PATRICIA SEARCH

THE *RHYTHM* & STRUCTURE OF MULTICULTURAL COMMUNICATION

Global culture: one, many or none?

Social scientists throughout the world are raising questions concerning the impact of telecommunications on the development of a global culture. While some theorists take the position that telecommunications will erode cultural differences and leave museums as the sole purveyors of cultural history (Horne 1984), other experts propose the emergence of not one, but several types of global cultures. For example, Arjun Appadurai (1990), Professor of Anthropology and South Asian Studies at the University of Pennsylvania, proposes five dimensions of global culture:

- **ethnoscapes**: the migration of tourists, immigrants, and refugees;
- **technoscapes**: the flow of machinery and technology produced by international corporations and government agencies;
- **finanscapes**: the international flow of currency and stock exchanges;
- **mediascapes**: the international distribution of news and media communication;
- **ideoscapes**: the images and associations linked to national ideologies.

Not all social scientists are following Appadurai's lead in detailing distinct levels of global interaction. However, many experts, like Ulf Hannerz from the University of Stockholm, define two general categories of global culture: local cultures defined by geographical boundaries, and cosmopolitan cultures which are comprised of transnational cultural networks (Hannerz 1990). While such perspectives on global cultures acknowledge that electronic technology is reshaping the structure of international dialogue, there is little evidence to suggest that telecommunications will lead to a universal global culture that eliminates cultural diversity.

Anthony Smith, a sociologist at the London School of Economics, points out that a true global culture would have to be based on a shared identity stemming from common history and social practices, further negating the prospect that a global culture could be 'constructed' merely on the basis of communication technology that diminishes the significance of national identities (Smith 1990). In fact, in recent years there has been a resurgence of submerged ethnic cultures (Richmond 1984). Smith attributes this phenomenon to the growth of telecommunications which has intensified cultural diversity by linking communities that share similar cultural backgrounds (Smith 1990, 175).

In the future, the potential for reaffirming and preserving cultural diversity will increase as global networks provide users with a wider range of interactive applications and expand the use of audio-visual data. However, in order to take full advantage of multimedia computing as a medium for cultural expression, systems designers must acknowledge the authors of electronically disseminated information and use the semantic structure of the program and the semiotics of the user interface to define the 'rhythm' and 'structure' of ethnic identities. The user interface must reflect the psychological, historical, and social forces that form the foundation of cultural diversity. However, before we can evaluate design criteria for such interfaces, we must understand the differences between the psychodynamics of oral culture (where the seeds of cultural diversity were sewn) and of multimedia computing.

The psychodynamics of orality and multimedia computing

In oral culture, knowledge is derived from physical and psychological interaction with the environment and individuals. Representative objects establish perceptual and cognitive references for interpreting the subtle nuances in interpersonal communication. Communication is based on group interaction in which sensory input is derived from speech inflections, body language, and tactile stimuli – all of which convey immediate, perceptual feedback.

With electronic communication, the lack of movement and interaction in physical space reduces tactile and kinaesthetic-spatial stimuli. The rhythm of communication changes. Knowledge is removed from physical action and becomes highly symbolic through abstraction (Zuboff 1988). Time and place are established by the content of words and images not via physical space or events. Furthermore, with interactive digital technology, it is possible to alter the perception of time and space by digitally modifying data and viewing information outside its narrative context – a process that further increases the levels of abstraction and codification in electronic communication.

Multimedia telecommunication is also changing the way we interpret concepts of authorship and invention. In oral culture (and most forms of narrative communication) considerable emphasis is placed on the significance of the 'storyteller' or individual who creates the information as well as the social group that translates the ideas into a cultural identity. Authorship and invention, whether individually or group defined, are the hallmarks of cultural diversity. However, with electronic communication, there is a tendency to focus on the content of the data and the synthesis of individual and collaborative perspectives, instead of highlighting the creators of the information. The result is a communication format which is characterised by cultural anonymity rather than cultural distinction.

Preserving cultural diversity

Once we understand the psychodynamics of orality and multimedia computing, we need to learn how to use the design of multimedia telecommunications to articulate and preserve cultural diversity. Interactive multimedia programs should acknowledge the role that authorship and invention play in defining cultural identities by clearly documenting the names of individuals or groups who contribute information to the program. Multimedia programs should also use the semantic structure of the program and the semiotics of the interface design to convey the rhythmic structure of a culture (Figure 1).

