Review on Efficient Virtual Education System

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ABSTRACT—

Virtual Education System are gaining popularity since last decade. Due to covid-19 Lockdown where people where locked in there houses there was no way to get offline education. Mostly all educational institutions shifted their offline classes to virtual classes. This made Education little simple. Students where able to study remotely in there college/school hours. Virtual Education provides flexibility to students. A student can apply for any course remotely and conveniently. There has been seen a good amount of growth for virtual learning platforms. To deliver education virtually we need a robust platform which is designed and developed efficiently. There has been analysis which states that there has been 49% of growth in using virtual education platform among students for last five years.

Keywords — Virtual Learning, Education, Academics, Analysis.

Introduction

In the 1800s, the United States developed distance education when professors and students connected through correspondence programs while they were located in dispersed locations. The advent of television in the 1950s allowed teachers and students who did not live in the same area to interact visually. One such institution was the School of the Air in Wisconsin. Visual instruction between teachers and students who were not in the same areas became possible for the first time with the rise of television in the 1950s. Distance learning rapidly increased in the 1970s and 1980s as computer and emailing technology advanced. In 1981, As a result, the Western Behavior Sciences Institute launched its first online program the following year. A number of colleges and schools launched online undergraduate and graduate courses in the 1980s.During the late 1980s, K–12 schools struggled to find math, science, foreign language, and other teachers, so they turned to commercial courses provided through satellite technology, which dramatically expanded distance learning. Over the past five years, there has been an increase in online learning. Online learning attendance in public institutions has increased in INDIA despite a fall in higher education has grown as well as the amount of online learning research. Review studies have been done on specific facets of online learning, such as problem-based learning in e-learning and online learning environments, innovations in learning strategies, empirical MOOC literature, quality in online education, accessibility in online higher education, synchronous online learning, K-12 preparation for online teaching, and polychronicity in online learning. Whileresearch and evaluations have been conducted on specific online learning topics, there have been very few studies that look at study themes in relation to online learning as a whole.

With the development of the internet and COVID-19, online learning has become a widely used means of delivery for distance education, moving from offline to online environments.

There are different study themes for assessments of online learning. Some topics appear repeatedly in the numerous evaluations, while other themes also appear. Althoughreviews have been done in the 1990s and the early 2000s, no study has been done in the recent ten years that looks at the larger aspect of research themes in online learning.

Numerous educational advantages have resulted from the A number of educational advantages have been derived fromthe rapid expansion of the World Wide Web (WWW) and Internet. Online learning has opened up new markets for higher education institutions. When they must juggle obligations to their families, work, and studies, many adult learners could appreciate the flexibility. According to Bell and Fedeman (2013), the extensive use of different technology advancements by universities' online programmes may improve communication between students and instructors as well as among staff as a whole. Additionally, because of the anonymity offered by the online setting, more students who would otherwise avoid attending face-to-face classes due to their shy personalities may be able to participate in online education.

Research themes in online learning.

The "Learner" domain captures traits and results associated with students and their participation in the course. The "Course and Instructor" domain gathers information about the overall course design and the instructor's facilitation, whereas the "Organization" domain recognizes the affects of the course's environment.

Learner

1. Learner Characteristics

Explains how to develop and deliver online learning to fulfil the demands of different types of learners by studying their characteristics. The traits of an online student can be roughly divided into demographic traits, academic traits, cognitive traits, affective traits, self-regulation traits, and motivational traits.

2. Learner Outcomes

Learner outcomes are declarations that detail what the student will accomplish at the conclusion of the course or programme. Online courses must carefully consider learner outcomes including success, retention, and dropout rates.

3. Engagement

As they are removed from the teacher and peers in the online context, engaging the learner in the course is crucial. Interaction, participation, community, cooperation, communication, involvement, and presence are all evaluated through the lens of engagement.

Course and Instructor

4. Course or Program Design and Development

Course planning and design are essential in online learning because they interest students and aid them in achieving their learning objectives. The online course is created using a variety of models and procedures, utilizing various design components to satisfy the objectives of the students.

5. Course Facilitation

As crucial as course design is how the course is delivered or facilitated. The course facilitation process looks at the facilitation techniques utilized in the course delivery, such as communication and modelling techniques.

6. Course Assessment

Course assessments are modified and presented online. We look at formative evaluations, peer evaluations, differentiated evaluations, learner choice in evaluations, feedback system, online proctoring, plagiarism in online learning, and alternative evaluations like portfolios.

7. Evaluation and Quality Assurance

Evaluation is the process of passing judgement on aprocedure, a final result, or a programme. Research is required to determine the effectiveness and calibre of online courses. This has been investigated through pedagogical assessments, surveys, analytics, and course evaluations. Research has also been conducted on quality assessment tools like Quality Matters.

8. Course Technologies

Numerous online course technologies, such as learning management systems, online textbooks, online audio and video tools, collaborative tools, and social networks for building online communities have been the subject of research.

9. Instructor Characteristics

The number of instructors that teach online courses has increased along with the number of online courses. Through their responsibilities in online teaching, experiences, and levels of satisfaction, instructors' qualities can be investigated. Beyond the bare minimum, a competent instructor must possess masterful subject-matter expertise.The success factors and effective traits of a good educator are explored. The instructor's attributes should include the capacity to comprehend people and work well with them, the desire to teach, subject-matter expertise, enthusiasm. Instructor must be prepared for the subject.

