

**EVALUATE THE EFFECTIVENESS OF EDUCATION  
THROUGH VIDEO ON REMOVABLE MEDIA**

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## DECLARATION

We, Tarik Hasan ID-02101028, Md. Majharul Islam ID- 02101031 and Gazi Showket Hayat ID- 02101032 have completed the thesis paper on “**Evaluating the effectiveness of Education through video on removable media.**” under CSE 400 course.

We, therefore, declaring that this work has not been published previously either in whole or in part in any thesis work or any conference or journals. We also mentioned work found by other researcher in the reference.

Signature of supervisor

Signature of Author

## **Acknowledgement**

First we would like to thank our Almighty Allah for making it possible.

Then we would like to thank our supervisor ASM Zillur Rahman, (Lecturer at the Department of Computer Science and Engineering, BRAC University) for his support and providing much kind of helps while completing the thesis paper. And also for giving us many important and efficient ideas and information.

We would also like to thank our friends of BRAC University, participants who responded by answering the questionnaire, the institution for giving us chance for survey work and the people whoever and whenever helped us to make it possible.

## **ABSTRACT**

Distance education is a field of education that focuses on the technology and instructional systems design that are effectively incorporated in delivering education to students who (most of the time) are not physically "on site" to receive their education.

In the twentieth century radio and television have all been used to further strengthen distance education. Computers and the Internet make distance learning easier. Bangladesh with population of about 130 million, less than 20% of the total population has access to electricity. In rural Bangladesh the figure is about 10%. Within the households with electricity at least 60% have TV and majority of TV owners have VCD or DVD players because of the availability of cheap Chinese DVDs & VCD players. Cost of PC and Internet is very high over video component.

The technology plays a key role in the delivery of distance education. Education must remain focused on instructional outcomes, not the technology of delivery. The key to effective distance education is focusing on the needs of the learners, the requirements of the content and the constraints faced by the teacher, before selecting a delivery system. The asynchronous nature in terms of communication way like DVD that allow local teachers to take full control, to play and pause the content at will, at times and paces of their own choosing, to engage in meaningful dialogs with their local students, to train themselves after school hours, turns out to be a blessing.

Education video learning can provide real time face-to face interaction. This is also an excellent and cost-effective way to incorporate guest speakers and content experts. Objective of our thesis will be to "Evaluate the effectiveness of Education through video on removable media."

## TABLE OF CONTENTS

<b>Chapter 1</b>	<b>Introduction</b>	<b>1</b>
	1.1 Motivation	2
	1.2 Objective	3
<b>Chapter 2</b>	<b>Distance Education</b>	<b>4</b>
	2.1 Defining Distance Education	5
	2.2 History of Distance Education	6
	2.3 Distance Education Tools	10
	2.4 Distance Education Method	11
	2.5 Origins	11
<b>Chapter 3</b>	<b>Bangladesh Scenario</b>	<b>13</b>
	3.1 Overview	14
<b>Chapter 4</b>	<b>Analysis</b>	<b>16</b>
	4.1 Our Concern	17
	4.2 Area of Work	17
	4.3 Our Technological Tools	18
	4.4 Designing Tools	19
	4.4.1 Adobe Premier 6.0	19
	4.4.2 Nero Express	1
	4.4.3 Adobe Photoshop 6.0	19
	4.4.4 Macromedia Dreamwaver	19
<b>Chapter 5</b>	<b>Survey</b>	<b>20</b>
	5.1 Question Answer Part	21
	5.2 Statistical Part	22
<b>Chapter 6</b>	<b>System Architecture</b>	<b>24</b>
	6.1 System Architecture	25
	6.2 Propose System Architecture	27
<b>Chapter 7</b>	<b>Operating Manual</b>	<b>29</b>
	7.1 Search Query	30
	7.2 Feedback	31
	7.3 Insert	32
	7.4 View	33
	7.5 Edit	34
	7.6 Delete	35

<b>Chapter 8</b>	<b>Advantages &amp; Limitations</b>	<b>36</b>
	8.1 Advantages	37
	8.2 Limitations	38
	8.3 Further Improvement	39
<b>Chapter 9</b>	<b>Conclusion</b>	<b>40</b>
<b>Reference</b>		<b>42</b>
<b>Sample Survey Question</b>		<b>44</b>

## LIST OF FIGURES

<b>Figure 4.1</b>	<b>: Area of Work</b>	<b>17</b>
<b>Figure 5.1</b>	<b>: Survey Statistics</b>	<b>22</b>
<b>Figure 6.1</b>	<b>: System Architecture</b>	<b>26</b>
<b>Figure 6.2</b>	<b>: Propose System Architecture</b>	<b>28</b>
<b>Figure 7.1</b>	<b>: Search Query</b>	<b>30</b>
<b>Figure 7.2</b>	<b>: Feedback</b>	<b>31</b>
<b>Figure 7.3</b>	<b>: Insert</b>	<b>32</b>
<b>Figure 7.4</b>	<b>: View</b>	<b>33</b>
<b>Figure 7.5</b>	<b>: Edit</b>	<b>34</b>
<b>Figure 7.6</b>	<b>: Delete</b>	<b>35</b>

# **CHAPTER 1**

## **INTRODUCTION**





## **Introduction**

Education is the backbone of a nation. An intelligent education system could change one's life towards a better future. In under developing country like Bangladesh it is so important to improve the education system to change the technique of education. Now-a-days electronic goods are involved in effective education system like VCD or DVD player, Television, Computer and Internet etc. In Bangladesh more than 45% of population is under poverty margin. Most of them are living in rural areas. Internet services are very rare in our rural areas as well as the electricity condition is very poor. More than 20% of total population has the ability to access electricity. In rural area, this figure is 10%. Within the households with electricity at least 60% have TV and majority of TV owners have VCD or DVD players because the availability of cheap Chinese DVDs & VCD players. Cost of PC and Internet is very high over video component. Education in video learning can provide real time face-to face interaction. Removable player can play a great role to improve the education system in Bangladesh.

### **1.1 Motivation**

The role behind this study is "How effective video learning is, in respect of Bangladesh?" under low cost but in an effective way. There are some shortages of experienced teachers at every department in our country. These experienced teachers are taking class in some big named school and most of those schools are situated in the capital of Bangladesh. But there is a huge number of students who are staying outside the capital are missing those experienced teachers. When we have came up with this idea and tell our supervisor about the total idea then realizing the condition our supervisor encouraged us to develop such a system that can provide same facility to the rural students.

## 1.2 Objective

Distance learning environments allow educators and schools many new opportunities. Teachers and learners have increased access to experts and information. No longer are classes made up of students who live in the same location or share similar backgrounds. Students are exposed to a diverse environment of cultures, opinions, and resources. This diversity promotes cultural understanding, global awareness, and international connections.

Distance learning provides options for flexible course scheduling, independent study, and varied communication channels. It can also address barriers of time, distance, physical disabilities, personal, and professional responsibilities.

Students new to VIDEO learning are sometimes concerned about the location of "the course". They're used to showing up in a classroom for "the course" and have hard time thinking about a course as a virtual learning experience rather than as a place. There are many ways to construct distance learning courses to help students become a community of learners without the need for a specific place. Consider the development of a theme, course quest, case study, connected readings and assignments, and/or forum areas to help students develop this sense of community and joint learning experience.

Research comparing distance education to traditional face-to-face instruction indicates that teaching and studying at a distance can be as effective as traditional instruction, when the method and technologies used are appropriate to the instructional tasks, there is student-to-student interaction, and when there is timely teacher-to- student feedback.

