

THE VIRTUAL CONFERENCE ROOM

William Bricken

March 1992

Features

The features of the Virtual Conference Room include:

Inclusive 3-Dimensional Environment

Participants share a three-dimensional environment that can look and sound like a traditional conference room, a seaside retreat, or a graphic representation of a financial database. The programmability of the context allows configuration for any specified purpose.

Intuitive Functionality

The Virtual Conference Room provides an environment in which participants can interact naturally with each other and with information. Intuitive behaviors are interpreted by the computer as commands; rotating a 3-dimensional virtual object is accomplished by reaching out and turning it around.

Multiple Concurrent Worlds

The way that the Virtual Conference Room looks and sounds can be identical for all participants, but environmental consistency is just one option. The environment can be customized by each participant; light level, ambient sound, and background forms and colors can vary, allowing for individual differences in defining the optimal workspace. The virtual room can have both shared elements (such as a work area with construction and editing tools) as well as personal elements (such as individual designs, information files, and customized tools). Personal elements can be placed in the shared domain as desired, in the same way that documents can be taken from a briefcase and put on the table at face-to-face meetings. Personal audio space allows private conversations between members of the larger group to take place simultaneously with full group discussion.

External Database Connectivity

The information resources available to participants in the Virtual Conference Room can include both elements specific to the group task, and data from other systems and networks. For example, one wall of the virtual room could display a television program, while another wall posts electronic mail messages.

Point of View Options

The participant can view the environment from a number of different perspectives. As well as seeing from the perspective of the virtual body, one can see from the point of view of any of the other participants, which allows the sharing of personal data elements. One can see from the perspective of any virtual object, a capability that allows participants to view a design from the inside. As well, participants can all share a single point of view, which is useful when discussing particular design features.

Programmable Entities and Dynamics

The Virtual Conference Room can contain dynamic as well as static elements. Entities can be assigned behaviors; for example, participants could design and assemble a motor, and then turn it on to see how efficiently it runs.

Imported Elements and Contexts

In addition to the graphical and acoustic libraries included with each virtual workspace, new elements can be imported into the environment, including digitized objects, video backgrounds and windows, and digitized sounds.

Computer Conferencing Problems

The use of virtual world technology for groupware applications provides solutions to three fundamental problems apparent in collaborative software:

Difficulty of Use

Results of research on the introduction of groupware into various organizations indicate that difficulty in learning the tool is a primary cause of dissatisfaction resulting in discontinuation of use. These findings suggest that the affective nature of work tasks mediate the relationship between system acceptance and use.

In a virtual environment the participant is both physically and perceptually involved; the process coordinates the cognitive, the psychomotor, and the affective domains of experience. Successful interaction within virtual environments is easy to learn and an enjoyable experience for nearly all participants.

Limited Functionality

Existing computer conferencing systems offer a limited subset of capabilities for facilitating interaction between users. Characteristics of successful synchronous communication include availability of data, verbal

communications, visual cues, and ongoing reactions of participants. The ideal collaborative environment requires multi-channeled communication -- voice, sound, vision, and data.

The virtual conference room provides all of the above functionalities by including participants in a multi-sensory information environment. This environment provides synchronous verbal and non-verbal communication as well as capabilities for direct manipulation and editing of two- and three-dimensional forms and processes. Additional data can be accessed by including screens connected to external databases, optimizing the information context in which group progress and decision making can occur.

Inflexibility

The majority of existing groupware applications are designed around specific tasks and support particular work procedures. However, group functioning is highly variable; a wide range of error, exception handling, and improvisation are characteristic of human activity.

The Virtual Conference Room offers a highly configurable environment that can be programmed to contain the elements and procedures that are pertinent to a particular group. The interaction between group members is not constrained to a task-oriented subset of behaviors, but allows nearly the same range of dynamic communication as in face-to-face meetings. This flexibility of context and of communication supports shared organizational meaning, which bridges the gaps between separately located individuals and between the individual and the organization.

The Virtual Conference Room is also appropriate for groups in which decision-making is not included on the agenda, meetings for which the social aspects of group interaction are primary. A virtual environment can be tailored to accommodate a diversity of group goals and behaviors, finessing the common difficulty of choosing specific multiuser applications.