

## The Virtual Online Classroom: An Enhancement for Conventional Education

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### ABSTRACT

To build a web-based virtual online learning environment depends on information technologies, concerns technology supporting learning methods and theories. The virtual online classroom method of learning allows for live interaction with the trainer and fellow students. A web-based virtual online classroom is designed and amplified based on learning theories and streaming media technologies. And it is composed of full interactivity in two parts: Instructional communicating environment (ICE) and Collaborative learning environment (CLE). ICE provides learners with learning materials, video lectures, and interactive environment etc. It enables participants to ask questions and collaborate with each other in a virtual space and enables the trainer to ask questions, take simulations, and receive answers instantaneously [1]. CLE supports active learning system by providing the environment with learning tools which are loved by learners to use such tools as chat room, video conferencing by using silver light technology, learning materials and contextual discussion for learners.

**Keywords:**-Virtual, ICE, CLE, Streaming, Information, Framework, DOT NET.

### 1. INTRODUCTION:

The web-based learning environment has some advantages such as stretching the spatial and temporal barriers, flexibility, interactivity and interoperability. Virtual classroom technology is to be understood as web-based groupware environments designed to generally support *synchronous* e-learning. The tools allow for shared access to teaching material and support voice-based interaction. Virtual classroom sessions have a clear presenter/lecturer role and are pre-scheduled [2]. A Virtual classroom not only delivers course materials to learners, but also provides live, contextual and interactive environment for the learners. In addition, teachers can control the learning and teaching process as if they do in the traditional classroom.

Virtual education is a term describing online education using the Internet. Web-based virtual online learning system has a lot of advantages over traditional face-to-face learning system.

➤ Virtual education refers to instruction in a learning environment where teacher and student are separated by time or space, or both, and the teacher provides course content through the use of methods such as course management applications, multimedia resources, the Internet, and videoconferencing. Students receive the

content and communicate with the teacher via the same technologies.

➤ 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.

### 2. Why we use Virtual online classroom?

Developing a virtual classroom system to promote a greater count of students to splurge into the field of Education. It integrates the benefits of a physical classroom with the convenience of a 'no-physical-bar' virtual learning environment, minus the commuting hazards and expenses [3]. E-Learning is often presented as a simple cost-savings solution in training terms, i.e. classroom costs are directly compared to online training costs. Although more expensive to develop, e-learning is less expensive to deliver training, especially to large numbers of people who would otherwise have to travel to take the training, and per learner costs diminish the more students use the solution.

It will usher in the immense flexibility and sophistication in the existing learning platform structures, with the perfect blend of synchronous and asynchronous

interaction. It provides a means of collaborative learning for the students.

### 3. Functional Requirements

When an enhancement for conventional education system by using virtual online classroom, then we have requirement of following function:

- Students can choose courses
- Registration for Multiple Courses
- Attend lectures either at the scheduled time or on request view lecture at a later time.
- Upload and Download of various assignments, college notices, Student's notices, journals, videos.
- Real Time collaboration among – A/B via mails, shared and interactive whiteboards
- There can be forums, blogs etc to discuss various queries and to put up suggestions posted both by students and teachers.
- Administrator can generate report
- **To Remove Space Barriers:** students from all over the world may enroll in course offered by any institution
- **Remove Time Conflict:** students may participate in class activity whenever there schedule permits.

➤ **Effectiveness:** promote group learning rather than on way transmission from instructor to students.

➤ **Enhance Motivation:** Collaboration.

**Architecture of WVOC:** As a Figure: 1, shown, web-based virtual online classroom involves broadcast workstation, courseware-on-demand server, streaming media server, learning resource server and clients. The framework of live broadcast centre is based on two main components broadcast center is client/server [4]. Broadcast workstation is the core of live broadcast centre. In the workstation, teachers can collect learning materials, sample lecture information which are useful to students and control learning and teaching process. Besides, the workstation has the following features:

- Choosing learning material, setting, and switching video sources.
- Inputting, previewing, delivering learning materials.
- Managing user rights.
- Controlling synchronous delivery and editing synchronous message.

