

Telecommunication and Distance Learning for the Deaf Through Multimedia

--- Collaboration and Educational Practice ---

Tsutomu ARAKI

Department of Mechanical Engineering, Tsukuba College of Technology, Tsukuba, Japan

keywords: Multimedia, Internet, Telecommunication, Distance Learning, Collaboration

INTRODUCTION

The utilization of the Internet is spread from the collection of information which is sent by ourselves. It has developed much from information exchange and is aimed at collaboration between schools from their homepages on the WWW. Specifically, a person who has a hearing impediment has trouble communicating with a person who is in a distant place. But, through telecommunication it becomes easy. Making use of the video conference system, visual communication which includes sign language was added owing to the ISDN digital circuit, and then telecommunication and distance learning were begun. The aim, in an educational environment with various ways of communication and information exchange, is to lead collaboration between the schools which use multimedia for the activation of learning activities and the evocation of a desire for learning. This is introduced visually here.

PRACTICE



Homepage of Tsukuba College of Technology

Information from TCT is turned to the world on WWW, and it is being sent.

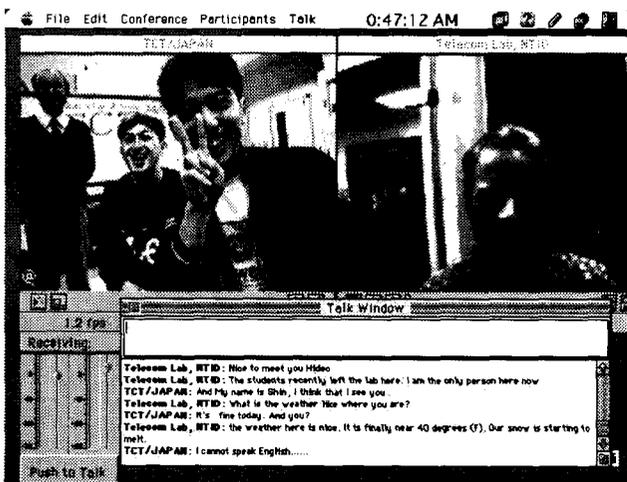
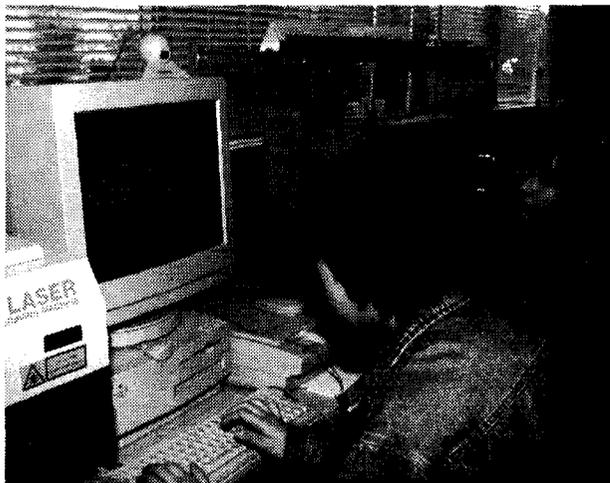
<http://www.tsukuba-tech.ac.jp>

TCT Takes Charge of an Internet Corner



TCT and the Department of Computer Science of the Junior College Division at Tokyo Kasei Gakuin Tsukuba Women's University cooperated, and the way of using the Internet was pleasantly, introduced at the Tsukuba Science Festival where laboratories of and various universities Tsukuba Science City participated. It was the precious first step to participation in society.