**CHAPTER 2**  
**DISTANCE EDUCATION**

## 2.1 Defining Distance Education

*"Distance education is beset with a remarkable paradox - it has asserted its existence, but it cannot define itself." (Shale, 1988, p. 25)*

How distance education is best defined or differentiated from other educational approaches has been the subject of much debate. From the perspective of many educational technologists, distance education is *"inexorably linked to the technology"* (Garrison, 1987) and seems to be viewed as different from other forms of education, a factor which may contribute to course development and acceptance problems.

Focusing on the distance factor and on technology takes the emphasis off the *"Dialectical relationship between teacher and student"* which Shale feels is the foundational principle in the educational process (Shale, 1988, p. 25). To Shale, "distance" (and the technology which accompanies it) is an incidental consideration and not a "defining criterion" for education.

A broadening of the definition of distance education is urged by Barker, Frisbie and Patrick (1989) who acknowledge correspondence study as the historical foundation of distance education but suggest that there is really two forms of distance education. One is the traditional correspondence-based distance education which is independent study oriented and the second is telecommunications-based distance education which offers the teaching and learning experience simultaneously (1989, p. 23).

The Garrison and Shale definition of distance education (1987a, p. 10-11) offers a minimum set of criteria and allows more flexibility. They suggest that:

- Distance education implies that the majority of educational communication between teacher and student occurs non contiguously

- Distance education involves two-way communication between teacher and student for the purpose of facilitating and supporting the educational process
- Distance education uses technology to mediate the necessary two-way communication.

## **2.2 History of Distance Education**

Understanding the history of distance education is valuable in that it shows there was more than one historical path to distance education and that the evolution of distance education has not been easy. Many of the same problems facing implementation and acceptance of educational innovations today have been faced by distance education throughout its history.

The history of distance education could be tracked back to the early 1700s in the form of correspondence education, but technology-based distance education might be best linked to the introduction of audiovisual devices into the schools in the early 1900s.

The first catalog of instruction films appeared in 1910 (Reiser, 1987) and in 1913, Thomas Edison proclaimed that, due to the invention of film, "Our school system will be completely changed in the next ten years" (Sattler, 1968, p. 68).

This dramatic change didn't occur, but instructional media were introduced into many extension programs by 1920 in the form of slides and motion pictures just as they were in the classroom.

In tracing the history of distance education, the introduction of television as an instructional medium appears as an important entry point for theorists and

practitioners outside of the correspondence education tradition, and marks parallel paths for correspondence study and instructional media.

Although instructional radio failed in the 1930s, instructional television was viewed with new hope. In 1932, seven years before television was introduced at the New York World's Fair, the State University of Iowa began experimenting with transmitting instructional course.

World War II slowed the introduction of television, but military training efforts had demonstrated the potential for using audio-visual media in teaching (Wright, 1991).

The apparent success of audio-visual generated a renewed interest in using it in the schools and in the decade following the war there were intensive research programs (Riser, 1987). Most of these studies were directed at understanding and generating theory on how instructional media affected classroom learning.

Early studies by educators tended to show that student achievement from classroom television was as successful as from traditional face-to-face instruction. A study by Parsons (1957) showed only borderline differences in achievement and Lapore and Wilson (1958) offered research showing that learning by television compared favorably with conventional instruction.

By the late 1950s, 17 programs used television in their instructional materials. The use of educational television tended to grow slowly but by 1961, 53 stations were affiliated with the National Educational Television Network (NET) with the primary goal of sharing films and coordinating scheduling (Hull, 1962).

In one of the earliest education vs. media studies, Childs concluded that television is not an instructional method, but an instrument for transmitting instruction. He also found no appreciable difference in the achievement level of students taught in regular classrooms by means of television or by a combination of correspondence study and television (Almeda, 1988).

In the early 1960s, the innovative Midwest Program on Airborne Television Instruction (MPATI) launched its "flying classroom" from an airfield near Purdue University in Lafayette, Indiana to broadcast instructional programs to school systems and the general public in Indiana and five surrounding states (Smith, 1961).

The number of educational television stations grew more rapidly in the 1960s and, by 1972, 233 educational stations existed (Carnegie Commission, 1979). Ohio University, University of Texas and the University of Maryland were among the earliest universities to create networks to reach for both on-campus and off-campus student populations (Brientenfield, 1968), and many universities were considering how to bring distance learning to select student populations.

By the mid 1960s, much of the interest in funding instructional television had abated, and the Ford Foundation shifted its support to public television. Much of the blame was placed on the mediocre quality of the instructional programming which was often little more than a teacher delivering a lecture (Reiser, 1987

The 1967 Carnegie Commission on Higher Education concluded that "the role played in formal education by instructional television has been on the whole a small one... With minor exceptions, the total disappearance of instructional television would leave the educational system fundamentally unchanged" (pp. 80-81). Reasons given for instructional television not being adopted included teacher resistance to television in the classroom, the expense of the television

systems, and the inability of television alone to meet the various conditions for student learning (Reiser, 1987).

In the late 1960s and early 1970s, microwave technology developed, costs went down, and universities began to set up microwave networks to take advantage of the Instructional Television Fixed Service (ITFS) authorized by the Federal Communications Commission. The Carnegie Commission on Higher Education



predicted that, by the year 2000, more than 80 percent of off-campus and 10 to 20 percent of on-campus instruction would take place through telecommunications (Carnegie Commission, 1972).

Distance education programs which exist today have a wide range of approaches. The CALS program offers independent study courses through computer networking and relies heavily on computer-based student contact and feedback. Nova University offers computer-delivered instruction; and the students communicate with instructors through electronic mail, attend some concentrated centralized class sessions, and meet in weekend cluster groups. The Mind Extension University offers undergraduate and graduate degrees through cable networks, and it supplements video courses with texts and other collateral materials

In summary, the history of distance education shows a field that appears to be in a constant state of evolution that is supported by theory, but in need of research which can fill many unanswered questions. The historical view of distance education shows a stream of new ideas and technologies balanced against a steady resistance to change, and it often places technology in the light of promising more than it has delivered. History shows nontraditional education trying to blend with traditional education while striving to meet the challenge of constantly changing learning theories and evolving technologies.

## 2.3 Distance Education Tools

A wide range of technological options are available to the distance educator. They fall into four major categories:



**Voice** - Instructional audio tools include the interactive technologies of telephone, audio conferencing, and short-wave radio. Passive (i.e., one-way) audio tools include tapes and radio.



**Video** - Instructional video tools include still images such as slides, pre-produced moving images (e.g., film, videotape), and real-time moving images combined with audio conferencing (one-way or two-way video with two-way audio).



**Data** - Computers send and receive information electronically. For this reason, the term "data" is used to describe this broad category of instructional tools. Computer applications for distance education are varied and include:

- Computer-assisted instruction (CAI) - uses the computer as a self-contained teaching machine to present individual lessons.
- Computer-managed instruction (CMI) - uses the computer to organize instruction and track student records and progress. The instruction itself need not be delivered via a computer, although CAI is often combined with CMI.
- Computer-mediated education (CME) - describes computer applications that facilitate the delivery of instruction. Examples include
- Electronic mail, fax, real-time computer conferencing, and World-Wide Web applications.



**Print** - is a foundational element of distance education programs and the basis from which all other delivery systems have evolved. Various print formats are available including: textbooks, study guides, workbooks, course syllabi, and case studies.

## 2.4 Distance Education Methods

Many educators ask if distant students learn as much as students receiving traditional face-to-face instruction. Research comparing distance education to traditional face-to-face instruction indicates that teaching and studying at a distance can be as effective as traditional instruction, when the method and technologies used are appropriate to the instructional tasks, there is student-to-student interaction, and when there is timely teacher-to-student feedback.