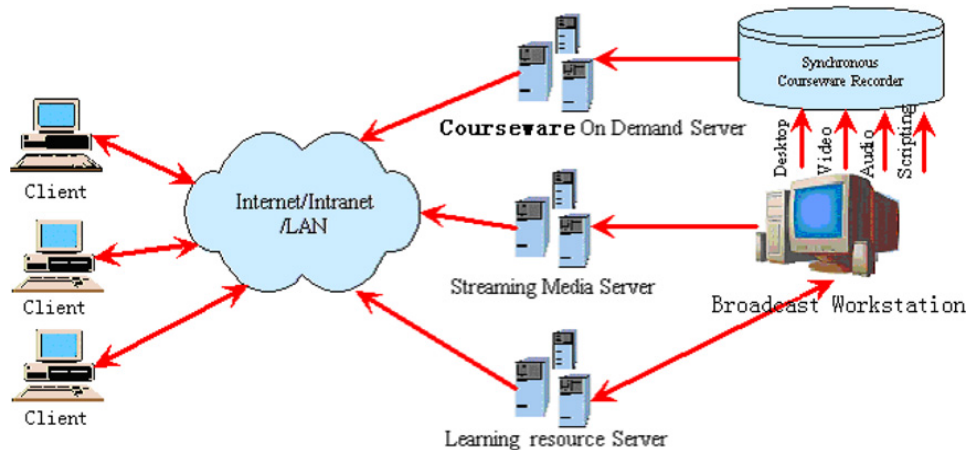


Figure 1: Web-based virtual online classroom involves broadcast workstation.

Courseware-on-demand server, streaming media server, learning resource server and clients. Live lecture programs can be broadcasted by media streaming server or stored in media streaming server. The synchronous learning materials are uploaded into learning resources server. Client browsing tool is the interface for learners or students to join in virtual classroom.

### 4. Applications of WVOC:

Web-based virtual online classroom (WVOC) has following applications:

#### Instructional communication environment (ICE):

Firstly, Administrator is treated as a super user in this system. He can have all the privileges to do anything in this system. Admin can prepare course curriculum, along with course content by the help of the faculties. He can

collect the course videos and stored into in the centralized database [5]. Another tasks done by the administrator is he can generates reports, log files, backup, and recovery of data any time. Now a teacher can take lectures, uploads, assignments, announcements, evaluate answer sheets and also upload lectures, and other discussions in various formats as in the form of videos and power point presentations.

#### Modules:

We use number of modules to develop a web-based virtual online classroom system [6]. The system after careful analysis has been identified to be presented with the following modules:-

- Administrators /Managers
- Faculties

- Students
- Web Registration
- Virtual Training
- Exam Conducting
- Search
- Reports
- Authentication

