

# The Effects Of Cloud Computing In E-Learning

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**Abstract:** Cloud computing is the latest technology in today's generation. Cloud computing is growing rapidly nowadays. E-learning is becoming very popular. It is virtual distance learning using the Internet. E-learning usually needs many hardware and software resources, cloud computing is providing all the facilities which e-learning needs and it is one of the ideal technologies to use in learning. Cloud computing helps students, teachers, researchers, and administrators. In the present education system, it is very difficult for educational systems to provide quality education for students. Even if the fracture and facilities provided by the institution are high, it is still notable to provide quality education and progress.

This problem can be solved by the Internet. Cloud computing is used in many fields because it is more advantageous and it is providing many services which are required in every field. Using the cloud all the students, teachers, researchers can easily access any information from anywhere using the internet.

Cloud delivers better services in educational sectors. Cloud computing is power and it will grow more by providing many benefits. Cloud computing is cost-effective. Companies can use cloud computing for their growth. Cloud computing has a bright future and it provides benefits in many fields. Including educational institutions, many organizations can benefit through cloud computing.

**Keywords:** Cloud computing, Mobile computing, Distance Education, Database

## I. INTRODUCTION

Cloud is a general term used to define the concept of distributed computing- where a set of networks allow sharing of the services.

Cloud computing is primarily used technology for digital data computing Infrastructures. It is a widely used technology in various professional fields and educational fields.

The technologies available on the web are developed for the case of sharing information. Countries which are advanced in technology have come forward to make their application available through the internet by making use of cloud computing.

It has benefited many large-scale educational institutions and other organizations. This technology aims to establish educational sites for the students who are joining the meeting online and satisfying their own needs.

The electronic cloud services are effective and successful in establishing a quality educational website, the services have been expanded to include all operations and provide information for students to store and access the academic courses and reduce the time and cost, lessen the effort as much as possible.

We find that the users may suffer from many obstacles in the computer systems, including.

1. Inability to provide the proper setup for the software in need of continuous updates.
2. The resources are characterized by the scarcity of limited computing resources like storage media, size, and speed, and the troubleshooting problems can be tedious and may conflict with Business goals.



The intention of using this resource is to achieve and provide the goal of reducing the cost with high efficiency. These services provided by the cloud are to transform internet information technology from products to electronic services accessed through the internet. It includes the benefits to store and access the blueprint to educational systems as it is designed to create an educational website.

Cloud computing has made sure that the user can orchestrate various functions, applications, and manage resources properly by combining data centers through a network. It then lets you use these resources and manage them properly to make them even more simple.

In mobile computing both data storage and data processing takes place outside the mobile devices. Mobile cloud computing is not just for smartphone users but for the rest of mobile subscribers to transmit the data, voice, and video via wireless devices, they can compute remotely while on the move. So that the information can be accessed from anywhere at any time.

## **II. LITERATURE SURVEY**

Cloud computing is providing the best facility for academic institutions. Cloud computing is providing the best opportunity for everyone who wants to study and gain knowledge in their respective interest and also to concentrate more on research activities.

According to patent W02013115488, it is titled as "SMART EDUCATION SYSTEM METHOD USING

CLOUD COMPUTING-BASED ON SCREEN". And also cloud computing reduces the IT complexity. Cloud computing helps education institution to maintain their own data and enhances software and hardware resources related to the particular institutions.

According to patent CN20258446 there is a title called "INFORMATION TRANSMITTING AND SHARING TEACHING SYSTEM BASED ON CLOUD COMPUTING".

In today's generation cloud computing is used in many fields. Mainly cloud computing is offering benefits to computing labs. Through cloud computing the labs appear virtually. On the other hand, cloud computing offers a low budget. It is the best way for the educational institutions which are struggling with financial issues related to spending money on computers and other resources.

