

Smart Classroom- An Innovative Concept of Modern Education

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Abstract

Quality education is essential in today's competitive environment because of the rapid development of technology. The concept of "**Smart Classroom**" square measures a progressive methodology of education, that serves students to develop higher conceptions, educational achievements, improved reading skills, etc. (www.vkmaheshwari.com/WP/?p=2352). The traditional approach of giving lectures and taking notes have lost its effectiveness in the modern day around education. In efforts to grow academics, it must be considered that differentiated modalities of teaching and learning are necessary for better conceptual development. It is the responsibility of the education system to use this sort of ideas to comprehend student interests and orchestrating educational progression throughout childhood and adolescence. **Information and Communication Technologies (ICT)**, has changed from being a technology of information & communication to a curriculum creation and transmission system for learners. With the development of technologies, new strategies of teaching are being introduced in the curriculum, one of which is known as "**Smart Classroom**". It uses **instructional material, 3D animated modules** and **videos** to make students understand. Nowadays, students are excited at this idea of innovation and interactive learning method. The **Smart Learning** approach provides people of all ages a framework and a bunch of Smart Thinking Tools that encourage higher levels of understanding and innovative ideas (www.vkmaheshwari.com/WP/?p=2352). Structured talks and assessment as and for learning are fastidiously woven into the method to create a thoughtful context for learning and to advance the thinking of all learners. Both teachers and students are working on "**Smart Education**" projects for more development of the concept. In today's education system "**Smart Classroom**" concept is a great innovation and one-stop resource for

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students needing analysis and technology. Nowadays, both teachers and students have become technology inclined, students adapt to new technologies or concepts very quickly, which helps them in the professional world. Smart devices like cameras, projectors, remotes are technologies that result in a lot of engaged learning for students and adaptation to a spread of learning designs (www.vkmaheshwari.com/WP/?p=2352). The concept of “**Smart Classroom**” has not only made education interesting but it created a great platform for students to enhance their performance. Besides this, it helps students to understand the concept faster than verbal or written notes because visual concepts help them to understand the thing more clearly and easily.

Keywords: Smart Classroom, Education, ICT, E-Learning, Smart Devices, Technologies



Smart Classroom – An Innovative Concept of Modern Education

Introduction

Classroom is the place where students learn and gain knowledge, till 5 years back there was a typical concept of books, copies, notes, etc. which was followed to maintain the teaching learning process. But with advancement of science and technology this typical concept is getting replaced by a new concept/process called the “Smart Classroom”, where teaching learning process happens in a more interactive way and students get more interested because this process consists of videos, pictures, PowerPoint presentations, etc. In ancient days “Gurukuls” were the place where students use to get taught by the Gurus, where this age-old system of books and copies were followed. But this system is getting replaced by new and modernized concept of “E-learning” and “Smart Classroom”. A “Smart Classroom” is a classroom that has an instructor equipped with computer and audio-visual equipment, 3D animated modules, etc. The students are also thrilled at the concept of innovation and interactive learning process. Digitized Classroom has not only made education interesting but also increased student performance, the concept of “Smart Classroom” is the new generation educational product which helps students gain more knowledge easily and is a step to the future of education procedure.



Fig-1: Smart Classroom Concept

Innovation in Education: What works, what doesn't, and what to do about it?

It outlines the literature reviews and classification of innovations, discusses the hurdles to innovation and offers several ways to increase the scale and rate of innovation-based transformations in the education system which can help to produce needed high-quality learning results across the systems in comparison to the old style. Educational innovations should mainly be focused on **teaching-learning theory** and **practical** on one side and student's dedication, parent's seriousness, community, society, and its culture on the other side. Technological applications need a solid theoretical foundation based on purposeful, systemic research, and a sound pedagogy. Cost and time efficiency of learning is one of the critical areas of research and innovation.

There are some implications of these ideas, such as: -

Practical Implications: There are several practical recommendations to this paper like, how to create a base for large-scale innovations and their implementation; how to increase effectiveness of **technological-innovations** in education system, mainly in the concept of “**Digital/E-learning**”; how to raise time and cost efficiency of education system.

Social Implications: Innovations in education are regarded along with the education system within the societal super system context and demonstrating their **interrelations/interdependencies** at all levels. Raising the quality, rate and scale of innovations will positively affect the education system and will create a good future scope for the upcoming generations, which will create a societal positive impact.

Smart Classroom and Its Concepts

A “**Smart Classroom**” is generally equipped with several multimedia components for enhancing the teaching-learning process. There are new **media classrooms** or **digitized classrooms**. The concepts of “**Smart Classroom**” in terms of pedagogical setting and its arrangement for designing such classroom in order to transform learning spaces in modern smart classes. There are seven basic concepts of a **smart classroom**: adaptability, comfort, connectivity/IoT, multiplicity, openness and personalization (www.vedicventures.com/smart-class-content.html).

