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Virtual Classroom Construction: A Logical Approach

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ABSTRACT

A virtual classroom is a system that gives the same facilities for the teaching - learning process, beyond the physical limits of the traditional classroom's walls. Due to the access of the Internet, most virtual classrooms are based on World Wide Web. Wikipedia.com says, "A virtual classroom is a learning environment created in the virtual space. Virtual Classroom is a simulated classroom via Internet, which provides a convenient communication environment for distance learners just like traditional face-to-face classroom. A virtual classroom allows learners to attend a class from anywhere in the world and aims to provide a learning experience that is similar to a real classroom. This paper also highlights objectives and important steps for construction of virtual classroom such as need assessment, cost estimation planning,designing,preparation and distribution of contents etc

A classroom can be defined as a communication system that makes it possible for the teacher and a group of learners to make a teaching learning process effective for permanent learning with the help of audio-visual teaching aids.

The traditional classroom is surrounded by different types of walls that make safe from outside noise and pollution which helps to maintain effective learning.

A virtual classroom, on the other hand, is a system that gives the same facilities for the teaching - learning process, beyond the physical limits of the traditional classroom's walls. Due to the access of the Internet, most virtual classrooms are based on World Wide Web. Wikipedia.com says, "A virtual classroom is a learning environment created in the virtual space.

Just as the term virtual means a simulation of the real thing, Virtual Classroom is a simulated classroom via Internet, which provides a convenient communication environment for distance learners just like traditional face-to-face classroom. A virtual classroom allows learners to attend a class from anywhere in the world and aims to provide a learning experience that is similar to a real classroom. In a college setup, lectures are scheduled, students arrive on time; find their teachers, fellow learners, a blackboard or whiteboard, LCD projector, optionally a television screen with videos. Likewise, a Virtual Classroom is a scheduled, online, teacher-led training session where teachers and learners interact together using computers linked to a network such as the Internet.

A virtual classroom enables to bring learners from around the world together online in highly interactive virtual classes while greatly reducing the travel, time, and expense of on-site teaching/training programs. A virtual classroom is an online learning environment. The environment can be web-based and accessed through a portal or software-based and require a downloadable executable file.

Virtual classroom is a mode of computer based education whereby the teacher interacts with students either via video-conferencing, Internet broadcast, or email Any means of live or pre-programmed Internet broadcast of information meant to function in a teaching capacity. For example, you could say "see you in the virtual classroom" and meet at a particular URL that is dispensing information.

The Virtual Classroom allows the Instructor and Students to participate in real time lessons and discussions. The main page of the Virtual Classroom includes all of the functions available to users. From this area users can access all of the tools associated with the Virtual Classroom, such as asking questions, drawing on the whiteboard, and participating in breakout sessions. The Instructor establishes which tools in the Virtual Classroom users can access.

Follow the steps below to open the Virtual Classroom.

Step 1 Click Communication on the course menu of a course Web site.

Step 2 Select Collaboration Tools.

Step 3 Click Join next to a Virtual Classroom session. The Virtual Classroom will open.

Objective of Virtual Classroom

1. To provide flexibility
2. To prove excess of education for the distant learners belong to any country of the world
3. To provide advanced educational experiences for the learners
4. To make easy and effective participation of teacher and the learners
5. To reduce the cost of education
6. To improve the quality and effectiveness of education
7. To support a collaborative teaching –learning process
8. To increase the use of internet facilities who are not aware bout it
9. To make a proper use of time for good discussion
10. To create a simulated classroom situation
11. To create convenient communication environment

Step 1 - NEED ASSESMENT OF VIRTUAL CLASSROOM

At this stage We make the assessment of the various existing needs for the proposed virtual classroom and some of the basic infrastructure for its development. We assume that the learners are aware about the concept of virtual classroom. In assessment we simply assess 'what is', current state of conditions, available system, etc., and 'what ought to be,' desired output. The following considerations must be kept in mind as under:

1. Minimum number of distant(remote) learners who will get advantage from the virtual classroom implementation
2. Proper management of time, finance and resources
3. Ability of learners to access the course site and perform all

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necessary interactions
4. Institutional support and interest , Support must be present in terms of funding, time allocation, technical resources, and investing in a well-trained staff - a valuable human capital investment
5. The minimal hardware, software, Internet connection requirements must be assessed in advance and their costs estimated
6. Implementing an online version of an existing course or creating a new require changes in some administrative policies and procedures like: registration, admission, fees, prerequisites for taking the course, and withdrawal from the course, to name a few etc

