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THE IMPACT OF EDUCATIONAL TECHNOLOGIES ON STUDENTS' ACADEMIC PERFORMANCE IN PUBLIC AND PRIVATE UNIVERSITIES IN LAHORE

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ABSTRACT

As the digital environment evolves, the incorporation of technology into education has become a significant element of the learning experience. The present study examines the impact of educational technologies on the academic performance of students at public and private universities. The objective of this study is to shed light on how these technologies influence student academic success across various educational contexts. The inquiry evaluated the use of educational technologies, including online learning platforms, digital resources, and interactive tools, while analyzing their relationship with academic performance. For this purpose, a quantitative research methodology was utilized; employing surveys to collect data from a sample of students from public and private institutions. The results indicated that educational technologies substantially affect students' academic grades. Both public and private university students reported advantages and benefits related to technology use, such as increased access to learning materials, improved communication with instructors, and enhanced flexibility in their study schedules. It also stressed the importance of ensuring equitable access to technological resources and tools, especially in public universities, to close the digital gap and guarantee that all students can benefit from these tools and resources. This research enriches the ongoing conversation about the role of technology in education, highlighting the potential benefits of enhancing students' learning experiences and outcomes.

Keywords: Educational technologies, Academic performance, University student, Public and private Universities.

INTRODUCTION

It is the era of modern technologies which are helping in every field of life. The study focused on the technological advancements and digital innovations implemented at the higher education level. The study aimed to emphasize innovative teaching methods and their effects on educational quality (Ali, 2022). Additionally, the researcher sought to identify the elements contributing to high quality education in universities. As noted by Gregory and Lodge (2015), the current wave of innovation is opening up exciting opportunities for both teaching and learning. Educational innovations involve the application of new technologies and strategies to improve the learning and teaching processes. Institutions of higher education work to cultivate environments that enhance teaching and learning practices. This frequently includes modifying traditional approaches to cater to contemporary needs (Hannan, 2005). It is the time for Adopting technological innovations that calls for educators to be open-minded and proactive. Instructors and educators, who reflect on their practices, are willing to embrace change, and respond to students'

requirements often regard conventional methods as outdated and are eager to transition to new strategies (Gregory & Lodge, 2015).

Institutions are adopting cutting edge technologies to enhance creativity and educational experiences for learners (Siddiqui et al., 2023). These technologies encompass a variety of tools, including Learning Management Systems (LMS), wikis recorded lectures, e-Portfolios, seminar blogs, online assessment tools, virtual webinars, search engines, computers and laptops, email, social media platforms, presentation software, blogs, cloud services, reference management applications, statistical software such as SPSS, multimedia content, online testing platforms, presentation sharing services, and communication tools like Zoom, Google Meet, and Skype (Bond et al., 2018). Moreover, students' skills in using digital devices, their awareness of educational trends, access to learning materials, and confidence in employing technology also serve as indicators of quality education at the tertiary level, ultimately contributing to improved academic performance (Tokareva et al., 2019).

The academic performance of students includes multiple facets, and researchers have pinpointed several significant aspects of performance. These indicators encompass aspects such as the overall student, the development of transferable skills, the enhancement of critical thinking, mastery of subject content, opportunities for self-reflection, the effectiveness of lecture delivery, and the feedback from instructors. Furthermore, characteristics like encouragement, adaptability in teaching approaches, support for learning, and innovative delivery methods by lecturers play a role in shaping the perception of quality education. Additionally, certain factors enhance student satisfaction, suggesting a high standard of education. These factors involve offering students plenty of chances for creativity and personal growth, access to extensive informational resources, a nurturing learning environment, sufficient facilities, a pleasant atmosphere, and opportunities for participating in extracurricular activities (Razinkina et al., 2018).Educational institutions require innovative teaching methods and view traditional strategies as increasingly inadequate for meeting learners' needs. This research study utilized a quantitative approach with the aim of identifying and emphasizing the influence of technological advancements on educational quality and academic achievement, while also considering the perspectives of university faculty and students. The researcher employed a quantitative survey to explore additional factors. In recent times, advancements in educational technology have transformed our methods of teaching and learning. The swift evolution of technology has significantly affected various elements of education, such as how instructional materials are delivered, the communication between students and educators, and the overall educational experience. Vygotsky's theories emphasized that students ought to actively engage their learning in real world contexts by utilizing practical tools to tackle and resolve societal issues (Miller, 2002).