## 2.5 Origins

In one of the earliest education vs. media studies, Childs concluded that television is not an instructional method, but an instrument for transmitting instruction. He also found no appreciable difference in the achievement level of students taught in regular classrooms by means of television or by a combination of correspondence study and television (Almeda, 1988).

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# **CHAPTER 3**

## **BANGLADESH SCENARIO**

### 3.1 Overview

In the twentieth century radio and television have all been used to further strengthen distance education. Computers and the Internet make distance learning easier.

Bangladesh with population of about 130 million, less than 20% of the total populations have access to electricity. In rural Bangladesh the figure is about 10%. Within the households with electricity at least 60% have TV and majority of TV owners have VCD or DVD players because the availability of cheap Chinese DVDs & VCD players. Cost of PC and Internet is very high over video component. In Bangladesh people with low gross income cannot effort computer and internet. So it's impossible for them to get education through the internet that means the *E-learning* system won't be much efficient in the perspective of Bangladesh which includes the computer and internet must. We have chosen the removable media which can be inserted into the media which are available in the market like VCD player. There is much kind of VCD players in the market and those are not very costly to buy. And as from the survey we came to know that people who have TV at home also have VCD players so, any one can easily use the VCD players for watching the lecture videos.

Bangladesh Open University, the only distance learning university in Bangladesh, was established on October 21, 1992 by an Act of Parliament. The Government of Bangladesh and the Asian Development Bank have provided funds for setting up of the University. The Bangladesh Open University is an all terms system of education contributing to the uplifting of the overall educational scenario in the country. Through formal & non-formal programs it gives educational opportunities to the large section of population, helping in the human resource development of the country. Prime objective of Bangladesh Open University is to transform the

country's vast human resources into an educated and trained work-force by extending to them a wide range of academic programs both formal and non-formal. BOU's programs are aimed at every one, particularly working people and women and those socially disadvantaged groups who cannot enroll in traditional universities.

The University has already set up 10 Regional Resources Centers in different districts. Two more RRCs are now under construction. Besides, the university has 80 Local Centers in different parts of the country. There are 800 Tutorial Centers with at least one in every Thana (Police Station).

<b>BOU At a Glance</b>	
<b>Name</b>	Bangladesh Open University
<b>Type</b>	Teaching in distance mode
<b>Establishment</b>	October 21, 1992
<b>Jurisdiction</b>	Entire Bangladesh

# **CHAPTER 4**

## **ANALYSIS**



## 4.1 Our Concern

There are two ways of E-Learning, Up-stream and Down-stream. Up-stream involve Internet, video conferences etc. This is very rare and expensive in our rural area. On the other hands Down-stream part includes learning via removable media like CD, VCD. In our thesis we are concentrating on Down-stream part which includes education through removable media such as CD, VCD and DVD.

## 4.2 Area of work

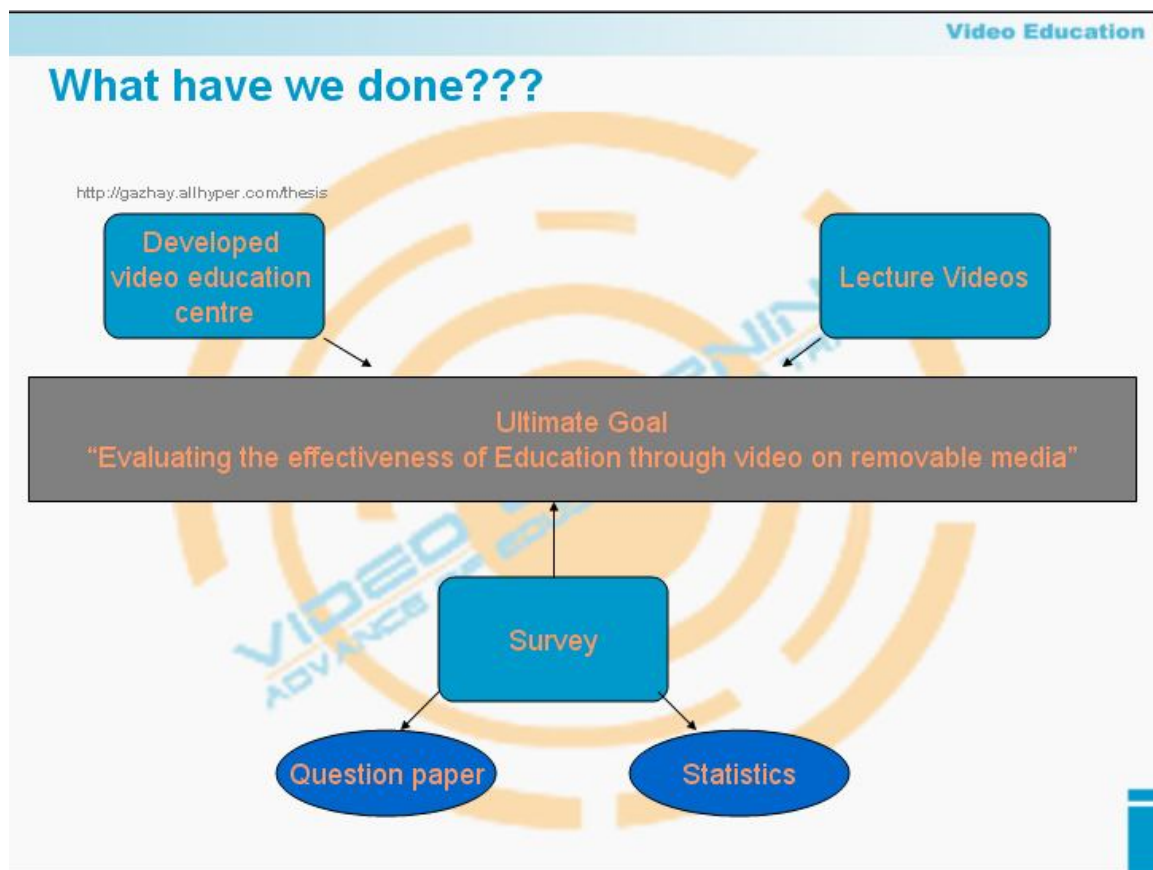


Figure. 4.1: Area of Work

### 4.3 Our Technological Tools

The technological tools that we have used are following:



**Video Camera:** For capturing the live lecture of instructor.



**Mini Tapes:** For recording the lecture videos



**Studio Light:** We have used light while capturing the lectures



**Computer:** Edit, Burn by using computer.



**Disk:** Write the video lecture on VCD or DVD



**Video Player:** Play VCD or DVD



**Television:** For showing the lecture videos.

## **4.4 Designing Tools**

In our thesis we have used four designing tools. All of the tools are open source. The tools are following:

### **4.4.1 Adobe Premier 6.0**

After capturing the live lecture of instructor we used adobe premier 6.0. For editing purpose.

### **4.4.2 Nero Express**

We have used Nero Express for burning CDs.

### **4.4.3 Adobe Photoshop 6.0**

For image editing purpose we used Adobe Photoshop 6.0. We need a lot of image for our website. All the images are design by Adobe Photoshop.

### **4.4.4 Macromedia Dreamwaver MX**

We have designed a website for our thesis by using Macromedia Dreamwaver MX. We used this tool for coding part also.

# **CHAPTER 5**

## **SURVEY**

Evaluating the effectiveness of our video learning system we have followed some steps.

Firstly, we have made some effective lectures video on specific subjects by specific teachers.