Step 2 – COST ESTIMATION OF VIRTUAL CLASSROOM
The main purpose of this step is to reach a clear, accurate, quantitative estimate of the overall cost of developing the virtual classroom. Some important considerations at this step are as under:

1. Estimating the duration of a project and the development of a virtual classroom, reasonably accurate each and every stage of the detailed implementation plan of content creation, conversion to digital format, and manipulation takes much longer than one might originally expect
2. A complete list of hardware and software tools, their cost, and corresponding hardware/software requirements.
3. Two versatile motivated and creative technical human resources with well equipped skills : one for graphics/media creation, digitization, and manipulation; another one for Web-based programming and instructional design.
4. Fixing workload of the instructors with the consideration of their overall busy schedule beforehand ,hiring additional technical support staff if to be needed more
5. Adopting the whole process of changes of policies, , administration, curriculum offerings, and the way by which the course is delivered and learning is assessed using the Web-policies?
6. hecking whether the institution has a Web publishing policy, what does it say, who is responsible for enforcing the rules and whether or not there are tools to help developers meet the policy's specifications.
7. Availability of total contents already existing in electronic format,It can be easily converted into HTML format. Digitized images, audio, and video can be edited and incorporated into the virtual classroom much more easily than when text typing, image scanning, audio recording, and video shooting have yet to be perform
8. Software/hardware requirements for the client (student) machine following a minimum set of specifications including hardware (CPU, RAM, and disk size), operating system, and application software (Web browser and plug ins, e-mail software, word processor) requirements to be updated accordingly as technology evolves

Step 3 – PIANNING OF VIRTUAL CLASSROOM
Assessing the pedagogical feasibility of the construction of virtual classroom ,some considerations are:

1.The following educational goals should be kept in mind at the time of planning virtual classroom:
A. To determine that all students and teachers have equal access to instructions and receive all instructional material on time
B. To give students with on time, continuous, and frequent feedback opportunities to assess their understanding and skills of subject matter.
C. To supplement theory with a variety of practical tutorials and activities
D. To increase student-to-student and student-to-instructor - in and outside lectures.
E. To make systematic planning based on the realization that the purpose behind any technology in education,
F. To aid the learner's knowledge construction, a tool for exploration and discovery,
G. To support learning-by-doing, a social medium considering interactive and creative context
H. To support learning by conversing, sharing, and debating information and constructing knowledge

2. For achieving these goals some guidelines should be considered as under:
A. To use modern approaches
B. Understand the classroom situation and learners
C. Use some more resource other than Web tools
D. Utilization of different approaches of obtaining educational goals
E. Share experiences with other educators
F. Try our new maxim: "Keep it simple and creative!" (KISAC).

Step 4 – DESIGNING VIRTUAL CLASSROOM
For designing virtual classroom some considerations are:
A. The number of HTML pages to be structured
B. Easy simple and consistent navigation reducing maintenance, organizing the pages and their interdependencies like hierarchical tree, or linked list "look-and-feel" good for the Web pages for aesthetic and functional reasons
C. The course's HTML pages must necessarily have something in common, both for aesthetic as well as functional reasons.
D. Making a small set of pages with little or no content is developed before the actual course contents are converted into HTML format
E. Proper layout for a typical course page
F. Fancy and colorful page

Step 5 – PREPARATION AND DISTRIBUTION OF CONTENTS
Some considerations are as under :
A. Using suitable and more friendlier authoring tools
B. Try before you buy
C. For HTML editing, one can choose from simple, free tools, such as Netscape Composer (companion to the Navigator browser), to fully featured packages such as Macromedia Dreamweaver or GoLive Cyber Studio.
D. Try them out and choose the one that best suits your needs.
E. Importing, creating and editing images acquired in several ways, such as: scanning printed pictures, taking your own pictures using digital still cameras, capturing digitized video frames, or buying CDs containing collections of high-quality images related to a certain subject Images can also be easily created, edited, processed, and manipulated using numerous software titles, such as: Graphic Workshop, ACDSee, PaintShop, etc. The final result should always be stored in either GIF or JPEG format to be easily and directly included in an HTML page.
F. Importing, creating, editing sounds
G. Low quality sound recording is easily accomplished using an inexpensive desktop microphone. High quality sound recording and processing requires more expensive devices and software tools and is a much more difficult and time consuming task. There are many audio file formats currently in use, such as .WAV, .AU, .AIFF, and the new .MP3 (MPEG-3) format.
H. Importing, creating, editing graphics and animations: numerous tools available on the Web for animated GIFs creation and editing as well as for converting digitized video into animated GIF format.
I. Importing, creating, editing videos: popular video formats such as: MPEG (.MPEG or .MPG), QuickTime (.QT or .MOV), and Microsoft's .AVI.
J. Posting Web page: The virtual classroom must be hosted in a fast, reliable, machine, with a high bandwidth connection to the outside world.

