

**EDMODO, WEBINAR, SMART CLASSROOM, VIRTUAL LEARNING, AND  
VIRTUAL LABORATORY – THE BOOM OF ICT**

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**ABSTRACT**

Teaching is a social phenomenon and learning is a psychological phenomenon. In ancient times, the teacher used textbooks, blackboards, and so on as teaching aids. Now we are living in the digital era and there are so many innovations are readily available to the teacher because of the boom of ICT. ICT plays a crucial role in education, especially in the teaching and learning process. Teachers were spending more time preparing teaching aids and it was not long-lasting materials that occupy more places to store. But in the digital era, the teaching process is simplified and making durable aids and saves for a long period. ICT allows the aids as portable and accessible easily. Even though no innovation can replace the teacher and the teacher is essential for teaching. Teachers are traveling from the blackboard then whiteboard, interactive whiteboard, and today they stood with smart boards. There are plenty of innovations and ICT tools for education are available in society. Virtual Lab, Virtual Learning, Online Learning, Online Examinations, Webinar, Edmodo, etc are the examples. Here the authors of the paper have been interested to create an idea about Emodo, Webinar, Smart Classroom, Virtual Learning, and Virtual Lab, and its features through this medium.

**Keywords:** Edmodo, Webinar, Smart Classroom, Virtual Learning, Virtual Laboratory

**Introduction:**

In the technology-enhanced era, classroom communication is simplified. Teachers are transferred one-way communication through the air is the common medium without ICT is traditional. Today we are using ICT as a medium to communicate and it is two-way communications. ICT breaks the physical destination (classroom) and fixed time (Class time). A developing country like India has been implementing ICT in all its activities. Especially in teaching and learning processes, there are plenty of ICT tools and devices are available to enhance teaching and learning. Traditional teachers simply transfer the communication orally and the students received whatever the teacher said. This is not

possible to understand the concept clearly and it is to permit students to imagine the concepts. At that time, there are fewer ICT tools was available to the teachers and so the teaching-learning process was lengthy and time-consuming processes. Today, we are living in the digitalized universe and it allows as receiving any communication without any fixed time and place. The innovations in education simplify classroom communications.

### **Edmodo – The History and It's Meaning:**

Edmodo is an online database that helps the teacher in sharing the ideas to their students, colleagues, and parents of the students. It is an output of the technological boom in education helpful to share the thought and ideas. It also assists in collaborative learning. Most of the K-12 schools adopted this as a coaching tool. Edmodo is a sharing network like Facebook that helps share the quizzes with the students. It is also helpful to provide the assignment to the students. It was founded by Nic Borg and Jeff O Hara in 2008. In 2013, PC magazine mentioned the name of Edmodo in the top apps for teachers then it was popularized. Edmodo launched an assessment tool to measure students' standards called 'snapshot'. It is a global education network that permits teachers to manage their classrooms, engage the students in safe, simple, and free mode. Since launching in 2008, Edmodo helped 100 million users and 700 million resources shared (Edmodo, n.d).

Focusing on the outlook, it looks like Facebook, it called teacher's Facebook and it is being on an educational platform, and a social network purposefully used for learning. In this network teachers and students are interact purposefully. The function of the Edmodo is the same as the Facebook interface and it is more secure with a closed network. Teachers can share ideas, posts, quizzes, assignments, alerts, grades, and reminders. Edmodo permits students to do their assignment in own pace and time without the wastages of papers. It is acting as a learning management system for both the students and teachers. It is a free and high secured social network for the students, teachers, and parents. Edmodo gives teachers an exciting new way to deliver lessons (Edmodo, n.d). Edmodo has started Edmodo Lab and it is an opportunity for the students who want to develop their creativity and imaginations.

### **Embodo – The Features:**

Edmodo is a student-teacher social interface like Facebook, it is helpful to share their ideas and thoughts in a paperless environment. Based on the usefulness, Edmodo called Teachers' Facebook and it is closed as well as secured network. The authors of this paper supporting the following points that will assist to understand the discrimination between Facebook and Edmodo.