Secondly, we have shown these lecture videos to the students. Finally we have done a survey on the students.

Our survey consists of two parts. First one is the question answer part and the next one is the statistical part.

### **5.1 Question Answer part**

We prepared four different types of question papers on Biology for class IX, on chapter three. We also divided two groups of students. One of the groups had 25 students and another one had 22 students. Both of the groups had already covered Biology lecture on chapter three before. At first we have shown our prepared video lecture to the student of one group and then we took exam. After that the particular teacher gave lecture for those students on the same topic and after finishing the lecture we again took exam. We applied reversed procedure on the other group of students. The question we have made for the students are attached at the end of the report.

## 5.2 Statistical Part

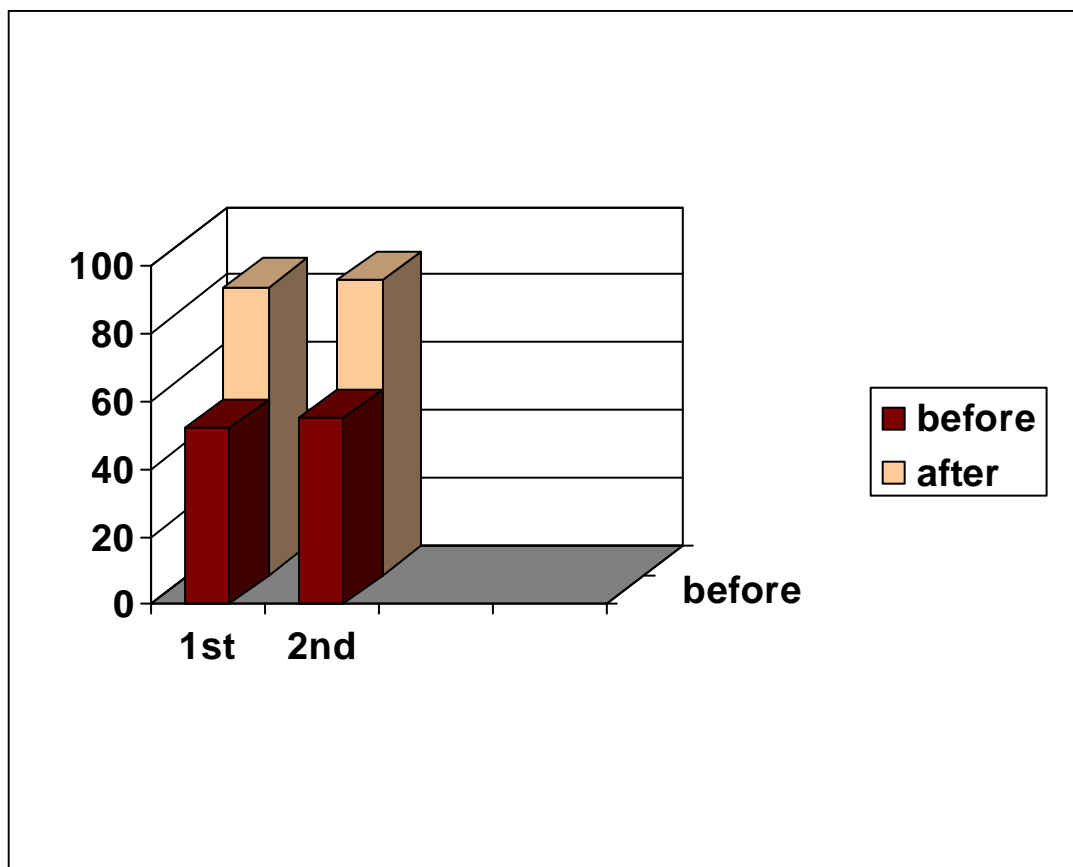


Figure. 5.1: Survey statistics

**Test Result of 1<sup>st</sup> Group:**

52% correct answer before watching the video lecture those who have already covered the lecture before.

85% correct answer after watching the video lecture.

**Test Result of 2<sup>nd</sup> Group:**

55% correct answer before watching the video lecture those who have already covered the lecture before.

87% correct answer after watching the video lecture.

**Feedback Form Student**

- Student's performance getting better after watching the lecture video.
- Some student's think it is very effective if any one miss any lecture due to illness or any other reason.
- Some student's interested enough about video learning rather than sitting in the class.

# **CHAPTER 6**

## **SYSTEM ARCHITECTURE**



## 6.1 System Architecture

Capture the live lecture. Convert it into digital video. We have used database to Store all the videos. Web users can access database and ask query. On the other side admin can insert, delete and upgrade the database. Admin can insert, delete and upgrade the database.

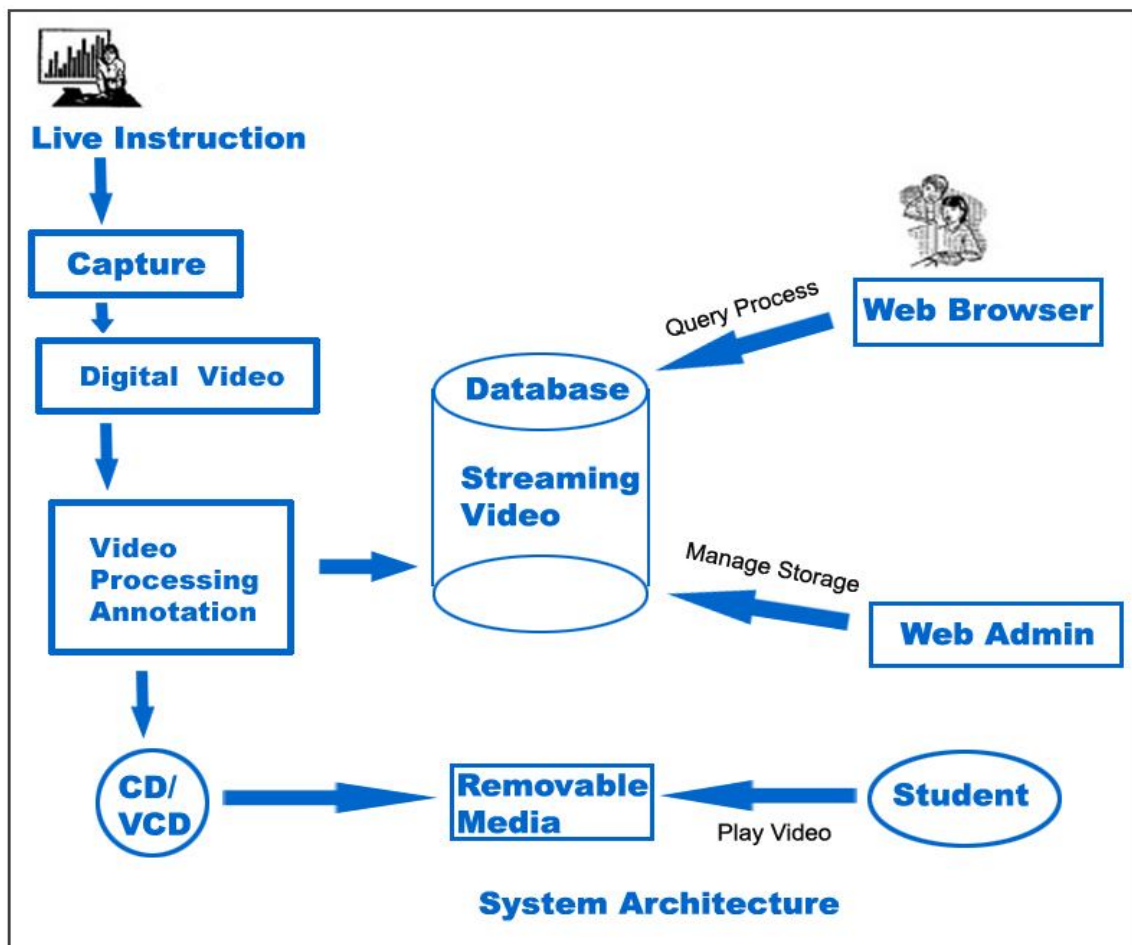


Figure. 6.1: System Architecture

## 6.2 Propose System Architecture

In our proposed system we have just added synchronization. Student can query the answer by mobile SMS. The video CD consists of question paper. The SMS goes to the database and reply the answer of that question which asked by the student. A student can collect there note and PowerPoint slide form the database.

