

# A Review on Applications of Smart Class and E-Learning

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**Abstract:** *This paper is about the much growing technology “SMART CLASS and E-LEARNING”. The usage of smart teaching techniques is now more prevalent in school as well as other colleges and institutes. It was generated back in 1980s and is growing since then. This new technology helps the students with the benefit of learning with a different experience. The methods of e-learning make the classroom more interactive and interesting. It has also created a greater impact on our society as well as on education system. The government has also started implementing this idea of e-learning in the schools. There are several examples available in the market that encourage the idea and work for its betterment. The smart classes have their own merits and demerits but this new technology is welcomed by the society in a great manner.*

**Keywords:** Smart Class, E-Learning, RTIVC, Education System, Students

## 1. Introduction

Learning is not how much one can cram up. It's rather the knowledge that remains after one forgets what he/she learned in schools. Thus we emphasize on learning the concepts with the help visuals and activities. To keep such view the smart learning was introduced.

The *Smart Learning* approach provides learners of all ages and walks of life with a framework and a host of Smart Thinking Tools that motivate higher levels of understanding. Through the process learners activate and build background knowledge, process information, transform their learning into a product that shows what they know, and reflect on their learning. Structured talk and assessment as and for learning are carefully woven into the process to build a thoughtful context for learning and to advance the thinking of all learners. Smart Learning realizes the goals of inclusivity and differentiation.

## 2. Origin of Smart Classes and E-Learning

In 1986, David Martin and Nancy Knowlton were driving through upstate New York when David first described a product idea he'd been working on to Nancy. A year later, SMART was founded. Originally, the company was the Canadian distributor for a U.S. projector company, and revenue was generated through projector sales. That revenue was directed toward the research and development of the SMART Board interactive whiteboard, which would combine the simplicity of a whiteboard with the power of a computer.



**Figure 1:** (a) smart classroom, (b) the projector used for display purpose

Smart class or E-class is an innovative educational content for the students. One of the most unique and affordable platform to run e-class is a PEN DRIVE that runs on TV through a small multi-media player called e-box or directly on the laptops or computers. This contains each subject with a real teacher in a virtual classroom, teaching chapter by chapter making studies as exciting as watching movies along with unique features like question -answer and mind map for revision purpose. E-class can also be easily loaded onto PCs, Laptops, and School Servers etc. History animated videos, science experiments, geography maps and figures, geometry diagrams and sums all make a wonderful learning experience. They are all given in a pen drive for the students in an audio video animation format.

## 3. Importance of Smart Classes and E-Learning

E-learning and smart classroom aims at developing the students learning ability as the entire chapters become more interesting to study and hence improve the results of the students. The smart classrooms are the new generation educational product

which helps students gain more marks and is a step to the future of education. E-learning is a revolutionary product in the field of education.

The Real-Time Interactive Virtual Classroom (RTIVC) also plays an indispensable role in distance learning, where teachers and students located in different places can take part in the class synchronously through certain multimedia communication systems and obtain real-time interactions.

The Smart classroom learning approach provides learners of all ages and walks of life with a nine-step framework and a host of Smart Thinking Tools that motivate higher levels of understanding. Through the process learners activate and build background knowledge, process information, transform their learning into a product that shows what they know, and reflect on their learning. Structured talk and assessment as and for learning are carefully woven into the process to build a thoughtful context for learning and to advance the thinking of all learners.

A smart classroom can be considered as a virtual classroom. A virtual classroom duplicates the capabilities found in a real classroom.

A virtual classroom provides:

- Students and teachers use their computers to go to a virtual meeting place instead of a classroom.
- A list of students is recorded.

Lecture: Teachers can choose from a variety of synchronous technologies including:

- Slide presentation
- Audio and video conferencing
- Application sharing
- Shared whiteboard

Interaction with students: Students can indicate when they want to speak by virtually raising their hand. Teachers can let students speak through audio and video conferencing. Teachers and students can use instant messaging and chat. Teachers can present questions to students. Students can work together in groups.

#### 4. Features

- Using e-class is as simple as operating your Television from a remote. As with e-class you get an e-box which needs to be attached with the TV and with the e-box remote you can navigate through the study material loaded on e-class.
- The students have access to the study material with them, so they can plan their studies at their convenience. Revision would never had been so fun earlier as all they have to do is switch on to e-class and sit back and learn using the Audio Video learning.

