material. Additionally, instructors use the platform to offer guidance and academic support. A key component of e-learning is its forum feature, which enables students to engage in discussions and address academic concerns. As a result, e-learning proves to be a highly effective tool for facilitating the learning process.

Table 5. Instructors' perception of E-learning

Statements	Always	Frequently	Sometime	Rarely	Never
Discuss research work and topics	12	60	20	2	0
Share course contents with colleagues	35	40	12	0	0
Share course materials with students	40	53	5	0	0
Communicate and provide support to students	60	28	4	0	0

Monitor and assess students' performance	44	56	0	0	0

As evident from the results, the instructors observed that the majority of students employed the e-learning system to actively participate in class. Additionally, students utilized the platform to submit their assignments, including research papers and other written tasks. It was also noted that the e-learning system served as a tool for students to review and catch up on their lessons. However, collaborative work among students was infrequently practiced. E-learning introduced a novel approach to education through the use of Internet technologies, eliminating the need for simultaneous teacher and student presence in educational activities.

Table 6. Instructors' approval with access to e-learning resources

Statements	Enough access %	Less access %	No access %	Unsure %
Develop research and create instructional materials	62	29	0	0
Distribute instructional resources to peers	45	31	0	0
Share course materials with learners	34	29	3	0
Monitor and evaluate students' progress	40	30	0	0
Ensure that students can use e-learning tools	42	32	0	0

The findings indicate a general sense of satisfaction among instructors regarding their access to e-learning resources. A majority of instructors reported sufficient access to the e-learning system, which facilitated effective research planning and the development of instructional materials. However, levels of satisfaction were comparatively lower concerning the platform's utility for student communication and support. Despite this, the implementation of blended learning demonstrably contributed to a positive and significant enhancement of students' learning experiences.

Table 7. Availability of technical assistance in the use of e-learning

Statements	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Provision of technical assistance	56	42	0	1	1
Availability of and exposure to suitable e-learning training resources	61	37	1	0	0
Provide time for e-learning teaching and learning.	45	53	0	1	1
Reliability of equipment	63	34	1	1	1

The insights reveal that instructors are largely satisfied with the technical support and the availability of adequate, relevant e-learning training. They also expressed approval of how learning is integrated into the overall process. The use of a blended learning environment has had a notable positive effect on students' learning approaches and academic performance. Furthermore, instructors showed a favorable response regarding their current involvement and training in e-learning

Table 8. Instructors' perceived level of e-learning expertise.

Statements	Strongly agree	Agree	Undecided	disagree	Strongly disagree

I express a strong interest in incorporating E-learning into teaching and learning practices	53	32	0	0	0
I am readily able to identify opportunities within my subject area for the effective use of e-learning.	52	2	0	0	0
I am committed to utilizing e-learning to its fullest potential	55	30	0	0	0

The data reveal a strong consensus among instructors regarding their e-learning expertise, marked by enthusiasm, confidence, and commitment. A majority strongly agreed with statements expressing interest in e-learning (53), the ability to identify its applications in their subject areas (52), and a dedication to using it to its fullest potential (55). Notably, no respondents expressed uncertainty or disagreement, indicating a uniformly positive perception. This high level of readiness and motivation among instructors is essential for the effective integration of e-learning and the success of blended learning environments.

Table 9. Instructors' perceptions of their e-learning competence.

Statements	**Very** **Effective %**	**No Change** %	**Less** **Effective** %	**unsure** %	**Not** **applicable %**
Make course materials of learners	91	5	0	0	0
Course contents sharing with colleagues	59	9	11	0	0
Lesson plan preparation	61	17	5	0	0
A tool to facilitate interaction with students."	59	23	0	0	5
oversight of Individual Student Activities and Responsibilities"	5	11	9	0	6

Table 9 The findings indicate that instructors generally hold consistent views regarding the influence of e-learning on teaching and learning. Most agree that e-learning has improved the accessibility of course materials for students, which they perceive as a more effective approach. Furthermore, instructors believe that e-learning strengthens communication with students beyond classroom settings and makes it easier to share resources with fellow educators. However, a minority of instructors feel that e-learning is less effective when it comes to overseeing individual student tasks, tracking their progress, and offering personalized support.

