

**PHYSICAL ENVIRONMENT FACTORS
AFFECTING JOB SATISFACTION**

By

Hye Sun Han

**Bachelor of Fine Arts
Sang Myung University
Seoul, Korea
1989**

**Bachelor of Science
Oklahoma State University
Stillwater, Oklahoma
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Thesis Approved:

Margaret Weber

Thesis Advisor

Carol Bormann

John Bartholomew

Alfred Karlyni

Dean of the Graduate College

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CHAPTER I

INTRODUCTION

Background Information

With the tendency toward an information society, work environments may influence production and increase efficiency for the achievement of tasks. Therefore, with the recognition that the concept that the office is not a just workspace but can be a life space that nurtures the creation of knowledge, the importance of improvement in the work environment should be recognized. Psychological and social psychological environment support is necessary (Minami & Tanaka, 1995). Paul (1996) indicated that today's workers who are engaged in new forms of "knowledge work" are especially unprotected from workplace stress. If a comfortable work environment is offered responding to needs that influence what is valued, it can enhance not only physiological and psychological satisfaction but also the quality of workers' lives.

In early research on job satisfaction, employees ranked a series of job factors on their importance for general job satisfaction. A survey in 1957 (Herzberg et al.) found that among ten job factors identified as important, the physical environment, was labeled as "working conditions". A later survey conducted by Lunden (1972) included 450-office workers in Sweden. Participants were asked to rank ten job factors for their "contentment" in the office; type of work was first, with office environment seventh.

The results of several surveys constantly report the office environment as one of several job factors important for job satisfaction, and although less important than the work itself and several other factors, office environment remains important.

In recent years, improvement in the efficiency of work environments has been investigated. Specifically, a professor's office was found to be not only a space for general tasks but also a core place in a university education that should provide an environment for creative work. As an individual space, a professor's office has more private characteristics than where in general workspaces.

The physical work environment represents one of several facets of employment that contribute to job satisfaction (Sundstrom, 1986). Notably, one important source of dissatisfaction for faculty members is their working conditions (Tack and Patitu, 1992). Therefore, job satisfaction among higher education faculty seems important to study and the problem of similar dependent variables should not dissuade a researcher (Cohen, 1974).

Although the office of the professor is a small space, individual preference, personality, and inclination are important elements that affect the design and one's image of space. Therefore, to create a comfortable work environment in the professor's office, the professor's satisfaction with office environment related to their job should be considered.

Statement of the Problem

Limited published research is available on the relationship between factors of physical work environment and job satisfaction for university faculty members. Few studies have targeted physical factors in the workplaces that related to the identified

environmental and job satisfaction. Therefore, identification of factors which influence and relate the work environment and job satisfaction of university faculty members could be useful to help universities understand more about the perceptions faculty that have about their work environments and how these environments may or may not contribute to their satisfaction.

Purpose of the Study

The purpose of this study is to explore the relationship between selected factors of the physical work environment and job satisfaction of university faculty members. Professors' office satisfaction may have direct implications for the design and assignment of university offices (Farrenkopf & Roth, 1980).

Objectives of the Study

To understand what is the most appropriate environment for professors' offices, the following statements are of concern in this study.

1. To explore the relationship between the physical office environment and job satisfaction of faculty members.
2. To determine if a relationship exists between those selected factors influencing office environment and job satisfaction with certain demographic characteristics of university faculty members.
3. To identify significant factors of the physical work environment that could influence the satisfaction of office environment.

Limitations of the study

Hypotheses

In this study, three hypotheses are postulated about the relationship of physical work environment and job satisfaction:

- H1: Space, furnishings, aesthetics, and ambient conditions are significantly related to one another as factors that affect the physical work environment of faculty offices.
- H2: Satisfaction with the physical work environment and job satisfaction are significantly related.
- H3: The personal variables of age, gender, rank of faculty, and years of experience are significantly related to the factors of physical work environment and job satisfaction.

Assumptions of the Study

The following assumptions were made with reference to the data to be used in this study:

1. The faculty members responding to the questionnaire will provide truthful and accurate information.
2. The questionnaire to be used to gather the data does not bias the responses of those answering the questionnaire.
3. The factors included in the questionnaire to be used represent those factors that would most likely influence the physical work environment satisfaction and job satisfaction of university faculty members.

