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Teaching and Learning Strategies in Teacher Education: The Innovations

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Introduction

We are living in the Information and Communication Technology (ICT) developmental era. No one can live without ICT. Today, ICT has a significant place and part in our life. The role of ICT is very high and plays a vital role in all fields. It is used as an assistance, to reduce the work of an individual. Normally in higher education, the contribution of ICT is unbeatable. The population exploration is one of the identified and well-known problems in all countries. It is difficult to provide education to all that are aim to obtain higher education. In a four-wall normal classroom, there are no possibilities to put all applicants and provide an education as it is a difficult and complex problem. ICT is only one tool to resolve this problem. ICT provides the learner to learn at their own time and own place. Within the boom of ICT, there are so many teaching and learning strategies available in the society. The succeeding paragraph will assist the readers to create an idea about the teaching-learning strategies such as E-learning, Webinar, Virtual Learning, Virtual Lab, Cooperative Learning, Collaborative Learning, and Cloud Computing methods.

E-Learning

E-Learning is a new education concept by using the internet technologies, delivers the digital content, provides a learner- orient environment for the teachers and students. E-learning is the use of technologies to enable people to learn anytime and anywhere. E-learning can be generally defined as teaching by means of Information Technology (IT). Bernard Luskin (2001), a pioneer of e-learning advocates that the “e” should be interpreted to mean “exciting, energetic, enthusiastic, emotional, extended, excellent and educational in addition to electronic”. And Park suggested that the “e” should refer to “everything, everyone, engaging and easy” (as cited in Sharma, 2018).

E-learning is the computer and network-enabled transfer of skills and knowledge. E-learning includes training, the delivering of just-in-time information and guidance from experts. In general, e-learning is an electronic-based learning; the student is engaged and makes the learner-centered while they are learning. E-learning that has been converted to digital could be read on a computer visually through network services. E-learning could expand over print media by adding several specific features such as hypertext links, search and cross-reference functions, and multimedia.

Types and Modes of E-Learning

Types and modes are different. In e-learning, the types are classified by the learner. But modes are classified under how the material or classes are given to the learner. Basically, these are inter-related. They are given below:

Basically, two types are in e-learning:

- Synchronous e-learning: it means "at the same time" involves the interaction of participants with an instructor via the web in real time. Synchronous technologies are a telephone, video conferencing and web conferencing etc.,

▪ Asynchronous e-learning: it means "not at the same time" allows the participants to complete the Web-Based Technology (WBT) at their own pace, without live interaction with the instructor. Asynchronous technologies are audio cassette, e-mail, message board forum, print materials, voice mail, video cassette, and CD ROMS.

On the other hand, e-learning is provided by any one of the modes:

➢ **Audio:** The audio effect motivates the learning process in a positive way.

➢ **Video:** Video gives real-learning and makes reading easy as it visible.

➢ **Blogging:** Blogs allow students and teachers to post their thoughts, ideas, and comments on websites.

➢ **Webcam:** Web-casting facilitates the creation of virtual classrooms and virtual learning environments.

Advantages of E-Learning

The following are the advantages of E-Learning.

❖ It gives personalized learning.

❖ Better uses for non-fulltime students particularly, in continuing education.

❖ Improve interaction between the student and teacher.

❖ Make development of technical skill through practice with tools of the computer.

❖ There is no bar in age to learn.

❖ Students learn at their own pace.

❖ It saves time and cost effective.

❖ Flexible in learning

Webinar A Gist

The webinar is a combination of "Web' and Seminar'. It simply means that a seminar has been conducted through the web or the internet. It is also called as web base seminar or e-seminar. In this method of the seminar, the internet is a medium to the individual who wants to share ideas, presenting themes, and conducting workshops. It allows interaction and discussion in real-time. Seminars are transmitted over the web and the individual is free from the physical destinations which means the individual may present their own space but on time. The webinar is entirely different from Webcast because it permits one-way communication and does not have interaction.

Webinar is defined as "Web based seminar with transmission of video and audio content online (over the internet) from one source to a limited audience with the purpose of training". A webinar can be delivered either live, or recorded, and delivered "on demand" giving the flexibility to the viewer to watch the webinar whenever they wish. However, rather than requiring download like a video podcast, a webinar uses a progressive video stream directly onto the user's computer so there is no need for hard drive space nor managing more media files. The on-demand ability to share and distribute recorded webinars via a portal or database plays a vital role to the learner. It means that content is at the fingertips of trainees and that unlimited playback as possible.

Features of Webinar

The following key features are supporting that the webinar is a method to share ideas to large extent of peoples and they are as below.

❖ **Interactive Elements:** Webinar includes the ability to give, receive, and discuss information between the people on the website. It allows the participants to share the ideas and discuss it with a large population.

