Johnwein Gabriel M. Candava

Carl Laurence Jose U. Salazar

Roz Guiller Andre F. Velasco

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
Rogayan Jr., D. V., Padrique, M. J., & Costales, J. (2021). Can Computer-Assisted Instruction Improve Students' Motivation and Academic Performance in Social Studies?. *Journal of Digital Educational Technology, 1*(1), ep2105.	Can Computer-Assisted Instruction Improve Students' Motivation and Academic Performance in Social Studies?	Teaching social studies requires more engaging and more student-centered strategies. The use of technology as pedagogy in this digital era is a typical picture in teaching social studies courses. Technology-integrated teaching is also a trend now due to educational disruption brought about by the COVID-19 pandemic. This one-group pre-post-test action research investigated the effects of Computer-Assisted Instruction (CAI) on motivation and academic performance in social studies among students in a public secondary school in Zambales, Philippines. Findings revealed that the students had a fair level of motivation (M=3.20) towards the subject before the intervention and had a high motivation (M=3.59) after their exposure to CAI. The class had an average (M=23.18) academic performance in social studies before the intervention and had improved to above average (M=37.82) after the treatment. There was a significant difference in the motivation and academic performance of students after the application of the CAI. The study recommends the use of CAI in teaching select concepts in social studies to improve students' motivation and academic performance. Contextualization of CAI is also recommended specifically in this era of disruptive technologies and era of educational disruption.	https://www.jdet.net/article/can-computer-assisted-instruction-improve-students-motivation-and-academic-performance-in-social-11334?
Oyinloye, O. T., Mamman, J. S., Akewusola, L., & Ayeni, J. K. (2021b). Comparative Study of Computer Assisted Instruction and Traditional Methods of Teaching Keyboarding among Polytechnic Students. Oyinloye | Journal of Education and Practice.	Comparative Study of Computer Assisted Instruction and Traditional Methods of Teaching Keyboarding among Polytechnic Students	The study was carried out to compare Computer Assisted Instruction and Traditional Methods of Teaching Keyboarding among Polytechnic Students in South West Geo-Political Zone, Nigeria. In order to achieve this, one specific objective was raised. In line with the specific objectives, four research questions and hypotheses were formulated for the study. Experimental design, specifically pretest-posttest control group design, was adopted for the study. The population for the study comprised of nine hundred and eighty students (980) from ten Polytechnics. Out of these, six Polytechnics used for the study were purposively selected from ten Polytechnics in South	https://www.iiste.org/Journals/index.php/JEP/article/view/56117

		West Geo-Political zone, Nigeria. Thirty (30) students from each of the six (6) Polytechnics made up of the sample size of one hundred and eighty students (180) who were selected for the study through random sampling. The instrument used for data collection was Keyboarding Speed and Accuracy Test (KSAT), which was duly validated with a split-half reliability coefficient of 0.81. The data collected were statistically analyzed using mean and standard deviation for the research question. The null hypothesis was tested using Analysis of Covariance (ANCOVA) at 0.05 level of significance. The findings include among others that, the computer-assisted instruction group was better in keyboarding speed and accuracy than the traditional method group because of the significant difference found between the speed and accuracy mean scores of students taught using computer-assisted instruction and those taught using traditional methods. The study concludes that computer-assisted instruction is a better method of teaching keyboarding. Based on the findings and conclusion, it was recommended among others that; Keyboarding teachers should use computer-assisted instruction method in teaching speed and accuracy in keyboarding and that Polytechnic Management should also provide necessary facilities such as computers and software that will facilitate effective teaching and learning of keyboarding skills using Computer Assisted Instruction.	
Rogayan, D. V., Jr, Padrique, M. J., & Costales, J. (2021). Can Computer-Assisted instruction improve students' motivation and academic performance in social Studies? Journal of Digital Educational Technology, 1(1), ep2105.	Can Computer-Assisted Instruction Improve Students' Motivation and Academic Performance in Social Studies?	Teaching social studies requires more engaging and more student-centered strategies. The use of technology as pedagogy in this digital era is a typical picture in teaching social studies courses. Technology-integrated teaching is also a trend now due to educational disruption brought about by the COVID-19 pandemic. This one-group pre-post-test action research investigated the effects of Computer-Assisted Instruction (CAI) on motivation and academic performance in social studies among students in a public secondary school in Zambales, Philippines. Findings revealed that the students had a fair level of motivation (M=3.20) towards the subject before the intervention and had a high motivation (M=3.59) after their exposure to CAI. The class had an average (M=23.18) academic performance in social studies before the intervention and had improved to above average (M=37.82) after the treatment. There was a significant difference in the motivation and academic performance of students after the application of the CAI. The study recommends the use of CAI in teaching select concepts in social studies to improve students' motivation and academic performance. Contextualization of CAI is also recommended specifically in this era of disruptive technologies and era of educational disruption.	https://www.jdet.net/article/can-computer-assisted-instruction-improve-students-motivation-and-academic-performance-in-social-11334
Iterbeke, K., De Witte, K., & Schelfhout, W. (2020). The effects of computer-assisted adaptive instruction and elaborated feedback on learning outcomes. A randomized control trial. Computers in Human Behavior, 120, 106666.	The effects of computer-assisted adaptive instruction and elaborated feedback on learning outcomes. A randomized control trial	Using a computer-based learning environment, the present paper studied the effects of adaptive instruction and elaborated feedback on the learning outcomes of secondary school students in a financial education program. We randomly assigned schools to four conditions on a crossing of two factors: the type of instruction (uniform or adaptive) and feedback (verification or elaborated). A total of 1177 students in 32 schools completed the program in ability groups in the classroom. The results showed that the program, on average, enhanced the financial knowledge of students by almost half of a standard deviation. No significant changes in students' financial behavior were found. Despite the promise of adaptive practices to address the individual needs of students,	https://www.sciencedirect.com/science/article/abs/pii/S0747563220304131?via%3Dihub

