

## 가상대학 구현에 관한 연구

### A study on the developing and implementation of the Cyber University

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#### Abstract

#### \* The Necessity of Cyber University.

Within the rapidly changing environment of global economics, the environment of higher education in the universities, also, has been, encountering various changes. Popularization on higher education related to lifetime education system, putting emphasis on the productivity of education services and the acquisition of competitiveness through the market of open education, the breakdown of the ivory tower and the Multiversitization of universities, importance of obtaining information in the universities, and cooperation between domestic and oversea universities, industry and educational system must be acquired. Therefore, in order to adequately cope with these kinds of rapid changes in the education

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environment, operating Cyber University by utilizing various information technologies and its fixations such as Internet, E-mail, CD-ROMs, Interactive Video Networks (Video Conferencing, Video on Demand), TV, Cable etc., which has no time or location limitation, is needed.

Using information and telecommunication technologies, especially the Internet is expected to bring about many changes in the social, economics and educational area. Among the many changes scholars have predicted, the development and fixations of Distant Learning or Cyber University was the most dominant factor.

In the case of U. S. A., Cyber University has already been established and in under operation by the Federate Governments of 13 states. Any other universities (around 500 universities has been opened until now), with the help of the government and private citizens have been able to partly operate the Cyber University and is planning on enlarging step-by-step in the future. It could be seen not only as U. S. A. trying to elevate its higher education through their leading information technologies, but also could be seen as their objective in putting efforts on subordinating the culture of the education worldwide. UTRA University in U. S. A., for example, is already exporting its class lectures to China, and Indonesia regions.

Influenced by the Cyber University current in the U. S., the Universities in Korea is willing to arrange various forms of Cyber Universities. In line with this, at JUNAM National University, internet based Cyber University, which has set about its work on July

of 1997, is in the state of operating about 100 Cyber Universities. Also, in the case of Hanam University, the Distant Learning classes are at its final stage of being established; this is a link in the rapid speed project of setting an example by the Korean Government. In addition, the department of education has selected 5 universities, including Seoul Cyber Design University for experimentation and is in the stage of strategic operation. Over 100 universities in Korea are speeding up its preparation for operating Cyber University.

This form of Distant Learning goes beyond the walls of universities and is in the trend of being diffused in business areas or in various training programs of financial organizations and more.

Here, in the hope that this material would some what be of help to other Universities which are preparing for Cyber University, I would like to introduce some general concepts of the components forming Cyber University and Open Education System which has been established by JUNAM University.

System of Cyber University could be seen as a general solution offered by the computer technologies for the management on the students, Lectures On Demand, real hour based and satellite classes, media production lab for the production of the multimedia Contents, electronic library, the Groupware enabling exchange of information between students and professors. Arranging general concepts of components in the aspect of Cyber University and Open Education, it would be expressed in the form of the establishment of Cyber University and the service of Open Education as can be seen in the diagram below.

## 2. Framework of Cyber University

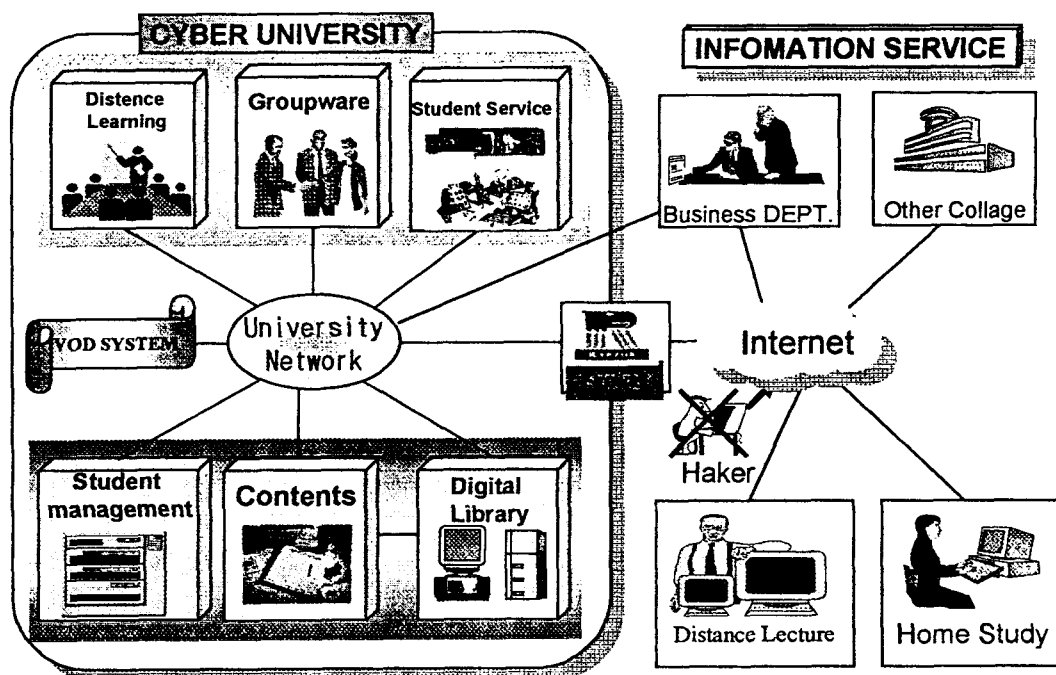


Figure1 . Full Configuration of Cyber University

The organization of Solution for the operation of Cyber University is consists of Distant Learning System, Groupware System, Student Information Service System in the organization field for carrying out the Distant Lecture, Student Management System, Business Management System, Digital Library System, Contents Building Area in Solution Area for operating Cyber University and these, not only, support in enabling Distant Lecture and Home Study, but also enables the exchanges of credits between colleges.