- ✓ **Free Social Network** – It is a free social network, the teacher and the students can share the ideas between them. The parent of the students can join this network.
- ✓ **High Privacy and Secure** – Edmodo is an interface like Facebook but it is a highly secured platform to share ideas between the teachers and students. No one can join or share or doing assignments without being a member of the group. There is a closed request that will be sent either by a student or a teacher to join a class or group.
- ✓ **Achievement** –The Teaching -learning communications are achieved easily in the paperless environment
- ✓ **Personal Management** – The operating process of the Edmodo fully depends on the teacher
- ✓ **Uses of Polls and Quizzes** – Teacher can assign Polls and Quizzes to the students in a paperless manner
- ✓ **Access by Parent** – The parent of the students can access the Edmodo at no cost. Edmodo permits parents can see the performance of their children with the help of an online progress report Parents can comment in the comment box.
- ✓ **Online Assignments** – A teacher can give online assignments to the students within time-bound. The students can submit the assignments within the time-bound and Edmodo gives a caution of the time-bound to submit the assignments. Teachers can easily access the assignments.
- ✓ **Engagement** – Students are excited and engaged the learning through Edmodo because the visualization of the content and huge resources is available for a single content.
- ✓ **Mutual Connect** – Edmodo mutually connects among the teachers, students, and parents of the students. But the teachers are the central person in the teaching and learning process.
- ✓ **Personalized Teaching and Learning** – Edmodo is a learning management system that permits the learner to learn at their own time and own pace.

- ✓ **Measuring Achievement** – Edmodo helps the teachers in measuring the achievement of the learners' easy manner. Snapshot is an additional feature in Edmodo especially developed for measuring the achievement of students.
- ✓ **User Friendly** – Teachers and students can easily access Edmodo and there is no necessity to skill to operate the Edmodo. Even non-tech students and teachers can access the Edmodo easily.

### **Edmodo: The Registration Procedure:**

Edmodo registration is a simple process and teachers can register in the Edmodo registration portal. Teachers, Students, and parents follow the following procedures for registration on the Edmodo website.

Registration procedures for teachers:

- ✓ Open the Edmodo website by using the web address [www.edmodo.com](http://www.edmodo.com)
- ✓ Click the “I’m a Teacher” option
- ✓ Fill the new user registration form and click the ‘Sign Up’ option
- ✓ Check your email and confirm the registration via your email
- ✓ Manage your account as your wish

Registration procedures for the students:

- ✓ Obtain a 6-digit group code from your teacher
- ✓ Open the Edmodo website by using the web address [www.edmodo.com](http://www.edmodo.com)
- ✓ Click the “I’m a Student” option
- ✓ Fill up the registration form with Group Code, a unique username, and password
- ✓ Click the “Sign-Up” option

Registration procedure for parents of the students:

- ✓ Obtain 6 or 9-digit group code from your child account (it is not a student's group code)
- ✓ Open the Edmodo website by using the web address [www.edmodo.com](http://www.edmodo.com)
- ✓ Click the “I’m a Parent” option
- ✓ Fill up the registration form with Group Code, a unique username, and password

- ✓ Click the “Sign-Up” option

### **Webinar – The Meaning:**

A 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 a web-based seminar or e-seminar. In this method of the seminar, the internet is medium for the individual who wants to share ideas, presenting themes, and conducting workshops. It allows interaction and discussion in a real-time manner. Seminars are transmitted over the web and the individual is free from the physical destination which means the individual may present their own space but on time. A webinar is entirely different from a Webcast because it permits one-way communication and does not have any interaction. Virtual Learning is lying in the umbrella term electronic learning. It is a transmission of audio-video content online from one source to a limited audience for training purposes. In webinars, information may be delivered in live stream or may be recorded for future references. The webinar gives flexibility to the participants or the viewers to watch it at any time and anywhere. It is also called a web-based seminar or online seminar. Internet is a platform for webinars.

The webinar can be defined as “It is a seminar on the Web or online which has the transmission of audio-videos Information transmission from one source to a limited audience to the purpose of sharing ideas and training” (Webinar, 2019). Webinars can be recorded and delivered if the participant or the viewers’ on-demand. The participants or the views who want to view the webinar may download by video podcast and there is no need for external space for managing videos. The on-demand ability to share and distribute recorded webinars via a portal or database plays a vital role for the learner. It means that content is at the fingertips of trainees and that unlimited playback is possible (Webinar, n.d.).

### **Webinar – The Upsides:**

The following are the upsides of the webinar.

- ✓ It creating a novel intellectual model of education better and attractively.
- ✓ It builds knowledge as well as inculcating and sharing of information.
- ✓ Online environment encouraging and presenting 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 as physical destination and accommodation.
- ✓ A large extent of peoples may participate in the webinar.
- ✓ Retrieving webinars may be possible.