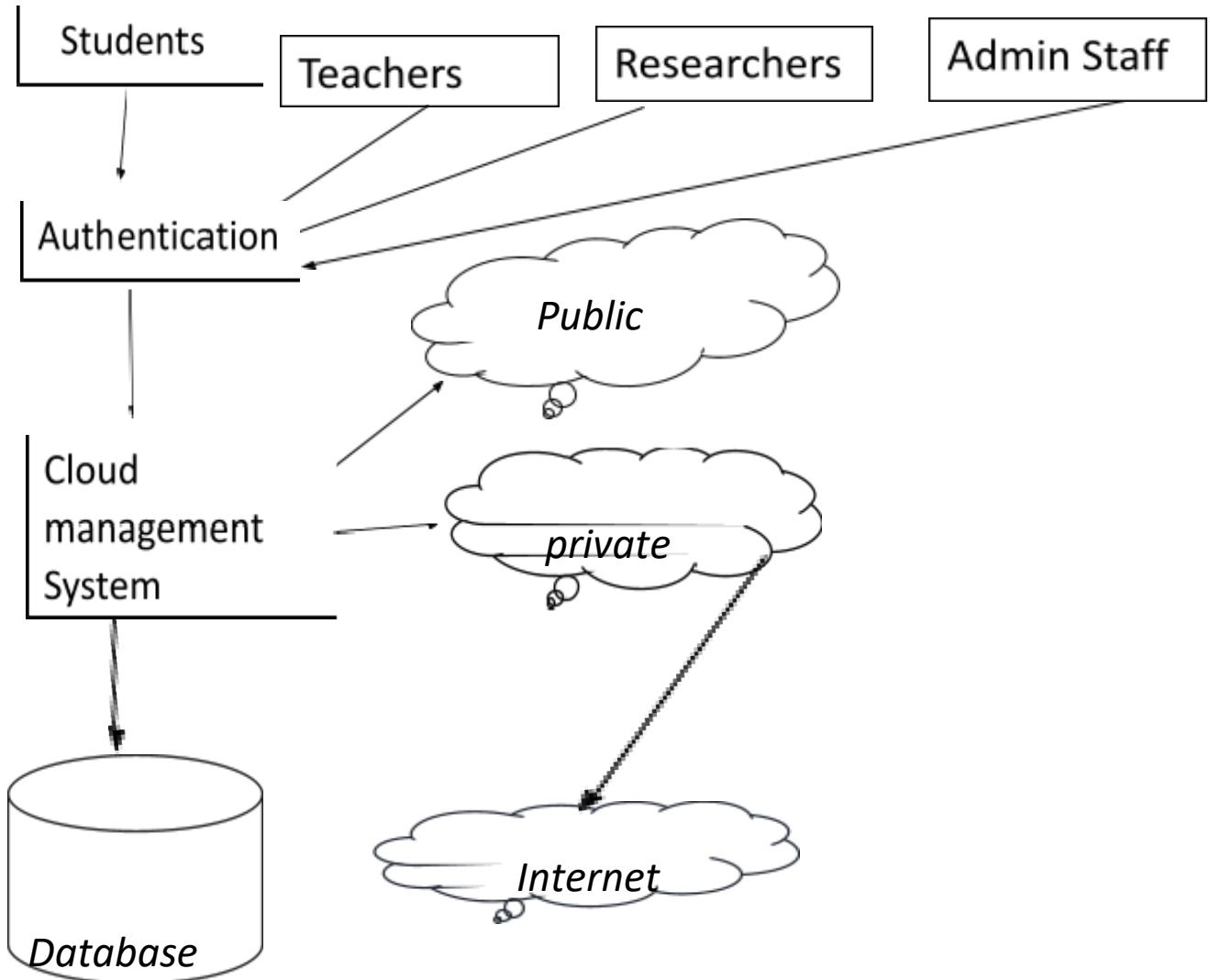
For any institution keeping the information and data confidential matters a lot. In that case Cloud computing provides the best security for resources too.

Knowledge of Cloud Computing in education

Nowadays the Internet has become a handy tool for users. We can access the data from anywhere easily through the internet. Using cloud computing we can manipulate the data, access the data and also, we can access the application easily. While accessing and storing the data from the internet we do not need to worry about the storage in our system/mobile because everything accessed will be stored in cloud.

