Chapter 6 Design Evaluation and Summary

Design Evaluation

A design evaluation was conducted to find out if the workplace neighborhood space prototype designed for the ACITC Educational Technology office area achieved its original purpose to satisfy the requirements of the Educational Technology employees and to shape a work environment conducive to team efforts and informal interactions. An evaluation form was developed based on the workplace neighborhood users' needs checklist. It included two parts. Part 1 required evaluators to review both the floor plan of the space prototype and the color printouts of the neighborhood units' computer models. Question 1 to 3 of part 1 were to find out whether the design of the neighborhood units would satisfy the needs of individual work, group work and overall work needs. Question 4 of part 1 was to find out if the color scheme and texture proposed could create an appropriate image and a pleasant work environment. To answer questions in part 2, the evaluators only needed to review the floor plan. The questions in this part were to find out if the meeting rooms, the breakout spaces, and the lunch room/lounge designed would satisfy their needs of formal and informal activities and interactions; if the overall adjacency relationship would be conducive to the functional efficiency of their work.

The evaluation forms were distributed to all the 12 Educational Technology employees in person, and 10 of the evaluation forms were returned. As shown in Table 7, there are 80% to 100% positive responses on the spaces designed for group work, meetings, informal interactions, overall image and adjacency relationship. These results of the evaluation indicated that the space prototype designed helped to provide appropriate spaces for formal and informal group work, promote informal interactions and shape an appropriate workplace image and atmosphere. However, there is a limitation here because the users' evaluation was mostly based on the floor plan which is commonly considered difficult to be understood by non-professionals.

TABLE 7. Result of Design Evaluation.

Item	Design Purpose Related	Satisfaction Rate
Neighborhood Unit A	for individual work	70%
	for group work	N/A
	for overall work needs	70%
Neighborhood Unit B	for individual work	40%
	for group work	90%
	for overall work needs	50%
Neighborhood Unit C	for individual work	40%
	for group work	80%
	for overall work needs	40%
Meeting Rooms	for formal meetings or other formal activities such as workshops	90%
Breakout Spaces	for informal interactions	100%
Lunch Room/ Lounge	for overall needs of employees	100%
Color Scheme and Texture	for an appropriate image	80%
	for aesthetic quality of the workplace	100%
Overall Adjacency Relationship	for overall functional efficiency	80%

Note. n=10.

The evaluation results also indicated that more than half of the employees thought the neighborhood unit B and C would not satisfy their needs of individual work, though most of them agreed that unit B and C would satisfy their needs of group work. Most of the employees thought unit A would satisfy their needs of individual work because the four work spaces within it were enclosed private spaces, and they also preferred the use of glass partition tiles and glass sliding doors because this would cause less obstacles

between people than normal private office with solid walls and doors. In the employees opinion, the group work in unit B and unit C would disturb the individual work, unless everybody in one neighborhood unit involved in the group work. Obviously, these respondents were unwilling to facilitate group efforts at the cost of their own privacy.
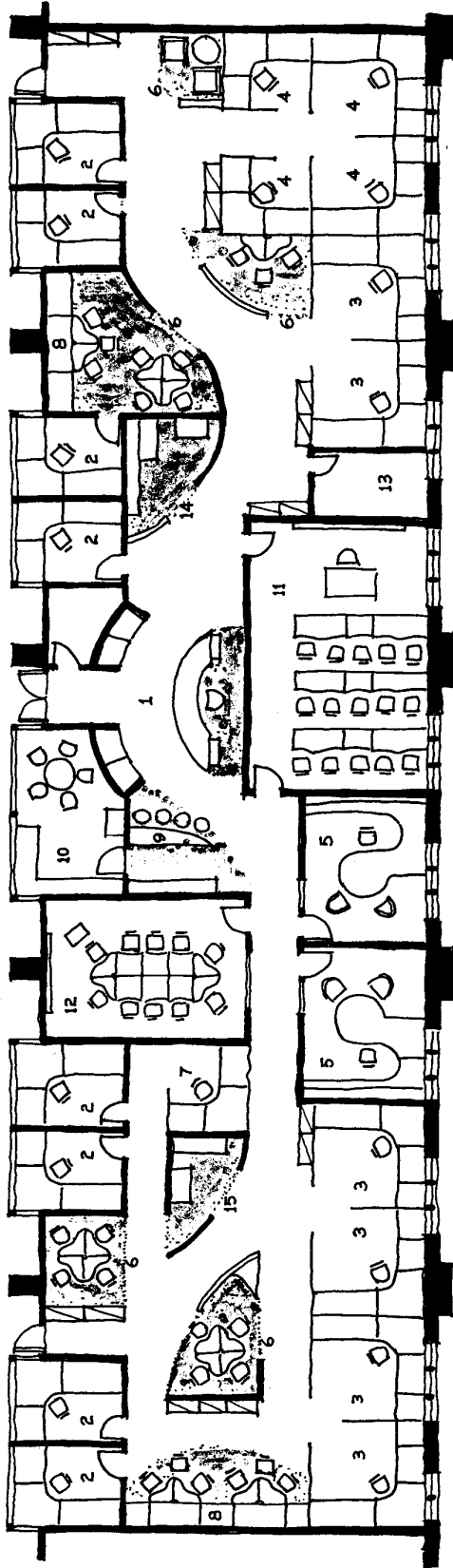
Design Revision