		we observed no additional learning gains associated with adaptive instruction and elaborated feedback. A marginally significant heterogeneous effect for gender was reported, where girls were negatively affected by adaptive instruction. Moreover, despite our sample included more students from a favorable socioeconomic status, the adaptive practices seemed to lower the motivation level. Hence, while no information on the time spent on the instruction and feedback was retrieved, the latter finding suggested that the practices may have been perceived as burdensome by students, thereby rendering them ineffective.	
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
Shoukat, R., Ismayil, I., Huang, Q., Oubibi, M., Younas, M., & Munir, R. (2024). A comparative analysis of blended learning and traditional instruction: Effects on academic motivation and learning outcomes. PLoS ONE, 19(3), e0298220.	A comparative analysis of blended learning and traditional instruction: Effects on academic motivation and learning outcomes	The correlational research study aims to examine how blended learning affects academic motivation and achievement. The objectives of the study are to assess students' opinions on the current level of blended learning, teachers' practice of blended instruction, the benefits of blended learning, its impact on academic motivation and learning outcomes, and factors influencing blended learning to determine how instructors' methods influence students' academic motivation and learning results. The study includes all Bachelor of Science students from various public and private institutions in the Faisalabad Division. Quantitative data from 400 students were collected from four selected institutions. A closed-ended, customized 5-point Likert scale questionnaire was used to collect data. The reliability of the questionnaire was confirmed through expert comments and pilot testing, with a reliability score of (= .97). Data were collected via Google Forms and researcher visits. Descriptive and inferential statistics were employed to analyze the collected data and answer the research questions. The findings of the study indicate that students somewhat agreed with the current blended learning environment, and strongly agreed with variables such as instructors' blended instruction techniques, the benefits of blended learning, and factors influencing blended learning. Blended learning	https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0298220