Visual Telecommunication



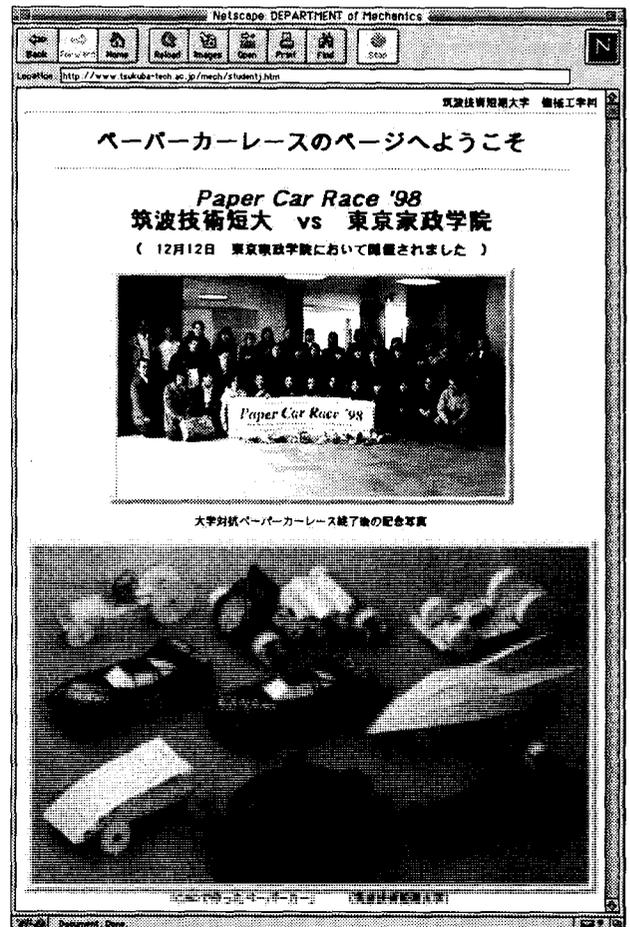
NTID and TCT are communicating by using the little video camera on the Internet. Communication can be done by images, voices, characters, and so on, distinctly, easily and happily.

A message from NTID



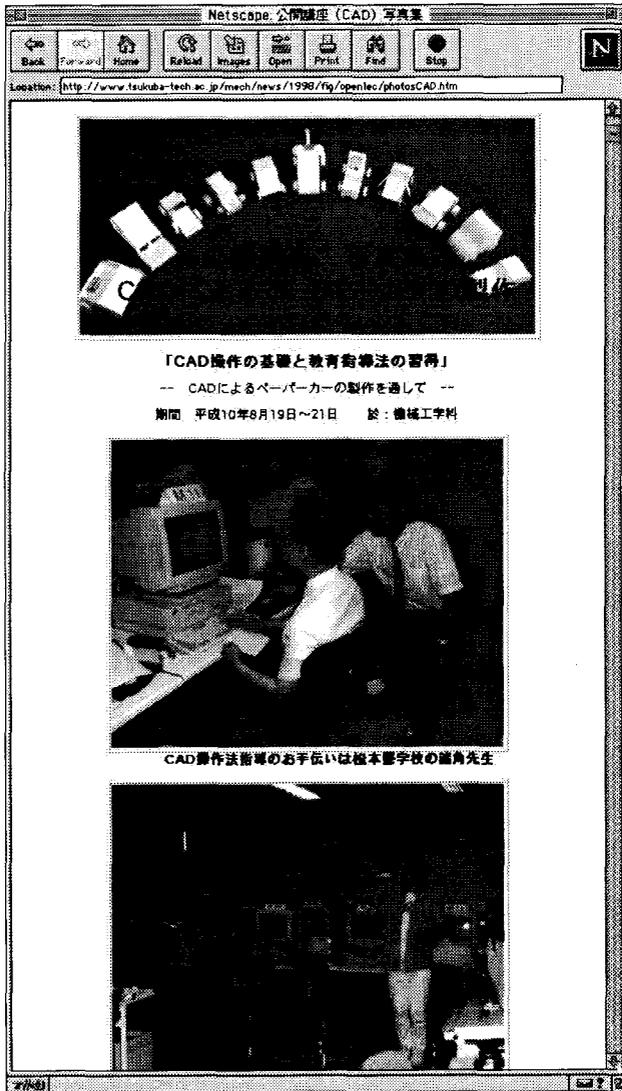
At the ceremony TCT received a message from NTID as a sister school in the United States via the Internet.

Paper Car Race



Every year a paper car race is conducted between TCT and Tokyo Kasei Gakuin. Arrangements, the transmission of the CAD drawings, the announcement of the race, results, and photographs are a big activity shown on the Internet.