From the design evaluation, some limitations of the workplace neighborhood space prototype designed for the ACITC Educational Technology area were found. First, the design using partitioned open work space promoted interaction at the cost of privacy. However, in this case, the privacy was as important as the interaction. This requirement could be concluded from the questionnaire survey and the behavioral mapping. In the neighborhood concept, the interaction should have been promoted by well designed activity nodes. The partitioned open work space should have not been a necessary approach to realize the neighborhood concept. Another limitation is that the spaces for the activity nodes were not clearly defined. They were just three small breakout spaces, a lunch room with a coffee lounge and the reception area in this space prototype. A matrix with activity node as a spatial category should have been developed before the development of the conceptual plan. In this way, the idea of the activity node could be enhanced in the design. Thus, the activity nodes designed could concentrate enough activities and make themselves really function as the "nodes" defined in the neighborhood development theory. The third limitation is that the concerns between individual and group work spaces were not solved. The flexibility to reconfigure space as needed for group efforts or individual work was not achieved. In this space prototype, the group work spaces were obtained by taking off the partition tiles between the individual work stations within the neighborhood units. Thus, the users had to either stick to the individual work spaces or shift to the group work spaces. If a group work space was configured, the group activity would become the focus of the neighborhood unit. An employee in that unit trying to concentrate on one's own work might be disturbed. The

last limitation is that the conceptual plan did not reflect the concept of the workplace neighborhood well enough. It was limited by the major path defined by the long and narrow building shell at first. This limitation resulted in a double loaded corridor spatial configuration and a misleading of the design direction.

To deal with these limitations, several strategies were adopted to revise the space prototype designed. The spatial layout was redesigned to more clearly reflect a workplace neighborhood concept. In the redesign, the neighborhood units were broken up and the group work spaces were separated from the individual work spaces so as to keep the group from disturbing the individuals. These group work spaces were scattered along the main curvilinear paths in the "neighborhood" as spatial focal points. They acted as activity nodes to facilitate team efforts and promote informal interactions (see figure 15). The main entrance of the office area was moved to the middle of the neighborhood to form a neighborhood center, or the biggest activity node. Many mutual supportive "public facilities" were arranged around the reception space to shape this neighborhood center. These "public facilities" include the large meeting room/small class room, the small conference room, the lunch room, the coffee bar, and the mail and copy space. The coffee bar offers people a space to stop and interact with one another (see figure 15).

Compared with the previous space prototype, the revised space prototype is an improvement for the following reasons. First, it solves the concerns between the individual work and the group work spaces. The individual work spaces in the revised space prototype are private. The group work spaces were physically separated from the individual work spaces by walls and partitions of different heights. Thus, group work would not disturb individual work. Second, the group work spaces functioned as activity nodes in the revised space prototype by providing separated spaces for group work and informal interactions along the main paths. These activity nodes were larger than those in the previous design, and could provide space for more people and activities. Thus, these activity nodes were more convenient for group work, more discernible in the