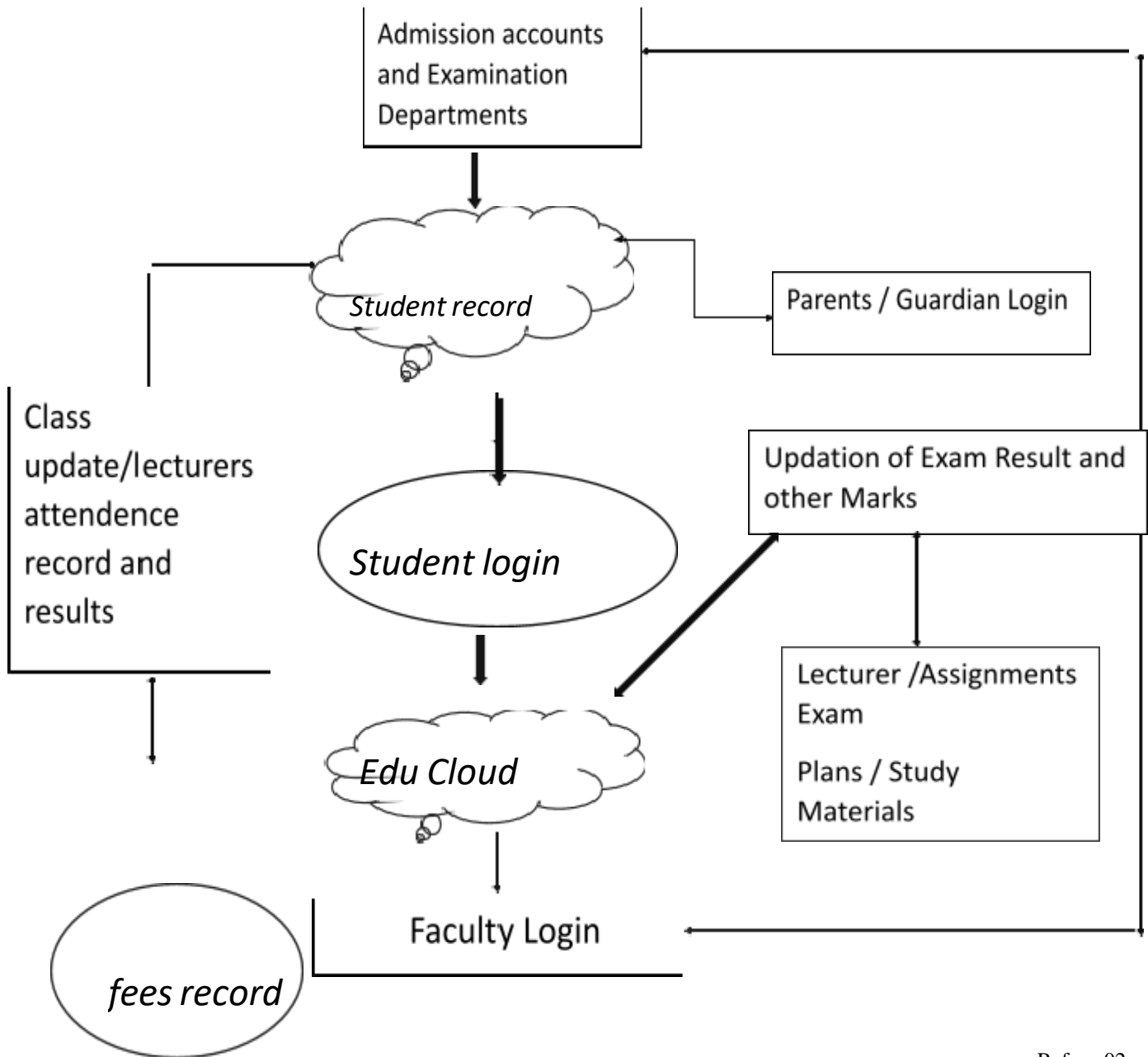
III. METHODOLOGY

Architecture of cloud Educational Sector



Architecture of cloud computing Ref no-04

Fig:2.1 Education system Model



Ref no-02

Cloud computing provides the best feature to get information about individuals belonging to a particular institution.