Limitations of the study

This study is limited to faculty members who are in the College of Education in Oklahoma State University and the results can therefore only be generalized to this group. The study concerns the difficulty of obtaining a randomized sample of faculty members. All tenure track faculty who have offices in Willard Hall and are employed by the College of Education received questionnaires; thus the sample is not truly random. The lack of a randomly selected sample makes it imprudent to generalize to the population of faculty members. However, Singleton, Strait, and Strait (1993) state that as long as a survey is designed only for those volunteers who wish to participate, self-selection should permit reasonable generalization to the target population.

Definition of Terms

The following definitions of terms are given to provide a better understanding of the content of the study:

1. **Satisfaction of physical work environment:** four factors measure the degree, to which an employee is satisfied with the office setting: space, furnishings, aesthetics, and ambient conditions.
2. **Workspace:** a work-station assigned to a specific individual including furniture, machinery, equipment, supplies, decorative items, and other things that occupy the area designated for one person who works there.
3. **Furnishings:** the arrangement of the basic furniture set for any individual office worker to support his/her tasks, communicate status, facilitate control over interactions with others, and offer delight.

4. **Aesthetics:** the appearance of an office and visual quality such as quality of light, the colors and materials.
5. **Ambient conditions:** atmosphere of a working environment includes the quality and movement of the air, the temperature, the humidity, the ambient sound, and the lighting.
6. **Job satisfaction:** the satisfaction that individuals receive from their employment is largely dependent upon the extent to which the job and everything associated with it meets their needs and wants (Chruden & Sherman, 1984).
7. **Social psychological environment:** refers to combination of social and psychological environment. The thought, feeling and behavior of individuals are influenced by other people.

CHAPTER II

LITERATURE REVIEW

A review of selected literature, which was related to this study, is presented in this chapter. The major sections included in this review are: (1) Theories concerning the physical environment and job satisfaction, (2) Satisfaction of physical work environment, (3) Job satisfaction.

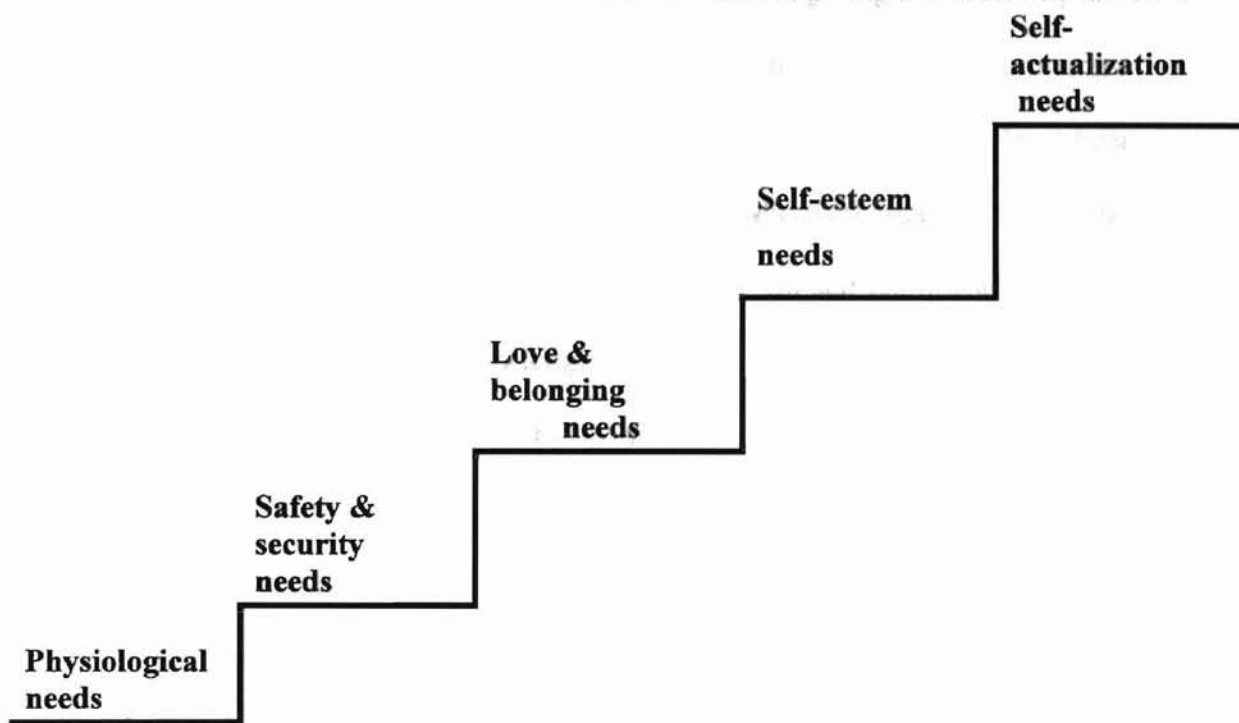
Theories Concerning the Physical Environment and Job Satisfaction

Maslow's hierarchy of needs theory and the two-factor theory need to be explored, because they are directly related to human needs and motivation.