Step 6 - FACILITATION OF COMMUNICATION
Effective communication between instructor and students and among students themselves should be a high priority issue during the design of the virtual classroom. Some pertinent questions are:

A. Form of communication between instructor and students in a virtual classroom: synchronous and asynchronous. Synchronous communication tools, such as ClassPoint or Net-

Meeting, allow the instructor to teach live lectures through the Web using resources such as audio and video conferencing, white board and text-based chat. Students can interact by asking questions, normally using a text window. Some type of floor control is normally desired, to prevent chaos and ensure that students will have their questions answered in a First Come First Served (FCFS) basis.

Asynchronous tools allow information to be placed for future processing. Some common examples are: email, bulletin board systems, mailing lists, and the course pages themselves.

A. successful virtual classroom implementation should use both synchronous and asynchronous techniques
B. To enable one-to-one (normally instructor-to-student), one-to-many (typically instructor-to-class) or many to-many (e.g. threaded discussions) interactions.
C. Communication tools: Today's virtual classrooms can use e-mail, chat rooms, mailing lists, Usenet newsgroups, audio and video conferencing, MUD (Multi-User Dimensions)/ MOO (MUD, Object Oriented), and many other tools to enable various forms of interaction between instructor and students and among students themselves.

Step 7 – IMPLEMENTATION OF ON LINE LEARNERS ASSESSMENT METHODS

It is very difficult to make assessment in a virtual classroom environment. Some of the methods to make systematic evaluation in virtual classroom are as under:

A. A typical form of quiz on an online: There are several tools for creating online quizzes, such as Jquiz, Test 2000, and Test Creator. Moreover, fully featured packages, such as WebCT have their own quiz creation module.
B. Online assignments
C. Some other kind of evaluation such as : peer review, self-review, access records, level of participation in discussions, and so on.
D. Consideration of online tests such as a special case of quizzes, extra restrictions such as the number of attempts, time to finish and a strict verification of identity of student
E. To prevent cheating proctor is required
F. Submission of assignment via e-mail attachment and a better way such as the HWSAM system
G. Multiple -choice questions graded and the grade quickly sent back to the learners automatically , if they require
H. A printed version require for an extensive assignment or project with the manual intervention of the teacher

Step 8 – IMPLEMENTATION OF CLASSROOM MANAGEMEN

Some considerations are:

A. Relevancy of class management information accoding to course and instructor
B. Student tracking, to check students' progress along the course.
C. Time-tabling and scheduling, to ensure that all students know when, where, and what they are expected to do in order to complete the class.
C. Class promotion, to ensure a minimum enrollment and to clarify the purpose and requirements of the class to enrolled students.
D. Student counseling to provide the help students might need to complete their studies.
E. Information management, meaning the retrieval, update, and management of students' personal and academic data.
F. Assignment management, including submitting, distributing, grading, and moderating assignments.
G. Grades collection, moderation, and distribution.
H. Archiving of class-related information and records.
I. Utilisation of tools such as WebCT's "Student Tracking" module, create and maintain their own databases, or rely on separate tools for specific tasks, such as HWSAM, for assignment submission.

Step 9 – SETTING UP THE SYSTEM

Some of the considerations are:

A.Selection of necessary hardware and software components such as Web server, mail server, etc and The combination of UNIX-based machines running the free Apache Web server is a very common one. Specialized books, tutorials, and the experience system administrators could be consulted for the same.

Step 10 - VIRTUAL CLASSROMM MAINTENATION AND UPDATION

Some considerations are:

Requirement of essential backups for maintenance such as zip disks, tape drives, and magneto optical disks. Some issues of backup policy that have to be established and strictly followed, such as:

A. Scheduling policy at the time of backups performed
B. Frequency policy (how often)
C. What to backup
D. Who is responsible
E. Which media to use
F. Where to store the backup
G. Up gradation both in terms of cost as well as in the possible technical consequences of such upgrades
H. Regular maintenance of site contents and links

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