Various technological tools are employed to support various online learning approaches. One category of online learning models enables users to participate at their convenience by using asynchronous communication technologies (such as email, newsgroups and threaded discussion boards). Webcasting, chat rooms, and desktop audio/video technology, for instance are synchronized technologies that mimic face-to- face teaching techniques including giving lectures and having meeting with groups of students. One model or the other was frequently used in earlier online programs. Asynchronous and synchronous online contacts, as well as sporadic face-to-face interaction, are frequently combined in more modern applications. In order for every BLE packet scanner to quickly identify a packet, devices advertise the same packets across all three advertising channels.
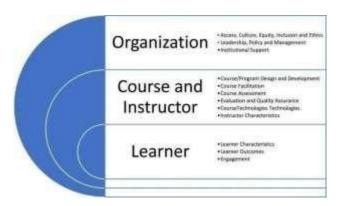
Fig 1.1 Organization, Learner, Course and Instructor

a) Due to its promise to offer more convenient access to information and instruction at any time and from any location, online learning has gained popularity. The focus is frequently on making learning opportunities more accessible to students who cannot or prefer not to participate in traditional face-to-face offerings, (b) creating and distributing instructional content more cheaply, or (c) allowing instructors to manage more students while maintaining learning outcomes of a standard that is comparable to face-to-face instruction.

Virtual Education: A New Approach to Education

Making the decision to provide their children with an education that is both morally sound and enticing to them has always been difficult for parents. Each child has unique educational requirements and preferences, and education should be given to them in accordance with those needs and desires. The ideal replacement for traditional educational modules, virtual education is one of the most impressive innovations of our time. Kids who struggle to adjust to the idea of attending actual school benefit the most from this typeof education delivered through the internet. In fact, virtual schools have been lauded as the next big thing in education that will undoubtedly alter how instruction is imparted to students. To learn why virtual education is such a fantastic start in the field od education, read this article.

The type of education offered in traditional schools is not comparable to that offered online. The nicest thing about this type of schooling is that it gives parents and children the chance to receive the correct counselling so they can determine what will be most beneficial for each student.

Title of Research Paper	Author and Publication House	Features Included
Smart Contract Enabled Online Examination System	Mr. Apurv Jain*(From IEEE Paper - 2021)*	Online test assessment
Automatic attendance management systems	Hasanein D. Rjeib, Haider Alsharqi and Basheer Al- Sadawi(from IEEE paper -2022	Attendance System.
Self-Efficacy In Online Learning Environmens	Emtinan Alqurashi, Duquesne University, USA(from IEEE paper -2019)	Online Learning
An overview of chatbot Technology	Eleni Adamopoulou and LefterisMoussiades Department of Computer Science, International Hellenic University, AgiosLoukas, 65404 Kavala, Greec	Quick and convenient support responding specifically to student question
Natural Language Processing based on New approach	Mr. MachhirkeVinodkum arSadhuram,Mrs. Aparna Soni Proceedings of the Second International Conference (ICIRCA-2020)	An QA system that uses the answer triggering for the providence of answers
Design an MVC Model using Python for Flask Framework Development	Mohammad RobihulMufid, ArifBasofi, M. Udin Harun Al Rasyid	It offers full control over HTML and URLs which makes it easy to design web application architecture.
An Analysis of the Significance of Spring Boot in The Market	M. Mythily; A. Samson Arun Raj; Iwin Thanakumar Joseph	Spring boot is one of the spring module frameworks which provides Rapid Application Development(RAD) functionality

Discussion

Effectiveness of virtualization: Due to readily available tools, a 5-story workplace can now function synchronously from various regions of the globe. Due to e-learning, education has continued throughout the pandemic.

Virtualization has a number od advantages. By removing the need to invest in an enormous amount of hardware, virtualization enables firms with limited resources stay within their budgets. Popular tools: We have a lot of tools, both paid and free, to offer the services. Zoom, Microsoft Teams, Cisco, WebEx, and Google Meeting are some of the frequently utilized applications. Zoom has increased from being used by 10 million office employees daily to more than200 million individuals, despite security concerns. Flexibility has been a major advantage. Everyone can work in their own comfort zone, whether they are students or employees in a corporate office. The uniforms are not subject to any limitations. Time spent has gone down as a result of the shorter commute times. Fuel and time waste areno longer an issue. It has been noted that people in large cities like Mumbai and Bangalore spend more than three hours each day just getting to work. Pollution reduction: Both the number of cars and the volume of traffic in the cities have significantly decreased. Additionally, there have been a number of instances where air quality has improved and pollution levels have decreased. The infrastructure benefits from using less electricity. The reduction in travel expenses and time is advantageous for both the employer and the employees. If the majority of the workforce works from home, multi-story buildings and pricey furniture are no longer necessary. Environment is absent: Environment has a big impact, whether it's at work or in school. A person's personality develops significantly as a result of every day interactions with co-worker, lunch breaks, and face-to-face meetings. Reduced Integration: If you work from home, you will interact with the team members less. Employees don't communicate well with one another, which may make it harder for them to function as a team. Additionally, making friends in school cannot be equated to taking an online course with 60 strangers. Tech dependency: We become more dependent on technology as a result of the virtualized environment. The entire operation halts if the servers are down for a predetermined period of time. Eveninonline meetings or lectures, there is always one participant with a shaky internet connection, which makes the meeting less efficient. Students who live in rural locations struggle with connectivity. Online Crimes: We are vulnerable to cyber attacks because we rely so heavily on technology.

The platforms used can access and further release information about a private meeting that was placeonline. This could pose serious economic and social risks tothecompany.

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