

# OPTIMIZATION OF SMART CLASSES USING ICT

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**Abstract—** In this Paper we will discuss about the ICT Based Smart classes Education system. Information and Communication Technology tools have made the great impact in delivery of higher education that enabled the teachers and students in enhancing their capabilities in teaching, learning and research practices. Hence, it is immense for the universities and Higher Education Institutions to improve the ICT infrastructure and Higher Education Institutions web tools to encourage and exploit the resources and communication facilities among the stakeholders. Provision of smart classrooms is one such facilities that enhance the qualities of teaching, learning as innovative and enjoyable. The university also subscribes a range of e-resources, software and applications, to support the teaching learning environment. In this context, the establishment of smart class rooms would enable the facilities and students to maximize the exploitation of e-resources and thus make the teaching and learning more interactive and as real time environment . And main purpose of this paper is to promote our education and Smart classes to everyone at every place And how ICT help in Smart classes to improve the Education..

**Keywords—** ICT , SMART CLASS,SCOPE ,EFFECT .

## I. INTRODUCTION

In present time smart class was very popular and it uses in all collages and school of student learning .it support the student also take Interest . Now, many classrooms have connected with Internet and equipped with variety advanced information devices, such as tablet PCs and interactive whiteboards. The type of classroom is named as smart classroom, intelligent classroom, or classroom in the future. With the support of technologies, the smart classrooms become the places where teachers and students could practice rich and immersive teaching and learning experiences that they have never had before.

## Smart Class :-

Smart classrooms are the classrooms enhanced with technological equipments for the purpose of better learning and teaching. A Smart classroom is a classroom that has an instructor station equipped with computer and audiovisual equipment, allowing the instructor to teach using a wide variety of media. These include DVD and VHS playback, Power Point presentations, and more all displayed through a data projector. Some smart classrooms have a semi-permanent unit in the room called a Smart Console. These Smart Consoles have similar equipment housed inside them as the other smart classrooms. Smart classrooms integrate voice-recognition, computer-vision, and other technologies, collectively referred to as intelligent agents, to provide a tele-education experience similar to a traditional classroom experience. Smart classrooms are electronically enhanced lecture theatres and classrooms. These rooms create new opportunities in teaching and learning by integrating computer, multimedia and network technology.

## Smart classrooms can be categorized as follows:-

- **Basic smart classes:** The classrooms with basic smart technology include gadgets like laptops or computers, projector, DVD or VCD player and a viewing screen etc.
- **Intermediate smart classes:** The intermediate smart classrooms are one step ahead of the basic technology smart classrooms. They include gadgets like a smart podium with control panel in addition

to laptop, projector, screen and DVD or VCD player etc.

- **Advanced smart classes:** The advanced smart classrooms have all the gadgets of a basic or intermediate smart classroom but their features are very advanced, that is, they use the newest technology.

#### **Equipments installed in a Smart Classroom:-**

- **Computer or laptop:** A computer or laptop is a basic and necessary requirement of a smart classroom. Instead of writing on board with a chalk or marker, teaching process is done by presentation or images or multimedia in a smart class room.
- **Projector:** it is an optical device. It projects stationery or moving objects onto a screen. They create an image by shining light through a transparent less or by a laser.
- **Screen:** It is a surface used to display the images projected by a projector. The screens may be rigid wall mounted screens, pull down screens, fixed frame screens, electrical screens, switchable projection screens, or mobile screens.
- **Microphone:** it is generally called as mic or mike. It is a device which converts audio signals into electrical signals. These signals are then transmitted, amplified or recorded.
- **Amplifier and speaker:** These are the electronic devices which are used to increase the volume of a sound.
- **Podiums:** it is a platform usually made of wood which raises the person standing on it so that he becomes visual to all the audience.
- **Document camera:** They are also called as visual presenters, visualizes, digital overheads or docucams. They are used for displaying an object to a large audience. A document camera magnifies and projects the images of a two dimensional as well as a three dimensional object. The object is simply placed under the document camera. The camera takes its image and produces its live image by using a projector.
- **Smart Podiums:** They are also called smart boards or smart LCDs. It is an interactive pen display which can be connected to the computer or laptop externally via the USB port or RGB ports. It can be called as an external monitor with the facility of digital inking. With a smart podium, we can open documents, presentations, multimedia files and can write on them with a digital pen. We can also save our work.
- **DVD or VCD player:** There are a large amount of videos available on the internet but still there is a requirement of VCD or DVD player because there are some videos which have copyright and have to be purchased. These are often in the form of DVDs or CDs.
- **Overhead projector:** It is a device which is used to display enlarged images of a transparent acetate sheet placed on its base on a screen. This device was very famous a few years back, but now it is being replaced by computer based projectors.