### **Webinar - The Features:**

The following key features are supporting that the webinar is a method to share ideas with a 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 them with a large population.
- ✓ **Online Chatting:** Webinar is a model like online chatting and it 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 that can be relayed directly to the panel (Features of Webinar, n.d.).
- ✓ **Better Learning Experiences:** The increase of the level of interaction, and submission of information for discussion by the participants like text, audio, video, and graphics, etc provide a better learning experience to the participants.
- ✓ **Cost Efficiency:** Webinar is low cost and more accessible due to the rapid development of infrastructure and software used in the webinar.
- ✓ **Time Savings:** Webinar permits the participants to present their ideas at their own pace with fixed and allotted time to him/her and the participants need not travel to arrive at the physical destination.
- ✓ **Eliminating Elements:** Webinar eliminates various elements of the real seminar such as time allocation to the trainees, travel and accommodation, seminar materials, and evaluation of seminar.
- ✓ **Own Pace and Time:** Webinars permit the participants to choose a convenient time to present their ideas and it eliminates costly facilities in preparation for a real seminar. It can be accessed from anywhere by simply connecting the computer to the internet.
- ✓ **Post-training availability:** Webinar permits the participants to capture or record or save the presentation and make it available to them on-demand. The participants can view his/her presentation after completion of the seminar.

## **Smart Classroom – The Meaning:**

A smart Classroom is a Classroom that providing education through presentations and videos through an LCD projector and may connect to the internet if needed. This classroom allows the teacher to present video conferencing and other learning materials available on the internet. In a Smart Classroom environment, students can learn better through visualization than the older teaching strategy. All the students may not understand the teaching methodology of a teacher, but a smart classroom allows understanding the reality behind the concept. It is an excellent tool to solve the apprehensions of the teachers and facilitates the students to create an effective learning environment. It is indeed a student-centered learning method system through which students can easily comprehend all the theoretical aspects and excel in their potentials. This system is making use of the imagination of the student to make them understand the subject matter in such a way that it remains in their memory for a long time to remember. The present generation learners are the 'Digital Born' children. But the teachers are 'Digital Immigrant' of the digital enhanced word. The younger generation always shows interest in learning with technology. For this reason, the digital immigrant should switch to new and modern technology-equipped classrooms. The only way to adopt Smart Classroom in the teaching process will enhance and fulfill the learners' learning process.

## **Smart Classroom – The Features:**

The following aspects are different from the traditional teaching-learning process.

### ***Benefits:***

The benefits of the Smart Classroom strategy are different from other teaching strategy and they are.

- ✓ Personal Responsibility – It increases the personal responsibility that is teaching is for teacher and learning is for learner and make the responsibility of both.
- ✓ Instructional consistency – It gives a validated instructional marital to the learners what the teacher teaches and the students learn the concept in the same by displaying the concepts.
- ✓ Excellence in output – Visual learning normally increasing the learning concepts then oral learning and it may lead to the outcomes of the learners.

- ✓ Minimum learning time – In traditional teaching, the teachers' lecture occupies more time, and in Smart classroom learning reduces the lectures and makes the lecture concepts visual and so it reduces the learning time.
- ✓ Mastery of teaching – It includes instructional material like lectures materials or notes, teaching aids, and availability of enormous resources by connecting the Internet and so it's called the mastery of teaching.
- ✓ Increased retention – psychologically oral learning will not be remembered but both oral and visual learning allows remembering the concept easily. Smart Classroom allows both oral and visual learning and it increases student retention.
- ✓ Maximum motivation – Normally, traditional teaching allows oral learning and it will make the passive listener but the Smart classroom allows the students visual learning and it makes the students' active listener as motivated.

### ***Objectives:***

Every process of the universe might have a minimum of one objective and it may have too many is also possible. The objectives of the Smart Classroom are different from other traditional classrooms and they are,

Students can,

- ✓ Interestingly disseminating accurate information and knowledge.
- ✓ Creating a learner-centered environment and addressing different learning styles.
- ✓ Providing special assistance to students even with all disabilities or any particular disability.
- ✓ Making learning more collaborative and encouraging creativity.
- ✓ Addressing specific learning needs in specific disciplines.
- ✓ Taking care of boundaries, borders, and enabling anytime everywhere.

### ***Teachers' Role***

Smart Classrooms engaged the teacher to act as the followings and they are,

- ✍ ***A transformer of knowledge*** - Teachers have the responsibility to transfer the background about the course content, skills, and instruction to the learners. And they also build upon knowledge, personal experience, language, and culture. They also rectify the unwanted concepts of the content given on the internet or another source.



Thus the teacher acted as a transformer of knowledge in the Smart Classroom situation.

- ✍ **Motivator and facilitator** - The teacher motivates students to learn in the technology-enabled environment and facilitates the students' knowledge because the students directly observe from the display and the teacher facilitates it.
- ✍ **Mediator** - In smart classrooms, the teacher acts as mediators that the instruction concept is displayed on the screen and the teacher explains the concept to the level of students' ability. It helps students discover what to do and also helps them learn how to learn. Here, the teacher just mediates the concept which is displayed and thus they are acting as mediators.