❖ **Online Chatting:** Webinar is a model like online chatting and receives a large population. This either allows trainees to discuss the content as an online community or, in some cases of live discussion and panel shows,

contribute to the presentation directly by asking questions or making statements which can be relayed directly to the panel.

❖ **Better Learning Experiences:** As the trainees are given an increased level of interactivity by allowing them to submit information to the discussion (is it text, graphic, audio or video) the experience will become more engaging for them and make for a better learning experience.

❖ **Cost Efficiency:** Rapid development of infrastructure and software used for remote communication makes webinar technology itself cheaper and more available. As the costs of enhanced software decrease each month, the trainee's satisfaction increases. Distance learning is becoming a far cheaper alternative to traditional training as fast internet connections are standard in every educational institution or enterprise.

❖ **Time Saving:** The webinar allows the participant to present their ideas at their own pace by connecting internet. It saves time in terms of accommodation and travel.

❖ **Eliminating Elements:** Webinars help to reduce most of the elements of real seminar such as time commitment required by the trainees, travel and accommodation, Training materials, Evaluation of training, post-training materials preparation.

❖ **Own Pace and Time:** Webinars allow trainees to choose an hour that is most convenient to them. In addition, webinars eliminate the need for costly facilities, allowing trainees without such access to participate. Webinars are accessible from any place, requiring only a computer and the internet, broadening accessibility to include participants throughout the world.

❖ **Post-training availability:** Webinars allow the trainer to record teaching sessions easily for other trainees and to make them available on-demand. The trainees may see the seminar session if needed after the webinar is finished.

Orientation Function Availability: Webinar sessions provide those looking to raise their qualifications or retrain in a certain subject area a viable option to try various subjects if they are unsure of the specifics of what they want to study.

Advantages of Webinar

The advantages of the webinar are given below:

➢ It creating a new intellectual model of education better than the real, and is more attractive.

➢ It builds knowledge as well as inculcaring and sharing of information.

➢ Online environment encourages and presents the knowledge at their own pace and time.

➢ It allows registered students' information and evaluating them automatically.

➢Reducing the learning time spent in the traditional seminar such physical destination and accommodation.
➢The large extent of people can participate in the webinar.
➢Retrieving webinar may be possible.

Virtual Learning (VL)

In the mid-1990s, Virtual Learning emerges. VL has unique characteristics than other e-learning modes. It is a set of teaching as well as learning tools designed to enhance the students learning with the assistance of the internet. It allows independent or autonomous learning among the students. In the year 2001, VL makes learning environment were created which means computer-mediated dynamic world models that create a sense of place. VI. produces individual or personal learning environments to the learners. VL permits the learning environment from any location, at any time through a range of possible devices to the large students' extent. It allows the students independent learning through the making of the 3D learning environment. VL creates a computer-based atmosphere that supports online learning, and facilitates online collaboration between the teacher and the students. It is also called as an educational tool to manage online-learning of the electronic community.

Different Modes of VL

VL minimizes the need for a teacher in the process of student-learning. It is a type of individual learning method. VL is available in different modes and they are:

❖ **Computer Based:** In this mode, the instruction is delivered by the computer by using software instead of a teacher. The software may be customized by the teacher based on the learners' need and interest. This type of learning environment is only available in the computer in which the software is installed.

❖ **Internet-Based:** It is the same as computer-based instruction but the instruction module is stored in the server and it is accessible anywhere of the universe by connecting to the internet.

❖ **Remote Teacher Online:** In this case of VI., the teacher is not physically present and the teacher instruction is only present online passively. The learner may interact with the teacher through the internet such as online videos, online forum, e-mail etc.

❖ **Blended Learning:** It is a combination of traditional and online learning. It has face-to-face interaction between the remote teacher and the learner on the internet which is directed by the teacher on the spot classroom.

❖ **Facilitated VL:** It provides internet or remote teacher instruction to the learners which are supplementing by the facilitators. The facilitator does not direct the learners but rather they assist to receive the instruction through the internet.

Advantages of Virtual Learning

The following are the merits of VI. with compare to other teaching strategies:

➢ VL creates a Social Space to share ideas.
➢ Delivery of materials is easy.
➢ Teaching and learning process is simplified and individualized.
➢ The access of materials or resources is available on or off campus easily.
➢ A large number of students may access the resources within a second.
➢ It allows active and independent students' learning.
➢ It minimizes the need of the teacher and it insists the role of a teacher as facilitator.
➢ Universally Accessible instruction and learning.
➢ Flexible in learning.

