ONLINE EDUCATION EFFECTS ON LEARNING

Explain adaptation and lack of resource could affect usability.

Similarities of both outcomes despite adaptation need.

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**Abstract.**

In recent decades, remarkable technological advancements have catalyzed a profound global transformation within a relatively short period of time. Among these shifts is the integration of online learning into educational institutions. The impetus for this change was further propelled by the COVID-19 pandemic which forced people to be put in compulsory lockdowns. Although online education was necessitated by the nature of the pandemic, its adoption has since become more encouraged even as the pandemic’s immediate impact lessened. This paper evaluates the benefits of online learning by comparing the outcomes of online education against traditional education to determine the effect of online education on learning. The findings of the study illuminate the extent to which online learning influences academic achievements, drawing inferences from the data to determine the advisability of promoting the implementation of online education.

**Introduction**

Online learning has established itself as an integral component of contemporary educational frameworks. During the first two decades of the 21st century, online education had been growing at a steady pace**.[1]** Between 2007 and 2019, for example, the percentage of people in the United Kingdom who said that they had taken an online course grew from 4 percent to 17 percent. The share of people using online learning material outside of a main course was even higher, with 21 percent of people in Great Britain advising that they had participated in this type of learning activity **[2].** As explained by **[3]** Credit- based online learning is now becoming a major and central activity of most academic departments in universities, colleges and to some extent even in school/k-12education.

The integration of technology into the education system was already progressing steadily; however, online learning gained even greater significance between 2020 and 2021 when the covid-19 pandemic forced institutions to adopt online education as an emergency alternative to traditional education for the first time **[4]**. Since then, additional technological tools that simplify and enhance the learning process have been developed. OpenAI tools like ChatGPT, for example, have made a significant breakthrough in the domain of language learning **[5]**. These observations and development trends suggest a notable increase in the adoption of online education in the near future. With the rise of more sophisticated tools, it becomes imperative to delve into the profound impact that integrating technology into education, leading to a more flexible online system can have on the learning landscape. Understanding these effects is crucial for navigating the evolving dynamics of modern education. Hence, this research aims to analyze the outcomes of integrating online learning in the education system. The goal is to ascertain whether these results warrant a global endorsement of online learning methodologies.

Literature review

The concept of online education was introduced only a few decades ago. As cited by **[8],** Online learning is a term that was first used in 1995 when the web-based system WebCT was developed as the first Learning Management System (LMS), which later became Blackboard. In that context, online learning was about using the LMS or uploading text and pdfs online. Since then, online learning has included many distinct and overlapping terms such as e-learning, online education, blended learning, online courses, etc. Arkorful and Abaidoo (2015) remark that e-learning utilizes information technology capabilities to enable online learning, providing students with access to teaching and learning resources from any location. In this paper, online education is considered in terms of education provided to individuals at a distance or outside of campus.

The usage of computer-based tools has increased significantly in the last two decades. As previously mentioned, the concept of online learning is barely three decades old, but it has seen significant global applications since its inception.**[9]** explains thatin about a half of the last few years, the interest of usage of intelligent technologies in e-learning has been growing and grew significantly during the COVID pandemic. The shift of teaching and learning to an online delivery mode was necessitated by the nature of the pandemic. However, different levels of development and preparation of the countries involved, understandably resulted in varied quality of teaching delivery. This can significantly affect results when trying to understand the effectiveness of online education as students from different regions will have access to varying levels of useful technology.

Different studies have been carried out all over the world and under different circumstances in an attempt to understand the effectiveness of online education. Research done by **[10]** to explore the impact of online learning on students’ academic achievementsin an Arabian university yielded positive results. The results of this research indicated that online learning enhanced and maximized students’ learning independence and classroom participation. **[10]** explains that Students were more engaged in the online learning process than in conventional teaching. They no longer regard teachers as the only source of information, but as a learning facilitator and saw online learning from different internet sources as their main source of information. According to the research, online learning helped students overcome time and space constraints imposed by the conventional learning process and helped them effectively communicate their findings and share their ideas with their peers locally and globally. While this study was limited to data from students in a university in Saudi Arabia, it infers results similar to other related work. On this subject, **[11]** carried out research using student data from a university in Hong-Kong comparing the learning outcomes of two major course assessments and student perception between online and face-to-face education. The course assessments employed in the study to measure the students’ achievement in the course include; midterm test and research report. These were specifically chosen because the tasks were carefully designed to access student learning, with specific grading rubrics to maintain objective, consistent grading. Course Teaching and Learning Evaluation (CTLE) was used to evaluate the students’ satisfaction with the course. **[11]** noted that while previous studies have provided insight into online education, the generalization of the findings is limited for two reasons. First, the lack of adequate details regarding the course or instructor practices. Second, the inability to control students’ self-selection of delivery mode. The covid 19 pandemic provided **[11]** with the unique opportunity to compare two cohorts of the same class while controlling for their self-selection. This research found that online education compared to face-to-face education is equally effective in developing medium-order analytical skills (i.e., understanding and application skills) and more effective in developing higher-order analytical skills (i.e., analysis, evaluation and synthesis skills).

**Research Question and background**

To understand the effect of online education on learning, the following research questions were generated:  **RQ1.** What are the differences in learning outcomes between traditional classroom education and online education? **RQ2.** What are the long-term effects of online education on academic performance and career readiness?

Background

**Research questions**

The following research questions are addressed in this study: **RQ1.**

Results

Related work

Conclusion

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