3-D Concepts in Communication Studies

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During the past few years, holography has become an attractive course for students from the departments of Communication Arts and Communication Studies. With the exception of two or three schools in the U.S. that specialize in teaching holographic skills and a few courses offered in Canada, hidden in departments of Physics, Fine Arts and Communication Studies, there has been little done in examining holography as an integral part of the communications media.

As early as 1968 and 1969, the Department of Communication Arts at Loyola College has looked at 3-D concepts. At that time, holography was only three years old and relatively unknown beyond the scientific community. The comprehensive concept of theory, research methods and practicum dealing with all communication media, beginning with print and photography to motion pictures, radio and television, was slowly being pioneered within the curriculum of the Department. 3-D or space concept, had fallen into the area of information environment, and for a short time, was associated with the stage and theatre. During the early part of 1970, in 1971 and 1972, knowledge of coherent light and lasers became more available and was taught within the area of communication research practicum. In 1973, the first lasers were acquired and simple exercises were practiced by students. In 1975, the holographic laboratory became part of the communication research studio of the Department.

During the spring of 1976, an international symposium was held at Concordia University (resulting from the merger of Loyola College and Sir George Williams University), where scientists and educationalists from the U.S., Europe and Russia revealed the latest developments in the area of 3-D film and television. From that time on, holographic seminars were held more regularly and holography became firmly implied within the departmental curriculum.

The question of teaching 3-D concepts in communication media falls into five levels (niveaux):

1. Level of Understanding, Appreciation

Here, the basic principles of holography are taught in a popular manner, in a descriptive, appreciative mode. Students are required to understand how holograms are made, what kind of systems are in current use, and what kind of potential the medium has.

At this level, it has been our experience that no special course is necessary. Instead of a specialized course, we have included chapters of holographic media in more general courses: the course "Mass Media Communication" touches holography and its potential as a new medium, viewed psychologically, socially and politically; and the course "Media Forecast" includes holography in the survey of new media potentials. Quantitatively, in both courses, the holography content consists of 2-3 lectures, or 2-3 individual student projects.

2. Level of Skills

Here, the student must acquire the general knowledge of the laws of optics, light, interference. Basic, static holography is practiced and transmission or reflection holograms are made.

At this level, it has been our experience that the form of seminars has been more effective than a regular course. Being the Department of Communication Studies, the teaching of technical skills is not the primary task of the undergraduate curriculum. Therefore, the fact acquisition of necessary technical skills can be best accomplished through an extracurricular mode.
3. **Level of Communication Analysis**

One of the basic problems we have encountered in teaching the 3-D concepts in media, was the need for identification and coding of 3-D space.

This is achieved by a special method - a combination of system theory and cybernetics called communication analysis. Students are required to investigate, identify and code an existing piece of 3-D space, which can then serve as a location for a mediated artwork.

4. **Level of Communication Research**

During the initial stages of our curriculum development, it became apparent that after the acquisition of basic skills, the student will need a more solid knowledge of the 3-D concepts, viewed from the human point of view.

Therefore, within the framework of the course "Communication Research", students may choose as one of their options, the 3-D space research, where the basic information impact of mediated space is researched by psychological, psychometrical and psychophysiological methods in the biometric laboratory.

Examples of 3-D space can be any reality, 2-D representation of space, or 3-D holographic space.

Quantitatively, 3-D projects count for 8-10% of all projects in the course.

5. **Level of Information Design**

This is the most advanced level we have achieved so far. The most difficult problem in 3-D concepts we encountered was to organize and design the space, so that a strong artistic and information impact results from the mediated 3-D artwork.

We have tried two approaches:

(a) Basic mental skill of 3-D composition is taught in the course "Visual Dynamics", where space composition is explained and practiced within the traditional media - photography or film.

(b) The specialized skill of space organizing is taught in the course "Communication Programming", and its special digital mode in the course "Computer Communication Programming". In both courses the emphasis is on space design, not on the technical execution of the piece. In the first course the manual approach is used, in the second course the mathematical modeling is practiced.

Regarding facilities, we have progressed from a very small, primitive laboratory during the years 1968-69, to a large research studio with manual and electronic programmers, holographic tables and lasers. In preparation, is a space for life-size holograms and a unit for high-speed holography.

But as I underlined from the beginning, the technical facilities are of little use if students do not understand the potential, specifics and difference of 3-D concepts in the communication media. This concern of the "content" of holography will save many large investments or curriculum efforts.

Generally speaking, the 3-D concepts within our Department of Communication Studies encompasses about 8-10% of overall effort, student population or content of the courses. And holography is only part of the 3-D concepts approach.

The medium is new and inventions of holocameras or transmitters come to us year by year. So our concept of teaching must be flexible enough to bend toward the new developments and avoid blind alleys.