Virtual Laboratory:

Virtual Lab is an artificial lab which could be computer-based or web-based simulated environment intended for its users to interact, both remotely as well as in-situ. It is an innovative learning practical environment which allows the audio-visual 3D practical sessions to the learners. The virtual lab is operated with the computer and it prevents any laboratory accidents. By its very design, a virtual lab cannot be identical to an authentic web lab. However, by weighing the many benefits of a virtual lab against the traditional wet lab, an argument can be made that virtual lab are equivalent in value to the learner because they address different learning styles and offer a more flexible and open-ended environment for inquiry, Virtual Laboratory makes an effective learning environment which includes the collection of software to academic teaching-learning process and research through the internet. It is one of the modes of e-learning. But it does not mean the following:

❖ **Educational Website:** It simply has static web pages and links to the details, whenever clicked the link topics appear against the information needed.

❖ **Virtual Reality Technology:** It produces sophisticated environments which are only linked to the text-based interfaces.

❖ Virtual Campus: It is a sub-category of Virtaal Learning Environment but it has a smaller e-learning tasks about the course which has been conducted by the educational institutions for educating particular course regarding.

Characteristics of Virtual Laboratory:

Professionals have listed certain characteristics (Babateen, 2011) of the virtual lab and they are as follow:

➢ It creates new intellectual models of education better than the real and more attractive than the imagination.
➢ It builds knowledge as well as inculcates information.
➢ A virtual Learning environment encourages and guides students' practicals significantly.
➢ It allows registered students to get information about the practical, and evaluates them automatically.
➢ Performing experiments which are difficult to be performed in the traditional lab due to its danger and high costs.
➢ Reducing the learning time spent in the traditional lab.
➢ Develop an exploration based on scientific assumptions and processes.
➢ It is consistently updated.
➢ It prevents accidents like a knife cut, fire, and simple burns seen in real practical rooms.

- It gives a 3D animated audio-visual video to enhance the understanding of procedure and eliminate the teachers"
- lengthy instructions about the experiment.
- It is apart from the purchase of equipment and mishandling equipment by the students.
- It is fit for all types of learners and allows a virtual environment to the learners.
- It permits students to learn the experiments in their own space, time and interest.
- A large number of the students may engage the practical session at a same time.

Cooperative Learning

Cooperative Learning is one of the kinds of Collaborative Learning, Cooperative Learning is a type of group learning performed by way of face-to-face interaction berween students. Here, the students have opportunities to share their strengths and allows them to develop their weakness. It is a method to develop the interpersonal skills of the students as well as it includes numerous activities to develop the understanding of the subjects. According to Menon (2014), "Co-operative learning is an instructional arrangement in which small groups or teams of students work together to achieve team success in a manner that promotes student responsibility for their own learning as well as the learning of others" (as cited in Khandai and Khan, 2011). For cooperative learning, the environment should be having as follows:

❖ **Safe and Challenged Environment:** The environment should be to help learning subjects and allow the students to feel safe to learn themselves.

❖ **Small Groups:** The groups can be created with a small number of students like 5-10 students in groups with their cooperation with each other.

❖ **Clear Objectives:** The tusk of the groups has been clearly defined.

The term Cooperative learning' was first introduced by the educational reformer WT.Harris and initiated in ST Louis at Elementary level. It means that it is a strategy which involves students in established, sustained groups or teams. In this strategy, the students work together in small groups and learn through interaction between the team members instead of teaching but the teacher coaches and enhance the learning process. It maximizes individual learning and collective learning of the students.

Advantages of Cooperative Learning

Cooperative learning is also helpful to the individual in a different way and they are given below:

❖ **Active Learning:** Cooperative Learning allows the students active participation in Learning, Discussion, Debate, and Integrating concepts instead of passive listening by Teachers' Teaching.

❖ **Alternative Teaching:** Cooperative Learning allows the students to teach and integrate the concepts. By this way, the teacher sometimes becomes a learner and students become a teacher.

❖ **Equal Opportunities:** Cooperative Learning allows the students equally in sharing the ideas about the concept and it maintains the respect of every member informally.

❖ **Improving Skills:** Cooperative Learning develops different skills like debating, integrating, explaining of the students by debating and sharing ideas between the students and reduces the challenges of oral responses.

❖ **Valued Contribution:** The Cooperative Learning recognizes the students' valuable contribution to sharing and integrating ideas which are to be celebrated.

❖ **Self Leaming:** It permits the self-learning of the students instead of teachers' teaching

Collaborative Learning

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Collaborative Learning includes the following components and these are the activities that reflect the collaborative learning

❖ Cooperative Learning
❖ Writing Groups
❖ Learning Communities
❖ Peer Teaching
❖ Problem Based Learning
❖ Discussion Groups

Nonetheless, Collaborative learning having the following characteristics and they are briefly explained:

❖ **Positive Interdependence:** Collaborative Learning has positive interdependent activities like task and goal should be clearly defined, how the efforts of each individual has benefited with each other, and commitment to the task should be made by each member of the team.

