The world that is presented to our senses would be overwhelming if it were not filtered through numerous psychological mechanisms that determine what's out there, what it means, and how we should respond, given our current situation. For instance, if you are alone in the office, the sound of a door opening and footsteps approaching you may mean something quite different if you are alone late at night than if it is early in the morning. In the morning you expect others to arrive, whereas at night you do not. The same information and environmental conditions can trigger very different responses. Because human response to the environment is so variable and influenced by so many factors, many people believe that valid and reliable relationships are impossible to identify. However, good design research and well thought-out hypotheses can go a long way toward overcoming these difficulties.

Human behavior in a given setting depends on the specific features and attributes of the design, the overall purpose of the space, the functions to be performed, and the capabilities and characteristics of the persons who will occupy the space. The implications for design are substantial and include the following points.

- ***Environments, except in extreme cases, do not yield "main effects"–that is, they will not affect everyone in the same way.***
- ***To design in a truly effective way, much more emphasis should be placed on understanding the variability in human perceptions, sensitivities, goals, work tasks, and work styles.***
- ***Greater emphasis should also be given to developing ways to increase choice, flexibility, and variability so that people can select what works best for them under different circumstances.***

The goal of design research is to test these relationships and to build a more credible basis for design decisions. This by no means denies the importance of intuition and new concepts in design. Intuition and imaginative leaps will always be present in good design–just as they are in good science. However, research will help to separate intuition that works from that which falls short of reaching design goals and objectives.

OVERVIEW OF RESEARCH PROCESS AND METHODS

The following sections focus on a variety of research methods and techniques that can be used in design evaluation, with examples of specific applications and research studies. The section starts with general measurement issues, then discusses the most frequently used methodologies, and explore other techniques that are not as widely used, but that could prove to be very useful for designers.

Getting Started

Every design, as noted earlier, is a hypothesis and a practical experiment. By its very nature, design aims to solve problems by intervening in the environment in particular ways. However, both the design hypotheses and the design interventions need to be articulated. These are the foundation for research.

The following questions should be addressed before setting up a research project. Many designers may find it difficult to verbalize design in this way, because much of the design process is intuitive and nonconscious, relying on images, metaphors, and tacit knowledge rather than explicit knowledge and logical thinking. However, these steps are essential to research.

State the design hypotheses (these are derived from the goals and objectives of the design project).

- If you do X (go to a totally open space, reduce the size of offices), what will happen? What behavior change do you expect to see?
- On what basis do you make this claim? What is the logic behind it?

Identify relevant features and attributes of the environment.

- What do you need to manipulate to have this result (e.g., reduced partition heights, smaller footprint furnishings, more visual and aural access to others)?
- Why do you think this will happen?

Expected outcomes.

- What behaviors or other outcomes would tell you that your hypothesis has been supported?
- Why did you select these indicators?