

Cloud based Technology and Application in Teaching

Dr. Srinivasa Prasad Mylapilli

Dept of Library Science,

Dr V S Krishna Govt Degree and PG College (Autonomous), Visakhapatnam,

Andhra Pradesh, India.

Abstract: Cloud-based technology has become increasingly popular in the field of education due to its ability to provide access to digital resources, software, and tools from anywhere, anytime and any device. Cloud-based applications and services provide educators and students with a range of benefits, including increased collaboration, communication, and flexibility. In the context of teaching, cloud-based technology can be used to enhance various aspects of the learning process, such as content creation, delivery, and assessment. For instance, teachers can use cloud-based tools to create, store, and share digital content, such as multimedia presentations, videos, and documents. They can also use cloud-based learning management systems (LMS) to manage student enrolment, assignments, grading, and communication. Cloud-based technology can also facilitate online collaboration and communication among students and teachers. For example, students can use cloud-based tools to collaborate on group projects, share resources, and receive feedback from peers and teachers. Additionally, cloud-based technology can enable remote learning, which is becoming increasingly important in light of the COVID-19 pandemic. Cloud-based technology also provides a cost-effective solution for educational institutions, as it eliminates the need for expensive hardware and software installations. Moreover, cloud-based services are scalable, which means that institutions can easily add or remove resources as needed, based on the number of users and their requirements. Overall, cloud-based technology has a lot to offer the field of education, providing a powerful and versatile toolset that can help to enhance the teaching and learning experience. As the technology continues to evolve, it is likely that we will see even more innovative and creative ways in which cloud-based applications can be used to support and enhance education.

Keywords: Cloud-based learning management systems (LMS), Online learning platforms, Collaborative learning, Virtual classrooms, Cloud-based storage.

Introduction:

Cloud-based technology, also known as cloud computing, refers to the delivery of computing services, such as servers, storage, databases, software, and analytics, over the internet. Instead of owning and maintaining physical servers and infrastructure, individuals and businesses can access these services through a cloud provider, who manages and maintains the underlying infrastructure.

Cloud-based technology offers several advantages, including flexibility, scalability, and cost savings. With cloud computing, businesses can easily scale up or down their computing resources based on their needs, without the need to invest in costly hardware or infrastructure. Additionally, cloud computing allows for greater collaboration and remote access, as users can access their applications and data from anywhere with an internet connection [3][4].

There are several types of cloud-based technology, including public, private, and hybrid clouds. Public clouds are owned and operated by third-party providers and are available to anyone who wants to use them. Private clouds are operated by a single organization and are not available to the public. Hybrid clouds combine public and private clouds to offer greater flexibility and security [13].

Literature Review and Methodology:

Cloud-based technology has revolutionized the way we approach teaching and learning in recent years. Cloud-based applications offer many benefits to educators and students, including greater flexibility, accessibility, and collaboration. Here are some ways cloud-based technology can be applied in teaching [1][2]:

Cloud based technology and application in teaching:

1. Online learning platforms: Cloud-based platforms such as Moodle, Blackboard, and Canvas allow educators to deliver course materials, quizzes, and assignments to students from any location. Students can access the platform using any device, and instructors can monitor their progress and provide feedback in real-time.
2. Collaborative learning: Cloud-based tools like Google Docs, Microsoft Office 365, and Dropbox allow students and teachers to collaborate on documents, presentations, and other assignments in real-time. This fosters a sense of community and encourages students to work together to solve problems.

3. Virtual classrooms: Cloud-based conferencing tools like Zoom, Skype, and Google Meet enable educators to host live online classes, webinars, and virtual office hours. This allows for greater flexibility in scheduling and provides students with an opportunity to participate in discussions and ask questions in real-time.
4. Cloud-based storage: Cloud-based storage platforms like Google Drive, OneDrive, and Dropbox allow students and teachers to store and access files from any location. This eliminates the need for physical storage devices and provides greater security for sensitive information.