1 Reception
2 Programmer/Faculty Developer
3 Graduate Assistant
4 Visiting Faculty
5 Director Office

6 Group Work Space
7 Technical Supporter
8 Keyboard Meeting Space
9 Coffee Bar
10 Lunch Room

11 Large Meeting Room/Small Classroom
12 Small Conference Room
13 Server Room
14 Workspace(copy,storage,mail)
15 Workspace(copy,storage)

Figure 15. Revised Floor Plan of the ACITC Educational Technology Office Area

neighborhood, and more strategically placed to generate informal interactions. Third, the double loaded corridor was reconfigured by arranging the activity nodes along the curvilinear main paths in the neighborhood. The new spatial relationship and the spatial configuration more clearly fitted the workplace neighborhood design concept (see figure 16, 17 & 18). Finally, the space was used more efficiently. For example, the lab for shared computers was integrated into keyboard meeting spaces. Because of using space efficiently, the revised design had the same number (total 21) of individual work spaces (including both private offices and work stations) as the previous design had. Meanwhile, it provided many group work spaces independent from the individual work spaces as well as eight more private offices with doors.

In brief, the revised design met the requirements of the Educational Technology employees much better. The new space prototype more clearly reflected the workplace neighborhood design concept and more closely fitted today's work patterns' tendency which emphasized both high concentration and interaction. It might be a space prototype for designers' use to solve design problems arising from the challenges of the workplace today.

Summary

The organizational and technological changes in the 1980s and 1990s brought up new challenges for workplace design. People are working in new ways; more and more work is undertaken collaboratively. The new work patterns indicate more spaces for group work and informal interactions are required. Meanwhile, the new technology offers opportunities for practicing new workplace design concepts and sets up new requirements for workplace design. For example, the keyboard meeting is one of the typical new work patterns.

Facing all these new workplace challenges, the interior design practitioners may accommodate the workplace design by simply adding group work spaces to the traditional layout. However, this would be inefficient, unrealistic, and cost more space and money. Thus, some interior designers have started looking for new ways. The
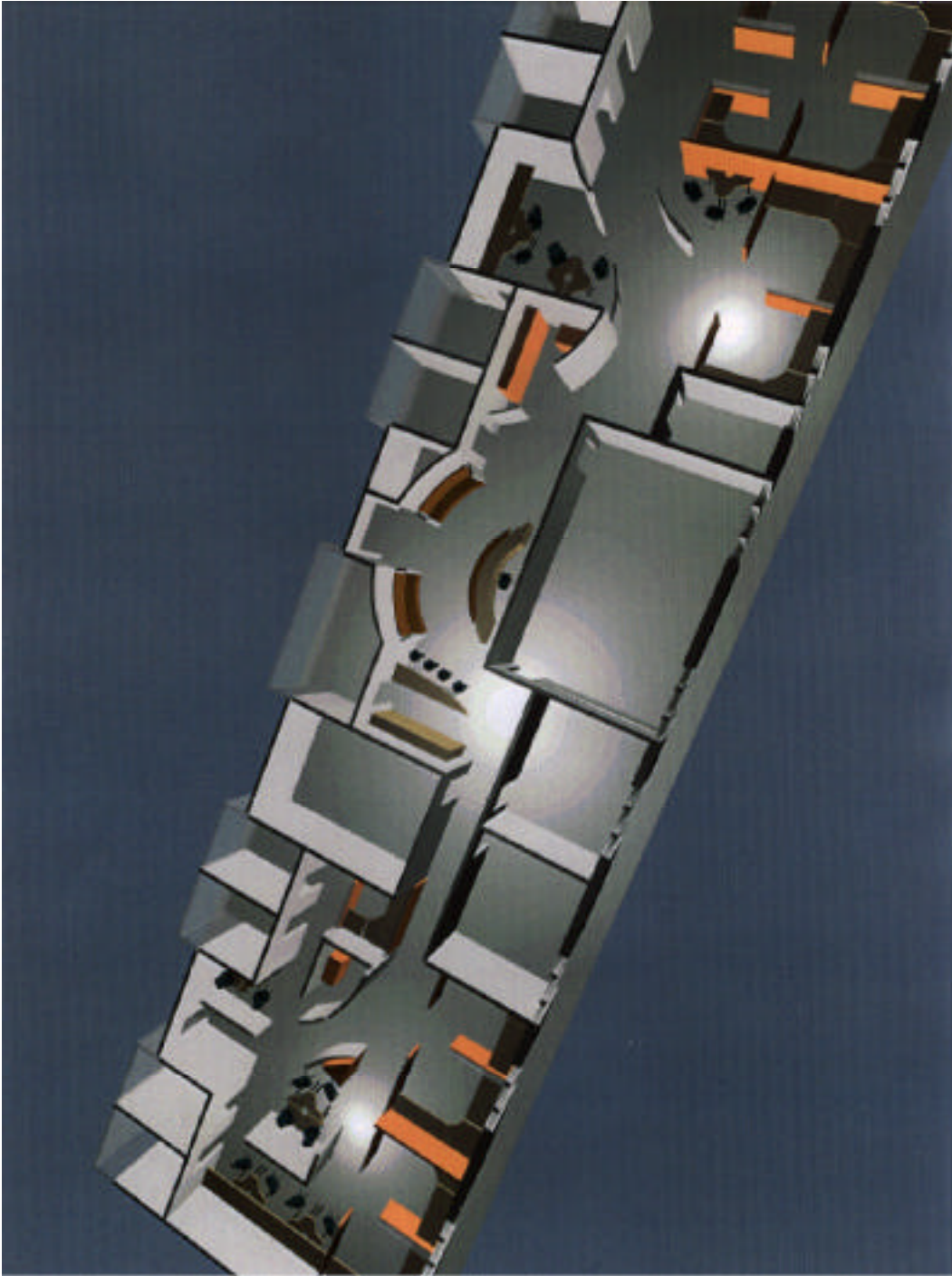
Figure 16. Computer Model of the Revised Space Prototype, View A

