Emerging Technology of Smart Class Teaching for Secondary School Teachers

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Introduction

To participate in the nation building tasks, the capacities required in the students in their formative years they spend in the educational institutions are: the capacity for research or inquiry, capacity for creativity or innovation, the capacity for moral leadership, and the capacity to use higher technology (Dr. A.P.J. Abdul Kalam). The emerging technology of smart class teaching will help acquire these capacities.

SMART Assessment

S – Specified

M – Measurable

A – Achievable

R – Relevant

T – Time restricted

Thus SMART is an innovative way of assessing main key skills: knowledge acquisition, knowledge imparting, knowledge creation, and knowledge sharing.

On-line Teaching

On-line teaching is an educational process in which the teaching occurs when the student and the teacher are not in the same place and internet technology is used to provide a communication link between the teacher and students.

Computer-mediated learning involves many radical changes in communication patterns. Instructional designers, subject experts and programmers should sit together for preparation of On-line teaching material. It is made by preparing interactive learning packages. The material should contain teaching, reviewing and testing components and can be delivered through website or from a central location.

1. Content and Design of an On-line Teaching Material

The scope of the material should be determined and a creative treatment should be made. The subject expert should specify what will be taught and how it will be presented. Video format suits this presentation. By adopting such a format, the content and design phase results in the delivery of a course Architecture or Blue print. It is a detailed outline of instructional material that is being sequenced and structured. Designers work with the artists and programmers to define the creative treatment and plan the strategies for instructional presentation. The hardware and software delivery systems should be specified by the engineering wing. They review the options of the play back systems as well as the connection speed. Language, graphics packages and audio editing tools also should be utilized for better teaching.

A story board is written on the basis of the script or treatment on the course of teaching. A story boards is a written plan for a discrete unit of instruction.

A story board includes

- A description of the overall scene and action for the topic.
- Narration scripts for spoken audio voice.
- Onscreen text that the viewer will read
- Test questions/strategy with feedback.
- Descriptions of visuals to be displayed.
- Descriptions of music and sound effects.
- File names for all multimedia elements.

2. Developing On-line Teaching

An instructional system should be developed for On-line Teaching. It is a systematic approach to designing, producing, delivering and evaluating. For this the following are to be determined.

- Who is the learner (Audience profile)
- What does the learner need to learn (Objectives)
- What will enable that learning)Content analysis)
- What would be the best way to present it (Instructional strategy)
- How can one make sure that it has been learned (Evaluation)

On-line Teaching is Web based and interactive.

This approach requires a modem, standard communication software and an on-line information service account with an internet service provider. The costs include, On-line Service fee, a per hour connect charge and where applicable e-mail service charges.

3. Benefits of On-line Teaching

- **Reduced learning time:** Interactive technologies reduce learning time.
- **Reduced cost:** The primary costs of On-line Teaching material in interactive mode lie in design and production and fixed resources can be utilized for it (internet connection).
- **Instructional consistency:** Technology based instructional system do not forget to cover key points.
- **Privacy:** Students are free to seek information and to respond at their own speed without embarrassment or slowing down an entire class.
- **Mastery of learning:** Unlike normal classroom situations, an interactive system will not move on to new material until the current material is mastered.
- **Increased retention:** The process of interaction with On-line Teaching material provides strong learning reinforcement that significally increases content retention over time.
- **Increased safety:** With interactive systems, students can explore any subject from within the safety of the learning environment.
- **Increased motivation:** On-line Teaching provides a level of responsive feedback and individual involvement that is highly motivating in individual as well as classroom learning environment.
- **Increased access:** Interactive systems can provide greater and more equal access to quality teaching. They can be used to simulate laboratory equipment that is generally too expensive to make available to each student.
- **Enjoyment of interactive learning:** Interactive systems allow learners to take greater control of, and hence responsibility for, their own learning process. As learning progress, they will experience that learning can be enjoyable, even fun!

On-line Teaching provides convenient program distribution to multiple locations. It accurately manages and measures each stage of the program's execution. It broadly supports advanced multimedia technologies involving audio and video, animations. On-line Learning provides facts and easy access to course is for learners and also to accurate and timely reports at a click of the mouse. It can change and update the content matter from one central location.

Classroom Teacher and Home School Supplies

Committed to helping teachers, parents, daycare providers, tutors and home schooling, families find the materials they need to teach their children and students. Get Smart about the supplies you purchase for your teaching and educational needs.

When looking for materials to supply your classroom such as bulletin boards, borders, creative decorations, books, test taking helpers, basic skills resources, stickers, student awards, class furniture and so much more you need to take into consideration its usefulness as well as its longevity.

As a teaching consultant, Classroom Teacher/Homeschooling parent I understand your need to find educational materials that fit your teaching style as well as your students learning styles.

Smart Classrooms

What is a Smart Classroom?

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 Teaching and Learning inside the Classroom

Worldwide there has been a strong push to get educational technology into the hands of teachers and students – yet it remains a really that most teachers a really that most teachers across the world continue to struggle with their day to day challenges in classrooms and remain completely un-impacted by technology even today.