Hierarchy of needs

In 1954, Maslow first published "Motivation and Personality," which introduced his theory about how people satisfy various personal needs in the context of their work. According to Dessler (1980), an influential theory planned by Abraham Maslow suggested that mankind has five basic categories of needs: physiological, safety and security, love and belonging, self-esteem, and self-actualization. He stated these needs form a hierarchy or ladder (Figure 1). Maslow's assumption was that as successive levels of need are satisfied, other needs emerge. We move from basic physical needs of survival to more complex needs.

Figure 1. Maslow's Hierarchy of Needs



According to this theory, each has an ordered hierarchy of needs, the lowest level of which are the basic *physiological needs* for air, water, food, shelter. The need to work in a building is a typical survival or basic need. There must be heat and light. In the office, people need a surface on which to work, a comfortable place to sit, and the required technology.

When the physiological needs are reasonably satisfied then the *safety and security needs* become activated. These are needs for protection against danger or deprivation and the need for security. In the workplace, items like lockable storage and card-keyed access provide a measure of security. Ergonomic chairs and height-adjustable work

surfaces encourage healthy posture and a feeling of well-being. Once the need for a secure environment is satisfied, it loses its motivational force.

The next step takes rank: *love and belonging needs*, expressed as the need for satisfying social relationships-needs including affiliation, giving and receiving affection, and friendship. It is common to see people meeting in the cafeteria or continuing a discussion as they stand in a doorway or walk down the hallway. Office layout can encourage knowledge generation by locating people who work together near each other.

Next in the hierarchy is the *self-esteem needs*: for self-confidence, independence, achievement, confidence, and knowledge. People will often personalize their work areas with specific awards, degrees, and other symbols of achievement. They will share who they are by decorating their offices with family photos, artwork, and other decorative objects or accessories.

Finally there is an ultimate need: *self-actualization needs* for recognition. This need is described as one of meeting a challenge and gaining a sense of accomplishment. Knowledge workers are people who, in the daily performance of their jobs, are responsible for the discovery and recording of knowledge. To retain knowledge workers, the workspace must not only support the tasks they currently have to accomplish, but also the tasks they aspire to accomplish. This need is the most difficult to support in many organizations. According to Maslow's theory, the physical setting is perceived as most important when it is least satisfactory, that is, when it threatens or fails to meet basic needs.

Environment as satisfier or dissatisfier

An influential theory proposed by Frederick Herzberg (1966) classified the physical-working environment as a dissatisfier (or hygiene factor). Herzberg's writings state that poor working conditions contribute to worker dissatisfaction, but that an improved environment will not result in enhanced satisfaction, only in a reduction in dissatisfaction (Brill, 1984). The "hygiene factor" comes from Herzberg's well-known two-factor theory of job satisfaction (Dubin, 1976). Herzberg constructed a two dimensional paradigm of factors affecting people's attitudes about work. The theory indicates that typical work situations are composed of intrinsic factors, called motivators, which apply to the work itself, and extrinsic factors, called hygiene factors, which apply to the context within which work is performed.

Herzberg's findings stated that motivators such as achievement, recognition, responsibility, advancement, and growth are intrinsic and come from inside the individual, leading to job satisfaction. Hygiene factors such as policies and administration, supervision, work conditions, relationship with supervisor, salary, relationship with subordinates, status, and security are extrinsic, or come from outside the person, and could lead to job dissatisfaction if they are not adequate.

The worker reacts to situations with a given level of satisfaction and a given level of dissatisfaction. Hill (1987) summarized that Intrinsic factors are elements related to the actual content of work and are asserted by Herzberg to contribute to (positive) job satisfaction. Extrinsic factors are elements associated with the work environment. Herzberg provides that these items are associated with (negative) job dissatisfaction since they often fail to meet the individual's needs for escaping unpleasant situations. As identified by Chruden and Sherman (1976) the largest percentage of the positive feelings

at work were brought about by one or more of the motivator factors while a smaller percentage of the negative factors involved the motivators. Conversely, a larger percentage of the events describing dissatisfaction stem from hygiene factors or what more commonly may be thought of as a psychologically hygienic work environment (i.e., free from unhealthy working conditions). Herzberg concludes that satisfaction increases as the perceived adequacy of intrinsic factors increases and that dissatisfaction increases as the perceived adequacy of extrinsic factors decreases (Brill, 1984).