LITERATURE REVIEW

The Educational technology plays a significant role in enhancing student learning and academic achievement. In a society in communication resources, it is essential to develop robust information and communication technology (ICT) literacy skills to prepare students for future success (Anderson, 2009). Even with the ongoing adoption of technological tools aimed at improving education, disparities in access to computer technology for students outside of regular institutional hours persist. An initial review of academic literature on digital learning revealed that implementing digital manuals in both public and private educational institutions enhanced learning opportunities (Lau, 2008). Additionally, the literature review examined the reactions of students and teachers to the initiatives involving digital textbooks (Nakos & Deis, 2003).

A follow up research study aimed at facilitating the incorporation of digital textbooks into the Korean framework produced positive results. Jung and Lim (2009) found that electronic texts positively influenced students' academic success. Especially, learners from low income families demonstrated considerable improvements in their academic performance when using digital texts. These support the adoption of digital texts as a strategy to help bridge the digital divide (Jung & Lim, 2009). Students regularly collaborate online through social media channels to exchange personal information (Bellanca & Brandt, 2010). They frequently employ technological devices such as

mobile phones outside of the school setting (Bellanca & Brandt, 2010). Waycott et al. (2010) remarked that students expect technology to be integrated into their learning experiences.

When exploring the connection between teaching methods and students' skills in information and technology (ICT), research consistently shows that the teaching approach of the instructor and their competency are crucial for enhancing students' ICT abilities. Regarding teaching strategies, the effective use of technological tools is significantly improved when adopt constructivist teaching practices. This method enables to guide students in building their own understanding. It requires teachers to shift students' focus to their prior knowledge about a topic and then motivate them to investigate further to discover new data. The students also collaborate with classmates in discussions to tackle problems together and ultimately foster new understanding (Solomon & Schrum, 2007).

1. Improving ICT skills involves having students actively utilize technology tools to apply their
2. knowledge and refine their abilities (Anderson, 2009). However, if computers are mainly employed for repetitive exercises or tasks that lack relevance, students will miss out on the essential experiences required to advance their abilities in complex problem solving (Rentie, 2008). While constructivism offers benefits by allowing students to develop ICT literacy and use it in their everyday activities, some educators may feel uncertain about applying constructivist teaching methods. Additionally, gaining proficiency with technological tools requires the use of a wide variety of these instruments.Teachers may need extra time for planning to create lessons that effectively integrate these resources (Banister & Fischer, 2010). The analysis of the use of digital learning tools has highlighted the need for a transformation in teaching methods that aligns with the adoption of these technologies (Kopyc, 2006). Although there is continuous advocacy for digital tools as a way to broaden learning opportunities, not every educator is modifying their teaching methods to incorporate these digital resources.

Technological advancements in education are essential; however, there are some factors that hinder the adoption of innovative methodologies. A study by Gregory Lodge (2015) identified underlying obstructing the integration of learning strategies within higher. Their findings highlight various issues, such as increased time obligations, heavier workloads, and insufficient financial backing from universities. Furthermore, the research points out that these obstacles pose risks for both faculty and students in their use of teaching technologies (Gregory & Lodge, 2015). Innovative technologies are vital in empowering educators, students, and teachers to reform educational practices and improve the learning experience (Bozalek, Ng'ambi, & Gachago, 2013). Contemporary technologies significantly contribute to the educational process by engaging students and keeping them informed about new trends in teaching practices (Djumaevich et al., 2019).

RESEARCH OBJECTIVE

The present study has following research objectives:

To identify the role of innovative educational technologies applications in education.

To investigate the impact of educational technologies on the academic performance of students in both public and private universities in Lahore.

RESEARCH HYPOTHESIS

To explore the impact of educational technologies on students' academic performance the following hypotheses were framed and tested.

- **H1:** There is significant relationship between educational technologies and students academic performance in public and private universities of Lahore.
- **H0:** There is no significant relationship between educational technologies and students academic performance in public and private universities of Lahore.