Cloud computing is designed in such a way that all the information sharing and connectivity will be done between the students, teachers, and parents as well.

The cloud provides an opportunity for parents to login and keep updates of every activity performed and grades of their respective child, Cloud computing provides the opportunity for children to access the required data without spending money at any time through the internet.

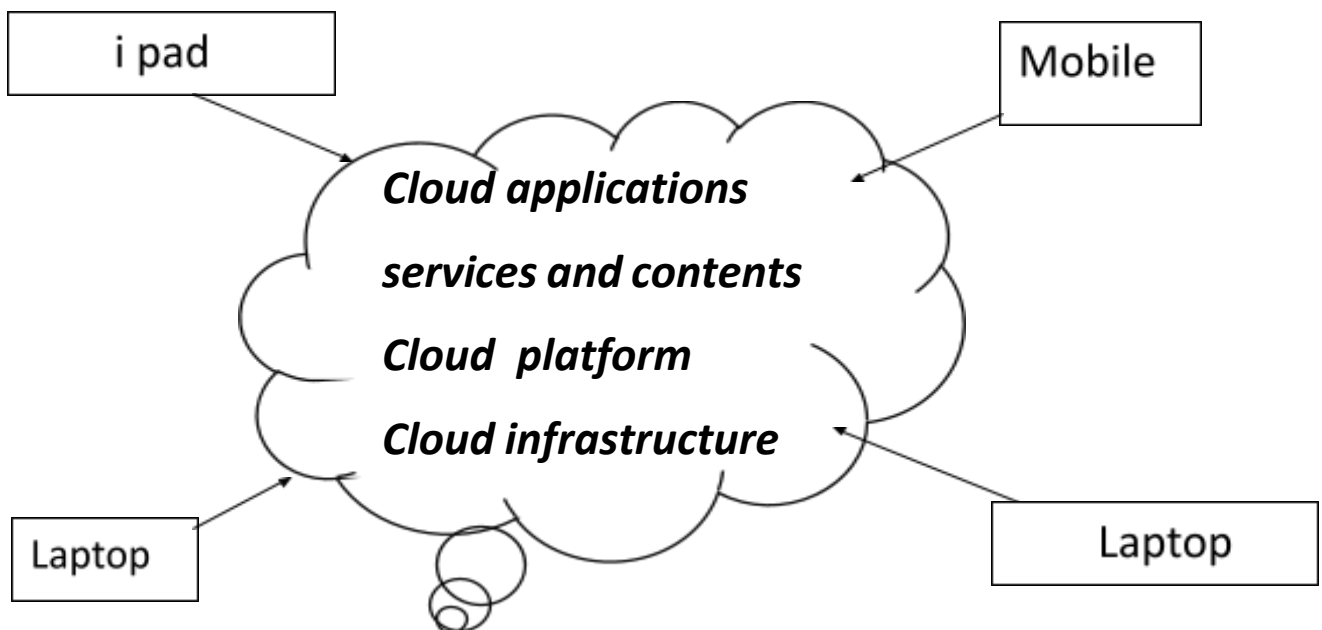
## Mobile computing

The main aim of mobile cloud computing is to provide a convenient environment for users to access the data which is stored in the cloud. The main difference between cloud computing and mobile computing is, cloud computing allows us to store and organize the data and information, whereas mobile computing provides us an environment to access the data and information which is stored in the cloud. Mobile cloud computing combines both mobile computing and cloud computing. The importance of mobile computing in education has been there for a decade.

The mobile computing techniques have been implemented in the education system by introducing tablets and pcs. Small devices such as mobile are more interesting in this context, because of their small size we can carry them everywhere we go. That makes it easy for every individual to access the required data anywhere at any time. Mobile is interfacing between all other electronic devices. Mobile computing is a technology which allows the transmission of data, videos etc through computers, there is no need for a fixed physical link for mobile computing, it can be done through wireless communication.

### 2.1 Significance of Mobile learning

Mobile cloud learning is a great start, it is a new concept that provides a great platform for future development of the education system.