Satisfaction of Physical Work Environment

How the personal workspace is designed has a significant relationship to a person's satisfaction with his or her personal workspace. Several studies have concluded that the physical environment for individuals consists of their direct surroundings during the workday, consisting basically of a workspace or workstation and its ambient conditions. There are several factors that affect a worker's satisfaction in the office environment.

According to Wineman (1982), a number of physical environmental factors affect the comfort of workers and their satisfaction. These factors are conditions of the ambient environment (heating, ventilation, and air conditioning), the adequacy and arrangement of furnishings, support services, the lighting, and the views outside.

In the study of factors concerning the office environment, Lunden (1972) evaluated ten factors associated with the daily environment and working conditions. The ten factors listed from most to least important are: place of work, limited size of the room, lighting, daylight conditions, total environment of the room, interior fitting and

furnishing, size and shape of the room, acoustic conditions, room temperature, and ventilation.

Davis (1984) proposed that a useful background for both research and practice related to physical environment in organizations as being composed of three elements: 1) physical structure, 2) physical stimuli, and 3) symbolic artifacts. Physical structure was defined as the architectural design and physical placement of furnishings in a building that influence social interaction. The physical structure of settings has been devoted to three main areas: 1) building design and physical location, 2) furniture comfort, placement, and seating arrangements, and 3) open versus closed office designs.

Physical stimuli are aspects of the physical setting that intrude into the managerial behavior. A host of physical stimuli compete for the organization member's attention, such as incoming mail, telephone ringing, notes on the desk from others, different objects in the room, messages on the intercom, and the time on the clock.

Symbolic artifacts are aspects of the physical setting that individually or collectively guide the interpretation of the social setting. For example, the design of the office, the type and style of furnishings, the color of the walls, the presence or absence of carpeting, framed certificates or photographs displayed on walls or desks all tend to communicate information about the organization and the people who work there (Davis, 1984).

Another study related to the environmental factors with offices (Farrenkopf & Roth, 1980) investigated the eight environmental factors derived from a university faculty. They are ranked in order: location, privacy (quiet), space (amount, type),

HVAC, furniture (equipment), lighting, windows (view), aesthetics (appearance, space decoration), physical comfort.

In addition, other studies indicated that office workers concerned about the physical attributes of the workplace, air temperature, the supply of exterior air, the lighting quality, the comfort of furniture, and the office layout (Boubekri et al. 1991). Crouch, A. and Nimran, U. (1989) found that physical and ambient conditions, which include lighting, space, atmospheric conditions, and visual outlook, rank second in prominent performance facilitators perceived in an office environment. Space, furnishings, aesthetics (visual outlook), and ambient conditions requirements are the most consistently mentioned factors influencing work environment satisfaction.

Space

In a study of faculty office environment (Farrenkopf & Roth, 1980), faculty office occupants mentioned three kinds of space: first, square footage for moving about and for seating visitors; second, surface work space, such as desk tops or tables; and storage space for filing, stacking, shelving books. According to Sundstrom, E. and Sundstrom, M. G. (1986), without enough space an individual may not be able to change posture, change positions, extend his or her legs, stretch or walk around. When people have assigned workplaces, floorspace may be important to individual satisfaction. Floor space is the amount of space that a given workplace for an individual worker contains.

In the 1980 survey, more than one-half of the participants indicated that sufficient floorspace affected their comfort. Research involving floorspace indicated that with the job categories considered separately, floorspace was a significant predictor of satisfaction

with the workspace (Sundstrom et.al., 1982a). These findings indicated that floorspace can affect physical comfort. Observed that in corporate environments the majority of

The amount of space, which is allocated to individuals, groups, or grades within the organization, is a commonplace observation in workplaces of all sorts that the higher position in the hierarchy (Baldry, C., 1997). The study conducted by Konar, E. et.al. (1982) explored four types of characteristics (the nature of workspace furnishings, amount of space, capacity for personalization, and the ability to control access by others) in the office environment which appear to demarcate status and the extent to which their sense of status is associated with satisfaction with the work environment and the job. The results showed that high-status group (supervisors) reported having larger desks, more storage space, and more work surfaces and chairs. They were more likely to have larger workspaces with greater control over access to their workspace by others. Status support was more related to workspace satisfaction than to job satisfaction. And also status support was related to satisfaction more strongly for supervisory than for nonsupervisory personnel. Brill, et. al. found that as the amount of space in the work areas was reduced, so was the level of job satisfaction.