### Login page for Student and Faculty

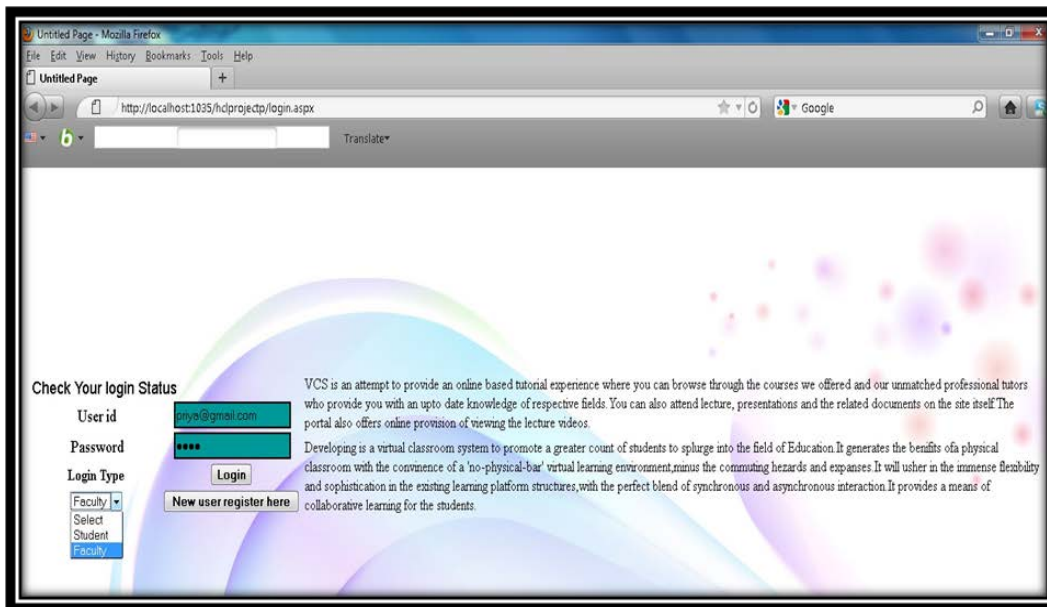


Figure 2: Student and Faculty can login from here

Students can choose courses, attend lectures, take exams, and view their attendance records, progress reports as per their convenience through this system only. One student can register multiple courses. Take their classes on the schedule time or later their convenience. By using the system interface student learn

the courses properly and attend the exams as an online mode. Results will be announced through online only [7]. Faculties can take lectures, uploads assignments, announcements, evaluate answer sheets and also upload lectures, and other discussions in various formats as in the form of videos and power point presentations.

### Faculty takes class from here

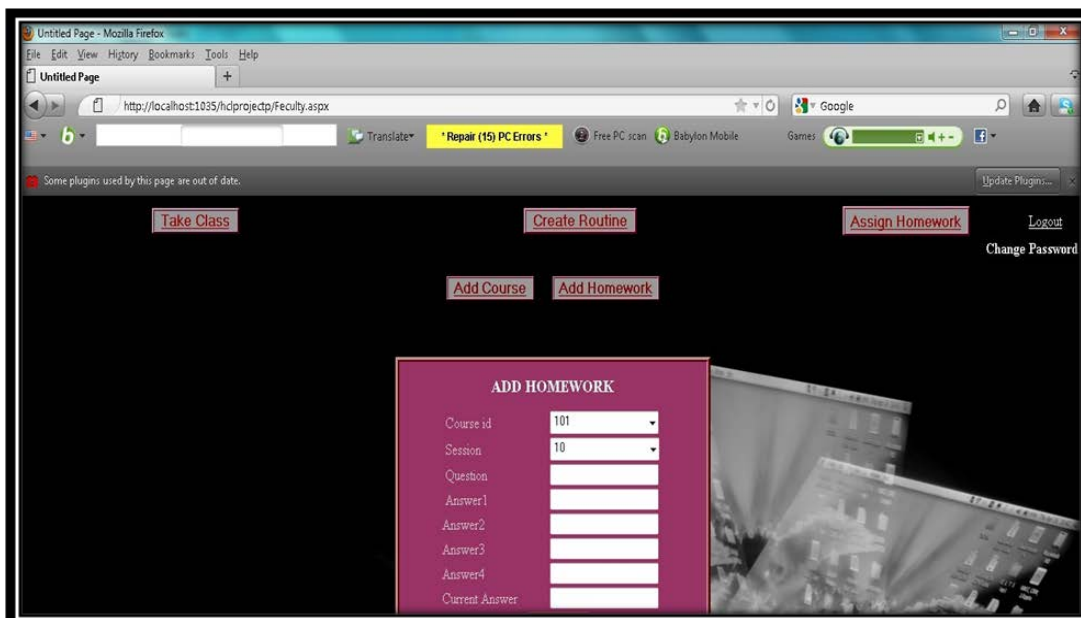


Figure 3: Faculty can add course if he wants and take class from here

### Collaborative learning environment (CLE)

It has two types learning environment-

**A. Content-based interactive learning**

**B. Combination of courseware and learning environment**

**A. Content-based interactive learning:** As the Figure 4 shown the left displaying video area, beside it display content area and conversation between student and faculty and the right displays relative interactive information. For video lectures use Microsoft silver light

it's a powerful tool which provides media experiences on the web and also use for creating and delivering rich internate applications [8]. Silver light includes more features like-dramatic video quality and performance improvements as well as features improved developer productivity.

