"A Comparative Analysis of Computer-Assisted Learning and the Traditional Textbook-Based Approach in Enhancing Academic Achievement Among College Students at NU Lipa"

General Objective: To compare the academic performance of students using computer-assisted learning and those using traditional textbooks.

Specific Objective:

1. To analyze the differences in test scores, retention rates, and student engagement between the two learning methods.
2. To assess students' perceptions of the effectiveness and convenience of computer-assisted learning versus traditional textbooks.
3. To identify the challenges encountered in implementing computer-assisted learning and the traditional textbook-based approach.

Proposed Topic: A Comparative Analysis of Computer-Assisted Learning and the Traditional Textbook-Based Approach in Enhancing Academic Achievement Among College Students at NU Lipa

Citation	Title	Finding	Remarks
Lee, H., & Kim, Y. (2023). Exploring the Effects of Computer and Smart Device-Assisted Learning on Students' Achievements: Empirical Evidence from Korea. Sustainability, 15(17), 13241.	Exploring the Effects of Computer and Smart Device-Assisted Learning on Students' Achievements: Empirical Evidence from Korea	Computer and Smart Device-assisted Learning (CSDL) has gained increasing attention from educational researchers and practitioners in recent years. However, it remains controversial whether students can benefit from CSDL and what moderators could affect the impact of CSDL. Within the specific context of Korea, where the interest in digital education is steadily increasing, the number of empirical studies exploring the causal effect of CSDL remains relatively scarce. The primary objective of this empirical study was to investigate the impact of CSDL on students' academic achievements in Korea. To achieve this objective, a two-way fixed effect model was employed, utilizing a panel dataset spanning three years derived from the "Korean Education Longitudinal Study 2013". The findings revealed a significant positive impact of CSDL on students' mathematics achievements. Notably, higher income levels, increased availability of computer resources provided by schools, and the implementation of more individualized education were identified as factors that moderate the effect of CSDL on students' achievement levels in Korean and English subjects. These findings underscore the need for an approach that optimizes the educational benefits of CSDL by considering subject-specific characteristics. Furthermore, this study highlights the importance of allocating educational resources, such as computers and smart devices, and integrating individualized educational activities within the classroom environment.	https://www.mdpi.com/2071-1050/15/17/13241
Aslam, M., Arshad, M., & Karim, R. (2024). Impact of Technology-Based Learning on academic performance of undergraduate level students. Academy of Education and Social Sciences Review, 4(2), 197–205.	Impact of Technology-Based Learning on Academic Performance of Undergraduate Level Students	Technology-based learning is a new learning method where students are taught using different digital/ICT tools such as mobile phones, computers, the internet, multimedia, tablets, and many others. The present study aimed to determine the impact of technology-based learning on students' academic performance. A quantitative research method was applied, followed by a survey research design to accomplish this study. The study was delimited to Balochistan province. All the public degree-awarding higher educational institutions were considered for the study. The target population for the study was the	https://journals.irapa.org/index.php/aessr/article/view/728