Each individual workspace has a layout as well, in which its physical elements are arranged according to ideas about design, task support, behavior, and status. According to Brill, M. (1984), almost half (43%) the office workers felt that their layout of their workstations was not suitable for their tasks. Workers who accomplished improvements in suitability of layout gain in environmental satisfaction. Further, they found that layout suitability affected comfort, status, and the ease of communication.

People tend to arrange their personal workspace in similar ways. In most of the studies to date, it has been observed that in corporate environments the majority of individuals in private offices tends to place their desks so that these divide the room into three zones: a personal work area behind the desk, a visitor area in front, and a circulation/display area connecting two. In this configuration, they face the door to show their availability to others. They report that this position allows them to control the space visually, to work in a territory defined by their furniture, and to control interaction by inviting others into their space (Goodrich, R., 1982).

Furnishings

Furniture and its arrangement is an important factor influencing work environment satisfaction. Furniture arrangement can communicate a desire for distance from others. For instance, studies regarding the effects of furniture placement in offices have found that using the desk as a physical barrier between the office occupant and a visitor can give a desire for physical and psychological distance as well. Considering the arrangements of office spaces in a college, some professors arrange their offices so that visitors sit across a desk from them. Others arrange their offices to suggest less distance, placing no barriers between them and their students.

According to Zweigenhaft (1976), there is a relationship between desk placement in the faculty office and the characteristics of the instructors and their interactions with students. In this study, seventy-four faculty members were sent a letter to draw their furniture arrangement. All offices were classified for two groups: one, the desk is directly between the student and faculty (desk between); and two, the desk is not between

them (desk not between). Two sets of dependent variables compared the two groups. The first set consisted of the demographic characteristics of age, sex, status, and Carlopio department. The other consisted of student responses to four items on the 24-item report "school wide student evaluations" of faculty. The four items are: "The instructor has been fairly easy to find outside of class when needed; The instructor has readily given individual attention to students who needed it; The instructor has encouraged the development and expression of different viewpoints by students; and The instructor has not shown undue favoritism or prejudice in his dealings with students." This study found that the desk between design was more likely to be used by older and higher academically ranked faculty, where junior faculty more often used the "desk-not-between" design. In student evaluation, the desk-not-between group was rated more positively than the desk-between group on two of the four pre-selected items.

The arrangement of seating not only influences where people sit but affects the character of the interaction that can occur. The study indicated that people tend to prefer different seating arrangements for different kinds of conversations. For casual conversation, people arranged around a rectangular table prefer corner to corner seating, side by side arrangements for cooperative activity, and face to face seating for adversarial interaction (Sommer, 1969).

According to Carlopio and Gardner (1992), the presence or absence of a personal computer (PC), or video display terminal (VDT), and various forms of ergonomic furniture are likely to affect the immediate task environment, as well as employees' attitudes toward their physical work environment. Ergonomic furniture (e.g., desks designed to accommodate a keyboard and VDT with adjustable surfaces, and chairs of

adjustable height with anthropomorphically designed backs and seats) and the use of VDTs have been suggested to affect a range of physical and mental outcomes. Carlopio and Gardner (1992) hypothesized that people who have ergonomic furniture will report more satisfaction with their physical environments. The results supported the idea that employees with ergonomic furniture were more satisfied with their work in general and were more satisfied with their work sites.

Aesthetics

A number of reasons determine peoples' desires to personalize and decorate the spaces in which they work. It is one's way of making the space his or her own. By placing objects or decorating the walls in certain ways we can identify spaces as being ours and project some of our feelings, goals, and values (Fisher, Bell, and Baum, 1984). In addition, the decoration of spaces makes them more pleasant. Research has indicated that pleasant or attractive rooms make people feel better than do stark or ugly rooms (Maslow and Mintz, 1956). Maslow and Mintz (1956) compared subjects' ratings of a series of photographs in a "beautiful" room (well-decorated, well-lit, etc.), an average room (a professor's office), and an "ugly" room (resembling a janitor's closet). Their results showed that subjects rated the photos most positively if they had been in the beautiful room, and most negatively if they had been in the ugly room. Attractive environments also make people feel better.