Ref no-02,03

Mobile learning has become popular by its early definitions of "learning with mobile devices" "This definition has been changed from mobile devices to mobile learner's Mobile learning does not need designers to design commands for new classes but to enlarge their viewpoint of what mobility for learners entails in relation to learning.

Mobile learning is the process of gaining knowledge, skill and experience through its multidimensional view of mobility. Mobile learning provides a great platform to learners for acquiring knowledge on their respective interests at any time anywhere (internet is required).

Fig 2 represents the architecture of mobile computing, that mobile users and learners can access any amount of information like text, audio, video files, via mobile devices such as mobile which are connected with the internet.

## How does Cloud Computing bring innovation in Education?

Cloud computing resources can be shared anywhere without considering the location of users. Cloud computing makes it possible to bring teachers and students together on a single platform.



Educational institutions do not need to buy their own servers and data centers. Using cloud computing the required database can be accessed which is stored in the cloud.

#### Virtual classroom Environment

Educational Organizations can create virtual classrooms for students based on cloud software. It helps the institution in reducing the infrastructure costs. And even they need not provide onboarding regular teachers to teach the students. They can easily collaborate with skilled teachers. The teachers can create the videos and also can provide online education. Students can also appear for Virtual exams.

Ease to accessibility Users or Learners can easily access the required course, can enroll the course participate in various activities.

#### Cost Saving

Another advantage of cloud computing is cost saving. Both client and contributor can experience a great benefit in this context. Students need not to buy the expensive textbook and resources due to these resources are easily available in the cloud. The major part of cloud computing is we can pay for as much as we need, which makes it cost effective.

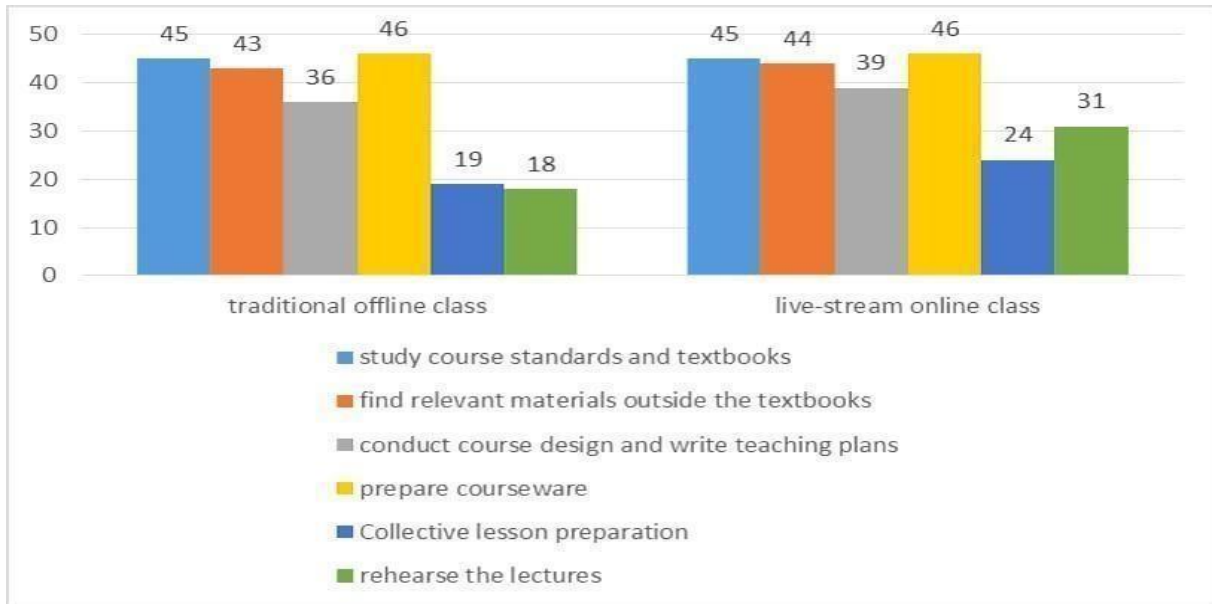
#### Minimize the requirements of hardware

Minimum requirement of hardware is needed in cloud-based applications. Cloud computing applications can operate on internet browsers using both mobile and desktop devices. Students can learn by cloud computing using their mobile only, they need not buy expensive computers for their learning. External storage devices are not required because everything can be accessed from cloud-based storage. Even educational institutions are experiencing great advantages from cloud. Even if it is university, students and other learners, everyone is experiencing a positive impact.