		undergraduate students. The questionnaire was developed in collaboration with all authors. The reliability and validity of the framed questionnaire were checked through pilot testing. The reliability was found to be 0.87. Data were collected personally and with the help of colleagues. The collected data were analyzed using descriptive and inferential statistics with the assistance of SPSS software version 22. The study's findings indicate that technology-based learning develops students' critical thinking, communication, cognitive, and reading skills, motivates students to become problem solvers, and enhances the professional development of the learners. The study concluded that technology-based learning positively impacts students' academic performance at the undergraduate level and also enables the students to cope with modern-world challenges. The study recommends that the government include technology at all levels of education, train its teachers, and provide all the technology resources.	
Jiang, B., Gu, M., & Yin, C. (2022). Exploring students' backtracking behaviors in digital textbooks and its relationship to learning styles.	Exploring students' backtracking behaviors in digital textbooks and its relationship to learning styles.	The purpose of this study is to explore students' backtracking patterns in using a digital textbook and reveal the relationship between backtracking behaviors and academic performance as well as learning styles. The study was carried out for two semesters on 102 university students and they are required to use a digital textbook system called DITeL to review courseware. Students' backtracking behaviors are characterized by seven backtracking features extracted from interaction log data and their learning styles are measured by Felder-Silverman learning style model. The results of the study reveal that there is a subgroup of students called backtrackers who backtrack more frequently and performed better than the average students. Furthermore, the causal inference analysis reveals that a higher initial ability can directly cause a higher frequency of backtracking, thus affecting the final test score. In addition, most backtrackers are reflective and visual learners, and the seven backtracking features are good predictors in automatically identifying learning styles. Based on the results of qualitative data analysis, recommendations were made on how to provide prompt backtracking assistants and automatically detect learning styles in digital textbooks.	https://www.researchgate.net/publication/360961015_Exploring_students'_backtracking_behaviors_in_digital_textbooks_and_its_relationship_to_learning_styles
Panday-Shukla, A. (2024). Comparing an open educational resource and a traditional textbook: Learner outcomes and engagement.	Comparing an open educational resource and a traditional textbook: Learner outcomes and engagement.	The US Department of Education posits that higher education students' expenditures on course materials and supplies, including texts for language learning classes, were between $1,265 and $1,471 for the 2017–2018 academic year. For many students, the cost of these materials can jeopardize their studies. One potential solution to this issue is to use free educational materials like open educational resources (OERs). However, not all OERs are of the same quality or useful for language learning. Therefore, to explore the affordances of OERs for language learners, this study compares the traditional textbook and the OER web book in terms of the quality and task engagement (TE) at a university in the US Pacific Northwest. The outcomes shed some light on the possible influences of learners' perceived quality of the OER and its relationship with TE and language learning.	https://onlinelibrary.wiley.com/doi/10.1111/flan.12727
Clobes, T. A., Jenkins, J. J., Haid, H., & Allen, R. (2022). Comparison of Academic Performance with a Traditional Textbook Versus a Digital	Comparison of academic performance with a traditional textbook versus a digital openly-licensed textbook	With the utilization of open educational resources (OER) and digital materials becoming more popular, research is needed to determine if academic outcomes are affected with the increasing shift to digital content. The goal of this research was to analyze the academic performance of students using a traditional physical textbook, as compared to those using an electronic copy of a similar textbook provided free through the	https://www.researchgate.net/publication/365808932_Comparison_of_academic_performance_with_a_traditional_textbook_versus_a_digital_openly-licensed_textbook

Openly-Licensed Textbook.		campus library. The traditional and digital no-cost textbook comparisons were made between two sections of the same upper division undergraduate course taught at Hispanic-Serving Institution. The two sections of the course were taught during the Fall 2019 semester, both online, with the same faculty member facilitating both sections. There was no statistical difference in mean discussion grades, t(62)=-0.714, p=0.478, d=0.178444, mean written assignment grades, t(62)=-1.985, p=0.053, d=0.49613, and mean quiz grades, t(62)=-1.711, p=0.092, d=0.427858. However, when looking at the overall total course grade, the mean no-cost course was statistically higher than the traditional textbook course, t(62)=-2.097, p=0.042, d=0.524348. Instructors do not need to be concerned about student outcomes with the increasing implementation of such materials. Universities providing free digital access to textbooks can help address financial concerns for these students without sacrificing academic performance.	
Bianchi, N., Lu, Y., & Song, H. (2022). The Effect of Computer-Assisted Learning on Students' Long-Term Development. National Bureau of Economic Research.	The effect of computer-assisted learning on students' long-term development	In this paper, we examine the effect of computer-assisted learning on students' long-term development. We explore the implementation of a large ed-tech intervention that connected some of China's best teachers to more than 100 million rural students through satellite internet. By leveraging the staggered installation of computer equipment in different areas of the country, we find evidence that exposure to the program improved students' academic achievement, labor performance, and computer usage. We observe these effects up to ten years after program implementation. These findings indicate that education technology can have long-lasting positive effects on a variety of outcomes and can be effective in reducing the rural–urban education gap.	https://ideas.repec.org/a/eee/deveco/v158y2022ics0304387822000761.html
Kandukoori, A., Kandukoori, A., & Wajid, F. (2024). Comparative Analysis of Digital Tools and Traditional Teaching Methods in Educational Effectiveness.	Wajid, F. (2024). Comparative Analysis of Digital Tools and Traditional Teaching Methods in Educational Effectiveness.	In today's world technology comprises a large aspect of our lives so this study aimed to investigate if using computers and digital tools are better than traditional methods like using textbooks and worksheets for learning math. This study was done at Clarksburg Elementary School with help from MoCo Innovation which is a club that focuses on fostering an interest in technology among students. A major question that sparked our minds was: Are digital tools like learning on computers better than traditional methods for improving students math skills? We believe students who use digital tools might improve more in their math skills. To find out we worked with 30 students from the school. We split them into two groups and gave each group a pre assessment and post assessment. One group learned math using computers and were able to use interactive math websites such as Khan Academy while the other group used worksheets. After some learning we gave them a post assessment to see how much they had improved. Our results showed that the students who used the digital tools improved test scores averages by 24.2 percent from 70 percent to 87 percent while the students who used traditional methods only improved by 8.3 percent from 72 percent to 78 percent in math. These results show that digital tools are superior to regular teaching methods especially for subjects like math. But more research is required to see if digital tools are the main reason for this improvement. This research is definitely important to help schools decide if they want to use more technology.	https://www.researchgate.net/publication/383090392_Comparative_Analysis_of_Digital_Tools_and_Traditional_Teaching_Methods_in_Educational_Effectiveness
New shit			
Alasmari, T. M., & Al-Shehri, A. M.	Electronic versus traditional print	University students are increasingly choosing to purchase e-textbooks for their mobile devices as an	https://www.researchgate.net/publication/25717