METHODOLOGY

The quantitative research design was used to investigate the impact of educational technologies on the academic performance of students in both public and private universities in Lahore, Pakistan. The survey method was used by developing structured questionnaire to collect data. The population of the study was the students enrolled in various public and private universities in Lahore, Pakistan.

Sample

A stratified random sampling method was used to select a representative sample of students from both public and private universities. The Stratification ensured proportional representation from each type of institution. (Gliner, et al.,2011, p. 132). The population was divided in two groups based on gender. The sample size was 200 undergraduate students enrolled in public and private universities in Lahore, Pakistan to collect data including 100 students from Public University and 100 students from Private University. It further divided based on science and humanities groups. There were 50 students from Science Department 25 male and 25 female and 50 students from Arts 25 male and 25 female in Public University. In private University 50 students from Science Department 25 male and 25 female and 50 students from Humanities 25 male and 25 female. There was an equal number distribution of sample size between public and private university, male and female, science and arts departments.

Validity and Reliability of the Instrument

It was very important to use valid instruments which had been varified by research experts to ensure the face and content validity. The Academic Performance Scale (APS), crafted by Carson Bircheier, Emily Grattan, Sarah Hornbacher, and Christopher McGregory has .89 internal consistenacy and .85 test-retest reliability. The scale has eight 5-points scale items. The consistency and reliability of academic performance scale was verified by its test-retest score 0.85. The scale has fifteen 5- points scale items.

Data analysis and findings

To investigate the relationship between educational technologies and academic performance, correlation analysis was used to determine the strength and direction of the relationship between the two variables. Descriptive statistics was used to summarize demographic characteristics and usage patterns of educational technologies among students. An inferential statistical technique, such as regression analysis and t-tests, was employed to examine the relationship between educational technology usage and academic performance.

Table 1: Demographic Distribution of the sample (Respondents/ Students)

Demographics		Frequency	Percentage
Degree	Undergraduate	200	100
Institution	Public	100	50
	Private	100	50
Gender	Male	100	*50*
	Female	100	*50*
Department	Science	*100*	*50*
	Social science	*100*	*50*
Total		200	*100*

The data showed in the above table 4.1 presented demogrphical distribution of the sample. The sample size was 200 undergraduate students to collect data including 100 students from Public University and 100 students from Private University.

Table 2: Demographic Distribution of the sample (Respondents/ Students)

Demographics	Gender	Institution	Degree_Program	Department
	200	200	200	200
Mean	1.5000	1.5000	1.0000	1.5000
Median	1.5000	1.5000	1.0000	1.5000
Mode	1.00[a]	1.00[a]	1.00	1.00[a]
Std. Deviation	.50125	.50125	.00000	.50125

The table 4.2 contains descriptive statistics regarding four variables: Gender, Types of Institution and Degree Program. There are 200 observations for all the variables and no missing values. This means that the mean values for Gender, Types of Institution and Department are all 1.5 which is clear indication that they were coded as categorical variables with an equal distribution between individuals in either group.

Table 3: T-Test Educational Technologies and Academic performance Group Statistics based on gender

Variables	Gender	N	Mean	Std. Deviation
Educational Technologies	male	100	52.1500	4.22684
	female	100	51.3400	4.43863
Academic Performance	male	100	31.8600	2.45781
	female	100	31.9000	2.63427

The data presented in table 4.3 illustrates the responses of the students based on gender related to educational Technologies. Males scored a bit on average, at 52.15 compared to females who had a mean of 51.34. However, both genders displayed similar variability in their scores.When we look at Academic Performance the average scores are the same: males scored 31.86 while females got 31.90. Interestingly, females show a slightly higher standard deviation here. This means there is a little more flexibility in their scores than in males.Overall, the differences in average scores between male and female across these categories are very small. This indicates that both genders perform quite similarly in Educational Technologies and Academic Performance.

