

**Smart Classroom and e-learning**

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### **Abstract**

Education is the key to success and in the world today, learning can take place in traditional classroom setting or in online mode. This paper discusses about the smart classes and e-learning as a modernized method of education in today's scenario which provides quality education to students by helping them in better concept formation, concept elaboration, improvement in reading skills and academic achievement. Nowadays, various institutes use smart teaching techniques day to day. This technology has been in the scenario since the 1980s. E-learning is an innovative and new approach: it's interesting and different from the monotonous classroom teachings. It has created a great impact on our society as well as on education system. In all the paper entails how this technology is growing in the world at a steady rate and taking the world of education to a different level. The objective is to bring forth the impact smart classes and e learning has created on the education system as well has on the society. The research talks about how useful this growing technology is and even the ways of progressing it in the future. This technology has its own merits and demerits but is welcomed by the society in a great manner. Another factor to bring forth is the role of Smart Classroom and E-learning in times of a worldwide pandemic. This technology reaches all over the world thus opening up thousands of opportunities for people across the globe.

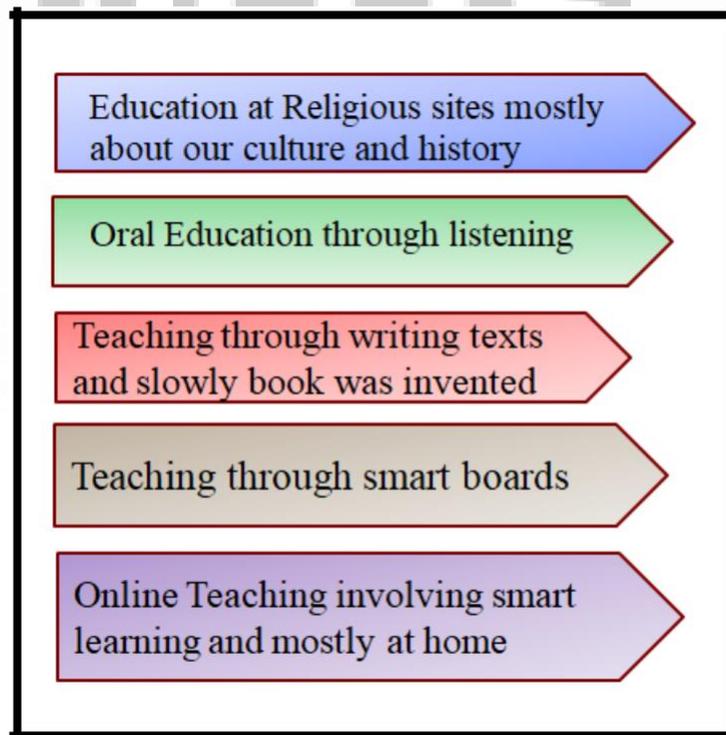
*Keywords:* Smart class, E-learning, institutes, teaching, education, impact, education system.

### **Introduction**

To learn about this growing technology we have to first learn what exactly e-learning and smart classroom means. Education is generally delivered to us through various forms of teaching. We have all experienced a change in the way teaching has been carried out through generations. The first classroom teaching took place on April 23, 1635 in Boston, Massachusetts. From those times we have experienced classroom teaching. However as time flies by and world develops, we even noticed a development in the way of education. In the recent times students generally prefer online teaching than going to school or college or any other institutions. Our study mainly deals how this online form of education has prospered through centuries. The education system today is surviving on the process of e-learning. The days that this pandemic has shown us has made us realize that even the Indian education system can survive on e-learning to an extent. This whole idea of e-learning and smart classrooms dates back to 1980s and provides a classroom to the learners of all ages. Through the process learners activate and build themselves, process information, transform their learning into knowledge that shows what they know, and reflect on their learning. E-learning gives students an aspect of education which is beyond scoring marks, grades and cramming up information. It helps motivate higher levels of thinking in students. A smart classroom is a ramped-up mode of education which provides students with quality education by helping them understand concepts better, improve their reading and comprehension skills, and achieve academic excellence. Thus this growing technology is an amazing journey that takes us through the wonders of science today, and opening up pandemonium of knowledge along the way.

