INFORMATION MANAGEMENT

Fumio Shibui

1. Intoroduction

Due to development of information technology, as well as our increasing international ization. our industrial society is continuously and vigorously changing.

The rapid changes have occured in the area of education as well as in our social environment as a result of Office Automation. Particularly school automation (SA) has had a strong inpact on education. Lately much attention has been focussed on both multi−media and telecommunications.

The long distance multi−media education supported by satellite system for both school students and office workers became very popular through the use of multi−media and telecommunications. This research is an application of the technologies of multi−media and telecommunications to the education system. My research forms a part of the currenttrend of studies focussed on the rapidly developing area of satellite−dependent long−distance multi−media technology for domestic and international education. This research includues analysis and evaluation of the effective Human Interface of a multi−media system currently in use, and investigates whether these systems can be used in the field of educational Human Interface. The results of the research clearly indicated that satellite long distance education systems areas nearly effective as normal classroom teaching. The Configuration show in **Fig** 1, **Fig** 2, **Fig** 3.

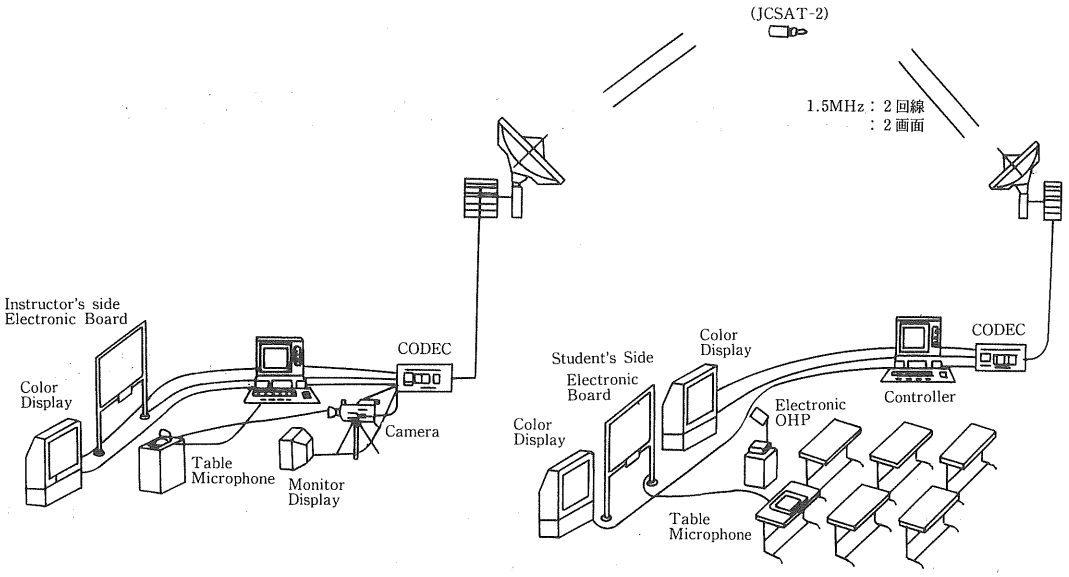

Fig. 1 Struchture of the experimental system for distance learning

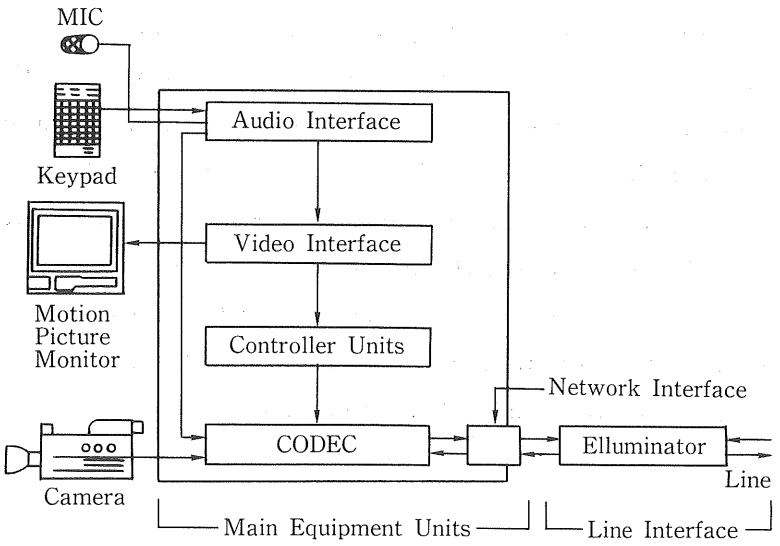

Fig. 2 Structure of the System for Visual Communication

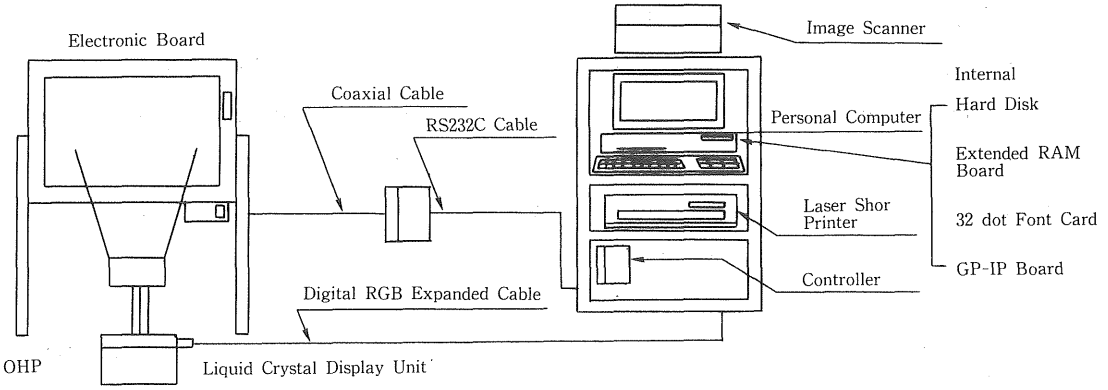

Fig. 3 Structure of the Experimental System for Distance Learning

The news items of newspaper published in Corvallis that the seat of Oregon's State University

Friday, July 10, 1992, Corvallis Gazette-Times, Corvallis Ore.

OSU to test link with Japan today

Would you like to take a course at a Japanese university without leaving your own campus in the United States?