Table 4:T-Test Educational Technologies & Academic performance Group Statistics based on institution

	Types of institution	N	Mean	Std. Deviation
Educational Technologies	Public	100	49.2700	2.46123
	private	100	54.2200	4.41206
Academic Performance	Public	100	32.6700	1.68807
	private	100	31.0900	2.97836

The table 4.5 shows data for two factors: "Educational Technologies" and "academic Performance." It compares public and private institutions. Particularly, private institutions score higher average in "Educational Technologies" a mean of 54.22, while public institutions have a mean of 49.27. The difference might hint that private have better access to or more advanced educational technologies than their public counterparts. Looking closely, the standard deviation for private institutions is 4.41. In contrast, public institutions have a lower standard deviation at 2.46. This means there is more variation in how private universities use educational technologies compared to public institution. While private institutions showcase a higher average score, it also comes with greater variability in tech access or usage. On the flip side, public institutions have a slightly better average score in academic performance but with less variability than private ones.These patterns could represent various factors like funding levels, available resources, or differing priorities between public and private universities.

Table 5: How often do you use digital tools and technologies for learning?

	Frequency	Percentage
Very Often	1	.5
Sometimes	47	23.5
Mostly	109	54.5
Always	43	21.5
Total	200	100.0

The Data in the table 4.7 highlights the perceptions of the students about “how often do you use digital tools and technologies for learning” and the data reveal that most students use them quite a bit. In fact, 54.5% of surveyed said they "mostly" use these digital tools to enhance learning. Additionally, 21.5% claimed they

"always" use them. So, when you add those numbers, it shows that a strong 76% of students frequently rely on digital resources for their academic performace in education.Now; there is smaller groups about 23.5% of students use these tools "sometimes." However, only 0.5% said they use them "very often." This tiny figure might seem odd or suggest that people interpret the options differently.In summary, digital tools and technologies play an essential role in the education journey for many university students. They significantly contribute to how students learn today.

Table 6: Impact of educational technologies on academic performance at higher level of education

	B	Std. Error	Standardized Beta	t	Sig.
(Constant)	15.216	2.497		6.095	.000
Educational Technologies	.560	.084	.429	6.689	.000

a. Dependent Variable: Academic Performance

b. Predictor: (Constant) Educational Technologies

The data in the table 4.12 shows the results of regression analysis to measure the impact of educational technologies on academic performance at higher level of education. The findings clearly show that using educational technologies plays a key role in how well students academically. When we see an increase of one unit the usage of these technologies, it is expected that academic performance will rise by about 0.560 units. This link is not just random it is statistically significant ($p < 0.001$). That tells us there is a real, meaningful effect on academic success. Furthermore, the Beta value of 0.429 suggests a fairly strong positive connection exists between these two factors. This evidence makes a strong case that incorporating educational technologies into classrooms can really help boost students' achievements. It is vital for educators to recognize this impact and utilize these resources effectively.

Table 7: Impact of educational technologies on academic performance at higher level of education

Model	R	R Square	R Square	F	df1	df2	Sig
1	.429[a]	.184	.184	44.745	1	198	.000

a. Predictors: (Constant), Educational Technologies

b. Dependent Variable: Academic Performance

The data in the table 4.13 shows the results of regression analysis to measure the impact of educational technologies on academic performance at higher level of education. The model clearly indicates a notable link between using educational technologies and students' academic performance. The R value moderate, standing at 0.429. This suggests positive relationship between variables. Now, the R Square value sits at 0.184. This means that educational technologies significantly affect academic performance. Furthermore, the significance level shows p is less than 0.001, confirming this finding.

5.1 Summary of Research Findings

The data shows the results to measure the impact of educational technologies on academic performance at higher level of education. The findings clearly show that using educational technologies plays a key role in how well students academically. When we see an increase of one unit the usage of these technologies, it is expected that academic performance will rise by about 0.560 units. This link is not just random it is statistically significant ($p < 0.001$). That tells us there is a real, meaningful effect on academic success. Furthermore, the Beta value of 0.429 suggests a fairly strong positive connection exists between these two factors. This evidence makes a strong case that incorporating educational technologies into classrooms can really help boost students' achievements.

5.2 Discussion

The research results proved that educational technologies have significant role in modern era of higher education. Similar study results were found in the research conducted by Djumaevich et al. (2019) who emphasizes the significance of modern instructional technologies, focusing on goals, effectiveness, results, and related mechanisms. The study findings about academic performance and quality education were also matched to the results of (Razinkina et al., 2018) that the Digital technology has revolutionized the delivery of education and has become increasingly indispensable in modern educational settings. It grants students easy access to vast reservoirs of information, facilitating research and exploration across various subjects.