## Evolution of Education

Since the earliest times education has been one of the most important aspects of life. Earlier education was nothing but passing of general knowledge orally from generation-to-generation. Then emerged a new system of schools in which a person who has more knowledge than most of the others on all or a particular topic taught the children of their area. This led to invention of schools. Soon schools started using written texts like scrolls, to aid the students in learning. This led to invention of books. As time passed on schools became bigger and started using infrastructure, modernization ways of teaching etcetera. Technology soon evolved in a way which could easily overcome all educational barriers. Now education has a complete new phase.



The traditional classrooms were soon overtaken by modern teaching methods like the smart classrooms and e-learning. The system was aligned in a way which could meet the need of different types of students at ease. Modernization has made education much faster, easier, and accessible everywhere thus transforming the framework of education to make it work all the more effectively and brilliantly.

### **Smart Classroom**

Smart classroom is a technology-based learning that is proposed as a solution to increase the capabilities of students. This mode of teaching and learning make the education system more attractive and interactive, in addition to help educators to develop an engaging session.

It is a technology-supported learning environment that makes adaptations and provides appropriate support (e.g., guidance, feedback, hints or tools) in the right places and at the right time based on individual learners' needs. Smart Classroom is an invention of science which provides us with a virtual classroom- a learning platform for this new generation.

### **Features of Smart Classrooms**

- The modern approach of adaptive learning gives students the freedom to learn at their own pace and in the way they are most comfortable with.
- Learning in groups enhances the scope of learning and develops critical thinking. Collaborative learning activities include collaborative writing, group projects, joint problem solving, debates and more. Collaborative learning redefines traditional student-teacher relationship in the classroom.

- Computers are readily available in modern classrooms, since they are essential tools for 21<sup>st</sup> century students and replace the utilities of pen and paper. They give teachers the opportunity to heir lessons and assist them.
- Smart Classroom uses components like computers, LCD Projectors Laptops, DVD Player,VCR, microphones etc.
- Interactive White Board is one of the key features of smart classroom. It replaces the traditional chalk and board system and replaces it with modern digitalization.
- Thus smart classroom is much more interactive, colorful than the traditional form of teaching that helps grab the attention and develop interest with the matter at hand

### **Impact on Society**

In ancient times the education was provided by traditional methods. The traditional method includes long-time period of students to teacher monologues. More emphasis was given on theory and less importance was given to practical application of knowledge. But in recent times, the use of technology in industry has been increased. Interactive classroom are the demand of the society by which their kids can gain knowledge in short time and in interesting way also. Smart Classroom has also presents a more application based system. In all the response from student and parents even we see that smart classroom is much more efficient in comparison to the traditional form of learning.

### **Benefits**

- It allows students to concentrate on the lecture much more than taking notes since the material is always available offline.
- It even connects us to different lecturers and institutes all over the world
- Smart classes saves immense time since there is no time wasted for writing the things to be explained.
- Different mediums like power points, pictures, and audio –visuals these all make the leaning much more interesting and grab student’s attention.

### **Drawbacks**

- It is much costly to implement in institutes and require regular tending to.
- It is not always available to students in remote areas and to the underprivileged.
- It requires knowing certain technical skills which they might not be equipped with.

## **E-Learning**

Electronic learning is the acquisition of knowledge which takes place through electronic technologies and media. Typically, e-learning is conducted on the Internet, where students can access their learning materials online at any place and time. E-learning is the form of education that has been in play during this type of global pandemic. Students can interact with their teachers and classmates through the use of electronic devices sitting at home. It allows us to continue with our education as well as learn additional references or pursue different courses to our benefit.