Cyber University and Open Education System established through coordinating the technologies of Hardware, Software, Network is produced by Internet Lecture or LOD (Lecture On Demand) and through the

service of internet or inner LAN (Local Area Network) the Distance Lecture and Home Study on Cyber Space has come to reality.

The classification of the general functional elements of Solution is as follows:

### **A. Distant Learning System**

Contents Building and Distant Learning is the core elements in operating Cyber University. It is the process of notifying his / her Lecture Contents for the Distant Lecture on the internet. Here, the lecture contents are produced through the multimedia production lab according to the course plans and also the information of research papers or books which could be referred to related on the cyber lecture, could be notified. If necessary, the contents of the lecture could be changed and deleted at any time.

INTRA 21 supports various kinds of production, supply, operation and termination of the contents of the lecture and the contents prepared by the multimedia appliances such as, Word Process, Power Point, HTML Editor Multimedia are also available for notifying in standardized materials and its management is provided.

Distant Learning enables Home Study for the Cyber University students without the trouble of time and location limitation. A student can study whenever, and wherever he / she prefers by the internet. Carrying out the Home Study, if necessary, the contents produced by Cyber University Center through LOD (Lecture On Demand) System could be provided.

### **B. Student Management System**

General Survey of the courses lectured in Cyber University is notified through the internet enabling students to choose their courses. Advertisement on Cyber University, registration through internet is also available.

If registration for Cyber University is requested, registration at the Cyber University Center in person together with the online registration through the internet is preferable. However, after the approval of registration, registering for the courses are admitted only to those who have completed paying the tuition fee.

Courses at Cyber University are introduced only to those who have been approved for the enrollment and other various information needed for the registration of the courses are provided.

The Student Management System is different from the management system processed by utilizing the pre-existing Student Management System. A Different kind of management system is developed for the particular use of Cyber University. This system should be organized in a way that information on students' academic record and personal records of both students' and professors' could easily be exchangeable in order to bring reality to the Cyber lectures. Furthermore, student academic records, after the completion of the course, is organized for receiving information from the Distant Learning system and is recorded through the Student Management DBMS.

When Student Management System, once, is established, enrollment, registration for the courses, graduation and more is made possible through the system.

### **C. Contents building system and Digital library**

Similar with the cases oversea, Multimedia Contents with the existing information is managed as part of the library collection. After the completion of the creation and distribution process of the lecture materials, they are stored in CD or the Multimedia Data for backup management in the library. The text of reading materials, which are used in lectures, such as books related to the course and various theses papers, are also to be made possible as reference. The management on these Digital Contents are stored in PDF, TEXT, HTML, XML contexts and is utilized as materials for the lectures.

### **D. GRUPWARE System**

In the case of Groupware System, it encompasses the capacity of

groupware bringing efficiency the operation of Cyber University. It enables counselling and exchanges of information between professors and students at the Cyber University. Providing services on various information through the bulletin board system, operation on lectures open to public, letters and voice chatting systems on internet are all provided bringing closed group discussions between students and professors possible.

Groupware System provides E-Mail, BBS, Chatting, Personal Information Management, Schedule Management System.

### **3. The Ways of Successfully Operating Cyber University.**

#### **A. Organization of Internet Lectures**

First, the contents of the lecture should be able to be prepared based on HTML for the lecture on Cyber Space, second, it should provide a system which the lecture materials for the semester could be easily notified through Web Server. Third, the notified materials should be established in a way which lectures or requested form of lectures would be efficiently used for Distant Learning or Home Study.

Furthermore, exchanges between professors and students, registration for courses, enrollment, attendance record, academic records of the students, tests through internet and many other necessary operations for lectures should be fully equipped.

#### **B. Organization of Lectures On Demand**

When lectures are carried out in reality the deployment in the sense of satellite broadcasting, the service should be provided in the form of

Learning station of local. However, in order for the lectures to be processed in both ways, organization of studio is a necessity for the lectures in reality. As a simple example, in the case of UTRA University in U. S. A., operation of the studio, not only is supplied to the existing Learning station of local at 5 states and is carried out in the open education level but also distribution by the satellite is made possible. Both ways lectures are made possible even to the Local node overseas. Here, the contents of lectures should be exchangeable domestically and internationally.