### ***Technological Enhancement:***

In the present age, the students are interested to learn in a technology-enhanced environment. In a smart classroom, the projectors project the visualized subject content and it helps the students that they can visualize the subject content. The students are having a chance to see the experiments and incidents directly through motion pictures and they are enjoyable. They can hear, see and learn through the resources of every smart class. In ancient times, the teacher was showed the picture in the textbook by raising his/her hand withholding the book and explain the content. This activity of the teacher makes the students struggling to grasps the knowledge, especially, the picture is not clearly understood by the students sitting away from the teacher. If the picture is shown on the screen in front of the students in big size, the students easily understand the subject content and the smart classroom do such things. Smart Classroom provides a technologically enhanced classroom and is connected with the internet.

### **Virtual Learning (VL) – The Meaning:**

Virtual learning emerges in the mid of 1990s and it has non-comparable characteristics to other online instructional or learning techniques, methods, and modes. It is a combination of teaching and learning tools for enhancing the learners learning. It permits the learners to learn independently or autonomously. Virtual learning popularized in 2001 because it has a special learning environment that computer-mediated and dynamic world models. It creates an individual learning environment and the learner has independent action to decide location and time to learn with the range of possible devices. Learners are engaged

with the computer-based atmosphere that enables online learning and creates coloration between persons who involving teaching and learning.

### **Virtual Learning – The Modes:**

Virtual learning eliminates the teaching by the teacher and it allows individual learning. Virtual Learning is available in different modes and they are

- ✓ **Computer Oriented:** The instruction is delivered through a computer instead of a teacher. The software can be customized by their teacher based on learners' needs and interests. The learning environment depends on the software installed in the computer.
- ✓ **Internet Oriented:** It is the same as computer-oriented instruction and the instruction module is maintained in the internet server. The learner can access from anywhere in the universe by connecting the computer to the internet.
- ✓ **Remote Teacher Online:** The instruction of the teacher can be viewed by the learner through online instead of the physical presence of the teacher and the learner can interact with the teacher through the internet like email, internet forum, etc.
- ✓ **Blended Learning:** It is the addition of traditional and modern online learning. This mode of learning allows the learners can make face to face interactions with the remote teacher and these could be made by the teacher of the spot classroom.
- ✓ **Facilitated VL:** It is the same as blended learning but the facilitator helps the learner to receive the instruction through the instruction.

### **Virtual Learning - The Upsides:**

The upsides of Virtual Learning (VL) is given below,

- ✓ A sharable social place
- ✓ Easy delivery of study materials and resources
- ✓ The access of materials or resources easily
- ✓ A huge number of participants may access and linked the webinar
- ✓ It allows students to learn independently and actively
- ✓ It eliminates the teaching process by the teacher and insists him/her act as facilitators
- ✓ It has a universally accepted and accessible teaching-learning process

- ✓ It allows flexibility in learning

### **Virtual Laboratory (V-Lab) – The Meaning:**

Virtual Lab is an artificial laboratory, a computer-based or a web-based laboratory that has a simulated environment planned for its users to interact either be remotely or be in-situ or both. It is a novel laboratory method that allows students in a new learning practical environment with 3D audio-visual practical sessions. Accident in a practical classroom is possible like an electric shock, small burns, and blasting, etc. But in the virtual laboratory, there is no possibility for accidents like an electric shock, burns, etc., to occur in the real practical classroom because it is computer-operated classrooms. A virtual lab cannot be identical to a real wet lab by its design. Based on the merits of virtual lab such as addressing to different learning styles of the students, maintaining equivalent values same as traditional lab, more flexible and open-ended environment to the learner, the virtual laboratory is suggestive.

V-Lab included a variety of software that makes the learning environment effective and it provides academic teaching and learning processes, and conducts internet research. If we focus the process of teaching and learning processes on the internet, it may be called one type of model of e-learning. But it is not meant the following either directly or indirectly.

- ✓ **Educational Website:** Educational website only has a single or multiple static web page(s) linked to the respective details whenever the user needs the information and make clicks on it.
- ✓ **Virtual Reality Technology** gives sophisticated environments to the teachers and the students in a secure and shares the ideas in the text-based interface.
- ✓ **Virtual Campus** is a small part of the Virtual Learning Environment that permits the educational institutions have conducted the small e-learning tasks of the course. course regarding.

From the above point, Edmodo is a mode of e-learning for academic learning formulated of a variety of software. Students admitted to a visually enhanced 3D practical environment for effective learning.