The primary means for this is that most technology integration initiative developed for schools ignores to look at the specific pain areas and real life challenges that teachers experience in classrooms.

Not only should the solution address the pain areas of the teacher but also follow a path which blends seamlessly with their own individual traditional teaching styles. There is a need to provide them with digital content that is mapped precisely to curriculum. The method also needs

to be simple, minimally invasive, user friendly and have minimal dependence on teachers own skills. Equally essential is on going handholding support from training to maintenance.

Smart Class was launched by Educomp on a limited pilot basis early 2004. In the initial stages a soft launch across a few select geographies confirmed that the promised value proposition and the model of delivery offered by smart class had phenomenal acceptance amongst private schools of all categories.

Smart Class was conceived and developed around the ideology that for technology to become an integral part of day to day teaching and learning practices in schools, it needs to move right in to the classroom where students and teachers spend over 80% of their teaching learning time.

Among the Indian private schools some of the most reputed schools in India such as the DPS R. K. Puram, Bal Bharati School, Pitampura in Delhi and Padma Seshadri Group of schools in Chennai were amongst the first to adopt the programme. Smart class has now been adopted by a good number of schools across India and is at the threshold of bringing in a rapid transformation of moving technology into classrooms in private schools in India.

Smart Class Programme Overview

Smart class is powered by a vast repository of "instructor led" digital presentation materials such as animations/video clips, etc. which are mapped to curriculum guidelines adopted by the school. The content modules are made available to the teacher's right inside the classroom as and when they need them as per their own pre specified time tables. A powerful application engine enables teachers to search/select/vie/prepare lesson plans and use the content modules in class.

A knowledge center is set up inside the school campus equipped with a server connected to all classrooms. The classrooms are equipped with PCs for the teacher and a display mechanism to broadcast instruction materials for a group of students in class.

Students acquire a greater understanding of the concepts taught in the class through engaging visuals and digital presentation materials used by the teacher. There is a deeper internalizing of abstract concepts that results in better recall and therefore directly impacting student's academic grades.

Delivery Model

The entire programme is delivered to schools by Educomp on a turn key basis. The programme deliverables involve all elements such as the repository of mapped digital content resources, training for teachers, provision, installation and maintenance of all supporting infrastructure such as hardware software, accessories, networking besides full time in campus manpower to provide day to day hand holding support to teachers.

The programme is made affordable for all private schools in India by helping schools to align all investments made for the program to a nominal subscription fees collected from students over a five year term.

Smart Board

The smart Board (stylized as "SMART Board") is a line of interactive whiteboards produced by the Calgary, Alberta-based company Smart Technologies.

Technology

The Smart Board is an interactive whiteboard that uses touch detection for user input – e.g. scrolling, right mouse – click – in the same way normal PC input devices, such as a mouse or keyboard defect input. A projector is used to display a computer's video output on the interactive whiteboard, which then acts as a large touch screen. The Smart Board interactive whiteboard typically comes with four pens, which use digital ink and replace traditional whiteboard markers. Most Smart Board interactive whiteboards register only one touch at a time. However, in June 2009, Smart Technologies introduced their first dual – touch interactive whiteboard. The dual – touch Smart Board interactive whiteboard accepts two simultaneous touches; however, the touches only register on two separate sides of the interactive whiteboard surface.

DVIT

The Smart Board interactive whiteboard uses DVIT technology to detect and respond to touch interactions on the interactive whiteboard surface. This camera- based touch technology for interactive whiteboards and interactive displays uses digital cameras and proprietary software and firmware to detect finger or pen contact with the screen. That contact is then interpreted as finger or pen activity. Smart has been using DVIT technology in its interactive whiteboards since they developed the technology in 2003 and has continued to use DVIT in many products since, including Smart Board interactive whiteboards, Smart Board interactive displays and the Smart Table interactive learning center.

Digital Ink

Smart's digital ink operates by using an active digitizer that controls the PC input for writing capabilities such as drawing or handwriting. The Smart Board interactive whiteboard uses passive pen tools, which means that no technology is housed in the pen tool to use digital ink or determine color. All digital ink options can be selected from the Smart Board Pen Tray.

Smart Board Pen Tray

Most models of Smart Board include a pen tray on the front of the interactive white board that holds two to four plastic pen tools and an eraser. The pen tools have neither electronic components nor ink – the technology is in the pen tray. When a pen tool is removed from its slot in the tray, an optical sensor recognizes its absence. Smart Board software processes the next contact with the interactive whiteboard surface as a pen action from the pen tool that resides in the corresponding slot. Older models of the Smart Board interactive whiteboard features slots for black, blue, red and green pen tools, although a control panel can be used to change the color of the digital ink or change the pen tools to colored highlighters.