Overall, cloud-based technology offers a multitude of benefits for educators and students alike, including increased flexibility, collaboration, accessibility, and security [5][6].

Online learning platforms:

Online learning platforms are websites or applications that offer educational courses and materials through the internet. They provide a wide range of educational resources, including video lectures, interactive quizzes, assignments, and discussion forums, that learners can access from anywhere with an internet connection. Some of the popular online learning platforms include [14-17]:

1. Coursera: Coursera offers a wide range of online courses in different fields, including business, technology, arts, and humanities. It partners with universities and organizations worldwide to offer courses and certificates.
2. edX: edX is an online learning platform founded by Harvard and MIT that offers courses in a variety of subjects, including engineering, computer science, and social sciences.
3. Udemy: Udemy is an online learning marketplace where instructors can create and sell courses in various fields, including business, IT, marketing, and personal development.
4. Khan Academy: Khan Academy is a nonprofit organization that provides free educational resources, including video lectures, interactive exercises, and assessments, in subjects such as math, science, and history.
5. Skillshare: Skillshare is an online learning community that offers courses in various creative fields, such as design, photography, and writing. It also provides a platform for teachers to share their skills and earn money by creating and selling courses.

6. **LinkedIn Learning:** LinkedIn Learning is an online learning platform that offers video courses and tutorials on business, technology, and creative topics. It is integrated with LinkedIn, allowing users to showcase their skills and certifications on their LinkedIn profiles.

7. **Codecademy:** Codecademy is an online learning platform that offers interactive coding lessons in programming languages such as Python, JavaScript, and Ruby.

These online learning platforms have become increasingly popular due to their convenience, flexibility, and accessibility, making it easier for learners to acquire new skills and knowledge from the comfort of their homes [18-20]. Cloud based technology is being used everywhere [7-12][26].

Cloud based Online learning platforms:

Cloud-based technology has become increasingly popular in the education sector as it provides educators and students with access to a range of tools and resources. Here are some examples of how cloud-based technology is being used in teaching:

1. **Collaborative Learning:** Cloud-based technologies provide opportunities for collaboration in the classroom. Students can work together on projects and assignments, share resources and communicate with each other in real-time.
2. **Distance Learning:** Cloud-based technologies make it possible for teachers to conduct classes remotely, providing students with access to lectures, assignments, and discussions from anywhere in the world.
3. **Cloud Storage:** Cloud storage solutions like Google Drive, OneDrive, and Dropbox provide students and teachers with a central location to store and access files, documents, and resources.
4. **Online Assessments:** Cloud-based platforms like Moodle and Canvas offer teachers the ability to create and administer online assessments, track student progress, and provide immediate feedback.
5. **Virtual Labs:** Cloud-based virtual lab environments provide students with access to equipment and resources that may be too expensive or dangerous to use in the classroom.
6. **Personalized Learning:** Cloud-based technologies can be used to create personalized learning experiences for students. By analyzing student data, teachers can identify individual needs and provide targeted instruction.

Overall, cloud-based technology is providing new and exciting opportunities for teaching and learning. Its flexibility, accessibility, and scalability make it an attractive option for educators looking to enhance their classroom experiences.

Cloud-based online learning platforms are web-based applications that provide a virtual learning environment for students and teachers. These platforms allow students to access course materials, submit assignments, participate in discussions, and take tests from anywhere with an internet connection [21-25][28].

Here are some popular cloud-based online learning platforms:

1. Canvas: Canvas is a popular learning management system used by many universities and schools. It provides a range of tools and features for instructors to create and manage courses, including assignment submissions, grading, discussions, and more.
2. Blackboard: Blackboard is another popular learning management system that offers similar features as Canvas, including course creation and management, student engagement, and communication tools.
3. Moodle: Moodle is an open-source learning management system that is widely used by educators around the world. It is highly customizable and offers a range of features for creating and managing courses.
4. Google Classroom: Google Classroom is a free platform that allows teachers to create and manage online classes. It integrates with other Google tools, such as Google Drive and Google Docs, to provide a seamless learning experience for students.
5. Edmodo: Edmodo is a social learning platform that allows teachers to create online classrooms and connect with students and parents. It offers features such as discussion boards, assignment submissions, and quizzes.