Campbell (1979) indicated that decorated spaces make people feel more comfortable than ones, which have not been decorated. This study shows the impact of several environmental variables on student visitors to faculty offices. Two hundred-one

students were asked to view photographic slides of a faculty office arranged in various ways such as furniture arrangement, the presence of living things (plants), aesthetic objects (posters), and neatness. The results showed that the students would feel more comfortable if seated in office with the presence of each of these factors. The perceived results of viewing arrangements suggested that the greatest comfort for a visitor include the desk against a sidewall, plants, fish, posters, and hanging artwork. The presence of indoor plants increases the comfort and attractiveness of office environment (Larsen, Adams, Deal, Kweon, and Tyler, 1998).

Windows are clearly important in offices. By providing a source of natural lighting and a view of the outdoors, they can make a room more attractive and pleasant (Fisher, Bell, and Baum, 1984). In the study inquiring of workers about their satisfaction with the appearance of their workspace (Brill, 1984), those who were able to see a window expressed greater satisfaction with workplace appearance than those whose view was blocked. Farrenkopf and Roth (1980) indicated that faculty who ranked aesthetics as having high priority tended to decorate their offices with plants, or rugs more than others do.

Ambient conditions

Several authors have identified ambient conditions as a factor that affects perceptions of and human responses to the environment (Brill, 1984; Sundstrom & Sundstrom, 1986; Wineman, 1982). Ambient conditions include the lighting, temperature and air quality, and noise.

Lighting is an essential component of the office environment. People must perceive and attend to a variety of information in order to perform the tasks associated with office work (Brill, 1984). Brill suggested that lighting levels are usually measured in footcandles or dekalux. The quantity of light primarily depends upon the distance from the light source to the work object and the strength of light source. And the presence or absence of glare, perceptible flicker, and shadows, the distribution of light, and its color all contribute to the relative quality of light. The appropriate quantity of light and the lighting's quality are not independent factors. For instance, if too much light is provided, the quality of light may be reduced by the presence of glare. Too little light may produce dark, shadowed areas in the office, and this also degrades lighting quality. In his study, office workers report few problems with lighting. They have enough light to see and perform their work effectively and also have little difficulty with glare, shadows, and reflections. Half of the workers feel that the lighting conditions in their offices are pleasant. While the quantity of light provided in the workplace is directly related to environmental satisfaction, no changes in job satisfaction and job performance occur when light levels change slightly. Glare and reflections negatively affect job satisfaction and environmental satisfaction, but as with lighting levels, quality of lighting does not affect job performance.

The question of light in office environments has resulted in some controversy even though standards for light levels and the amount of glare (light reflected from work surfaces, walls, and ceilings) are well established and can be met in any office. The argument is over whether the light should be natural or artificial (Heimstra and McFarling, 1978). Users rank lighting as among the most important aspects of the office

environment; it is also one of the factors with which office workers are generally satisfied (Farrenkopf and Roth, 1980). Natural lighting and having a view outside are important factors providing environmental satisfaction to office workers.

Brill (1984) indicated that temperature and air quality are environmental conditions that affect a person's perception of comfort. He found that when an individual was able to control the temperature in the workspace, the frequency of complaints regarding offices being too warm or too cool decreased and the reports of overall comfort increased. He also noticed that in general the climate of a room is hardly noticed as long as it is comfortable, but the more it deviates from a comfortable standard, the more it attracts attention. Thermal discomfort can result in lowered satisfaction with the environment and decreases in performance. In addition, problems with air quality can affect job and environmental satisfaction. Common causes of lower air quality include smoking, use of certain volatile materials, odors arising from the human body, and air from outside.

Office workers often hear sounds from a multitude of sources, including people talking, phones ringing, office equipment, mail delivery robots, elevators, and noises from outside the building. Sundstrom et al. (1994) assessed that disturbance by noise from combined sources correlate inversely with composite measures of both environmental and job satisfaction. Disturbance by noise from a specific source-- people talking-- consistently correlated with environmental dissatisfaction. Noise from another source-- telephones rings-- consistently disturbs with both environmental and job satisfaction.

Faculty Job Satisfaction

working dimension, (2) the administrative dimension, (3) the economic

Because of the large amount of time individuals spend at work, factors affecting or influencing various aspects of work have been studied for decades (Miller, 1996). Most adults spend about half their waking hours in job-related activities, therefore, the satisfaction that they derive from their jobs is an important consequence of coming to work, as well as a major determinant of their behavior both on and off the job (Dessler, 1980).

Sundstrom (1986) suggested that the term job satisfaction refers to the individual's satisfaction with the job, all things considered. Job satisfaction represents the individual's attitude toward the job. As an attitude, job satisfaction is a summary evaluative judgement that reflects the individual's past and present experience, including experience with the physical environment.