#### **D. The Organization of Textbook Production Lab**

The Textbook production lab should be equipped with the necessities for the production of Multimedia textbooks and should enable the production of lectures. In addition, it should be prepared for services through internet or satellite by efficiently managing the already produced contents of the lectures and the tools for producing them. In line with this, for the professors who are not familiar with the internet, convenient HTML producing equipments and instruction tools for notifying on the Web Server should be provided.



#### 4. Fundamental Technologies needed in the Realization of Cyber University

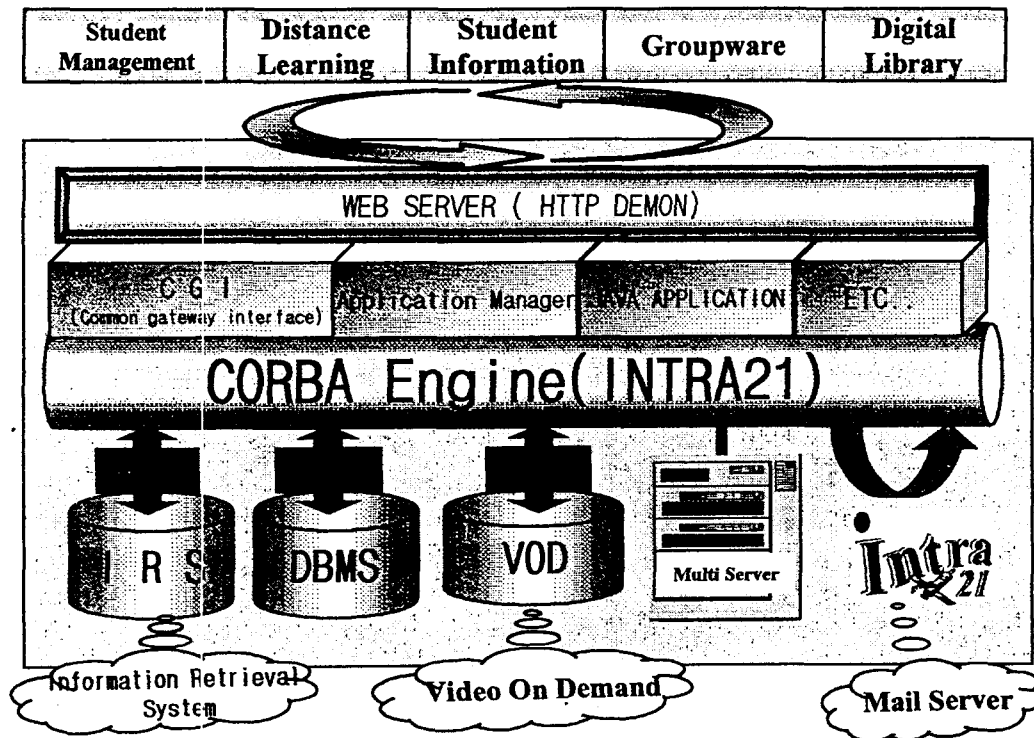


Figure.2 . Fundamental Technologies of Cyber University

The fundamental technologies needed in the realization of Cyber University has been equipped in the sense of complementing the demerits of Web CORBA based Middle ware. The Middle ware has been set up for Web based environment which enables ODBMS, IRS (Information Retrieval system), and VOD (Video On Demand) for managing the materials for the Multimedia lectures acquiring Multi-servers, Multi-users without the utilization of CGI (Common Gateway Interface) program.

The Software for the management of Cyber University consists of Distant Learning module for Distant Learning lectures and Home Study between the professor and student, Student Management module for enrollment, anagement on registration and graduation of the Cyber University students,module for providing the necessary information for the students Student Servicing module for the exchanges of Multimedia information between professors and students, electronic library module for the reference provided of thesis papers and reading materials for courses, and finally, the Lectures On Demand module for Multimedia Lecture.

## **5. Conclusion**

### **– Cyber University in the Coming of 21st Century**

Up to now, preparation of Solution for the management of Cyber University and its general plans aspect of operation has been mentioned. Still, up to present, the various legal and systematic arguments on the operation of Cyber University and the touch of humanity elements ignored between teachers and students in the class of Cyber University has been brought up by many universities and yet have not been completely solved. Presently, among the many problems universities are worried in carrying out the Distant Lecture, one of them is the lack of humanity. Through Distant Lecture, teachers and students are exchanging merely knowledge and information no humane side of emothions could be exchanged. Another problem pointed out is the class of people which are left out in Distant Lecture. However, what has been witnessed in the materials based on case studies of Distant Lecture done for 1 year of 1997, cyber lectures have been able to induce the nonactive students to active participants in class; around 90% of class participation was acieved.

I strongly believe that the education in the 21C would be approached in the aspect of life-long, Open Education and beyond the barriers of rationality. At present, as national power is determined by economical strength. I can assure you that in the 21C national power would be destined by cultural, information and educational wars.

And to be prepared for these wars, it seems that wise judgements and readiness by the education and school organizations are needed and like the re-organizing movement in the economical structure, education system should also be free to undergo re-organization. In line with this, I believe that preparation for Cyber University is the pride in continuing our own nation's administration of education culture and is for the coming globalization of Universities of the 21C.

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