## Advantages of Smart Classrooms

- **Access to online resources:** In a smart classroom, the teacher can use the resources available on the internet for the better understanding of the students. For every subject, there are numerous resources available on the internet which can be accessed by the teachers as well as the students at any time in a smart classroom. Internet plays a major role in learning process. Today's students are curious to know about everything. They want to gain extra knowledge about the ongoing topic in the class. This is a limitation of books. The books print only the syllabus. For those who want to learn beyond the syllabus internet is very useful tool. Even for the syllabus, the resources available on the internet are very helpful.
- **Digital medium for notes:** In a regular classroom, the teacher writes on the board and the students note it down on their notebooks. In this methodology of teaching, the student's mind gets diverted in two directions, one is listening to the teacher and understanding and the other is writing or making notes for future reference. In this way, the students do not understand the topic properly or gets confused or even sometimes, they do not listen anything and just make notes. This is a very dull approach in teaching process. But this is not the case in a smart classroom. In a smart classroom, there is a digital approach for notes. The teacher, instead of writing on the board, teaches using PowerPoint presentation, word documents, images, videos, and audios. These resources are given to the students in pen drives, CDs, or they are emailed to them. In this way, the students do not have to write for making notes. Notes are provided to them and they can devote their full concentration to the lecture.
- **Advantageous for the absentees:** If student who studies in a regular classroom is absent for one day, it becomes difficult for him to gather all the notes of the classes he missed. Also, it becomes difficult for the teacher to explain the previous topics to the students who were absent. The students then take a shortcut method and get the notes photocopied from other students. In this way, the students do not understand anything from the classes he missed. In a smart classroom, the lectures are recorded. Whenever a student is absent he can anytime see the recorded lecture. These recorded lectures are also uploaded on the internet which can be accessed by the students anytime by a login id and password. The notes are also in digital form, so they can be easily provided to the student.
- **Ease of understanding:** There are many topics in the curriculum which are very difficult to understand. They cannot be just taught by using a chalk and a black blackboard. They require an interactive teaching approach. With smart classes, the teacher can use multimedia to teach that topic to the students. The students learn more from what they see rather than from what they listen. So the students understand easily and effectively all the difficult topics in a smart classroom.
- **Makes learning enjoyable:** If we go and look in a regular classroom, the students are feeling very sleepy. Some of the students are not even listening to the teacher. They are busy talking with their friends. In short, the class becomes very boring for them. But it is not so in a smart classroom. The use of smart technology in the class makes the

classroom a fun room. The class becomes interesting and enjoyable for the students. No student feels sleepy. It makes learning a fun process. The students who do not like to go to schools also starts enjoying in the school.

- **Improves the academic performance:** It is often seen that the students studying in a smart class get a better result than the students studying in a regular class. This is so because the understanding ability in the students studying in a smart classroom is way more than other students. The use of technology in the classroom for teaching increases the understanding of the students. The topic becomes clearer and the base of the subject becomes stronger. Obviously, the students with better hold of the subject and with strong basic knowledge of the subject will score more in exams.
- **Communication:** The technology used in a smart classroom makes video conferencing possible in the classroom itself. In this way, the students can communicate with the person who is expert in the subject. In various schools and colleges with the facility of smart classrooms, guest lectures are organized weekly in which the students can communicate with the experts such as professors of IITs and IIMs or the people engaged in research work. This provides the students with extra information about their subjects which beyond the scope of the text books. The students get to know about the ongoing issues related to their subjects. They get acquainted with the upcoming technology and theories. This proves very beneficial for them in the near future.
- **Health friendly:** There are some teachers who are very sensitive towards the use of chalk or markers. Some of them experience

skin allergies when they write with chalk and some are allergic to the chalk dust. Some teachers are not comfortable with the smell of the ink used in the markers. For these teachers smart classrooms are advantageous. There is no or very less use of markers or chalk in a smart classroom. The teaching is done by using digital or e-resources. So, there is no chance of allergy.