In many surveys, participants ranked the importance of each of several characteristics of the job, including working conditions, the work itself, pay, and other features. Chrudden and Sherman (1976) conducted a survey using Herzberg's analysis to assess the relative significance of different factors based on 16 studies with more than 11,000 employees in the United States and United Kingdom was determined. Security ranked highest, wages and supervision were in the middle, working conditions and communication about two-thirds down the ranking, and benefits were last.

In a study conducted by Hill (1987), the issue of job satisfaction among college faculty was examined using the Herzberg's two-factor theory, which maintains that intrinsic factors are elements associated with job satisfaction and extrinsic factors are related to job dissatisfaction. Factor analysis in Hill's study indicated these six factors:

(1) the teaching dimension, (2) the administrative dimension, (3) the economic dimension, (4) the recognition-support dimension, (5) the collegial dimension, (6) the convenience dimension. These six factors separate into two distinct groups, which represent intrinsic features (teaching, the recognition-support, and convenience factors) and extrinsic features (administrative, economic, and collegial factors). The findings show that the mean for intrinsic factors is significantly higher than that for extrinsic factors. Two intrinsic factors in particular elicit strongly positive responses from faculty, teaching and convenience. Extrinsic ones tend to elicit less favorable responses from faculty members.

According to Tack and Patitu (1992), internal stressors contributing directly to faculty members' job satisfaction include teaching and research, the reputation of colleagues and the institution, the quality of the students, interaction among students and teachers and its effect on students' learning, autonomy and responsibility, achievement and recognition for achievement, and promotion and growth. These numerous internal stressors can affect the level of job satisfaction of faculty in higher education. Because teaching and research are two of the most important activities faculty perform, lack of satisfaction with these activities could certainly cause one to leave the profession.

Tack and Patitu (1992) also stated that certain factors in the workplace significantly affect a faculty member's satisfaction or dissatisfaction with their professional work. Therefore, higher education institutions must consider carefully the impact of several factors on faculty: salary, tenure, faculty rank, supervision, interpersonal relationships, and working conditions.

Middlebrook (1980) suggested that there are links between the employees' perceptions of the office appearance and job satisfaction. He further suggested that to preserve that linkage and the "positive attitudes toward appearance, there should be environmental changes, either from organizational actions (e.g., office redesign) or employee actions (e.g., personalization of work areas).

Early research on job satisfaction identified the physical environment as one of several characteristics contributing to job satisfaction. The physical environment was usually called "working conditions." Herzberg (1966) stated that working conditions refers to the physical environment including ventilation, lighting, tools, space, and other similar environmental characteristics, the facilities of the institution, and the amount of work. Poor working conditions often lead to job dissatisfaction (Tack and Patitu, 1992). The ranking of working conditions showed greater inconsistency than that of any other job characteristic. Female workers ranked working conditions as more important than male workers did (Sundstrom, 1986).

Locke (1976) identified seven working conditions associated with job satisfaction: mentally challenging work with which one can successfully cope, personal interest in the work itself, work that is not too physically tiring, rewards for performance, good working conditions, high self-esteem, and attainment of interesting work, and promotions, and help in minimizing role conflict and ambiguity.

Several studies in the individual difference variables as they are related to job satisfaction and dissatisfaction have been reported. Weaver (1978) found that age is positively related to job satisfaction. As workers grow older they are more satisfied with

their job because of the intrinsic and extrinsic rewards of work, including income, authority, and autonomy on the job.

In a study conducted by Gaziel (1986), the relationship between demographic variables and job aspects was examined. The results showed that school principals with more than 14 years of education indicated relationships with superiors as a source of dissatisfaction significantly more often than did their colleagues with less schooling. Elementary school principals with more seniority reported autonomy at work as a source of job satisfaction more than did their junior colleagues. Principals of large elementary schools attached more importance to responsibility as a source of job satisfaction than did principals of smaller schools.

According to Beardsley's research, no significant differences were found between the various groups when the degree of job satisfaction was compared to the respondents' education level. When comparing job satisfaction to the number of years of education, he found that intrinsic satisfaction showed significant differences among the groups. There was a decrease in both intrinsic and general job satisfactions as the number of years of education increased.