Or perhaps you'd like to ask a few questions, face to face, of a leading expert in your field who happens to be in another country.

A live teleconference between 5 and 8 p.m. tonight linking Oregon State University and Asia University in Tokyo will be Oregon's first test of a system that could lead OSU to worldwide teaching and research through the possibilities of interactive, televised communications.

"The implications for research, instruction and communications are incredible," said George Keller, vice president for research and international programs.

"Already we have faculty members co-authoring scholarly publications with their counterparts in other countries by using electronic mail. The addition of the visual component significantly enhances the international exchange possibilities."

The technology that OSU will use to facilitate the interactive telecast is a $50,000 high-tech device called PictureTel, on temporary loan to OSU from American Telephone & Telegraph Co.

PicturTel compresses the video and allows the signal to be carried through telephone lines beneath the Pacific Ocean. With PictureTel, the cost of transmitting the program equals the cost of two long distance phone calls between Corvallis and Tokyo, or less than $100 per hour.

At the Japanese location the "Use of Distance Learning" panel discussion will feature Professor Kenji Saga, a telecommunications expert in Japan and a faculty member at Asia University. Allen Sellers, director of OSU's English Language Institute, also will participate from Tokyo.

The idea for the teleconference came through correspondence between Saga and Jon Root, director of the Communications Media Center at OSU. Saga's recent visit to the OSU campus finalized the agreement.

"Asia University hired Saga because of his telecommunications expertise," says Karl Drobnic, director of OSU's Asia University America Program. "The university is on the cutting edge of educational reform in Japan, particularly because of its international focus.