## **Features of E-Learning**

- Presence of a good and stable network as well as internet connection is the main key for e-learning.
- Technical knowledge is a must for the teacher as well as the student
- All classes are always available live as well as uploaded and courses can be pursued from anywhere we want
- There is always ensured contact between student and teacher if necessary.

- E-learning included websites, books, libraries, audio-visuals and all required study material in the online platform

### **Impact on Society**

With modern times, education is one of the important areas which are heavily influenced by information and information technology. Information and Communication Technology (ICT) can be used as important and powerful tool to improve quality and efficiency of education. By means of e-learning the traditional teaching methods can be changed so that it is not necessary to attend in the classroom physically. In fact e-learning is a new opportunity for remote education. E-learning is available to all age group who are keen in acquiring knowledge and develop themselves for their greater good. It shapes their personalities, make them discipline and time conservative.

### **Benefits**

- All study material and lectures are always available 24/7 for our use accessible from anywhere and at anytime.
- We can attend schools, colleges and pursue course in our own comfort zone.
- It is comparatively less costly than traditional classroom teaching
- Saves time for travelling

- All classes are accessible whenever we need and tension from missing classes is not a bother.
- E-learning is a solution for all age groups who want to learn and develop themselves

### **Drawbacks**

- E-learning depends on technology a lot and is always not readily available to everyone. Many people who do not support stable network and internet however cannot easily enjoy the perks of e-learning.
- It does not have the privilege of face to face interaction with teachers and classmates. So e-learning may make some feel isolated and deprived of support. People cannot have the real life campus experiences which teach us a lot more about life.
- E-learning requires discipline and self organizing skills. It needs the motivation to follow the schedule since there is no monitoring in comparison to institution. However some people may seem organized some just lack the motivation.
- Every time the feedback received is not as effective and enough in comparison to those received in person. Those helps us analyze our weaknesses more effectively and even the teachers can judge our personalities, qualities and weak points better in person.

### **Smart Class in e-Learning**

Technology supported mankind from its very inception. In older days students had to travel miles to go to their institutions to gain knowledge. One had to buy various books for reference. This method was quite tedious as well as time consuming. As technology evolved slowly, smart classrooms came into play in the field of education. This mode of teaching includes a single projector coupled with speakers that all you need for making learning all the more interesting and engaging. This method is rapidly increasing its stronghold in the field of teaching. This mode of learning has proved to be a leading source of education even at a time of global pandemic. Students are able to continue with their daily curriculum through e-learning at the luxury and comfort of their own homes during such a difficult time of COVID-19. Smart classrooms provide the teachers instant ability to access a student's daily work and note his progress. This method has eased everyone's work and made learning all the more fun

### **Benefits of E-learning and Smart Classroom**

- Reduces Expenses: We can learn with any device that is connected to the Internet. As well as saves travelling cost.
  
- Less time consuming: The teacher or trainer doesn't need to give the same class repeatedly to different groups of students

- Flexible: Students or trainees can take courses from their own devices anytime and anywhere.
- Less Tiring and Less Boring: Routine encourages boredom. Online learning demonstrates using videos and animation making it interesting. This system is well equipped to substitute a usual live teaching classroom.
- Readily Available Learning Material: All learning resources are accessible anytime. Besides, we can even record learning sessions for future reference. So there is not a tension or stress of missing class and how to get the missed notes.
- This system acts as a bridge between the online modes and bridges the gap between a teacher and student even in a pandemic situation. This mode of teaching provides with itself an engaging mode of communication between both the groups.

### **Drawbacks of E-learning and Smart Classroom**

- Internet Connection Problems: When there is a problem with your internet system, online learning is quite difficult.
- Requires a Good Grasp of Tech Skills: Learning from a website, blog or whichever online platform requires you to understand online technology.
- Lacks the Warmth of Face to Face Interaction: Learning in a physical classroom is interesting and more involving as human interaction is present.