### **Real Laboratory – The Handicaps**

Conducting practical in a normal classroom needs well equipped with practical equipment, sufficient room with ventilation facilities, and safety devices for accidents.

Purchasing equipment for practical needs high finance and it required large space for conducting practical and storage equipment. Accidents can be possible while students doing practical like an electrical shock, burns, etc. The followings are the handicaps of the real practical classroom.

- ✓ **Availability of Equipment:** More equipment is needed in a real classroom with regards to the number of students. On the other hand, there is less equipment, if the equipment is costly like spectrometer, etc. And sure, there is damage or error can be possible when it reaches the maximum limit of usage and further usage may lead the errors of measuring. The damage or errors in equipment could lead to neglect of the practical.
- ✓ **Time Consumption of Instruction:** The teacher needs to demonstrate the practical before starting the practice, checking the efficiency and correctness of the equipment is an additional work of the teacher, supervising the practical and explain the practical to the needy students are consuming the times.
- ✓ **More Expensive:** Conducting practical in real practical classrooms required more equipment regard to the number of students and some of them are more expensive. If the equipment is damaged, the teacher may remove the practical due to the cost of the equipment, for example, spectrometer and it cannot be bought by the school because of the poor financial status of the school. This leads to more expenses for buying such equipment.
- ✓ **The ability of the Students:** Due to the poor financial status of the schools, the schools are not ready to purchase new equipment, if it is changed. Students are not equal in their ability to handle the equipment and mishandling of equipment in the real classroom leads to damage to equipment.
- ✓ **Laboratory Accidents:** There is a possibility of laboratory accidents like an electric shock, burns, etc. Mishandling, following wrong procedures, and carelessness lead to laboratory accidents. Teachers cannot predict the accidents because the students would do the practice without the seriousness of the lab accidents, even the teacher instructed the precautions.
- ✓ **Safety Measures:** Accidents are possible in the real laboratory. Safety measures to be maintained in the schools that are conducting practical. A good practical room should be enabled with safety things like a first aid box, fire extinguisher, soil, and water.

## Virtual Laboratory – The Emergence

Students doing practicals with a clear understanding in a secured classroom reflects a good execution of a practical. But in the real classroom, no teacher can predict the accidents, struggle in doing practical, and understanding. The virtual lab is a visual laboratory that has an enhanced and simulated 3D environment and it permits the students to get visual instruction on practical with audio. Even dangerous experiments and they cannot be done in a real laboratory can be accessed or done with this V-Lab. The teachers in the V-Lab act as a facilitator and he/she do not need to demonstrate the practical which reduced time-consuming. There is no chance of mishandling of equipment and damage in equipment associated with the real practical laboratory. V-Labs are special characteristics over the real laboratory. Harry and Edward, 2005- Zaitoon 2005- Carnevale, 2003 have compiled the following characteristics of V-Lab (as cited in Virtual Laboratory, 2017).

- ✓ It creating a novel intellectual model of education better than the real and more attractive than the imagination.
- ✓ It builds knowledge as well as inculcates the information.
- ✓ Virtual Learning environment encouraging and guiding students' practicals significantly.
- ✓ It allows registered students to get information about the practical and evaluating them automatically.
- ✓ Performing experiments that are difficult to be performed in the traditional lab due to its danger and high cost.
- ✓ Reducing the learning time spent in the traditional lab.
- ✓ Develop an exploration based on scientific assumptions and processes.
- ✓ It is permanently updated.
- ✓ It prevents the accidents like a knife cut, fire, and simple burns in a real practical room
- ✓ It gives 3D animated audio-visual videos that will enhance the understanding of the procedure and eliminate the teacher's lengthy instruction about the experiment.
- ✓ It is apart from the purchase of equipment and mishandling the equipment by the students.
- ✓ It is most fit for all types of learners and it allows a virtual environment for the learners.
- ✓ It permits students to learn the experiments in their own space, time, and interest.
- ✓ A large number of the students may engage in the practical session at the same time.

**Conclusion:**

Nowadays, the contribution in higher Education of ICT is unbeatable. Population exploration is one of the identified and well-known problems to all countries and it suffers from all sides of development. It is difficult to provide and getting education by everyone who is needed higher education. In a four-wall (normal Classroom), there are no possibilities to put them all and provide or getting an education is a difficult and complex process. ICT is a precise tool to resolve this problem. Technological revolution produces novel and innovative things which are the base of all aspects of the developmental process. Education is a vital thing in those developments. The main aim of education is to bring all-around development of the personality of a child. All-round development means two things such as individual growth and social development. Finally, the authors concluded that the boom of ICT is a non-stop development and undoubtedly it fosters the teaching-learning process positively.

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