(2023). Comparing E-Textbooks and Traditional Print Textbooks for University Learning: Student Perceptions and Academic Performance. Education and Information Technologies, 28, 12945–12964.	textbooks: A comparison study on the influence of university students' learning	alternative to traditional textbooks. This study examines the relationship between textbook format and 538 university students' grades and perceived learning scores. Results demonstrate that there was no difference in cognitive learning and grades between the two groups, suggesting that the electronic textbook is as effective for learning as the traditional textbook. The mean scores indicated that students who chose e-textbooks for their education courses had significantly higher perceived affective learning and psychomotor learning than students who chose to use traditional print textbooks.	1412_Electronic_versus_traditional_print_textbooks_A_comparison_study_on_the_influence_of_university_students'_learning
Yilmaz, R. M., & Baydas, O. (2020). The Effect of Digital Textbook Use on Academic Achievement and Cognitive Load in Higher Education. Computers & Education, 150, 103843.	The Effects of Digital Textbooks on Students' Academic Performance, Academic Interest, and Learning Skills	The advances in ICTs and the digitization of services offer new ways to reach, engage with, and provide services to consumers. Recent advances in technology have fueled the rapid growth of digitization in education, and the education industry has witnessed radical changes in the provision and delivery of its products and services. Digital textbooks, which are equipped with various learning resources including multimedia aids, assessment questions, and hyperlinks to external resources, can be an important channel for harnessing technologies in classrooms. Korea's digital textbook experiment provides a unique empirical setting to examine the effects of digital textbooks on students' academic outcomes. The authors employ a panel regression model with teacher fixed-effects, propensity score weighting method, and instrumental variable strategy to find that greater usage of digital textbooks in class improves students' academic performance, academic interest, and learning skills. The authors explore the heterogeneity in the utilization effect across student levels to find greater improvements in academic performance for low-achieving students. The findings have important managerial and policy implications for major stakeholders in the education sector, including teachers, school administrators, students, and policymakers.	https://www.researchgate.net/publication/363761584_EXPRESS_The_Effects_of_Digital_Textbooks_on_Students'_Academic_Performance_Academic_Interest_and_Learning_Skills
He, W., Zhu, C., & Deneen, C. C. (2021). Effects of Blended Learning vs. Traditional Classroom on College Student Performance: An Empirical Comparison. Interactive Learning Environments, 29(8), 1218–1231.	The Impact of Blended Learning on Student Performance	This study investigates the impact of blended learning on student performance, employing a quantitative research design. Blended learning, which integrates online and face-to-face instruction, has gained popularity due to its potential to enhance educational outcomes. The research focuses on a population of university students, drawing a sample size of 319 participants from diverse academic backgrounds. To gather data, a structured questionnaire was used as the primary research instrument, encompassing various aspects of student performance, including academic performance, engagement, and satisfaction. The questionnaire was validated through a pilot study involving 50 students, ensuring reliability and relevance. Data collection was conducted over a semester, with pre- and post-intervention assessments to measure changes in student performance. The findings indicate a significant improvement in academic performance among students engaged in blended learning compared to those in traditional learning environments. In conclusion, the research provides robust evidence supporting the adoption of blended learning to enhance student performance. These findings underscore the need for educational institutions to invest in and develop comprehensive blended learning programs, tailored to meet the diverse needs of students. Future research should explore long-term impacts and identify best practices for the effective implementation of blended learning strategies.	https://www.researchgate.net/publication/381824617_The_Impact_of_Blended_Learning_on_Student_Performance