When the video are played students and faculty interact to each other by video conferencing or by sending messages.

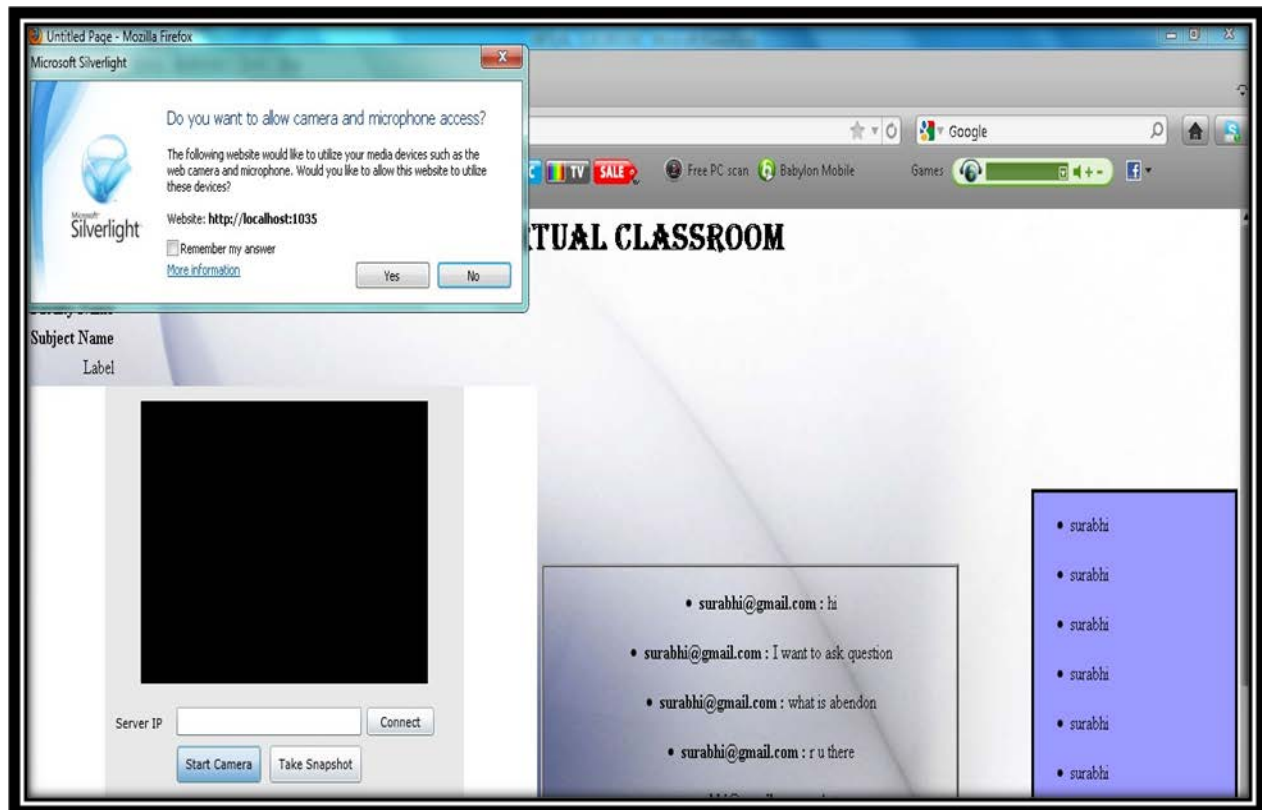


Figure 4: Content-based interactive learning includes- video lecture, content display area and relative information area

**B. Combination of courseware and learning environment:** As figure 5 shown we design a collaborative learning environment about "Advancing learning course" by using the recorded courseware and learning tools such as discussing forum and frequently asked questions. In this environment, learners can benefit from the class by accessing stored courseware. The learner looks through teaching and learning videos at first. Then he answers questions and finally shows the

result on the result display board screen [9]. He can also discuss some questions with teachers and other learners by chat-room.

