exist independently of the mind–that is, the features and characteristics of objects. For example, a person's feelings about the amount of privacy experienced in a particular place is a *subjective* measure. The physical measurement of enclosure (e.g., height of partitions, presence of a door) and acoustics, all of which affect the perception of privacy, are *objective* measures. Subjective assessments use techniques such as rating scales, while objective assessments use physical measures that are translated into numbers (square feet, decibels, etc).

The differences between qualitative and quantitative methods are similar. *Qualitative* methods are used to assess subjective qualities of experience. Qualitative techniques include interviews and participant observation. The output of qualitative research is usually a verbal analysis such as identification of themes, concepts, and issues. *Quantitative* techniques, on the other hand, assign numbers to something being measured. Thus, survey data are quantitative because they use rating scales or categories that provide numerical outputs (e.g, average scores, numbers of people in different categories). Quantitative data also include measures of noise volumes, room area, width of corridors, work surface area, lighting levels. Thus, quantitative data can include both subjective and objective measures. Qualitative data, on the other hand, are subjective because the purpose is to identify aspects of experience and perceptions that are inherently subjective. An example may help. Open-ended interviews about people's perceptions of environmental quality are likely to elicit a wide range of concepts, perceptions, and experiences. Research using this technique would analyze the interviews and discuss key concepts and ideas. Future research might take some of these concepts and develop them into a survey instrument that could be used to quantify the perceptions–e.g., how many people share perceptions, what kinds of environmental conditions elicit particular perceptions, etc. If the scale is tested with large numbers of people and is shown to be a reliable and valid measure, it becomes a tool for quantifying environmental perceptions. The field of psychometrics has developed out of the belief that subjective impressions and feelings can be quantified.

SURVEYS

Surveys are used primarily in post-occupancy evaluation to assess occupants' overall satisfaction with the new space. Some key issues to consider in developing surveys are the following:

- ***Identify what you want to find out and why.***
- ***Develop questions only after you have outlined the information you need.***
- ***Make sure to include questions that are of most value and that are related to your design hypothesis. (Many surveys totally forget this component and instead use a boilerplate survey for all projects.)***
- ***Eliminate any questions for which data can be easily obtained in other ways (through surveys or administrative records).***
- ***Word the questions in such a way that they do not suggest a right or wrong answer.***
- ***Keep the survey to ten minutes or less.***
- ***Allow for open-ended comments.***
- ***Pilot-test all surveys and revise the questions based on feedback from these initial tests.***
- ***Use the pilot test to check timing as well as understanding of questions.***
- ***Keep survey results confidential, to assure that people will respond with their true feelings.***

Many design evaluation surveys ask respondents to rate both their overall satisfaction with specific environmental features as well as its degree of importance to them.

INTERVIEWS

Interviews are used when more in-depth information is desired than is possible to obtain with surveys, especially at the beginning of a project when little is known about the organization, its culture, or its ways of working. Interviews are more flexible than surveys and allow for follow-up questions. Individual interviews also enable employees to express their concerns and fears more freely–in contrast to focus-group discussions.

Interviews are often used to identify work processes and tasks, amount of time spent on different kinds of tasks, frequency of working in different locations, use of technology, organizational culture, and so forth. Programming