They can be used throughout the design phase and as a post-occupancy evaluation technique. At the beginning of a project, focus groups are useful for identifying work patterns and existing problems, gaining a better understanding of the reasons problems exist, and identifying potential solutions. Focus groups can also be used later in the project to test worker responses to potential designs and to identify potential difficulties that may have been overlooked by the design team. As a post-occupancy technique, focus groups can be used to supplement surveys.

A key drawback of focus groups is that they do not provide information on how many people hold particular perspectives. For instance, if a problem is identified, the focus group will not be able to say how many people experience the problem or how serious it is overall.

Some key issues to consider in conducting focus groups are:

- ***Limit the number of questions so that everyone will have a chance to talk.***
- ***Aim to have about eight to twelve participants; larger groups make it difficult for all to be heard, and smaller groups limit the range of discussion.***
- ***Involve all who will be affected by the design.***
- ***In order to facilitate the free flow of ideas and concerns in organizational settings, hold separate focus groups for people at different job levels.***
- ***Explain how information from the discussion will be used.***

The specific questions used to elicit discussion will depend on the purpose of the focus group. For instance, questions for groups formed to provide information during programming might include:

- ***How do you work now with other members of your group or other groups in the organization?***
- ***What types of work go smoothly, and when are there problems?***
- ***What factors, either in the organization or the environment, facilitate or inhibit your ability to do your work?***
- ***What could be done better, and why?***

PHYSICAL TRACES

Physical trace analysis looks for evidence of how people use a space. It includes assessment of accumulation of material (litter, dust, footprints), selective wearing down of materials associated with use (carpet wear, pathways through a lawn), and the artifacts that people use to personalize an environment. This technique is not often used in evaluating designs, but it could be a valuable addition to subjective measures.

For instance, personal artifacts provide clues about people's personality, interests, and lifestyles. Differential dust accumulation on books in a library suggests that some books are more popular and well used than others. However, physical traces research is often difficult to interpret because other variables that are not studied may be affecting the outcome. For instance, if dust accumulates more readily on books located on the top shelf, this may be due to differences in the difficulty of reaching the higher space for cleaning purposes, rather than to differential use of the books. This type of research is most useful when it is carried out in conjunction with other techniques.

Heerwagen and Orians used a physical trace approach in a study of how workers decorated their offices in windowed and windowless spaces.[5] The authors hypothesized that people in windowless offices would use more photos and posters of nature objects or scenes as a way to compensate for the loss of contact with the outdoors. They performed a content analysis of all non-work-related items displayed on office and cubicle walls for clerical and administrative staff at a large university. They found that workers in windowless spaces, as hypothesized, used significantly more décor with nature themes and surrogate views than similar workers in offices with windows. A majority of the images were positioned in the major field of view, suggesting that they are actually looked at, not just used as decoration. The research provides insights into the value of personalization and the inclusion of natural décor in the workplace.

ARCHIVAL DATA

Archival data are stored in records, either electronically or in hard-copy files. The current interests in productivity, absenteeism, and turnover rates make this kind of data highly valuable to researchers. The data are often used to assess the impact of a design, using a pre–post design analysis. In the pre–post design, data from a selected time period prior to the design change are compared with data from a similar time period after the change is imple-