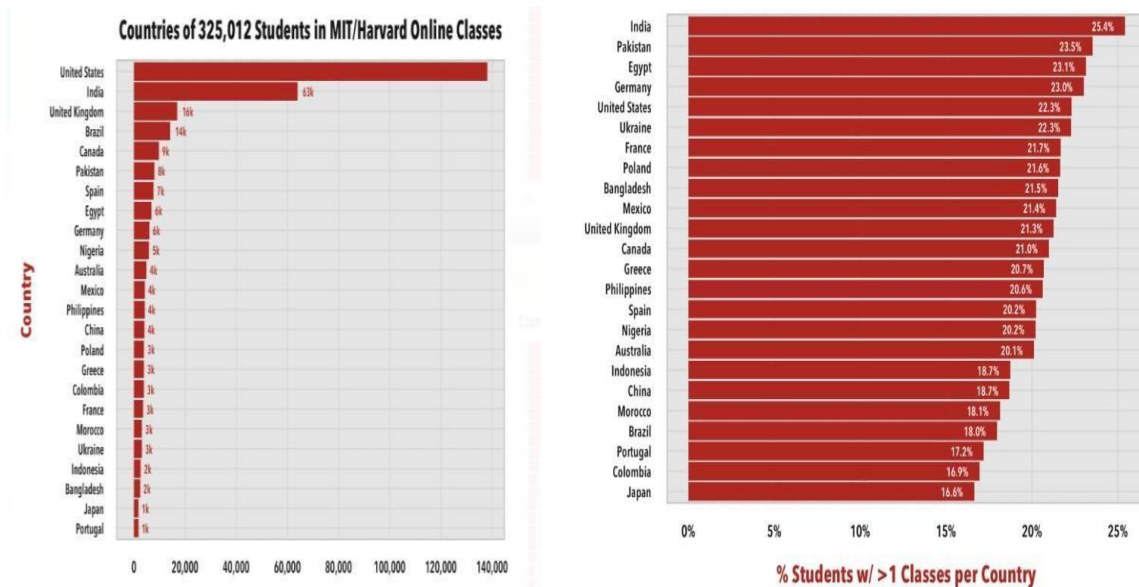
IV. RESULTS AND DISCUSSION

1.2 The below Statistics show the growth of Education in Traditional Offline and Live stream Online Class

I.



II.



(researchsquare.com) ref no-05

The Stats says that the study course standards and textbooks, and prepare courseware stays the same in both online and Offline. There is a slight improvement in Collective lesson preparation and conducting course design and writing teaching plans.

From the above stats we can understand that there is a dramatic increase in Rehearse or Revision of lecturers in Online Class. It has happened because online students can revise their portion wise lecturer class which will be available anytime anywhere from their own Smart device which is connected to the internet. This is done through the help of Cloud Computing.



Both teachers and students attended online live-streaming classes, and those online courses have improved the quality of teaching. However, teachers and students are enjoying and benefit from the overall teaching experience and learning outcome of online courses are inferior to offline.

In future, with the addition of online teaching, education can adopt a new mode of both online and offline teaching as well as the integration of inside and outside the classroom.

## V. CONCLUSION

Thus, we can effectively conclude that Cloud computing is an advanced development in the modern technology era. Cloud computing is providing the best facilities worldwide, not only in education but in other fields also. The teachers and students are very much satisfied with the implementation of online live broadcast courses in special periods, students improved their knowledge and skill with the help of Cloud in Online Class, where they gain Advantage from Recorded class which in turn help student more in revising their class and even get ready study materials for scoring good in their exams.

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