"Currently it sends 700 students per year to the U.S., 150 of them to OSU, in one of the few successful attempts to send Japanese students here in large numbers."

OSU President John Byrne will participate in the panel discussion. Nancy Rosenberger, assistant professor of anthropology at OSU, also will appear on the panel along with Keller and Drobnic.

Also present at the OSU location will be the president of Asia University, Shin'kichi Eto.

2. Multi－Media distance education system

A multi－media distance education system was configurated, a distributed type education was conducted, and a quantitative analysis of time－dependant human factors was carried out. The psychological aspect of the multi－media distance education system was evaluated by surveying users' feelings and impressions over time as they attended a lecture by means of the system. Five categories were used as an estimation of human interface for learners: Understanding, interest, enthusiam, physical condition, and concern over the ending time of the lecture. Based on these five categories, ordinary learning and distance learning were compared. From the quantitative analysis of the differences between these two educational methods, vitalfactors affecting students' assessments and influencing learning characteristics were extracted. Three factors were found to be particularly important in assessing learning characteristics: physical environment, such as "sound field" and "easy to see"; educational method, such as "teaching method" and "easy to understand"; and lecture content. Methods improving multi－media telecommunication in the virtual classroom environment, as well as the possible distance－education classroom application of computer cooperative work (CSCW), shall be pro posed.

In order to develop better instructional plans for distant learing, the authors investigated the psychological aspects of "understanding," "intest," "enthusiasm," "physical conditions," and" concern over ending on time. "Date included information secured from objective classroom observation and videotapes showing the integrative aspects of the teachers' instructional behaviors and the students' learning behaviors.

Through the results of this study a number of negative aspects and areas requiring improvement became evident. Among these were things which the teacher should take a positive approach, to include: (1) Instruction should not be one－way but should include "questioning the students," "questions and answers," and "discussion." (2) Related to content, the teacher should"reconfirm basic information" and "use simple explanations." (3) Related to the learning environment were such things as, when using audio or video,the teacher should pay attention to regularly adjusting the picture and volume as necessary as well as he or she should be careful to write clearly on the board.

3. Intelleclual Computer Associated Instruction

Nowadays, there are many learning systems that facilitate learning assembly language. Moreover, these systems have been developped to intellectually support learners.

As far as education is concerned, the systems which will intellectually support learners need to adopt more of intellectual user interface technique and knowledge engineering to create a completely intellectual.

There are three aspects of design and intellectual Computer Associated Instruction.

1) Intellectual user interface

2) Student model

3) Tutor

The basic function of the system is to simulate assembler with interactive error diagnostic function which will give a diagnostic result.

These simulator system is expected the effect to trainng for level up specialized knowledge.

However, there is not system correspond to learner's attribute, scholarship level, school carrer, technique carrer, real power ability fitly.

It was be problem is not to be correspond enough to propose learner more properly advice to format error, program error when students make up program.

Authers produce make more intellectual system take in methode multi−media, knowledge process to assembler education for solve these problems.

The main problem of these systems is that they do not have enough response to students' error such as programing errors which students are actually creating while they are programing. Using multi−media feature, the authors hoped to solve the mentioned problems.

The system will properly advice students of their simple mistakes in programming while they are creating one for their own so that they can correct their mistakes in the early stage.

And it release a instructor from worry about discovery advisory which their mistake in the early stage, and more direct Instructor's labor to essential Assemble, Algolism etc.

The system utilize GUI (Graffic User Interface), multi−media to learner's interface and have strongly Intellectual user interface function that is easy for learnes to understand also.

Further, Multiwindows fanction that one of them. Learners is impelled to ease understand reason for can all at once display to source fail, Object fail each register, stacker memory by Multiwindows function one of them.

4. Micro Computer study supporting system

Microcomputer Study supporting system, which satisfies the condition that systematic skill to computer hardware and software synthetically, has developed. In this system, programming can be done without hand assembling (technically assembling is possibie), and many input and output circuits are equipped. Therefore, students can learn interface skills thorough various exercises if they study microcomputer and its interface system in the Lecture.