- Unsuitable for Hands-on Fields: There are courses that require many practical sessions, which online programs cannot offer.
- It takes self-discipline: Online students that remain unengaged could be a challenge as their activities cannot be monitored in class.

### **Impact on Society**

E-learning is not confined to schools or colleges; there are courses of professional skill enhancement, modules for competitive exams and so on. But how exactly the Indian society is tackling the online learning bandwagon is a very relevant question since this is nothing sort of a planned implementation. The suddenness of e-learning being the staple of country's education system has brought up several questions as to how feasible the idea of the same is in our country!

### **Impact on the students**

E-learning has affected students in both good and bad ways. The smart classroom and E-learning is a one-stop resource for students needing research, technology, or writing help, specifically aimed at the research needs of undergraduate students. The usage of this new technology must be encouraged in the current education system. On one hand students have finally gotten rid of the prevalent "mugging up" system and are encouraged to work on understandings and critical analysis. Students have comfort of doing class from their homes. They can re-watch the classes and can access any study materials from the platforms used whenever they need. They don't need to

travel for long hours to reach schools or colleges .Their time for self-study has increased a lot, and they get more time to complete the works assigned to them since they are staying at home. However the urge to study and learn completely depends on the students will and discipline.

### **Impact on teachers**

E-learning has also affected the way the teachers perceived education and teaching. The sudden switch to e-learning has proved scarcity of teachers actually familiar with the technology. Many students can not perceive technology enhanced teaching and learning even in tablet classroom, which revealed that the building and applying of smart classroom are only in the primary stage and there was much work that needs to be done. Teachers need to be habituated with the new technology. However, there are many teachers who provide education with e-learning through videos, live classes and online equipments.

### **Impact on Education**

Effective e-learning can be less expensive than the prevalent system of education, can increase the attendances of students and can target large number of students at one time at remote places, where the students can't afford high-cost school facilities. The students can learn in their pace. Accounting to all these advantages Indian Education system has been toying with the idea of e-learning and smart classroom for the past half decade, but this to become mainstream was a far away question. With the outbreak of pandemic e-learning became the forced trial. The overall class time is reduced, and there is an adverse effect of no teacher student interaction when pre-recorded classes are

concerned. Thus smart classes and e-learning can serve as a much better form of education since it is always at the tips of our fingers but out discipline and availability of the system are important factors.