- **Adaptability/Flexibility of Smart Classroom:** Designing of “**Smart Classrooms**” requires the concept of flexibility or adaptability. “**Smart Classroom**” arrangement and all the elements should be in an exceedingly way that it permits gracefulness and variations in settings. Different students have different learning preferences and different teachers also have various ways of teaching. Some thrive in group settings while others need one-on-one teaching. “**Smart Classrooms**” use the evolving new technologies. Student should be provided with good environment where they can appreciate modern technology. Lastly, the mode of teaching should be more dynamic to ensure students are more engaged and focused. For example, video games can be used for assignment purpose.
- **Comfort of Smart Classroom:** Almost every family today have a **computer/laptop/smart phones** and children have access to those devices. The use of social media platforms has also increased than before. The use of new technology has changed the educational or learning environment for students, here educators can fulfil

the needs and interest of students. Not only social media, **smart classes** also include activities like reading, writing, debating, watching videos and playing music. It shouldn't solely encompass learning however offer space for optimum comfort to create learning experience enjoyable.

- **Connectivity/IoT:** Connectivity concept is two-fold; an internet connection to devices and informational/social connectivity where students can connect to their friends, teachers, professionals. The rate at which mobile devices and **Internet of Things (IoT)** are making an entry into the market in today's world is terrific and “**Smart Classrooms**” are the only early adopters to this technology. Today, there are intelligent spaces, location-aware, **IoT devices, Augmented Reality (AR) and Virtual Reality (VR)** devices for teaching all connected to improve educational system.
- **Multiplicity:** This concept points that “**Smart Classrooms**” having such capabilities for utilization of several stimuli and resources. In this new educational system, there is a space for creativity along with critical thinking and reasoning and it can be customized for various learning styles and need of learners which is also termed as “**Out of the Box**”.
- **Openness:** In the traditional educational system of learning, a teacher only presents some information and conducts lessons in a transmittal manner. In “**Smart Classrooms**”, learning occurs beyond limited classroom spaces, means both visually and physically learning occurs but in traditional system only physically teaching and learning takes place.

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- **Personalization:** In “Smart Classrooms” teachers and students can **personalize** their settings as their own likes and needs. Students and teachers can introduce new activities for useful learning.

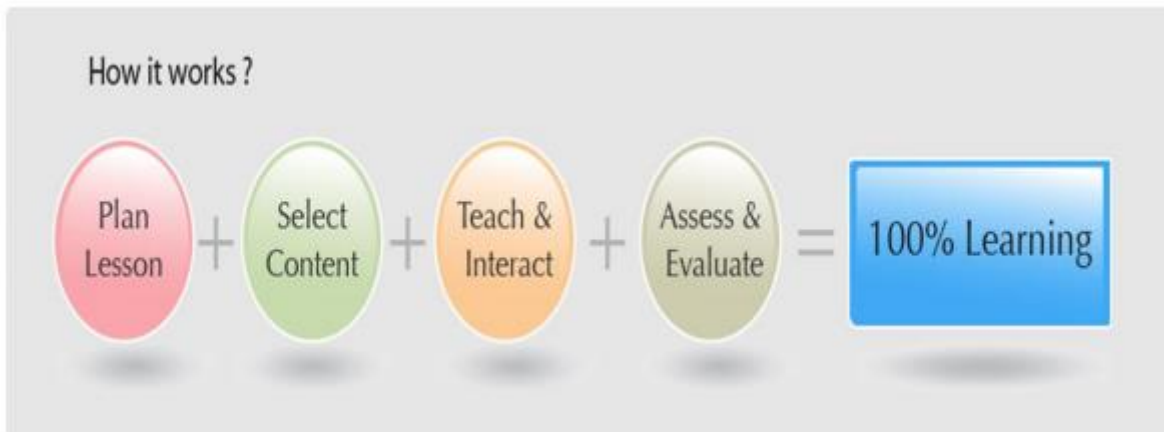


Fig-2: Representation of working of Smart Classroom Concept

Main Focus of this Concept:

- Visual learning; animated multimedia lessons
- Quick and immersive learning
- Progressive improvement in student education
- To look for overall high performance
- Student assessment and evaluation
- Report Cards

Hardware's Involved:

- Interactive Smart board
- Projector
- Computer
- UPS & Speakers
- Teaching Software Tools



Assessment: “**Smart Classes**” have an integrated assessment solution to assess and evaluate students after each lesson, assessment solution includes:

- Assessment Software
- Question bank
- Tests

Traditional Classroom Vs. Smart Classroom

Both “**Traditional**” and “**Smart Classroom**” are the two sides of the same coin i.e. “**Teaching-Learning**” process. When we compare the two terms, we find that the former type of classrooms is the one in which instructions are confined into books and copies. It does not mean that traditional classes are not good but with the time one must change. As **John Dewey** (2019) said, “**If we teach today as we taught yesterday, we rob our children of tomorrow.**” Therefore, it is needed to integrate student-teacher technology as one.