		had statistically significant positive effects on academic motivation and learning outcomes. The findings suggest improving the blended learning environment and instructors' blended education methods to enhance university students' academic motivation and learning outcomes.	
Iterbeke, K., De Witte, K., & Schelfhout, W. (2021). The effects of computer-assisted adaptive instruction and elaborated feedback on learning outcomes. A randomized control trial. Computers in Human Behavior, 120, Article 106666.	The effects of computer-assisted adaptive instruction and elaborated feedback on learning outcomes. A randomized control trial	Using a computer-based learning environment, the present paper studied the effects of adaptive instruction and elaborated feedback on the learning outcomes of secondary school students in a financial education program. We randomly assigned schools to four conditions on a crossing of two factors: the type of instruction (uniform or adaptive) and feedback (verification or elaborated). A total of 1177 students in 32 schools completed the program in ability groups in the classroom. The results showed that the program, on average, enhanced the financial knowledge of students by almost half of a standard deviation. No significant changes in students' financial behavior were found. Despite the promise of adaptive practices to address the individual needs of students, we observed no additional learning gains associated with adaptive instruction and elaborated feedback. A marginally significant heterogeneous effect for gender was reported, where girls were negatively affected by adaptive instruction. Moreover, despite our sample included more students from a favorable socioeconomic status, the adaptive practices seemed to lower the motivation level. Hence, while no information on the time spent on the instruction and feedback was retrieved, the latter finding suggested that the practices may have been perceived as burdensome by students, thereby rendering them ineffective.	https://www.sciencedirect.com/science/article/abs/pii/S0747563220304131?via%3Dihub
Iroriteraye-Adjekpovu, J. I., & Nwabuaku, L. (2024). A comparative study on the effectiveness of Traditional and Computer-Assisted instruction methods in determining students' achievement on graph plotting. European Journal of Contemporary Education and E-Learning, 2(1), 245–252.	A Comparative Study on the Effectiveness of Traditional and Computer-Assisted Instruction Methods in Determining Students' Achievement on Graph Plotting	The study aimed at examining the effectiveness of traditional and computer-assisted instruction methods in determining students' achievement on graph plotting in Ethiope East Local Government Area of Delta State, Nigeria. A descriptive survey design was employed and 140 students randomly chosen from the senior secondary schools in the LGA made up the study sample. The chosen students were split into two groups of 70 students each using stratified sampling. The first group served as the experimental group while the second group the control group, were taught graph plotting using computer-assisted instruction and traditional instruction methods respectively. The study took five weeks, and a null and alternative hypothesis was formulated to guide the study. The Teacher Made Test (TMT) on graph plotting was developed as the instrument of the study to assess students' achievement on graph plotting within the two groups. A reliability of 0.8 was yielded for the instrument using Richard Kuderson-21. The data obtained from the instrument was treated with t-test of independence at p ≤0.05 level of significance, and the results showed that students who received computer-assisted instruction had significantly higher improvement in their mean test scores. The study thus fills a research gap that informs the improvement of the method employed in teaching graph plotting, thereby enhancing students' performance in secondary school science education. The research recommends the incorporation of computer-assisted instructions in the pedagogy of graph plotting in the science education of secondary school students across Delta State, Nigeria.	https://ejceel.com/index.php/journal/article/view/56
Aslam, M., Arshad, M., & Karim, R. (2024). Impact of Technology-Based	Impact of Technology-Based Learning on Academic	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	https://journals.irapa.org/index.php/aessr/article/view/728

Learning on academic performance of undergraduate level students. Academy of Education and Social Sciences Review, 4(2), 197–205.	Performance of Undergraduate Level Students	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 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.	
Dap-Og, E. R., & Orongan, M. J. Q. (2022). COMPUTER-ASSISTED INSTRUCTION ON STUDENTS' ACADEMIC ACHIEVEMENT AND ENGAGEMENT IN SCIENCE. International Journal of Teaching and Learning, 01, 46–57.	COMPUTER-ASSISTED INSTRUCTION ON STUDENTS' ACADEMIC ACHIEVEMENT AND ENGAGEMENT IN SCIENCE	This study determined the students' academic achievement and engagement in science. A quasi-experimental research design was utilized. The study results showed that students exposed to CAI obtained "fairly satisfactory" results in the post-test, while those exposed to non-CAI showed "needs improvements" both in the pretest and post-test. Moreover, for students' engagement in science, the CAI group had a high engagement level for affective, cognitive, and behavioral domains. In contrast, the non-CAI group had moderate engagement before and after the intervention. The students' academic performance in science exposed to CAI is significantly higher than those exposed to non-CAI. Also, there is a significant difference in students' engagement level for a cognitive domain in favor of CAI. It is concluded that CAI as a science learning tool enhances the students' cognitive engagement.	https://tiikmpublishing.com/ojs/index.php/IJTL/article/view/47?fbclid=IwZXh0bgNhZW0CMTEAAR07oTi1k1I4D4rHd6agc9pveRLjknpSZDwWJLZAtz5QCjhw4zmknmaJvk8_aem_IT9khR2JztoQY5MbKycRkg
Iroriteraye-Adjekpovu, J. I., & Nwabuaku, L. (2024). A Comparative Study on the Effectiveness of Traditional and Computer-Assisted Instruction Methods in Determining Students' Achievement on Graph Plotting.	A Comparative Study on the Effectiveness of Traditional and Computer-Assisted Instruction Methods in Determining Students' Achievement on Graph Plotting.	The study aimed at examining the effectiveness of traditional and computer-assisted instruction methods in determining students' achievement on graph plotting in Ethiope East Local Government Area of Delta State, Nigeria. A descriptive survey design was employed and 140 students randomly chosen from the senior secondary schools in the LGA made up the study sample. The chosen students were split into two groups of 70 students each using stratified sampling. The first group served as the experimental group while the second group the control group, were taught graph plotting using computer-assisted instruction and traditional instruction methods respectively. The study took five weeks, and a null and alternative hypothesis was formulated to guide the study. The Teacher Made Test (TMT) on graph plotting was developed as the instrument of the study to assess students' achievement on graph plotting within the two groups. A reliability of 0.8 was yielded for the instrument using Richard Kuderson-21. The data obtained from the instrument was treated with t-test of independence at $p \leq 0.05$ level of significance, and the results showed that students who received computer-assisted instruction had significantly higher improvement in their mean test	https://ejceel.com/index.php/journal/article/view/56