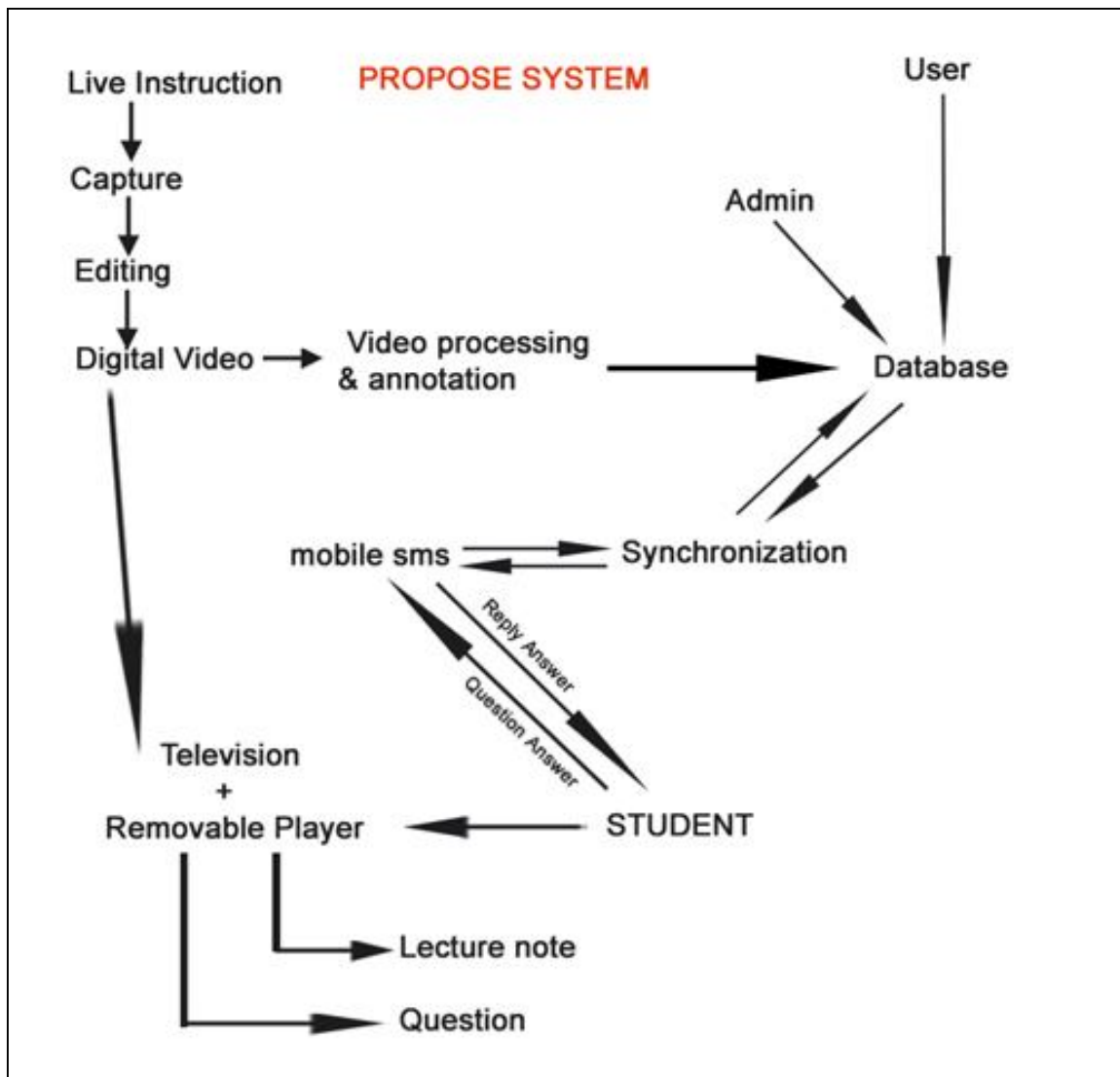


Figure 6.2: Propose System Architecture

**CHAPTER 7**  
**OPERATING MANUAL**

According to our system architecture we have developed a web page which contains a database. Database contains video stream, question and answer of each lecture, lecture note, slide. We propose a website for managing this database. Website contains two parts USER Part and ADMIN part. User can browse site, search and feedback. Admin can manage database. They can insert video, View video files, Edit, Delete.

## 7.1 Search Query

Searching is an important feature of a website. It's going to more important when the site is informative and educational. In our website user can search there query. They can search video lecture by Class, Subject and Chapter.

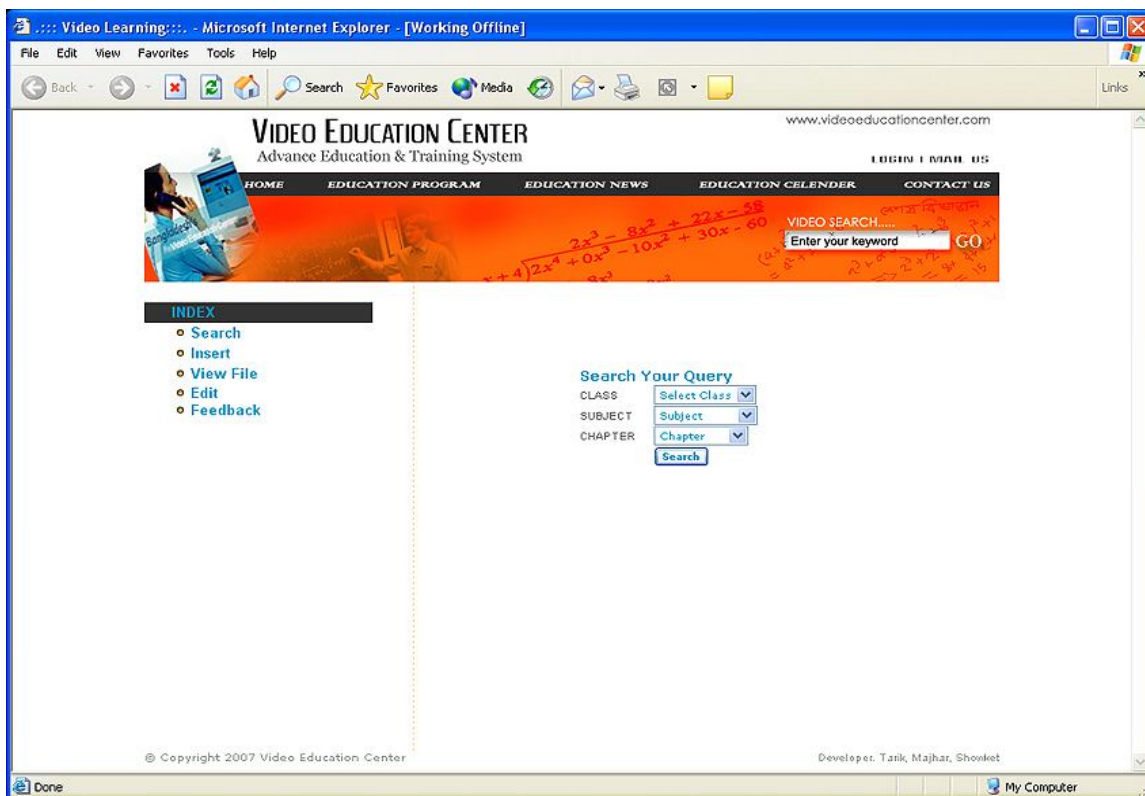


Figure : 7.1 Search

## 7.2 Feedback

Feedback page will help us to know which student need what. Actually in this windows the student can query us about video lectures, order system, delivery system etc.