Introduction of “**Smart Classrooms**” means the integration of old with new, it does not mean to uproot the convection ways. Shortly after the internet explosion of the 1990s, technology was immediately integrated into the classrooms as “**Smart Class**”. The modern

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technologies cannot completely swap the traditional process. The concept of “**Smart Classes**” is quite fresh, and it might take some time to become accustomed with the present educational system. There are several opinions regarding the traditional and “**smart classes**”. Firstly, the conventional system which is still prevailing in the major parts of the country. In the traditional system the teacher is the only controller of the learning environments, the power and responsibility are held by the teacher and they play the major role of instructor and decision maker, the teachers regard students as having ‘**knowledge holes**’ that need to be filled with information. In short, the traditional teacher views are that, the teacher only causes learning to occur. The teacher is the most important factor in traditional learning process but being a human there are chances that the teachers also make mistakes and it is difficult for a teacher to offer ocean of knowledge to students. In traditional educational situation a teacher is assisted and updated with the modern technologies, which enables much effective and efficient learning process. It is nearly impossible to uproot the old educational system completely because the instruction process is basically incomplete without the teacher-learner interaction. There are people who misunderstand the concept of “**smart classes**”. In today’s world many children rather all of us take help of internet as it the smart way for gaining knowledge in many platforms, not only for educational purpose but also for various different purpose as it is the simplest and effective way of understanding which one can easily acquire “**Smart Class**” is really an interactive approach of learning within which the lecturers are supplied with several required tools so as to manage the classrooms in sensible method and assess the students and encourage them in group effort. Many of the places have already introduced “**smart classrooms**” in their

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institutes and it's time for the other institutes to up rise who is still prevailing with the rigid traditional pattern. As the time changes, so teaching style should also be changed.

Introduction of “**Smart Classes**” can play a massive role in the revolution of old to new educational system. It can be assumed that all the confines of “**traditional educational system**” will get resolved if the teachers understand their responsibility of delivering the technological knowledge to right hands and in right manner. By reflecting on the best growing practices of technological integration and by avoiding unproductive practices, teachers are able to make research-based decisions regarding the most beneficial approaches of technology in educational settings. We should recognize the speed with which technology progresses and accordingly we acquire our techniques as necessary. It is also appropriate to acknowledge that some technological applications remain same when we properly insert those technologies into an aligned curricular plan, the ultimate success of our institutes in educational system remains in training and supporting quality, exceptional frontline teachers.