These platforms provide flexibility and convenience for both teachers and students, making it easier to learn and teach from anywhere [24].

Canvas:

Canvas is a learning management system (LMS) developed by Instructure. It is used by educators and institutions to create online courses and manage the learning process for students. Canvas provides a platform for teachers to organize their course materials, create and grade assignments, conduct online discussions, and communicate with students through announcements and messages.

Canvas also offers features such as multimedia content embedding, calendar integration, real-time analytics, and automated grading. It supports a variety of file formats, including documents, images, videos, and audio files. Canvas also has a mobile app that allows students and teachers to access course materials on the go.

Canvas is used by many schools, colleges, and universities around the world, and it has become one of the most popular LMS platforms available. Its user-friendly interface and range of features make it a valuable tool for both educators and students.

Blackboard:

Blackboard is an online learning management system (LMS) that is widely used by educational institutions, including colleges, universities, and K-12 schools. It allows instructors to create and manage course materials, communicate with students, administer quizzes and exams, and track student performance. Blackboard features a variety of tools such as discussion boards, file sharing, chat rooms, and video conferencing. It also has mobile apps that enable students and instructors to access course content and interact with each other from their smartphones and tablets. Overall, Blackboard provides a comprehensive platform for online teaching and learning that has become increasingly important as more and more education moves to digital environments.

Moodle:

Moodle is a popular open-source learning management system (LMS) used by educational institutions, corporations, and other organizations to create and deliver online courses and training programs. Moodle stands for Modular Object-Oriented Dynamic Learning Environment. It was developed by Martin Dougiamas in 2002 and is now maintained and supported by a community of developers worldwide. Moodle provides a range of features including course management, discussion forums, quizzes, assignments, grading, and reporting. It also supports a wide range of content types including text,

multimedia, and interactive activities. Moodle is highly customizable and can be extended through a range of plugins and modules to meet the specific needs of individual users or organizations.

Google Classroom:

Google Classroom is a web-based platform developed by Google for teachers and students to manage and organize their academic work. It provides a streamlined, paperless way for teachers to create, distribute, and grade assignments, as well as communicate with students and parents.

In Google Classroom, teachers can create classes, invite students to join, and post announcements, assignments, and questions. Students can then access the class and view the posted material, complete and submit assignments, and interact with their classmates and teacher through the platform.

Google Classroom also integrates with other Google tools, such as Google Drive, Google Docs, and Google Calendar, allowing for easy sharing and collaboration on documents and scheduling of assignments and events.

Overall, Google Classroom simplifies the workflow for both teachers and students, enabling them to stay organized and connected throughout the academic year.

Edmodo:

Edmodo is an online educational platform that is designed to connect teachers, students, and parents in a secure and collaborative environment. It was launched in 2008 and is currently used by millions of educators and students worldwide. Edmodo offers a variety of features such as messaging, discussion forums, file sharing, assignment management, and online grading. It also provides a way for teachers to create and share educational resources and for students to collaborate on group projects. Edmodo is free to use for basic features, but a premium version with additional features is also available for purchase.

The role and impact of ICT in improving the quality of education:

Information and Communication Technology (ICT) plays a crucial role in improving the quality of education. It has revolutionized the way we teach and learn, providing new opportunities for both educators and students. Here are some key roles and impacts of ICT in education:

Access to Information: ICT enables easy access to a vast amount of information and educational resources through the internet. Students can research and explore various topics beyond what is available in textbooks, broadening their knowledge base.

Enhanced Teaching and Learning: ICT tools such as interactive whiteboards, multimedia presentations, educational software, and online learning platforms make learning more engaging and interactive. Teachers can use multimedia content to explain complex concepts, making it easier for students to grasp and retain information.