Figure 17. Computer Model of the Revised Space Prototype, View B

Figure 18. Computer Model of the Revised Space Prototype, View C

workplace neighborhood concept is a workplace design concept derived from city planning. Early applications of this concept in interior design projects were industrial makeovers which had to deal with transforming large volume industrial spaces that were uniform and dull into office environments (Shirley & Brunner, 1996). Also, some corporations, such as MCA Music Publishing (Anaya, 1996) wanted to have their work environment reflect their specific corporate culture. According to Becker and Steele (1995), a workplace neighborhood will not only "foster informal communication across disciplines, but also to create working relationship through increased trust and greater tolerance for diversity in work styles and personal styles" (p.75). Thus, the potential for the application of workplace neighborhood concept is worthy of further exploration.

The purpose of this design project was to develop a workplace neighborhood space prototype for the Educational Technology office area of the Advanced Communication & Information Technology Center (ACITC) at Virginia Tech. According to the past experiences of some faculties and indicated by the survey and behavioral mapping of this project, the present Educational Technology employees engage in many group activities and make extensive use of new computer technology. Therefore, their new workplace in the ACITC building would possess the features representing the general workplace tendency today. The space prototype designed would be a work environment conducive to team efforts and encouraging different levels of informal interactions among the workers, Also, it could be a workplace neighborhood space model for future reference in practice and research.

The project had three phases: design programming, design development, and design evaluation and revision. During the design programming, a survey questionnaire was distributed to all of the 12 Educational Technology employees and 10 of them were returned. Behavioral mapping observations were conducted afterwards to complement the users' need data collected in the questionnaire. In particular, it helped to understand the users' actual work patterns. Then, a conceptual plan, a series of workplace space patterns

and a floor plan were developed for the workplace neighborhood space prototype based on the users' needs data collected, the new workplace tendency and the neighborhood development theory. Finally, the computer models were prepared for three neighborhood units for design evaluation.

The design evaluation was conducted by asking the evaluators to fill out a brief evaluation form after reviewing the floor plan of the ACITC Educational Technology office area and the color printouts of three neighborhood units' computer models. The evaluators were also the Educational Technology employees. The results of the design evaluation indicated that the concerns between individual and group work spaces were not solved. A design revision was conducted according to the results of the design evaluation. A floor plan and a computer model of the space prototype were prepared for the revised design. The revised space prototype provided group work spaces as well as individual work spaces. It enhanced the function of the activity nodes in the workplace neighborhood and resulted in a more flexible spatial relationship that more clearly reflected the workplace neighborhood design concept.