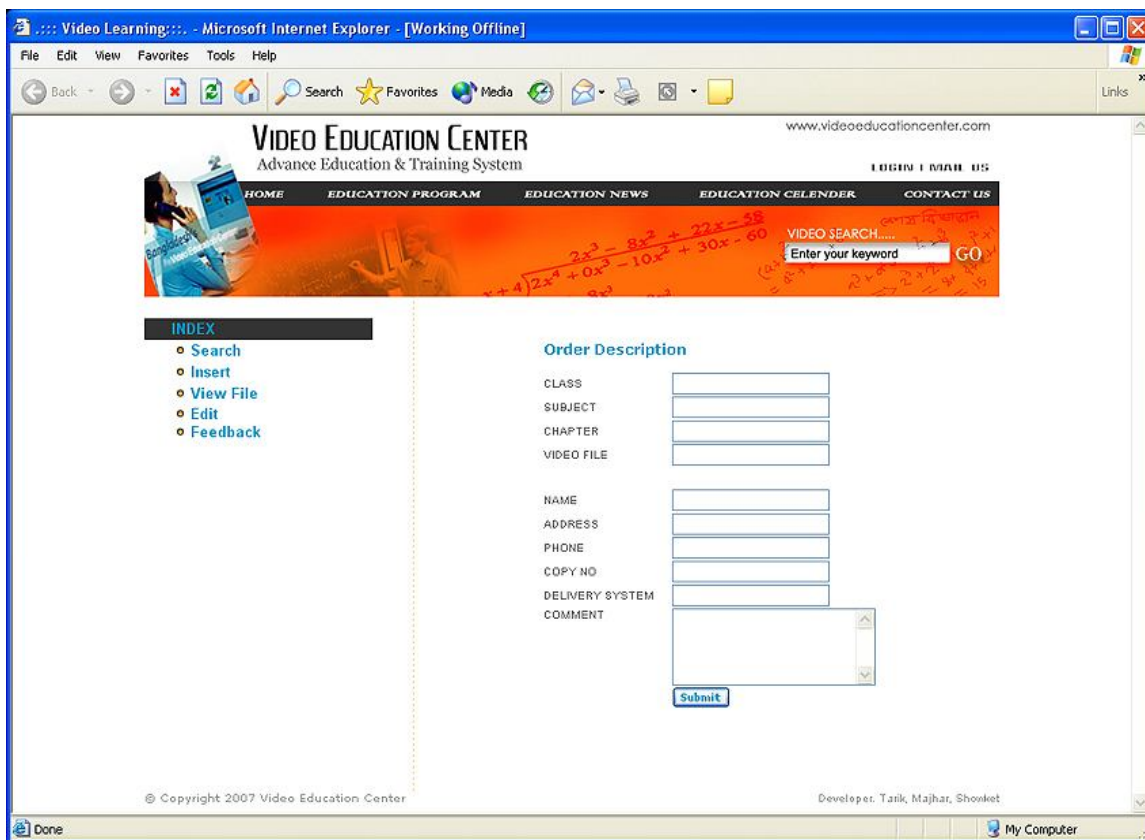


Figure : 7.2 Feedback

## 7.3 Insert

This is the Admin part. Admin can insert video files into database. He/She can insert video by Class, Subject and Chapter name. He/She can also insert instructor name, instructor picture and organization name.

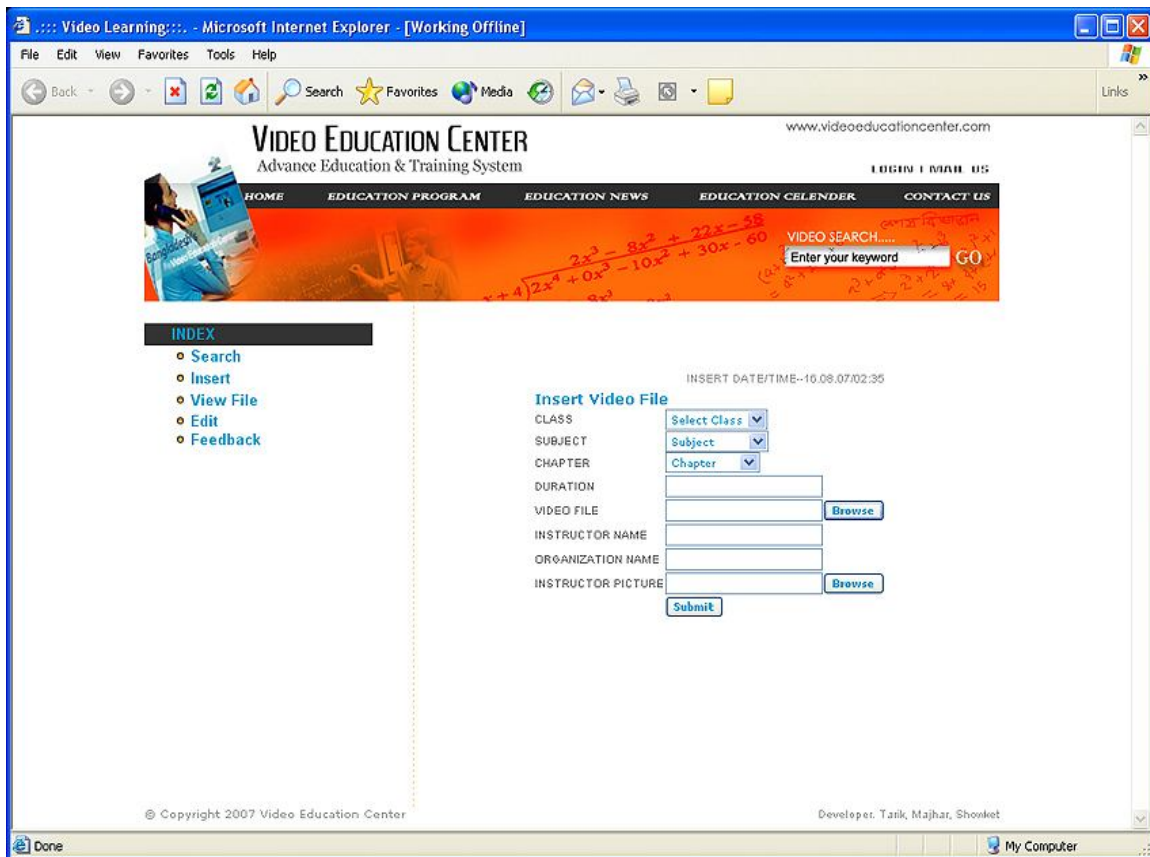


Figure : 7.3 Insert



## 7.4 View

In the view window will view all the files according to insertion.