Table 10. Instructors' views on the effect of e-learning on learners' experiences

Statements	Very Effective %	No Change %	Less Effective %	unsure %	Not applicable %
Conducting research	62	5	0	0	6
Strengthen their understanding	57	11	0	7	0
Expand their expertise in the subject.	65	14	0	3	0
Actively participate in classroom learning.	53	0	16	5	0

Table 10 reveals that instructors believe e-learning has positively influenced students' learning experiences, with 75% of respondents indicating that it has significantly enhanced students' understanding of the subject matter. E-learning has also been effective in aiding students' research efforts, reinforcing their knowledge, and enabling the creation of visual presentations. Furthermore, the exercises and activities provided within the e-learning system have fostered students' self-reliance, encouraged collaborative work, and improved time management skills. E-learning has proven to be a valuable tool in teacher training and has contributed to the enhancement of the teaching and learning process.

CONCLUSION

This research aimed to investigate the effect of e-learning on teachers and students in higher education context. The study finding revealed that the results indicate that e-learning has significantly enhanced the instructors' effectiveness in their teaching methods and techniques. Majority of the instructors observed that e-learning has assisted them in preparing their teaching and learning process, as well as in creating more effective presentation tools for delivering lessons and learning materials to students. Additionally, e-learning tools have helped strengthen the interaction between learners and lecturers. However, fewer instructors reported that e-learning tools effectively supported them in managing and assisting students' learning. Despite this, numerous instructors acknowledged that these tools have prepared learning materials and presentations more conveniently, contributing to the development and reinforcement of knowledge. The survey also revealed that fewer instructors found e-learning to be beneficial for facilitating collaborative activities between instructors and students.

To fully harness the potential of e-learning, it is recommended that faculty receive training to enhance their multimedia skills. This training would enable them to create their multimedia resources, providing additional teaching materials for learners. Furthermore, for instructors to fully utilize e-learning tools in sharing educational content and fostering understanding, adequate access to these tools is essential. The advantage of e-learning in the context of students learning ,such as improved performance, increased engagement in school activities, heightened motivation, and the development of skills like interpersonal communication, highlight the various indirect ways in which e-learning can positively impact achievement, contribution, and retention.

Further recommendations:

1. Increasing Digital Literacy and Technical Support

Post-secondary institutions should implement periodic training programs for both students and instructors to enhance their digital literacy skills.

Special technical support teams should be available for assisting users in resolving any complications related to e-learning platforms for a smooth learning experience.

2. Increasing Student Engagement and Motivation

Incorporation of interactive features, such as gamification, multimedia, and discussion boards, can foster stronger student engagement.

Personalized learning approaches, including adaptive learning technologies, should be implemented to accommodate diverse learning styles and individual student needs.

3. Supplementing Instructor Training and Support

It is imperative that faculty participate in professional development opportunities on an on-going basis in best practices in online learning and assessment.

Institutions should design mentoring opportunities for professional online educators who can aid and direct professors in transitioning from conventional modes of teaching to online ones.

4. Increasing Infrastructure and Accessibility

Universities need to invest in scalable and robust e-learning infrastructure in order to have dependable connectivity and a great user experience consistently.

The digital divide is reduced by providing students, especially those from low socio-economic communities, access to needed technological devices and stable internet connections.

5. Measurement of Performance Metrics and Learning Outcomes

Continuous assessment of participation and learning by students needs to be conducted in order to evaluate the effectiveness of e-learning against traditional learning approaches.

Institutions should employ data analytics and artificial intelligence technologies for student progress tracking and provision of personalized feedback for improvement.

6. Cultivating Collaborative and Interactive Learning

Collaborative software use in the form of virtual group projects, peer reviews, and simulations over the Internet should be encouraged so that students can interact.

A blended learning format that incorporates both face-to-face and online communication should be implemented in order to optimize learning results.

7. Facing Psychological and Social Issues

Online learning platforms need counseling and mental support services in order for students to be able to deal with issues like isolation, loss of motivation, and anxiety.

Arrangements should be devised for developing a sense of community and belonging in Web-based learning settings.

8. Creating Institutional Policies and Fostering. Persistent Improvement

Higher learning institutions should have dedicated policies and structures for facilitating effective use of e-learning, in line with scholarly demands.

Regular feedback from students and instructors should be gathered in a continuous effort to identify issues and stimulate efforts for improving digital learning.

By following these recommendations, learning institutions can design a more inclusive, interactive, and efficient e-learning experience that enhances both learning as well as teaching processes.

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