❖ **Individual and Group Accountability:** The team should exhibit whole success by the contribution of each member, and each member act purposefully towards the goal as a whole by helping the needy members.

❖ **Interpersonal and Small-Group Skills:** Every team member to participate in all of the activities to remain the goals such as the team member should be motivated, provided the chance to show effective leadership, allowed to make decisions, able to build trust, communicate, and manage conflicts in the learning process.

❖ **Face to Face Successive Interaction:** Face-to-face interaction will assist to attain the conclusion. The team members should be encouraged, applauded, and help each other. They should actively participate in resolving the problems and teach each other what the team member has to learn. Discussing the learned task and make a link between the previous and present task which will lead to the goal as a whole by the interaction of the team members.

❖ **Group Processing:** This is also called the reflection part. Students should openly and freely discuss the assigned task which will assist effective working relationship. Students should discuss the behaviour of continuing change or discontinue change that will lead the process status of goal achievement and accomplishment Quality Teacher Education

Merits of Collaborative Learning

Collaborative Learning is individualistic as well as has special features than other learning methodologies. The features take into consideration as its merits as the upside of the Collaborative Learning are as follows:

❖ Collaborative Learning develops higher-level of thinking skills of the learners.

❖ It promotes students-teacher interaction and familiarity between them.
❖ It quietly increases student retention.
❖ It helps to build self-esteem and self-reliance among students.
❖ It significantly promotes positive attitude towards subject matter among the students.
❖ It provides a free and comfortable learning environment to the learners.

Cloud Computing

Cloud computing is a model for enabling on-demand access to a shared pool of computed resources, e.g., server, application & service. In other words, cloud computing is a model for delivering IT services. Instead of a direct connection to the server, the resources are retrieved from the Internet through web-based tools and applications. The name 'cloud computing' was inspired by the cloud symbol that is often used to represent the Internet in flowcharts and diagrams. It will allow students. access their work or data not only from school but anyone can access data from anywhere, from home or anyplace with WIFI, or Internet-connected zones. Although the concept of "cloud computing" has been around for over a decade, the terminology has only lately gaining popular fraction

Merits of Cloud Computing

The following are the merits of cloud computing

❖ It allows unlimited storage of data or information,
❖ The information or data can be recovered easily that the data stored in the physical device.
❖ Information or data may be accessed anywhere and anytime if the user registers in the cloud.

Conclusion

Information Technology is not preceding paragraphs, the development of each aspect of education is an new to education hut the teaching and learning strategies author of the paper has and they presented a brief are most useful to teachers and introduction to different innovation. It is a tool to provide different learners. In the and learning strategies which have been evolved from the boom of ICT. Finally, the author of the paper has trusted teaching that this paper will make outline about E-learning, Webinar, Virtual Learning, Virtual Lab, Cooperative Learning, Collaborative Learning, and Cloud Computing while reading this article

References

- Babatcen, Huda Mohammad. (2011). The role of Virtual Laboratory in Science Education [PDF]. Retrieved from https://pdfs.semanticscholar.org/a98d/73d731659b5e9053f10b3213dacb85f630eb.pdf.
- Collaborative Learning, (2017). Retrieved from https://en.wikipedia.org/wiki/Collaborative leaming.
- Johnson, W. David & Johnson, T. Roger. (2017). An Overview of Cooperative Learning. Retrieved from http://www.co-operation.org/what-is-cooperative-learning/.
- Khandai, Hemant., & Khan, Shabnam. (2011). Advanced educational technology. New Delhi: APH Publishing Corporation.
- Meaning of Virtual Lab. (2017). Retried from Retrieved from https://www.mackinac.org/14475.
- Milliken, John. (2017), Collaborative Learning [PowerPoint slides]. Retrieved from https://www.ucy.ac.cy/etl/documents/KEDIMA/Belfast/Colloborative Learning.ppt
- Monica Tomar, Monica., & Kumari, Sarita. (2005). Educational technology. New Delhi: Shree Publishers and Distributors.
- Rahmah, Siti. (2017). Collaborative Learning Method [PowerPoint slides). Retrieved from https://www.slideshare.net/sitirahmabebe/collabortive-learning-method?next_slideshow-1.
- Sharma, Shikha. (2018). Seminar on E-Learning [PowerPoint slides]. Retrieved from www.slideshare.net/sspink/e-icarming 24907238.
- Trends in Virtual Learning. (2016). Ten Trends for Virtual Learning. Retried from Retrieved from http://core-ed.org/legacy/thought-leadership/ten-trends/ten-trends-2013/virtual-learning.
- Webinar. (2016). Meaning and Definition of Webinar. Retrieved from https://zoom.us/seminar.
- Webinar. (2016). Meaning of Webinar. Retrieved from https://en.wikipedia.org/wiki/Web_conferencing,

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