5.3 Conclusion

Educational technologies have changed the way students perform academically in higher education. They bring both Opportunities and challenges. These tools help with personalized learning, boost engagement, and give access to many resources. This really improves the learning experience. In conclusion, educational technologies can greatly improve student performance in higher education.

5.4 Recommendations

The research study examined the students' perceptions about the impact of educational technologies on students'academic performance. There are following recommendations for Institutions, Government and policy maker after research findings:

1. The govt must provide technological assistance to public and private institutions to meet modern era challenges related to new technologies.
2. The training programmes for students and teachers should be arranged properly and regularly to ehance their technological skills and abilities.

REFERENCES

Ali, D. M. S. Z. (2022). Metacognitive Skills: Investigating the Effect on Pupil Teachers' Written Task Performance. Journal of Development and Social Sciences, 3(IV), 70–77.

Gregory, M. S. J., & Lodge, J. M. (2015). Academic workload: the silent barrier to the implementation of technology-enhanced learning strategies in higher education. Distance education, 36(2), 210-230.

Hannan, A. (2005). Innovating in higher education: contexts for change in learning technology. British Journal of Educational Technology, 36(6), 975-985.

Siddiqui, G. K., Shahid, M., Ali, Z., Zarar, N., & Munir, H. (2023). Public Education System In Pakistan : An Exploration Into Major Problems. 7(1), 1311–1323.

Tokareva, E. A., Smirnova, Y. V., & Orchakova, L. G. (2019). Innovation and communication technologies: Analysis of the effectiveness of their use and implementation in higher education. Education and Information Technologies, 24(5), 3219-3234.

Razinkina, E., Pankova, L., Trostinskaya, I., Pozdeeva, E., Evseeva, L., & Tanova, A. (2018). Student satisfaction as an element of education quality monitoring in innovative higher education institution. In E3S Web of Conferences (Vol. 33, p. 03043). EDP Sciences.

Miller, P. H. (2002). Theories of developmental psychology. New York, NY: Worth Publishers.

Anderson, N. (2009). Equity and information communication technology (ICT) in education. New York, NY: Peter Lang.

Lau, J. (2008). Students' experience of using electronic textbooks in different levels of education. Retrieved from http://fdt.library.utoronto.ca/index.php/fdt/article/view/4907/1768

Nakos, G., & Deis, M. (2003). Student perceptions of digital textbooks: An exploratory study. Retrieved from http://www.westga.edu/~bquest/2003/digital.htm

Jung, S., & Lim, K. (2009). Leading future education: Development of digital textbooks in Korea. Paper presented at the 4th World Teachers' Day in Thailand and 12th UNESCO-APEID International Conference, "Quality Innovations for Teaching and Learning," Bangkok, Thailand.

Bellanca, J., & Brandt, R. (2010). 21st century skills: Rethinking how students learn. Bloomington, IN: Solution Tree Press.

Waycott, J., Bennett S., Kennedy G., Dalgarno, B., & Gray, K. (2010). Digital divides? Student and staff perceptions of information and communication technologies. Computers & Education, 54, 1202-1211.

Solomon, G., & Schrum, L. (2007). Web 2.0: New tools, new schools. Eugene, OR: International Society for Technology in Education.

Rentie, V. (2008). A case study of the digital divide: A study of teacher awareness and efforts to bridge

the gap in underserved communities. Unpublished doctoral dissertation, Pepperdine University, Malibu, CA

Kopyc, S. (2006). Enhancing teaching with technology: Are we there yet? Innovate: Journal of Online Education, 3(2). Retrieved from http://www.innovateonline. info/pdf/vol3_issue2/enhancing_teaching_with_ technology- _are_we_there_yet_.pdf

Banister, S., & Fischer, J. (2010). Overcoming the digital divide: The story of an urban middle school. Mid-Western Educational Researcher, 23(2), 2-9.

Bozalek, V., Ng'ambi, D., & Gachago, D. (2013). Transforming teaching with emerging technologies: Implications for higher education institutions. South African Journal of Higher Education, 27(2), 419-436.

Gliner, J. A., Morgan, G. A., & Leech, N. L. (2011). *Research methods in applied settings: An integrated approach to design and analysis*. Routledge.