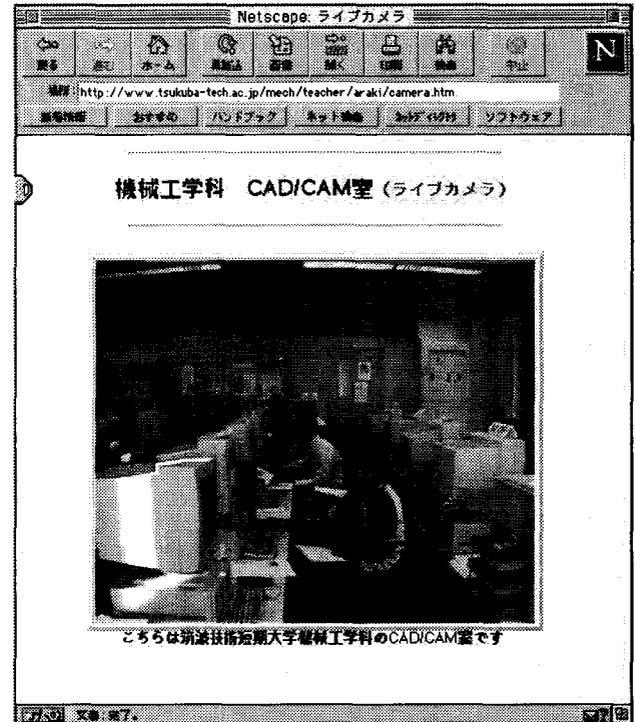
The Homepage of the Open Lecture



There has been an increase in the people whom it was announced to on the Internet, and to those who applied. A view of a lecture in progress is put on the WWW simultaneously, and introduced to the public widely in a class of the foundations of CAD which is sponsored by the Department of

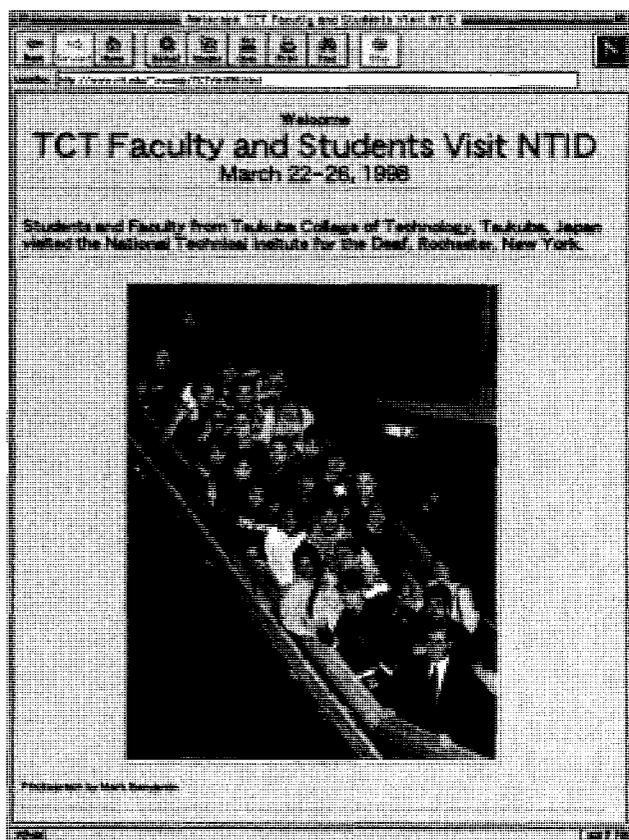
Mechanical Engineering. A memorial photo album of the students taking the lecture.

A Class Visit by the Live Camera



An Internet camera is installed in the CAD/CAM room of the Department of Mechanical Engineering. Setup of the room can be seen in an Internet page access by the camera server. It was being told that a student's father had seen this page in his workplace. Throughout the whole country every family can do a class visit by the Internet, and the image of their child who learns cheerfully can be ascertained. Incidentally, a class visit can be arranged by the Department of Mechanical Engineering even if the parents do not have a computer if it is accessed in accordance with a time table using this classroom from an electrical appliance store in their town. It is used in some places in TCT instead of the telephone for the confirmation of the room, and used as the control system for safety, as well as being used for convenience.