The screenshot shows a web browser window titled "Video Learning... - Microsoft Internet Explorer". The website is "VIDEO EDUCATION CENTER" with the tagline "Advance Education & Training System". The URL is "www.videoeducationcenter.com". The page features a navigation menu with links for HOME, EDUCATION PROGRAM, EDUCATION NEWS, EDUCATION CELENDER, and CONTACT US. There is a search bar with the text "VIDEO SEARCH..." and "Enter your keyword" followed by a "GO" button. On the left, there is an "INDEX" section with links for Search, Insert, View File, Edit, and Feedback. The main content area displays a table of files:

ID	CLASS	SUBJECT	CHAPTER	FILE_NAME	Edit	Delete
01	IX	Biology	Three	celllist.dat	Edit	Delete
02	X	English	Two	Lotfiday.mpeg	Edit	Delete
03	VII	Mathematics	Five	Geomath.dat	Edit	Delete
04	X	Chemistry	Two	chap2.dat	Edit	Delete

The footer of the page contains the text "© Copyright 2007 Video Education Center" and "Developer. T.ank, Majhar, Shovket". The browser's status bar at the bottom shows "Opening page http://gashay.alhyper.com/thesis/viewfile.html..." and "Internet".

Figure : 7.4 View

## 7.5 Edit

Admin can edit information of database which already inserted. To edit instructor name, instructor picture, organization, video files, video files duration.

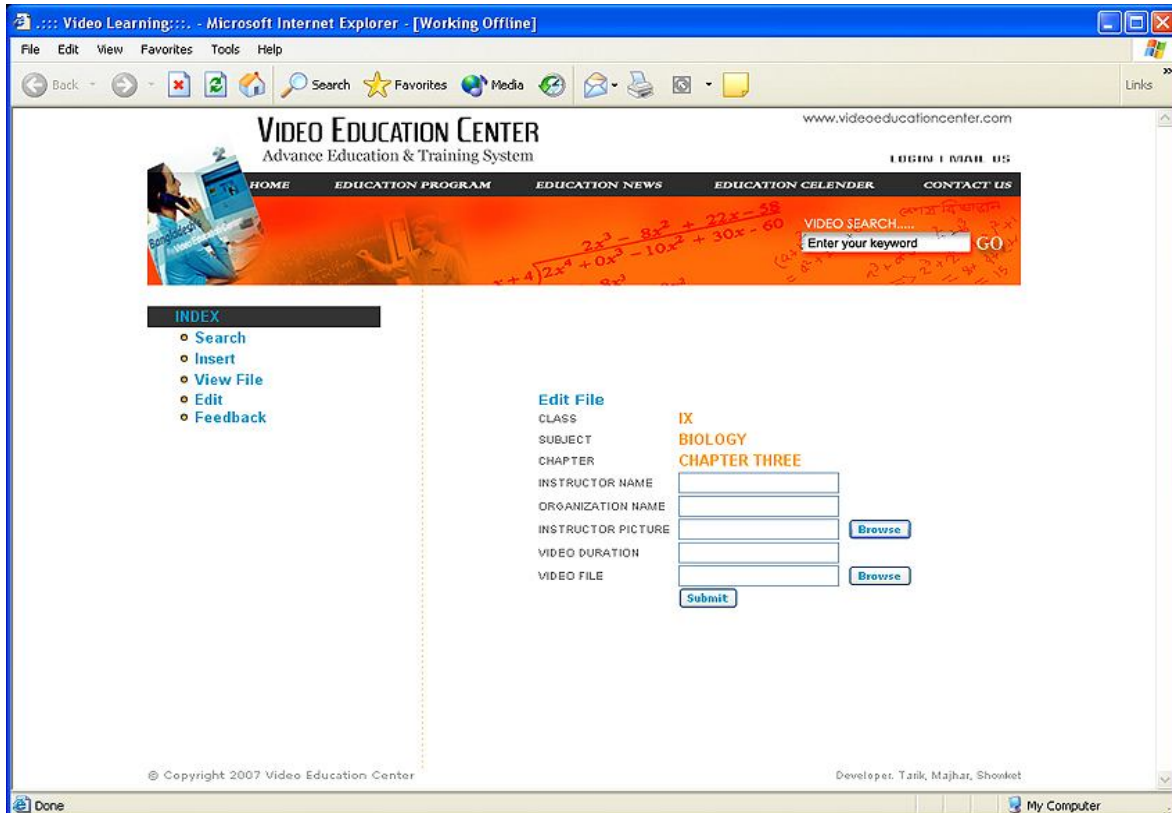


Figure : 7.5 Edit

## 7.6 Delete

To delete specific file or information we can use following window.

The screenshot shows a web browser window displaying the Video Education Center website. The page features a navigation menu with links for HOME, EDUCATION PROGRAM, EDUCATION NEWS, EDUCATION CELENDER, and CONTACT US. A search bar is present with the text "VIDEO SEARCH..." and "Enter your keyword" followed by a "GO" button. On the left side, there is an "INDEX" menu with options: Search, Insert, View File, Edit, and Feedback. The main content area displays a table with the following data:

ID	CLASS	SUBJECT	CHAPTER	FILE_NAME	Edit	Delete
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02	X	English	Two	Lotifday.mpeg	Edit	Delete
03	VII	Mathematics	Five	Geomath.dat	Edit	Delete
04	X	Chemistry	Two	chap2.dat	Edit	Delete

At the bottom of the page, there is a copyright notice: "© Copyright 2007 Video Education Center" and the developer's name: "Developer: Tank, Majhar, Shonket". The browser's status bar shows the URL "http://gashay.alhyper.com/thesis/viewfile.html..." and the Internet icon.

Figure : 7.6 Delete

# **CHAPTER 8**

## **ADVANTAGES & LIMITATIONS**

## **8.1 Advantages:**

We have done our thesis paper for evaluating the effectiveness of video learning on removable media. The possible advantages we have found out are giving below

# Student can pause, repeat or forward while watching the video lectures. If any one doesn't understand anything then can repeat that part again to be clear about that part.

# Experience instructors lecture can be accessible by all over the country. That means in our country there is a shortage of experience and efficient teacher or instructor. Through the lecture videos of good instructor's student of rural areas also all over the countries student can get good understanding about a particular subject.

# anytime anywhere (Portable).That means the lecture videos are portable. The lecture video CDs are very easy to carry also easier to keep.

## 8.2 Limitations:

Every system has some limitations. While doing our Thesis paper we have found some limitations. Those are:

**Sample size of survey:** We have done our survey on few students, not a huge number. If we could survey on a big group then our evaluation could be more efficient.

**Rare video camera:** The video camera what we have used for capturing the lecture videos were not available because of its high cost.

**Poor quality sound :** While we have captured the lecture videos there was not very calm and quite environment that's why the sound quality of those lecture videos were not up to the mark.

**Lack of trained teachers and operators:** It's so tough to get trained instructor available for making an efficient lecture for the students. Also we have found shortage of trained operator for capturing the lecture videos properly and operating the instrument.

### **8.3 Further Improvement:**

- Question can be inserted while video is running.
- Real time interaction via mobile SMS.
- Query for video searching via SMS.
- Scaling up the video lectures.
- Video Archiving.

# **CHAPTER 9**

# **CONCLUSIONS**



**Conclusions:**

In our system we have tried to present the current Bangladeshi scenario and how effective the video learning through removable media can be. Evaluating the effectiveness of video learning through removable media we have found a very good and expected return from the student which can be very efficient for the student of Bangladesh in the upcoming days.

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### Survey question before showing the video lecture:

*MABS Coaching Center*  
*সো: ইকবাল হোসেন*

১. কোষ বিভাজন কত প্রকার?