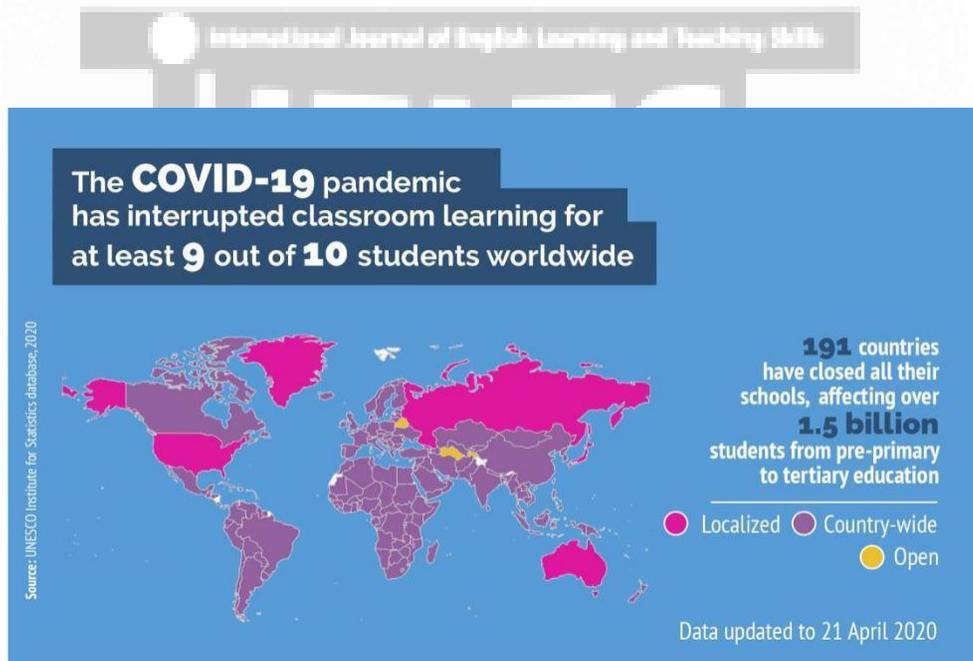
### **Future Approach**

Even though the Smart classroom has certain highlight able drawbacks but to focusing on the benefits this technology have been creating havoc in the educational world. However, this technology has not reached everywhere. So the first innovative is to try reach as many places as possible and promoting the smart classrooms. Secondly is to make this technology mach more cost effective. This form of education encourages students to engage more in classes. Thus smart classroom should be introduced to those who cannot afford. Even we must try to aim for much portable version. In all if this technology is made available to all then the education will take a new advanced form in the world. Similarly irrespective of the drawbacks e-learning is quite popular mode of education in this modern world. People pursue for additional causes and even online lectures to have a better knowledge of the subject at hand.

Taking in consideration the present scenario of global pandemic we can say e-learning is slowly taking over the educational world. The future might entail a time where there will be more online institutes in comparison to offline. However though online education has its own benefits we must ensure students experience the perfect campus life. Thus we can see that both e-learning and smart classrooms are progressing towards a more worldwide approach.

### Case Study

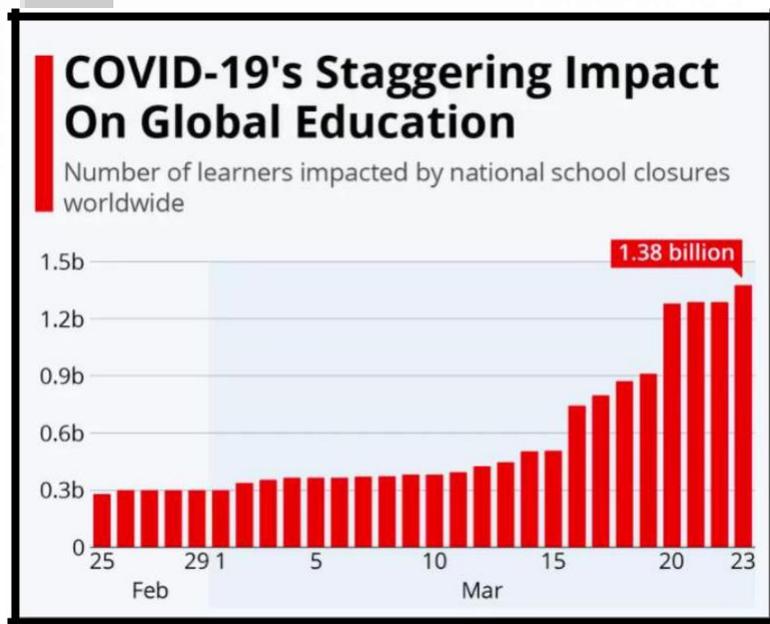
In event of the covid-19 pandemic education has taken a new turn. Schools, colleges and institutes have shut down and smart classrooms as well as e-learning have taken their place. The day-to-day lectures and the study materials are now all available in softcopy instead of hardcopy. Moreover the most important factor to be considered is how much time is saved. Time between periods, time to travel back and forth all these difficulties is diminished. Thus this new technology is being quite beneficial allowing us to carry on with our education and learn even more through videos, articles, foreign lectures and courses.



