

Abstract

This dissertation is a descriptive study of the shared workspace activity of small groups working on conceptual design tasks. Shared workspace activity refers to the listing, drawing, and gesturing activity that occurs in the work environment of a group. This research is premised on the need to understand what participants actually do in an activity in order to guide the development of technology (especially advanced computer tools) to support this activity. The thesis presents:

- a methodology for observing and analyzing collaborative design activity
- a detailed description and analysis of key aspects of shared workspace activity
- a set of specific recommendations for the design of tools to support shared workspace activity

The methodology of interaction analysis was applied to study the activity of small groups (3-4 people) working on short (approximately 1-1/2 hours) conceptual design tasks. The group's work was organized around either a whiteboard or large paper sheets on a conference table. Eight design sessions were videotaped and analyzed. The analysis included integrating a variety of perspectives on the data, including that of the participants themselves.

The analysis focused on how teams use their shared workspace. A framework for analyzing workspace activity was proposed. This framework provides a structure for categorizing workspace activity according to two dimensions: actions and functions. The actions describe the process of producing the activity: listing, drawing, or gesturing. The functions indicate the purpose effectively accomplished by the activity: storing information, expressing ideas, or mediating interaction.

Using the framework to analyze workspace activity led to specific observations about shared workspace activity:

- gestures, and their relationship to the workspace, convey important information
- the overhead involved in the process of recording information can be problematic
- the process of creating artifacts conveys significant information that is useful in understanding their meaning
- workspace actions and functions fluently intermix
- the nature of access to the workspace (orientation, simultaneous access, and proximity) structures how the workspace is used

These observations led to specific recommendations for the development of technology to support shared workspace activity.