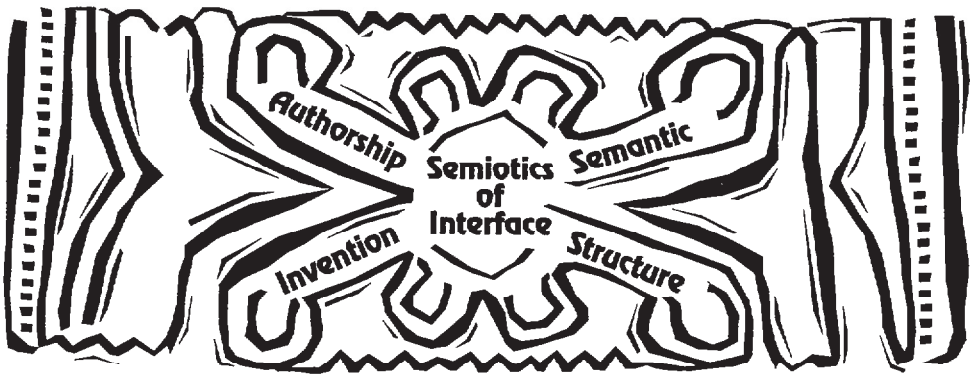

Figure 1. The design of multimedia telecommunications. Multimedia networks can use authorship and invention, the semantic structure of the program, and the semiotics of the interface design to articulate and preserve cultural identities.

Authorship and invention

Interactive multimedia programs contain multiple levels of authorship, including the authors of the individual source documents in the database, the editors and designers, and the users of the program who organise the database information to meet individual objectives (Search 1992). Most of today's interactive programs fail to define these individual levels of authorship. The editors of the programs are rarely mentioned, and users can follow predefined links between references without ever seeing the names of the authors, artists, or publishers.

In order to establish the cultural perspective of a multimedia program, it is important to acknowledge its designers and editors as well as the authors of the database references. In global networks, it is also important to identify the participants who contribute documents, images, annotations, or modifications to the database. The foundations of all social structures are rooted in the beliefs and inventions of individuals. By perpetuating the rights of authorship in electronic databases, global networks generate recognition and respect for cultural diversity and acknowledge the value of the creative spirit which nurtures and sustains cultural identities.

Semantic structure

Digital and video technology provides a wide range of interpretive tools to structure and communicate multiple levels of perception and cognition. Information can be presented in narrative as well as non-linear formats. The structure of the program can be highly perceptual with a focus on visual images and audio stimuli, or it can be logically oriented with a strong emphasis on language and conceptual hierarchies.

While most literature on designing multimedia computer programs emphasises the need to develop a semantic structure that meets the objectives of the user, little attention has been given to the issue of cultural identity and the importance of developing communication models that integrate the symbolism and perceptual fabric of a culture into the conceptual design of the program.

In order to define this audio-visual structure, we need to understand the historical, psychological, and organisational forces that form the social framework of a culture. If we understand this, we can articulate the semantic structure of its language, objects, and actions (Cupchick 1988, 243-260). We can then integrate the semiotics of this cultural system into the design of the multimedia program, specifically through the selection of sources for the database, the designation of associative links, the design of interactive functions, and the hierarchical organisation of the program.

Careful editing of the individual sources in the database and the authored links between the references can preserve the rhythm and continuity of the culture. It may be necessary, for example, to limit the number of associative links within specific references so that digressions to other parts of the database do not disrupt the context and integrity of the information. Editorial notes in the introduction of a program can recommend that users peruse specific documents or video segments in their entirety in order to fully comprehend the context of the ideas.

We also need to use the correct audio-visual media to communicate individual cultural perspectives. For the past 2000 years, civilisation has been primarily language and logic oriented. With the advent of multimedia technology, we now have an opportunity to use images and sound to convey perceptual experiences. For example, to help the user understand the iconography of the Native American Indian culture, it may be better to develop segments in the program which restrict the associative links in the database to audio-visual references, as opposed to written documents, in order to emphasise the perceptual relationships between audio-visual design and the spiritual forces in nature. On the other hand, a program on French literary criticism might emphasise a highly structured, relational database in which the links and associations between ideas are derived from logical deductions.

Semiotics of the user interface

In interactive multimedia programs, information is interpreted through an interface of symbols and text that defines the hierarchy of the information and the syntax of the program functions. Like the semantic structure of the multimedia program, the semiotics of the user interface can establish perceptual and cognitive relationships which define the cultural identity of a nation. Colour, layout, typography, and sound can convey the

sensory dimensions of a culture as well as define information hierarchies that visualise the cognitive structure of unique cultural perspectives. Cultural identities can also be expressed through the language and symbols that are used to label information structures and describe the relational models in the database. In addition, the interface design can use motion and time to control the momentum of the perceptual stimuli and, in turn, create emotional interludes that enable the user to abandon the role of passive observer and actively engage in the cultural experience.