		scores. The study thus fills a research gap that informs the improvement of the method employed in teaching graph plotting, thereby enhancing students' performance in secondary school science education. The research recommends the incorporation of computer-assisted instructions in the pedagogy of graph plotting in the science education of secondary school students across Delta State, Nigeria.	
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
Rosali, L. J. D. (2020). Effect of computer-assisted instruction (CAI) on the academic achievement in secondary physics.	Effect of Computer-Assisted Instruction (CAI) on the Academic Achievement in Secondary Physics	The study aims to determine the effect of implementing Computer-Assisted Instruction on secondary physics students' academic achievement. The research utilized the quasi-experimental pretest-posttest control group design that is participated by 157 Grade 10 students of a private school in the Philippines. The experimental group was taught using Computer-Assisted Instruction while the control group was instructed using the conventional method of teaching Physics. Mann-Whitney test with a significance level of 0.05 was used in comparing the difference between pretest scores of the control and experimental groups, the difference between the pretest and posttest scores of the control group and experimental group, and Z test with a significance level of 0.05 was utilized in comparing the mean gain scores of both groups to determine the effect of the CAI. The findings of the study show that both CAI and conventional methods of teaching improve the level of performance of students in physics significantly. However, when the	https://www.researchgate.net/publication/341573973_Effect_of_Computer-Assisted_Instruction_CAI_on_the_Academic_Achievement_in_Secondary_Physics

		effectiveness of the two methods is compared, there is no significant difference between their effects on academic achievement. Therefore, CAI could be used as an alternative teaching method.	
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
Clobes, T. A., Jenkins, J. J., Haid, H., & Allen, R. (2022). Comparison of Academic Performance with a Traditional Textbook Versus a Digital Openly-Licensed Textbook.	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 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	https://www.researchgate.net/publication/365808932_Comparison_of_academic_performance_with_a_traditional_textbook_versus_a_digital_openly-licensed_textbook

		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.	
Chavan, S., Gaikwad, S., Pawar, A., Yele, J., & Mohite, B. J. (2023). A Study on Computer-Assisted Education: A Tool for Enhancing Student Learning Outcomes.	A STUDY ON COMPUTER ASSISTED EDUCATION A TOOL FOR ENHANCING STUDENT LEARNING OUTCOMES	This research paper explores the use of computer-assisted education as a tool for enhancing student learning outcomes. The paper examines the various forms of Computer Assisted Education, including online courses, educational software, and adaptive learning systems, and their effectiveness in delivering education to students. The paper also explores the benefits and challenges of implementing computer assisted education in the classroom, as well as the potential for computer assisted education to be used as a supplement to traditional classroom instruction. The paper concludes by discussing the future of computer assisted education and its potential to transform the field of education.	https://www.researchgate.net/publication/367510258_A_STUDY_ON_COMPUTER_ASSISTED_EDUCATION_A_TOOL_FOR_ENHANCING_STUDENT_LEARNING_OUTCOMES