Personalized Learning: ICT allows for personalized learning experiences tailored to individual student needs. Adaptive learning platforms can assess students' strengths and weaknesses and provide customized learning paths and feedback, helping students learn at their own pace.

Collaboration and Communication: ICT facilitates collaboration among students and teachers. Online platforms, discussion forums, and video conferencing tools enable students to work together on projects, share ideas, and communicate with experts and peers from around the world, promoting a global learning community.

Remote and Distance Learning: ICT has become particularly valuable during times of crisis, such as the COVID-19 pandemic, by enabling remote and distance learning. Online platforms and video conferencing tools have allowed educational institutions to continue teaching and learning, ensuring continuity in education.

Teacher Professional Development: ICT provides opportunities for teachers' professional development. Online courses, webinars, and educational resources help teachers stay updated with the latest teaching methodologies, subject knowledge, and technological advancements, enhancing their teaching skills.

Assessment and Feedback: ICT offers various assessment tools, including online quizzes, simulations, and automated grading systems. These tools provide immediate feedback to students, allowing them to identify areas of improvement and adjust their learning strategies accordingly.

Cost Efficiency: ICT can reduce costs associated with traditional educational resources. Digital textbooks, online libraries, and open educational resources (OER) eliminate the need for physical copies, making education more affordable and accessible to a wider range of students.

Inclusion and Accessibility: ICT promotes inclusivity by providing educational opportunities for learners with disabilities or those living in remote areas. Assistive technologies, such as screen readers and speech recognition software, accommodate diverse learning needs, ensuring equal access to education.

Data Analysis and Decision-Making: ICT enables data collection and analysis, providing valuable insights into students' performance, learning patterns, and areas of improvement. Educators can make data-informed decisions to enhance teaching strategies, curriculum development, and educational policies.

Overall, the integration of ICT in education has the potential to enhance the quality of education, improve student engagement and outcomes, and prepare students for the digital age by developing critical thinking, digital literacy, and 21st-century skills.

Conclusion:

In conclusion, cloud-based technology has revolutionized the field of education, providing teachers and students with a range of benefits, including increased collaboration, communication, flexibility, and accessibility to digital resources. By leveraging cloud-based tools, teachers can create, store, and share digital content, manage student enrollment, assignments, grading, and communication, while students can collaborate on group projects, share resources, and receive feedback from peers and teachers. Additionally, cloud-based technology enables remote learning, providing a cost-effective and scalable solution for educational institutions. As the technology continues to evolve, it is clear that cloud-based applications and services will play an increasingly important role in enhancing the teaching and learning experience, making education more accessible and inclusive for everyone.

References:

- [1]. Ali, R., Uddin, M. J., & Mahmood, K. (2017). The Role of Cloud Computing in Education Sector. *International Journal of Information and Education Technology*, 7(1), 42-47.
- [2]. Alzahrani, A., & Alshumaimeri, Y. (2021). Cloud computing in education: A systematic literature review. *Education and Information Technologies*, 26(2), 1729-1751.
- [3]. Armbrust, M., Fox, A., Griffith, R., Joseph, A. D., Katz, R., Konwinski, A., ... & Zaharia, M. (2010). A view of cloud computing. *Communications of the ACM*, 53(4), 50-58.