We can also use synaesthetic transference to create a dynamic array of spatio-temporal relationships. Gombrich describes synaesthesia as 'the splashing over of impressions from one sense modality to another' (1960, 366). Although synaesthesia has traditionally referred to literary metaphors, researchers have confirmed the existence of synaesthetic effects in audio-visual stimuli (Marks et al 1987). Multimedia computing provides an opportunity to use synaesthetic transference to compensate for the loss of kinaesthetic-spatial stimuli by using sound, colour, and perspective to define perceptual and cognitive relationships in time.

In order to use computer interface designs to define the rhythm and structure of particular cultures, we need to develop methods of identifying the audio-visual symbols and perceptual relationships that accurately communicate unique social and cultural perspectives. One of the best resources is the art of a nation. Researchers believe that by analysing the social events that led to the design of the art, it is possible to generate a formal description of the artistic conventions used in the work (Cupchick 1988). Harold Cohen (1979), Joan and Russell Kirsch (1988), Terry Knight (1989), Ray Lauzzana and Lynn Pocock-Williams (1988) and Roman Verostko (1990) have already experimented with developing sets of rules or grammars that define aesthetic relationships and stylistic changes in works of art. The next step is to integrate social and historical perspectives into these definitions and to use these descriptions to establish guidelines for designing audio-visual interfaces in interactive computer programs.

Spatio-temporal models for multicultural expression

Interactive multimedia computing also provides an opportunity to use the psychodynamics of the medium to establish new perceptual models that use space and time to define diverse cultural perspectives (as well as to structure different levels of user interaction). These spatio-temporal structures can expand the potential for using global networks for multicultural communication by devising user interfaces that create perceptual bridges between cultures, convey the spirituality of a culture, and define different levels of psychological involvement for the user (Figure 2).

Figure 2. Spatio-temporal models in telecommunications. Interactive multimedia programs can create perceptual bridges between cultures, convey the spirituality of a culture, and encourage user identification through psychological involvement.

Although these types of communication model are not yet defined in existing multimedia networks, we can see examples in many works of contemporary art. By studying these artworks, we can learn how to integrate layers of audio-visual data into multidimensional computer programs that channel the creative energy of cultural diversity into new levels of global interaction and sensitivity.

Perceptual bridges between cultures

The sensory and cognitive data found in interactive multimedia programs establish links between ideas and create multidimensional information hierarchies. In this type of information environment, perceptual stimuli expand the analytic structure of cognitive thinking into an integrated view of reality. This type of communication model can be used to create perceptual bridges between the linear, deductive reasoning of Western society and the cyclic, metaphysical perspectives of cultures that are deeply rooted in an uninterrupted tradition of kinaesthetic-sensory interaction with the physical environment.

In contemporary art, we can see examples of this type of perceptual experience in bookworks by artists such as Michael Harvey, George Brecht, and Michael Snow. Harvey's *White Papers* (1971) and Brecht's *Water Yam* (1972), for example, consist of boxes of loose, unnumbered 'pages' which encourage the reader to reevaluate the dynamics of perceptual data by juxtaposing text and images in non-linear communication formats that restructure relationships in time and space. Michael Snow's *Cover to Cover* uses a series of photographic essays to structure an array of causal events which create a visual dichotomy between perception and the logic of anticipated, sequential actions (Search 1992).

As with these bookworks, multimedia computing can integrate different levels of cognition and perception into one communication model. Audio-visual data can convey the sensory dimensions of a culture on one level, while the logical channels of the communication model enable users to analyse new cultural perspectives within the context of their own cognitive information structures. In a global network, these multiple channels of perception and cognition can create dynamic bridges between cultures by providing a framework for understanding and preserving cultural diversity.

The spirituality of a culture

We can also use images, motion, sound, space and time in multimedia interfaces to convey the spirituality of a culture. Western communication, with its emphasis on scientific reasoning, tends to analyse and categorise information, and often fails to recognise the significance of sensory and emotional feedback as a valuable source of information about people, objects and events. In multicultural communication networks, we need to use audio-visual stimuli to convey the humanistic and spiritual relationships that define and sustain cultural identities.

The artworks of many video artists, especially video pioneers such as Nam June Paik and Bill Viola, provide excellent examples of ways that we can create audio-visual montages to control the rhythm and structure of perceptual data. In Paik's *Guadalcanal Requiem* (1977), two-dimensional, pseudo-coloured images are contrasted with realistic video of a three-dimensional, island landscape. This contrast sets up a visual rhythm between colour and texture that defines multiple levels of perceptual space (Search 1992). In works like *Chott el-Djerid* and *Ancient of Days*, Bill Viola expands these levels of audio-visual interaction by using sound, images, and non-linear perspectives in time to create 'spiritual allegories' or metaphors for consciousness and perception (Youngblood 1976). Youngblood's 'metaphysical structuralism' can be used in multicultural communication systems to accommodate the cultural specificity of Aboriginal Dreamtime or the cosmic vision of tribal societies like the Navajo and the Xavante.