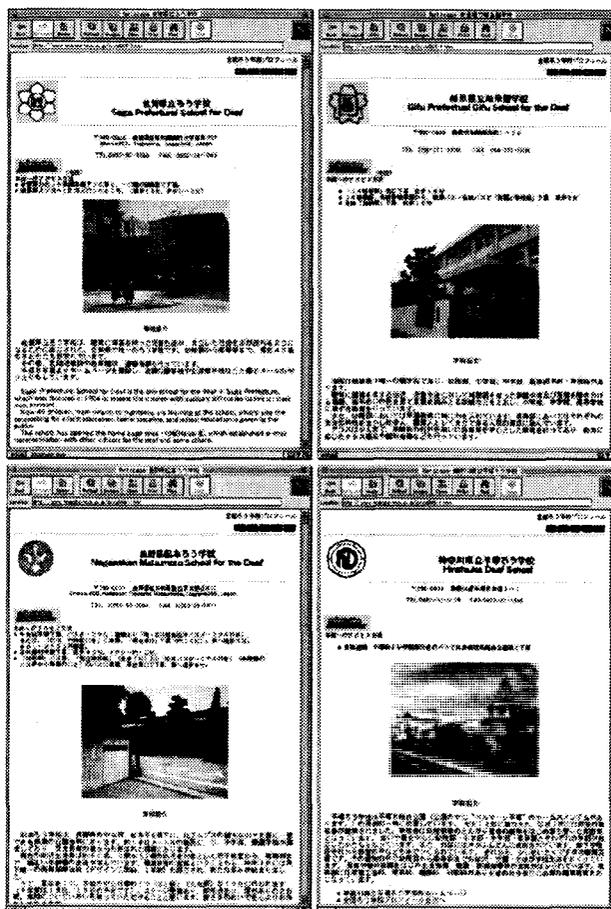
Using the Internet



Students and faculty visit the sister school, NTID in the United States, every March. Visitors' photographs of the faces are sent prior to this visit via the Internet, and handed over to the host students. This helps familiarity before the students of TCT are met. The commemorative photograph which was taken at NTID is received on the Internet, and the students' happy expression can be seen. In the past the photographic image was attached to the e-mail but it has been put on the homepage of the WWW, which informs about the URL.

Information Exchange between Schools

It had the cooperation of all schools for the deaf in Japan, and the homepage of "The Profile of School for the Deaf in all Japan" was made on the WWW of TCT. Then, it began to be used, and has continued to be used for a year and a half. When



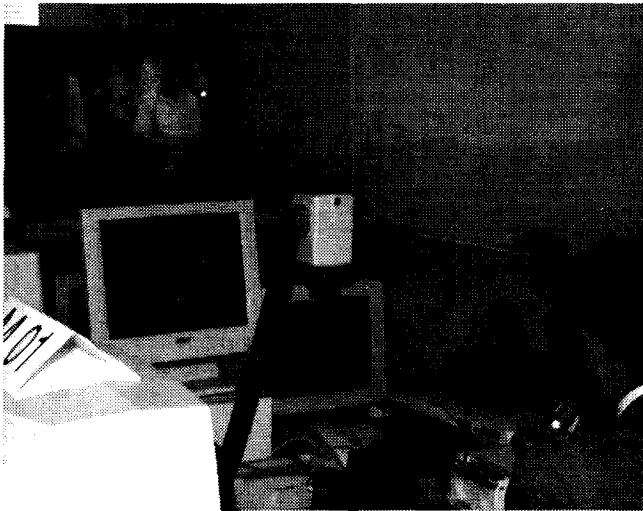
this page is accessed, the profile of the schools for the deaf of all Japan can be looked over. It is easy to handle, and convenient to know the outline of the schools for the deaf in the whole country because the introduction of it is shown with the same pattern, one after another. Schools which have a homepage are linked with the pages of the other schools. If a school for the deaf is looked up with a search engine, the corresponding TCT page opens at once, and that information will be able to be accessed. The introduction of each school for the deaf and access information are being written. It is hoped that this homepage functions as a data base and is used effectively. Through the many schools for the deaf throughout the country, we would like many students to read and learn from it. And, it is desired for deaf students to know many friends

and to do their best in each school for the deaf. This is a start for collaboration and close association to be made more smoothly between schools.