- [4].Buyya, R., Yeo, C. S., Venugopal, S., Broberg, J., &Brandic, I. (2009). Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility. *Future generation computer systems*, 25(6), 599-616.
- [5].Chen, Y., Yang, J., & Cheng, Y. (2018). The impact of cloud computing on education: a case study of cloud-based learning tools in K-12 schools. *Journal of Educational Technology Development and Exchange*, 11(1), 1-20.
- [6].Ekanayake, I., Fernando, R., & Silva, D. (2016). Cloud computing in education: A review. *Journal of Educational Technology Development and Exchange*, 9(1), 1-14.
- [7].Jahnavi, Yeturu. "Statistical data mining technique for salient feature extraction." *International Journal of Intelligent Systems Technologies and Applications* 18.4 (2019): 353-376.
- [8].Jahnavi Y, "A New Algorithm for Time Series Prediction Using Machine Learning Models", *Evolutionary Intelligence* (Springer), Accepted, 2022.
- [9].JahnaviY., and Y. Radhika. "FPST: a new term weighting algorithm for long running and short lived events." *International Journal of Data Analysis Techniques and Strategies* 7.4 (2015): 366-383.
- [10]. JahnaviYeturu. "Analysis of weather data using various regression algorithms." *International Journal of Data Science* 4.2 (2019): 117-141.
- [11]. Jahnavi, Y., and Y. Radhika. "A cogitate study on text mining." *International Journal of Engineering and Advanced Technology (IJEAT)* ISSN (2012): 2249-8958.
- [12]. Jahnavi, Y., and Y. Radhika. "Hot topic extraction based on frequency, position, scattering and topical weight for time sliced news documents." 2013 15th International Conference on Advanced Computing Technologies (ICACT). IEEE, 2013.
- [13]. Khajeh-Hosseini, A., Greenwood, D., &Sommerville, I. (2010). Cloud migration: A case study of migrating an enterprise IT system to IaaS. *Journal of Cloud Computing: Advances, Systems and Applications*, 1(1), 1-16.
- [14]. Li, L., & Liang, J. (2017). Study on the Application of Cloud Computing Technology in the Teaching of Higher Education. *Journal of Computer and Communications*, 5(2), 32-37.
- [15]. Marinos, A., & Briscoe, G. (2009). Community cloud computing. In *Proceedings of the 2009 ICSE Workshop on Software Engineering Challenges of Cloud Computing* (pp. 44-52).
- [16]. Marston, S., Li, Z., Bandyopadhyay, S., Zhang, J., &Ghalsasi, A. (2011). Cloud computing—The business perspective. *Decision support systems*, 51(1), 176-189.

- [17]. Mell, P., &Grance, T. (2011). The NIST definition of cloud computing (Vol. 53, p. 50). Gaithersburg: National Institute of Standards and Technology.
- [18]. Murphy, M., &Cifuentes, L. (2018). Cloud computing in education: A review of the literature. *Journal of Information Technology Education: Research*, 17, 301-326.
- [19]. Obar, J. A., & Wildman, S. S. (2015). Social media definition and the governance challenge: An introduction to the special issue. *Telecommunications policy*, 39(9), 745-750.
- [20]. Shen, J., Li, Y., & Li, L. (2021). The effect of cloud computing on education: A systematic review and meta-analysis. *Journal of Educational Computing Research*, 59(1), 137-164.
- [21]. Siemiatkowski, M., & Musial, K. (2017). Cloud Computing as a Key Enabler for Open Education. *Journal of Education and e-Learning Research*, 4(2), 35-45.
- [22]. Stone, C. (2017). Cloud-based services in education: A literature review. *Journal of Educational Technology Development and Exchange*, 10(1), 1-14.
- [23]. Tan, E. T. (2018). Cloud computing in education: A review of the literature from 2015 to 2017. *International Journal of Educational Technology in Higher Education*, 15(1), 32.
- [24]. Wang, Q., Chen, L., Liang, Y., & Huang, L. (2017). Cloud computing in education: A survey. *Smart Learning Environments*, 4(1), 1-20.
- [25]. Wu, Y., Ren, L., Li, Y., & Wang, S. (2016). An exploration of cloud computing in education. *Journal of Educational Technology Development and Exchange*, 9(1), 1-14.
- [26]. YeturuJahnavi, et al. "A Novel Ensemble Stacking Classification of Genetic Variations Using Machine Learning Algorithms." *International Journal of Image and Graphics* (2021): 2350015.
- [27]. Zeng, Q., & Wang, X. (2020). The application of cloud computing technology in teaching: A literature review. *Frontiers in Psychology*, 11, 528.