১                      খ) ২  
 ৩                      ঘ) ৫

২. এককেন্দ্রী অণুজীবের উদাহরণ কোনটি?

ব্যাকটেরিয়া                      খ) মাছ  
গ) মানুষ                      ঘ) কোনটি নয়

৩. ব্যাকটেরিয়া কোন ধরনের কোষ বিভাজন হয়?

অ্যামাইটোসিস                      ঘ) মাইটোসিস  
গ) মিয়োসিস                      ঘ) অস্বাভাবিক

৪. অপত্য কোষের জেনোটাইপ সংখ্যা মাতৃকোষের অর্ধেক হয় কোন কোষ বিভাজনে?

মাইটোসিস                       মিয়োসিস  
গ) অ্যামাইটোসিস                      ঘ) অস্বাভাবিক

৫. অণুজীবের দৈনিক বৃদ্ধি ঘটে কোন কোষ বিভাজনের ফলে?

মিয়োসিস                       মাইটোসিস  
গ) অ্যামাইটোসিস                      ঘ) অস্বাভাবিক

৬. মাইটোসিস কোষ বিভাজন কোন কোষে ঘটে?

দেহ কোষে                      খ) অপ্রকৃত কোষে  
গ) জনন কোষে                      ঘ) প্রাককেন্দ্রিক কোষে

৭. মত্কেন্দ্রী অণুজীবের জন্মস্থান বৃষ্টি হয় কোন কোষ বিভাজনের ফলে?

মিয়োসিস                       মাইটোসিস  
গ) অ্যামাইটোসিস                      ঘ) অস্বাভাবিক

৮. তীব্র জগতের স্থিতিশীলতা বজায় রাখা হয় কোন বিভাজনের ফলে?

মাইটোসিস                      খ) মিয়োসিস  
গ) অ্যামাইটোসিস                      ঘ) অস্বাভাবিক

৯. কোন পর্যায়ে জেনোটাইপগুলো সনাক্তিক মেটা ও খ্রোমোজম হয়?

মেটাফেজ                      খ) প্রোফেজ  
গ) এনাফেজ                      ঘ) টেলোফেজ

### Survey question before showing the video lecture:

১০. নিউক্লিওলাস ও নিউক্লিয়ার মেমব্রেন সৃষ্টি হয় কোন ধাপে?

প্রোফেজ                      খ) প্রো-মেটাফেজ  
 টেলোফেজ                      ঘ) এনাফেজ

১১. নিম্যোসিস শেষে বিভাজনে একটি কোষ থেকে কয়টি কোষ উৎপন্ন হয়।

ক) একটি                      খ) দুইটি  
গ) তিনটি                       চারটি

১২. কোষ বিভাজনের কোন ধাপে নিউক্লিওলাসের আবির্ভাব ঘটে?

ক) প্রোফেজ                      খ) এনাফেজ  
 মেটাফেজ                       টেলোফেজ

১৩. কোষ বিভাজনের কোন ধাপে সেন্ট্রিয়ার দুইটি খণ্ডে বিভক্ত হয়?


ক) এনাফেজ                      খ) প্রো-মেটাফেজ  
 মেটাফেজ                       টেলোফেজ

১৪. নিউক্লিওলাস ও নিউক্লিয়ার মেমব্রেন বিলুপ্ত হয় কোন ধাপে?

ক) মেটাফেজ                      খ) টেলোফেজ  
 প্রোফেজ                      ঘ) এনাফেজ

১৫. মেটাফেজ কোন কোষ বিভাজনের অংশ?

মাইটোসিস                      খ) মিয়োসিস  
 অ্যামাইটোসিস                      ঘ) কোনটিই না।

  
 Dr. Jyoti Khatun  
 HOD, Department of Botany

### Survey question after showing the video lecture:

MRBS Coaching Center  
মো: ইকবাল হোসেন

১. কোষ বিভাজন কত প্রকার?

ক) ৪      খ) ২  
~~গ) ৩~~      গ) ৫

২. এককোষী জীবের উদাহরণ কোনটি?

ব্যাকটেরিয়া      খ) নাছ  
 গ) মানুষ      ঘ) কোনটি নয়

৩. ব্যাকটেরিয়া কোন ধরনের কোষ বিভাজন হয়?

অ্যামাইটোসিস      খ) মাইটোসিস  
 গ) মিয়োসিস      ঘ) অস্বাভাবিক

৪. অপত্য কোষের ক্রোমোসোম সংখ্যা মাতৃকোষের অর্ধেক হয় কোন কোষ বিভাজনে?

ক) মাইটোসিস      ~~খ) মিয়োসিস~~  
~~গ) অ্যামাইটোসিস~~      ঘ) অস্বাভাবিক

৫. জীবের দৈনিক বৃদ্ধি ঘটে কোন কোষ বিভাজনের ফলে?

ক) মিয়োসিস      ~~খ) মাইটোসিস~~  
~~গ) অ্যামাইটোসিস~~      ঘ) অস্বাভাবিক

৬. মাইটোসিস কোষ বিভাজন কেন্দ্রে কোষে ঘটে?

দেহ কোষে      খ) অপ্রকৃত কোষে  
 গ) জনন কোষে      ঘ) প্রাককেন্দ্রিক কোষে

৭. মূলকোষী জীবের জন্মস্র সৃষ্টি হয় কেন্দ্রে কোষ বিভাজনের ফলে?

ক) মিয়োসিস       মাইটোসিস  
 গ) অ্যামাইটোসিস      ঘ) অস্বাভাবিক

৮. জীব জগতের স্থিতিশীলতা রক্ষা হয় কেন্দ্রে কোষ বিভাজনের ফলে?

মাইটোসিস       মিয়োসিস  
~~গ) অ্যামাইটোসিস~~      ঘ) অস্বাভাবিক

৯. কোন পর্যায়ে ক্রোমোসোমগুলো সর্বাধিক মোটা ও খাটো হয়?

মেটাফেজ      খ) প্রোফেজ  
 গ) এনাফেজ      ঘ) টেলোফেজ

## Survey question after showing the video lecture:

১০. নিউক্লিওলাস ও নিউক্লিয়ার মেমব্রেন সৃষ্টি হয় কোন ধাপে?

ক) প্রোফেজ                      খ) প্রো-মেটাফেজ  
 গ) টেলোফেজ                  ড) এনাফেজ

১১. মিয়োসিস কোষ বিভাজনে একটি কোষ থেকে কয়টি কোষ উৎপন্ন হয়।

ক) একটি                      খ) দুইটি  
 গ) তিনটি                      ড) চারটি

১২. কোষ বিভাজনের কোন ধাপে নিউক্লিওলাসের আবির্ভাব ঘটে?

ক) প্রোফেজ                      খ) এনাফেজ  
 গ) মেটাফেজ                    ড) টেলোফেজ

১৩. কোষ বিভাজনের কোন ধাপে সেন্ট্রিয়ার দুইটি খণ্ডে বিভক্ত হয়?

ক) এনাফেজ                      খ) প্রো-মেটাফেজ  
 গ) মেটাফেজ                    ড) টেলোফেজ

১৪. নিউক্লিওলাস ও নিউক্লিয়ার মেমব্রেন বিলুপ্ত হয় কোন ধাপে?

ক) মেটাফেজ                    খ) টেলোফেজ  
 গ) প্রোফেজ                      ড) এনাফেজ

১৫. মেটাফেজ কোষ কোষ বিভাজনের অংশ?

ক) মাইটোসিস                    খ) মিয়োসিস  
 গ) অ্যামাইটোসিস              ড) কোনটিই না।