COLLABORATION AMONG CLASSES

Utilization of the TV Phone

(Video Conference System)



Connecting a remote class was done between the Kumamoto School for the Deaf in Kyushu and TCT (900km) via the videophone and the Internet on May 14, 1998. Fukuoka School for the Deaf was added also, making a three-school connection, and distance learning by the multiple point connection was done on May 20th. Instructions in making a paper car were given in the classes of the Department of Mechanical Engineering of TCT entitled "Production of the Paper Car by CAD" as a machine design drawing practice. How to design, and CAD practice for the students in TCT.

Junior high school students participated eagerly through Distance Learning of the way of making the paper car. Communication of the voice and the image are done in this Distance Learning by the video conference system which uses ISDN

digital circuit. Image data such as photographs, characters and an exchange by drawings could be done with each other by using the function of white board of "Net Meeting" of the Internet. Guidance and explanation by typed characters and writing on the photograph of the student's paper car could be carefully done in addition to the explanation by sign language. The lecture could be advanced by grasping a degree of understanding from the students' expressions and attempting a lecture because a class could be done while viewing a classroom from a great distance.

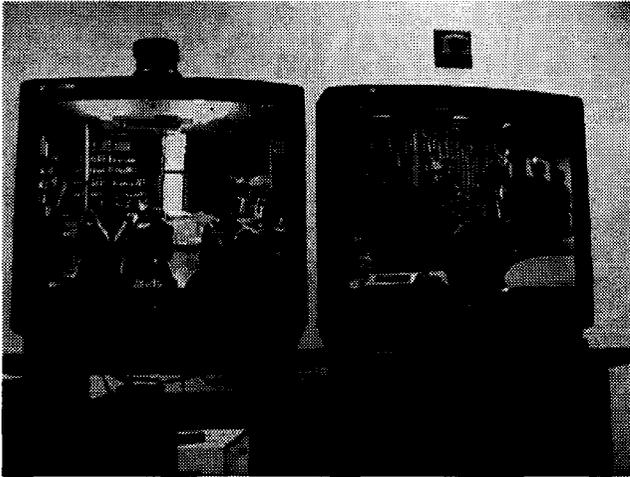
Connection with the Video Conference System of NTID



TCT was connected with NTID, and it went by the announcement of the video conference system establishment of NTID through visual telecommunication on May 16, 1998. Even a newspaper was introduced with the heading "Communication Happily with Sign Language". A conversation with sign language and expressions could be done easily, and the method of communication was spread with faraway people.

Living Class of English

Students of TCT just before visiting America, and they are learning ASL for actual communication. Communication using the video conference system is used for deaf students.



When NTID was visited, it was connected with the English class of Kumamoto's School for the Deaf with the television conference system. Teachers in the United States were very pleased to see that students of a junior high school did a self-introduction in English well.

CONCLUSION

Visual telecommunication and distance learning for the deaf through multimedia and Internet has begun. That there is a willingness to try to make educational improvement by using a collaboration system between schools by a new means is important. Future effective use is expected for the education of the deaf. A part of this was accomplished thanks to a Grant-in Aid for International Scientific Research, through University-to-University Cooperative Research of the Ministry of Education, Science, Sports and Culture.

References

- 1) <http://www.tsukuba-tech.ac.jp/mech/studentj.htm>
- 2) <http://www.tsukuba-tech.ac.jp/mech/news/1998/openlec98.htm>
- 3) <http://www.tsukuba-tech.ac.jp/mech/overvij.htm>
- 4) <http://www.rit.edu/~ewcnpc/>
- 5) <http://www.tsukuba-tech.ac.jp/zr/>
- 6) <http://www.sysken.or.jp/kumarou/sityokaku.html>
e-mail: araki@a.tsukuba-tech.ac.jp