Rahman, M. M., Sultana, T., & Rahman, M. S. (2024). A Comparative Study of E-Books and Printed Books on Academic Performance: Perception from the University Students. International Journal of Education and Development using Information and Communication Technology, 20(1), 45–61.	A Comparative Study of E-Books and Printed Books on Academic Performance: Perception from the University Students	The rise of digital learning resources has led to ongoing debates about the effectiveness of e-books compared to printed books in academic performance. University students are increasingly using both formats, but their impact on learning outcomes remains a subject of interest. This study explores students' perceptions of e-books and printed books and their influence on academic performance. A quantitative research approach was employed to examine the comparative impact of e-books and printed books on academic performance. A structured questionnaire was distributed both online and offline to collect primary data from 210 university students across Shanker Dev Campus, Pulchowk Engineering Campus, Saraswoti Multiple Campus, and KIST College. Demographic analysis revealed that 96.7% of participants were undergraduates, with a balanced gender distribution (54.5% female, 45.5% male). Descriptive statistics indicated that printed books received higher mean ratings compared to e-books, particularly in perceived academic utility. Correlation analysis showed a moderate positive relationship between e-book usage and academic performance ($r = 0.406$, $p < 0.001$) and between printed book usage and academic performance ($r = 0.449$, $p < 0.001$), suggesting that International Journal of Humanities, Education, and Social Sciences 296 both formats contribute to learning outcomes, with printed books having a slightly stronger association. The study found that both e-books and printed books positively impact academic performance, with printed books demonstrating a marginally stronger correlation. While e-books offer convenience and accessibility, printed books remain preferred for deeper comprehension and retention. The findings highlight the need for a balanced approach in integrating digital and traditional learning materials to optimize academic success.	https://www.researchgate.net/publication/388919460_A_Comparative_Study_of_E-Books_and_Printed_Books_on_Academic_Performance_Perception_from_the_University_Students
Alsalhi, N. R., Al-Qatawneh, S., Eltahir, M., Althunibat, F., & Aljarrah, K. (2020). The role of academic electronic books in undergraduate students' achievement in higher education. Heliyon, 6(11), e05550. https://doi.org/10.1016/j.heliyon.2020.e05550	The role of academic electronic books in undergraduate students' achievement in higher education	The study objective was to seek the role of utilizing academic electronic books on Ajman University undergraduate students' achievement and faculty members viewpoints about their use. The study participants were 91 students, split into two groups the first group was empirical (46) and the other group was control (45) plus 220 members of the faculty. A performance test and a questionnaire were designed and implemented as tools of study. The results detected significant differences among both the empirical groups and the control groups, for the benefit of the empirical group; and faculty members exhibited highly favorable perspectives on the use of academic electronic books at their university. Faculty members' perceptions varied according to gender, college, and experience teaching, but the academic rank showed no influence.	https://pmc.ncbi.nlm.nih.gov/articles/PMC7695958/
Al Rasheed, H. S. (2021). The Effectiveness of E-Learning Versus Traditional Learning in Saudi Universities: A Comparative Study. Education and Information Technologies, 26(6), 6201–6219. https://doi.org/10.1007/s10639-021-10561-6	The Effectiveness of E-Learning Usage among University Students in the Kingdom of Saudi Arabia	Educational institutions have recently embraced e-learning systems, reflecting a modern trend in education that positively impacts the learning process. However, limited studies have investigated the impact of e-learning on higher education students and teaching staff during the COVID-19 pandemic, such as their experiences, lack of information on teaching and learning, and attitudes. This study, therefore, aims to fill this gap by evaluating the effectiveness of e-learning in university education. Employing a descriptive-analytical method, the study utilized a questionnaire to collect data from a sample of 5,876 students and 272 teachers at Imam Abdulrahman Bin Faisal University in Dammam, Eastern Province, Saudi Arabia. The results indicate that student satisfaction with e-learning is neutral, whereas faculty satisfaction	https://www.researchgate.net/publication/383487127_The_Effectiveness_of_E-Learning_Usage_among_University_Students_in_the_Kingdom_of_Saudi_Arabia

		is high. Additionally, faculty members possess the necessary knowledge and skills for e-learning. Given the variation in previous studies' findings, the study recommends conducting further study to enrich the theoretical literature.	
Last resort			