Resistive Technology

The earlier Smart Board 600 series interactive whiteboards use resistive technology. A flexible plastic front sheet and hard backboard are coated with a thin resistive film. The resistive sides of each are separated by an air gap of two – thousandths of an inch, or about the width of two human hairs. Pressure applied to the surface of the front sheet closes the gap and is registered as a contact point. This contact point is then converted from an analog signal to a serial data stream which is sent to a computer for further processing. This technology can process contact from a finger, pen tool or any device – such as a pointers.

Bundled Software

The Smart Notebook program is included with the Smart Board and all other Smart products, which allows its user to compile notes, images, and other media into virtual notebooks which can be projected and edited using the Smart Board itself. Other Smart software products are designed for use with and can integrate with the Smart Board for other tasks.

Classroom Use

The interactive nature of the Smart Board provides many practical uses for the classroom. Using Smart Notebook software, teachers can record each step of a lesson activity for students to review at a later time.

1. The Smart Board allows users to work with large amounts of information,

2. It offers an information space that invites active collaboration
3. The work produced is often "dynamic and contingent"

Users have the opportunity to engage with the technology by direct manipulation. Moreover, this space allows for more than one user; essentially, it invites multiple users.

Applications

The Smart Board interactive whiteboard works with any program loaded or available on the host computer. Some applications commonly used with the Smart Board are Microsoft PowerPoint, Excel, Word, and AutoCAD.

Uses for the Smart Board include teaching, training, conducting meetings, and delivering presentations. It has also been used on the Discovery Channel television show MythBusters.

How Are Smart Boards Used in the Classroom?

In modern classrooms, the Smart Board is becoming as regular a feature as desks. Smart Boards meld high-tech functionality and tradition by acting as a computer monitor and a chalkboard at the same time. In our wired society, we can now show videos, write equations and check homework all on the same board in the classroom. Smart Boards represent an exciting technological step forward for presenters and teachers.

Operation

Smart Boards are touch-sensitive input devices, Via a series of cables connecting the classroom projector, the source computer and the Smart Board, the board functions as sort of outboard mouse and monitor, allowing the user to "manipulate" the information that is being displayed via the board's touch surface. The information displayed by the source computer is projected onto the front of the board.

Slide Shows

One function of the Smart Board is as a slide advance. Slide show presentations, such as the kind created using PowerPoint, can be projected onto Smart Boards. Presentations that do not require timing can be advanced by a tap on the board's surface; specific regions of the board are designated as slide advance/reverse to allow the presenter use of the included markers without changing the displayed slide. The advantage of using the Smart Board is that the presenter is not tied to the source computer, allowing movement during the presentation.

Digital Blackboards

Smart Boards can function as dry-erase boards through the use of Smart Board pens. The pens come in standard colors and allow the presenter to make digital marks on either the subject being displayed or a new, white "page". The "ink" can also be erased with an included digital eraser that deletes the marks but does not affect the subject underneath.

Peer Review

Especially in computer labs, but also in classrooms, students' work can be displayed on the Smart Board. Traditional homework can be scanned into the source computer, and digital work may be uploaded or transported via portable storage devices or network/Internet transport. Using the Smart Board to display assignments allows everyone in the room to see examples of good work or trouble areas, and corrections and suggestions can be made in class.

Additional Suggested Uses

Classroom uses of the Smart Board are only limited by the instructor's imagination; there are multiple artistic possibilities for the smart board, including silhouettes and tracing. Students may use the multimedia capabilities of the board to present videos or musical pieces, and the instructor can use the board to provide materials for students who may have forgotten to bring assigned reading pieces.

Maintenance

Keep dry-erase markers far away from the Smart Board; many presenters have made the mistake of grabbing an ink marker and writing on the board's surface. If stray ink marks are made on the board, they are difficult to clean and require the attention of a technician.

Make sure that your Smart Board is calibrated. If a Smart Board is not calibrated, it is not capable of accurately representing input. If you put your finger or marker on one spot, the board might display input at another location. Calibration software is including with the board. If you are not comfortable calibrating the board yourself, contact technical support.

Special Considerations

Since the image is projected onto the Smart Board from the computer, presenters should be sure that there is nothing visible on the monitor of the source computer that the audience should not see. Web sites should be opened and checked for pop-ups and inappropriate content prior to commencing the presentation. If necessary, they can be saved for offline access, saving the presenter from possible embarrassment if the site cannot be found, or the Internet connection goes down. The presenter should also consider that since the presentation is being projected, a

clear line of sight from the projector to be board should be maintained to make sure all audience members can see the presentation.

Conclusion

The use of emerging technology of smart class teaching is very important both for teachers and students. Its overall effectiveness needs to be enhanced by better planning and implementing of soft skills of multiple intelligences. More research is needed to discover and the way of using emerging technology of smart class teaching for secondary school teachers. The rate at which multiple intelligences will be used to enhance education in smart class and in other fields depends mainly upon state and national monetary commitment, followed by the willingness of individual schools to provide goods and services. This technological approach of emerging technology of smart class teaching for secondary school teachers will fulfill the gaps in students' knowledge, understanding, and application.

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