Some Popular Innovations on this Concept

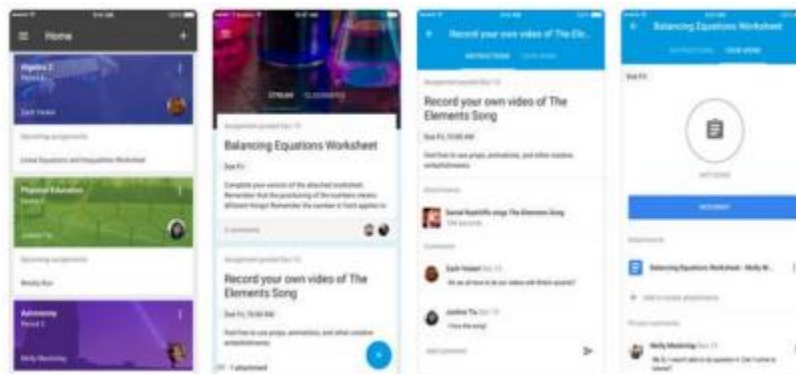


Fig-3: Google Classroom by Google

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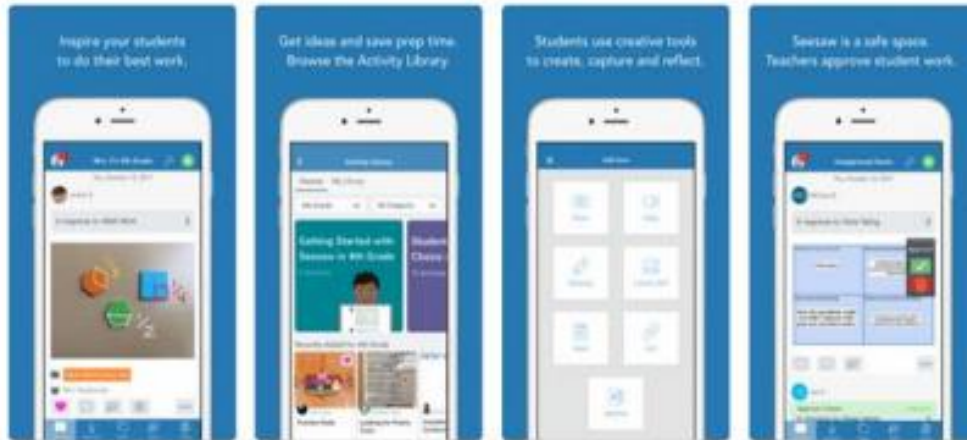


Fig-4: Seesaw Learning App by Carl Sjogreen & Adrian Graham



Fig-5: Byju's Learning App by Byju's

Advantages of Smart Classroom Concept

- It is an innovative and interactive method of **teaching-learning** process.
- The **audio-visual** classes transcend the boundaries of location, time and space providing a flexible learning environment.
- It has the potential to cater the needs of every single student and it also helps to grab the attention of students.



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- It helps the students to focus on learning because of the interesting **visual lectures** and assignments.
- The teachers can easily assess student's performance.
- It encourages difficult challenges.
- It based on **modern teaching** and **unique learning principles**.
- It is good for anytime and anywhere learning.
- A well-designed module allows a student to visualize the concept much better than **static images**.
- It is creative and unique method of learning different concepts for students.

**Limitations of Smart Classroom Concept**

- Teacher should be accustomed with the use of the new software's and technologies. If the teacher finds difficulty in handling the software, then it would be difficult for the students to acquire the process.
- Providing these **new technologies** and implementing these concepts is quite costly.



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- “**Smart technologies**” are still not much democratized in our educational system.
- Technological infrastructure is not good at rural/remote areas.
- Lack of teaching materials in many places, as proper and essential tools do not get provided all time.
- Technical know-how may hinder the learning process.
- Continuous exposure to computers or mobiles for teaching-learning purpose in new technologies may cause **health problems** like eyes strain, deafness, cancer etc.
- This new method may not be understood by some students due to lack of intelligence or language problem, so they may get bored and lack interest for attending these classes.
- Research work, innovation in this genre is still less, and exposure is also no very much available.
- “**Smart Class**” concept is not clear to many teachers and they don’t know how to explore the thing.



Project: Smart Speaker inclusive Alexa & Google Assistant

Now-a-days, smart assistants are taking the tech world by storm. Amazon's Alexa and Google's Assistant are now embedded within every device, be it car devices, showers, etc. While both the smart speakers are great because both devices are used in recent world technology, we can get both of these devices as a single unit in encapsulated way. As research work in this field is still not well developed, we designed a Smart Speaker inclusive Amazon Alexa & Google Assistant technologies together.

Components Used:

- Raspberry Pi 3
- MicroSD Card 32GB
- USB Wall Charger
- 3-port USB Hub
- USB-A to micro USB Cable
- USB Microphone
- Portable Speaker with AUX input
- Keyboard and Mouse
- Display with HDMI port
- HDMI Cable



Fig-6: Smart Speaker

Conclusion

Since the beginning of the technology time has helped the human race. From the invention of wheel to the internet, technology has become a big factor on the way of our civilization's growth. In this phase technology played a vital role in the field of education and we came across the "**Smart Classroom**" concept. "**E-learning**" is a revolutionary innovation in the education field. It is a well-known fact that every new thing seems to be difficult at first, until one gets familiar with it. The most enjoyable experience for both for the instructor and the students is to explore new things when both are used to with new technology. In today's world technology has made a wealth of knowledge available to students. Information is present almost in every possible way that any type of learner, whether gifted or disabled can find and use the necessary material to gain knowledge. Teachers need to prepare students for a technical world requiring self-initiative in learning, precision in processes and the ability to identify and analyze information. Research is required to ensure that other psychological and social issues in child development are considered as new technological strategies. We must ensure that the students do not lose the nuances of interpersonal communication as they become technically oriented. Today all of us prefer smart work rather than hard work, so the new way of teaching and learning is the part of smart work. Thus, we all must indulge ourselves to smart way of education and do more research in this field to develop this concept more so that it becomes a gift for the upcoming generations and future education system gets easier and more interactive for the students.

Reference

www.researchgate.net

www.vkmaheshwari.com/WP/?p=2352

www.vedicventures.com/smart-class-content.html

www.wikipedia.com