Whenever a student is completed his course, an exam should be conducted, students need to attend the exam properly. It's an online exam. The result will be announced later after the papers are evaluated by the faculties. As Figure 6 display results on the result board screen.

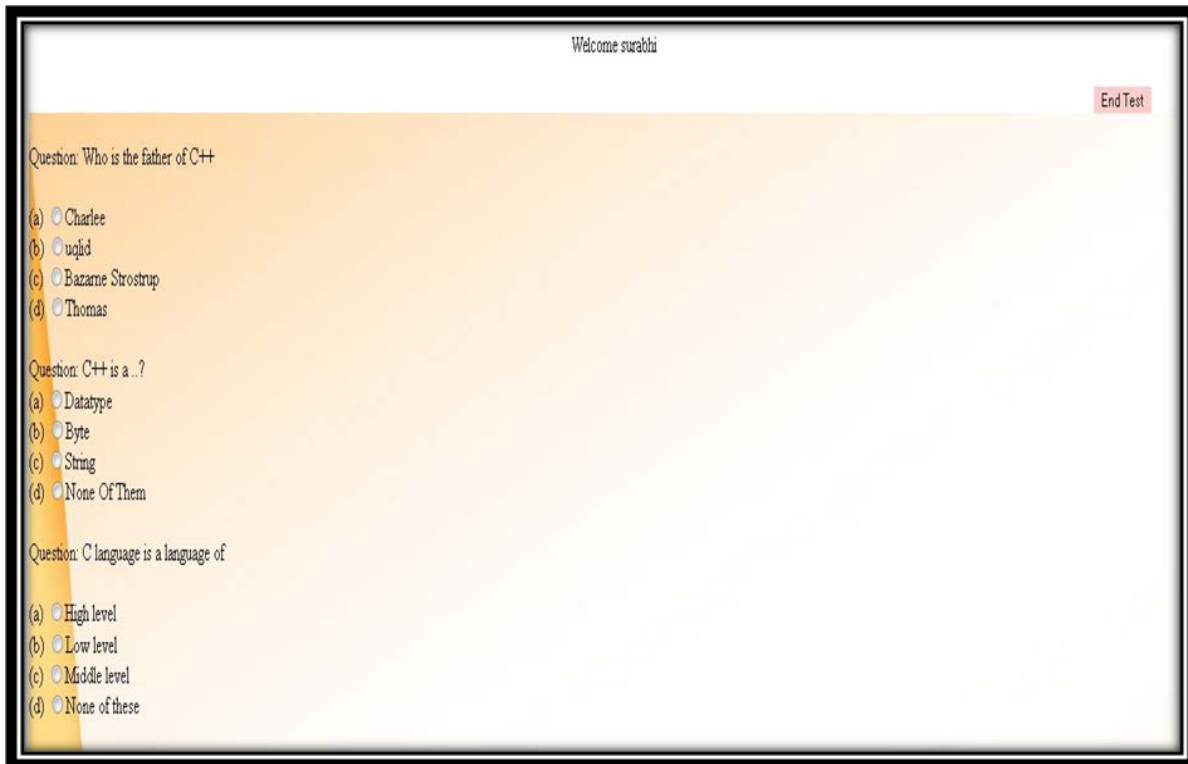


Figure 5: Collaborative learning environment by using online exam system to create a advance learning environment