- With e-class you can study at your own pace, devote more time to your weak points. Studying and revising can be done at once own pace



Figure 2: Equipments used in e-learning classrooms

#### 5. Benefit and Drawbacks of Smart-Class

##### Benefits

1. Knowledge or Skills Acquisition: Knowledge or skills offers support for writing, library research and peer tutoring such as learning to use appropriate procedures, equipment, or methods.
2. Personal/Professional: The idea of learning through the use of internet of smart class software is beneficial for personal as well as for the professional fields.
3. Career Knowledge: Gaining new information regarding the subject, the topic as well as the other related fields with that particular subject.
4. The obvious advantage of this type of course is convenience. People can get the training they need at any time.
5. E-learning increases success rate in class examinations and most importantly in SSC Board examinations.
6. Stronger Institutional Image in the society.
7. Bridging the digital divide among the students and building better bonds between teachers and the students.
8. A next generation teaching aid with a plethora of references
9. Customized to complement live classroom teaching
10. An engaging format for better student learning and hassle free teaching environment
11. Chapter wise detailed study, syllabus oriented & easy to explain
12. Aimed at increasing marks of students.
13. Exciting audio-videos which help the students to remember the chapters better as compared

##### Drawbacks

1. This does not provide the students with benefit of Face to Face learning experience.
2. Lack of electricity and internet connections are the major drawback for any e-learning process.
3. Another disadvantage of this new technology is that is a bit of expensive job to set up the smart classroom environment

## 6. Impact on Society

### A. Education System

The education system is the most infected by this new growing technology. The education system includes the colleges, school, institutes etc. Nowadays the school have started using projectors, PowerPoint presentations slide so as to make learning more interactive. For schools the cost for each student per month would be less than the cost of a notebook

### B. Students

The students are the next most prone to the e-learning process. The students now no longer have to be dependent on teachers for studies, the smart class n e-learning technologies helps a student to cover up with his/her subjects sitting at home. E-learning is becoming popular among the students as this makes them independent. For students the e-class costs less than annual tuition's fees.

### C. Guardians

The parents or the guardians have now the power within their reach to make their child's learning interactive as well as it helps them to remain up to date about the latest learning skills to implement to their child's learning plan.

### D. Other Impacts

The Government of India has also implemented this new technology in the Indian education system. The students are now provided with the AKAASH TABLET with some minimal cost so as to encourage the e-learning among the young generations.

## 7. Examples of the Available Smart Class and E-Learning

The market in the today's scenario is loaded with thousands of IT companies that develop several technologies every day. There are many vendors that provide with the set up and software of the e-learning and smart classroom process. Generally the vendors work on projects such as setting up of equipments and environment at schools, institutions etc. The smart classrooms basic requirements include a display screen or a projector, a computer, speakers and software for the same purpose.

Some of the renowned vendors available in the market are:

- The EduComp
- The SMART
- The RTIVC
- DIGIclass

These companies generally tie up with the organization be it private or run by governmental authorities and develop the e-learning software as per the needs of the organization. Let us understand it better with an example: if there is any school that wants to set up these new technologies, the company then goes

through the needs of the authorities and develop the software as per needs. There are also some companies that develop random e-learning and smart learning CD/DVDs based on the generalized syllabus say for example there are at present several of materiel available for the ICSE or CBSE students.



Figure 3: Tablet used for e-learning purpose

## 8. Literature Survey

Weiser was born in Harvey, Illinois to David W. Weiser and Audra H. Weiser. He was a descendant of Conrad Weiser. Weiser entered New College of Florida in 1970, but did not remain at that institution to graduate. He studied Computer and Communication Science at the University of Michigan, receiving an M.A. in 1977 and a Ph.D. in 1979. He was known to comment that he bypassed the Bachelor's degree on the way to his Ph.D. He then spent eight years teaching computer science at the University of Maryland, College Park [1].

Sandeep K. S. Gupta is an associate professor in the Department of Computer Science and Engineering at Arizona State University. His research interests include wireless networks, mobile and pervasive computing, middleware, and embedded sensor networks. He received the BTech in computer science and engineering from the Institute of Technology, Banaras Hindu University, India, his Mtech in computer science and engineering from the Indian Institute of Technology, Kanpur, and his MS and PhD in computer and information science from Ohio State University [2].

Abowd's published work is primarily in the areas of Human-Computer Interaction, Ubiquitous Computing, Software Engineering, and Computer Supported Cooperative Work. He is particularly known for his work in ubiquitous computing, where he has made contributions in the areas of automated capture and access, context-aware computing, and smart home technologies. Abowd's research primarily has an applications focus, where he has worked to develop systems for health care, education, the home, and individuals with autism [3].

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## 9. Conclusions

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.

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