Levels of psychological involvement

The multiple dimensions of perception and cognition that exist in interactive, multimedia computing can create different levels of psychological involvement for the user. On a perceptual level, audio-visual stimuli can be used to define multiple layers of emotional and psychological space that help the user become an active participant in the program

rather than a passive observer. This type of spatio-temporal structure can help the user understand the differences between the unique cultural perceptions of Eastern cultures (such as the Japanese concept of MA which defines space by its relation to time-flow and the events that occur in it) and the spatio-temporal perspectives of Western cultures which support the concept of a homogeneous space in absolute time (Isozaki 1979). Similarly, the multidimensionality of audio-visual communication can help users identify with specific cultural personifications of space. For example, an interactive program that uses sensory stimuli to project the user into a simulated, perceptual world can help Westerners, who see themselves as external viewers looking at space, understand other cultures who may view themselves and the surrounding environment as an integral part of a spiritual, internal space (Lawlor 1991, 270-271).

We can also create different levels of psychological involvement by allowing the user to define levels of authorship. Through interaction with the multimedia data, individuals or groups can create information hierarchies that define cultural identities.

Numerous artists working in interactive video – such as Lynn Hershman (*Lorna, The Electronic Diary, Longshot*), Grahame Weinbrun and Roberta Friedman (*The Erl King*), and Peter d'Agostino (*transmissions, DOUBLE YOU (and X,Y,Z), STRING CYCLES)* – are investigating the relationships between culture and perception by allowing users to shape the outcome of audio-visual experiences. Other artists are creating interactive projects that use the audio-visual syntax of multimedia data to define varying levels of user identification. In Abbe Don's *We Make Memories*, for example, the artist uses an interactive computer program, modelled after his great-grandmother's storytelling style, to show users how ideas are shaped and communicated through the linear and associative interaction of words, images, and events.

Future directions

Interactive multimedia computing is a new medium that can establish multidimensional communication structures that integrate perception and cognition into an expansive view of reality. The use of sensory stimuli in user interfaces can help capture some of the intuitive immediacy of oral communication and create isomorphic bridges between cultures. To achieve these objectives, the interfaces must emphasise perceptual relationships which are analysed according to gestalt-like or holistic processes before the user deciphers the semantic relations in the audio-visual design (Neisser 1967; Julesz 1981). Empirical research has shown that attention can be focused on perceptual-sensory information (Craik & Lockhart 1972, 671). In addition, perceptual processing can be 'deautomated' so that intuitive, rather than learned, responses are evoked (Deikman 1966, 324). In a multimedia program, a highly perceptual or holistic communication model for the interface design can provide the abstract format that is needed to allow users to become part of another cultural space while at the same time retaining the perceptual freedom to interpret cultural differences within the context of familiar, user-defined perspectives.

This ability to compare cultural identities is an important part of understanding different cultural perspectives. Interactive, multimedia programs encourage these comparisons because there is a physical and psychological juxtaposition of two different views of reality: the user's reality and the perceptual, metaphysical reality of the interactive program. The ability to explore new cultures within the context of familiar, cultural references enables us to recognise cultural similarities as well as differences. An artist named Isz, who recently participated in a Chicago art exhibit entitled Perceptions of 'The Other': Exploring Cultural Diversity, summed up this task as follows:

> It is in realising the other in each one of us that a true image of the other can be achieved. That same/different group of 'Others' can become 'We' (Isz 1990).

The strength and success of global networking will be determined by our ability to use logic and perception to define flexible, information architectures that allow the user to shift perspectives and redefine relationships in a dynamic, sociopolitical world structure. Contemporary artists are in a unique position to contribute to these objectives by defining new levels of perceptual and cognitive

interaction in audio-visual communication. The most important breakthroughs in information design may be yet to come, as electronic artists reshape the tangible dimensions of telecommunications by examining the visualisation process itself (and its impact on the communication of interactive procedures).

I am currently working on a project called HyperGlyphs, which is investigating how people map perceptual symbols to cognitive structures and sequential actions in hypermedia programs. The HyperGlyphs project is using a database of abstract contemporary art to evaluate new levels of interaction between words and images. The results of this research will be used to develop orientation cues and interactive functions that help users define visual and conceptual hierarchies that are tailored to individual perspectives and goals (Search 1993).

As more insight is gained into the relationships between sensory perception and cognitive interaction in multimedia programs, we will be able to develop spatio-temporal communication models that realise that all-important, albeit elusive, 'seamless' interface. These interfaces will push technology into the background and facilitate more spontaneous, multidimensional dialogues between users. In global networks, this intuitive interaction will restore many of the perceptual attributes of orality and in so doing, preserve and strengthen cultural identities. This type of multimedia communication model will also channel the energy from diverse cultural perspectives into new levels of global awareness, sensitivity, and creativity.

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