#### 1) Disadvantages of Smart Classrooms:

- **Cost:** The technology used in the smart classrooms is very expensive. All the schools cannot afford it. Even the schools which can afford it get over the budget after buying it. Some schools often take loans to buy the smart technology. Consequently, the fees of the schools are increased to meet the cost of the equipments. The admission fees of the schools with smart classrooms also hikes. All parents cannot afford such expensive education for their children. Every child cannot get access to the smart classrooms.
- **Skilled faculty:** All teachers cannot use smart technology for teaching. The teachers have to be trained before they can they can start teaching in a smart classroom. The teachers are trained to use the technology in an effective manner. They are also trained to handle faults in the gadgets. This training also costs much. If the teachers are not properly trained the technology would become a disturbing factor rather than becoming helpful.
- **Maintenance:** Like all electronic gadgets, the gadgets used in smart classrooms require proper maintenance. The rooms in which these gadgets are installed should be free from dust particles and should not face direct sunlight otherwise the gadgets will

become faulty. Also these equipments release a lot of heat in the surrounding so the rooms should be air conditioned. Technical staff has to be appointed for the maintenance of devices. This further adds to the cost. The devices also need to be updated regularly which is a very time consuming process.

- **Technical faults:** All the electronic devices are prone to faults. If the equipments do not work one day, the day is considered as a waste. They require a lot of time to come back to their proper functioning state. No teaching can be done on that day. In this case the teacher should always be ready for an alternative methodology for teaching that is, using the blackboard. But this would be very dull experience for the teachers as well as the students who are regularly participating in smart classrooms. The workload of the teachers is also increased as they have to prepare the topic as per two different methodologies of teaching.
- **Advantages of Smart Classes for Students:**
- In this age computers play a big role in our education. We hear about smart classes every day. We all know that if a topic is understood by a visual method, it becomes more beneficial to understand to students. So the demand of using smart classes is being forcefully raised. „Smart Classes“ provides education better through presentations and videos. I think a student can learn better through visualization. All the students may not understand the teaching methodology of a teacher, but can understand by smart classes. This can be seen in case of movies, i.e. students remember movies better than the lessons taught in classroom. This type of teaching creates an attention called as interest in them. So e-learning is absolutely better. Such teaching helps to maintain the student's

interest and focus by engaging them fully for the entire learning experience. Secondly, from the teacher's point of view, with the arrival of this digital initiative which is so practical to modern time and friendly to use, teachers can instantly evaluate/assess the learning achieved by their students in his/her class. If a concept taught is not understood then teacher can repeat with greater clarity and emphasis. He/she can identify areas of student's strength as well as weaknesses. These ultimately help the student's for better understanding. Smart classrooms are very much beneficial in teaching-learning process in a school. We make use of an appeal to audio-visual senses of students in using smart boards. These smart boards are like a computer screen which is finely handled by a teacher and also by students to provide active participation. Some of the advantages for Smart board used inside a classroom are:

- Appeal to audio-visual senses: By using smart boards in a classroom, we are appealing to both the audio sense and visual senses of students. Learning in such a way is very effective as the information is strongly embedded in kids mind this way.
- 2. No wastage of time: In traditional type of classroom, a lot of time was wasted in drawing diagrams on the black/white boards, whereas in Smart-boards, diagrams are in memory and thus time is utilized more for the active learning part.
- 3. No chalk Dust: Some teachers and even front line students used to suffer from chalk dust getting into their eyes and lungs. This had ill effect on health. Using smart-board we are eliminating this health issue.
- 4. Virtual field trips: Students are taken virtually to field trips while teaching, say, a teacher is covering a lesson on desert animals, using smart-board, we could give a

tour of desert like Sahara or Kalahari to teach this topic.

- 5. Marker Feature: Smart board teaching is not 'see-only', we could use special markers to underline or mark an important location while teaching. We can even write on it to make the concept clearer.
- 6. Inbuilt library: Smart board has an inbuilt library in it which enables a teacher to have an instant look at it in case of requirement. He/she may not have to scan a real library for this.
- 7. Active learning: Smart boards leads to active learning process where both the teacher and the students are involved.

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#### II. CONCLUSION

A Smart classrooms increase the interest of the students in studies. Students tend to learn more. With so many advantages and a few disadvantages smart classes can still be considered good for the students. Due to some disadvantages, we cannot ignore the advantages of smart classrooms. All the disadvantages have a solution except for the disadvantage of the cost involved. But in the coming few decades, the rise in technology would definitely decrease the cost of these devices to some extent. Moreover, the new inventions in the fields of computer science and technology would definitely make teaching and learning even much better. The government schools should also employ smart technology in their classes so that all the students can have access to smart classrooms.