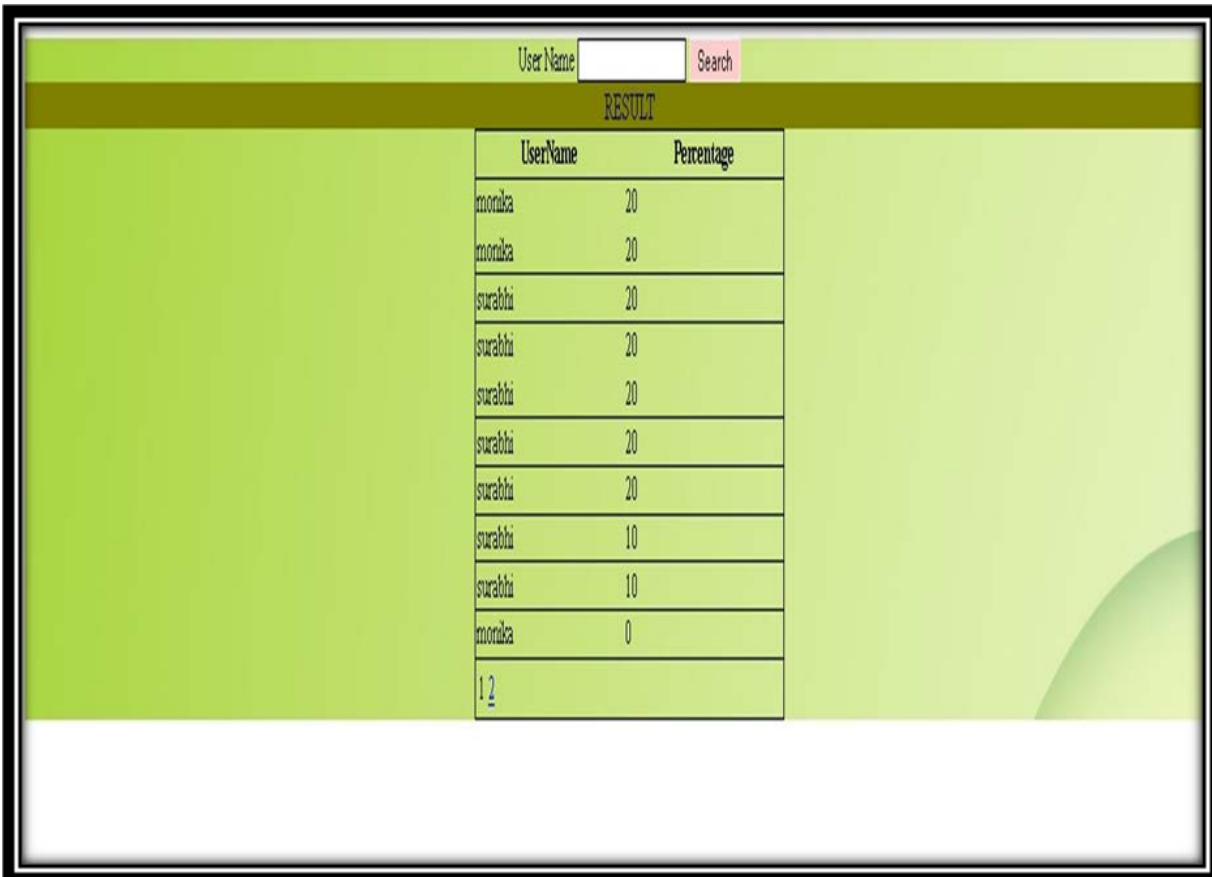


Figure 6: Display result to online exam

## 5. CONCLUSION:

While one can conceptualize most of the functionality that would make up an advanced learning system and even point to ways to implement it, the integration into a single interface that is easy to learn is still a key challenge. An interesting and appropriate interface metaphor adds to the usability and user acceptance of software. That is one reason why we have viewed this as an evolutionary process that must be tied into an evaluation program that provides feedback to the design process. Furthermore, the objective of doing better than the standard approach to education requires that we evaluate effectiveness.

Different users have different ideas about the learning environment in a virtual learning space. The resulting system must be viewed as a toolkit that gives the instructor full control of what aids and techniques to employ in delivering their course. That is one reason we have focused on the metaphor of "activities" that can be chosen and integrated dynamically into a given class conference. The key expansion of the conference database to incorporate a full collaborative Hypertext approach will provide complete freedom for the instructor to facilitate or "weave" the conference discussion. We are beginning to refer to our advanced system as the "ABC" (Activity Based Conference) system to further reflect the idea of tailoring and the idea of simplicity in structuring communications around the learning objectives of a group.

Currently many of us use the technology to integrate our face-to-face classes with our remote students so they are all one class. In addition, there are opportunities for the use of the technology to facilitate multiple instructors, multiple courses, material used across different course sequences, training on the job, and numerous other requirements that in themselves can add to the requirements for software functionality

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