*Source: UNESCO*

The matter to be considered is how this technology has: smart classroom and e-learning has effected out day to day lives in this time of global pandemic of covid-19. How has this technology affected the society of today? How has this affected the student’s, their lifestyle, their mindset? How has this affected the education system? How much this pandemic affects the knowledge, the discipline of a student? Various such questions arise. Analysts, researchers, teachers, even governments are still in a constant tug of war over the working of the system. Is the system beneficiary? Does it make a student efficient or take away their modesty? Does it make one’s educational life monotonous? How does this pandemic affect the mental health as well as physical of students? Professionals are at doubt how to deal with this pandemic. However with no other option every institute is trying to adapt to this system as much as possible.

However there are still certain institutes who cannot afford or simply do not have the means to pursue education in a virtual platform. Then how to dissolve such cases?



Source: UNESCO

It is being analyzed though countries are at different points in their COVID-19 infection rates, worldwide there are currently more than 1.2 billion children in 186 countries affected by institutes being shut down due to the pandemic. The pandemic is expected to have enormous economic consequences and it is also having a devastating impact on global education. According to the latest figures released by UNESCO, some 1.3 billion learners around the world were not able to attend school or university as of March 23, 2020.



Many online learning platforms are offering free access to their services, including platforms like BYJU'S that has seen a 200% increase in the number of new students using its product. Other companies are transforming in order to provide a one-stop shop for teachers and students. For example, Lark, a Singapore-based collaboration suite initially began offering teachers and students unlimited video conferencing time, auto-translation capabilities, real-time co-editing of project work, and smart calendar scheduling, amongst other features. While some believe that the unplanned and rapid move to online learning – with no training, insufficient bandwidth, and little preparation – will result in a poor user experience, others believe that a new advanced model of education will emerge. Some students without reliable internet access or technology struggle to participate in digital learning; this gap is seen across countries. For example, whilst 95% of students in Switzerland, Norway, and Austria have a computer to use for their schoolwork, only 34% in Indonesia do, according to OECD data.

In a press release put out by the Ministry of Human Resource Development (HRD) on March 21, 2020, the Union HRD Minister of India shared various free digital e-Learning platforms by the Ministry of HRD that allow students to carry on with their education in such difficult situations too. The DIKSHA portal contains e-Learning content for students, teachers, and parents aligned to the curriculum, including video lessons, worksheets, textbooks and assessments.

e-Pathshala is an e-Learning app by NCERT for classes 1 to 12 in multiple languages. The app houses books, videos, audio, etc. aimed at students, educators and parents in

multiple languages including Hindi, Urdu, and English. The National Repository of Open Educational Resources (NROER) portal provides a host of resources for students and teachers in multiple languages including books, interactive modules and videos.

Swayam hosts 1900 complete courses, including teaching videos, weekly assignments, exams and credit transfers, aimed both at school and higher education levels. Subjects are aligned to the curriculum and include engineering, humanities, social sciences, law, management courses including robotics.

Even applications like Zoom, Google Meet, Microsoft Team, Google classrooms are being used by various institutes for the daily live classes and for submission of assignments and many more. So it is safe to say that even in a time of a global pandemic, learning and teaching is not being compromised. Efficient and well equipped amenities are being constantly developed and brought to use to bridge the gap between teaching and learning. Though is yet to inferred successfully whether the online platform is the best mode of imparting education or not, still it can be concluded that this method has made education and gaining knowledge very helpful and easily accessible.

**Conclusion**

The SMART classroom and E-learning is a one-stop resource for students needing research, technology, or writing help, specifically aimed at the research needs of undergraduate students. The usage of this new technology must be encouraged in the current education system. The E-learning and smart classroom provide the students as well as teacher to learn through a new techniques and too in a different and interesting manner. This technology is slowly taking over the world of education making it known to many. Smart Classrooms and E-learning despite their drawbacks are excellent forms of education which entails a lot of benefits to the students. Even this technology helps us know about our interests, strengthen our weaknesses, pursue courses, have fun and colorful lectures and to become more equipped and developed in the knowledge department.

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