Several studies of office workers have included separate measures of satisfaction with the work space and job satisfaction, and examined the correlation between the two (Crouch and Nimran, 1989). However, the relationship between satisfaction with physical work environment and job satisfaction has received little attention in research. The existing studies, for instance, Sundstrom et al. (1980) studied 150 administrative employees and reported that people who rated their workplaces as private and people with architectural privacy tended to experience less noise, and less distraction, and

crowding than those in less private places. The findings indicated that an association between architectural and psychological privacy exists and found both types of privacy related to satisfaction with workplaces and job satisfaction.

Summary

This review of literature provided background information in three areas related to this study: (1) Theories concerning the physical environment and job satisfaction, (2) satisfaction of physical work environment, (3) job satisfaction. In order to more fully understand the relationship between satisfaction of physical work environment and job satisfaction of office workers, especially faculty members, two theories and research studies have been reviewed and cited.

Several handbooks and articles gave the researcher a broad background in the factors of physical work environment. Based on this information, the conclusion was reached that there appear to be many diverse factors that affect satisfaction of physical work environment for university faculty members. Since there are more important factors to enhance the satisfaction of work environment, it seems necessary to identify the factors that influence the work environment satisfaction of faculty members.

Several studies have been conducted over the years to determine factors in the workplace affecting job satisfaction of faculty members. Many of the same results were reported in the various studies. Major factors in the workplace for faculty members include salary, tenure, rank, supervision, interpersonal relationships, and working conditions.

Based on information obtained from the literature review, it was discovered that there have been studies done to determine the physical work environment and job satisfaction of faculty members. However, few studies of the relationship between the factors of physical work environment and job satisfaction for university faculty members were found. Moreover, few studies of physical work environment for faculty members have been conducted for the past fifteen years. Therefore, research is needed in order to determine the influence of selected factors on the physical work environment in their office and job satisfaction of university faculty members and how the factors change up to now.

CHAPTER III

METHODOLOGY

The purpose of this chapter is to describe the methods and procedures used to conduct this study. In order to accomplish the purpose and objectives of this study, it was necessary to determine the population and to design instruments, which reflect the degrees of physical work environment and job satisfaction of faculty members at Oklahoma State University. This chapter discusses the subjects, instrumentation, data collection methods, and statistical analysis in this study.

Selection of the Sample

The sample of this study is limited to full-time faculty members who are in the College of Education at Oklahoma State University, in Stillwater, Oklahoma. The total number of faculty were 79 in spring, 2001. The tenure track faculty that have offices in Willard Hall employed by the College of Education were selected. Willard Hall was renovated in 1997 for the College of Education. The faculty of the College of Education moved into Willard Hall in mid-semester, 1997. Because these faculty members have recently moved into this building, the office spaces were expected to influence the job satisfaction of the faculty members. Each subject was queried about the physical environment and their satisfaction level on the job.

The Instrument

In order to gather data exploring the relationship between selected factors of the physical work environment and job satisfaction of faculty members in the College of Education in Oklahoma State University, the questionnaire was developed. The design of the instrument was developed using concepts from studies that have been conducted by researchers who measured satisfaction of office environment and job satisfaction in varying fields, Sundstrom, E., etc. (1994), Konar, E., etc. (1982), Crouch, A. and Nimran, U. (1989). The research instrument consists of three parts: existing workspace assessment, job satisfaction, and demographic information.

Existing workspace assessment

Existing workspace assessment questions were selected for four variables: space; furnishing; aesthetics; and ambient conditions that would most likely influence the physical work environment satisfaction and job satisfaction of university faculty members. The first question asked if the respondents were able to plan to arrange the furnishings in the office with yes/no response. The second and third questions were asked if the respondents were able to choose the objects displayed in the office and amount of furniture items they have. The following eighteen questions asked the respondents to indicate their level of agreement with statements regarding various physical aspects of the work environment. Level of agreement is from 1 (strongly disagree) to 5 (strongly agree).

Job satisfaction

completed questionnaires were returned over a period of ten days. Job satisfaction questions include the time spent in their own office, salary, promotion, relationship with their supervisor and colleagues, responsibility, and benefits. The first and second questions were asked that how much time respondents spend in the office alone or with others each day. The researcher believes that the amount of time faculty members spend in their own office impacts their level of job satisfaction. The following nine questions asked the respondents to indicate their level of agreement with statements regarding their level of job satisfaction for each statement on a 5-point scale.

Demographic information

Demographic information included: age, gender, current job rank, level of education, and number of years teaching. Age was grouped by four categories and education level was asked with the highest level of education completed. Respondents were asked to record their number of years teaching at Oklahoma State University in the College of Education.

Data Collection

Pilot Study

The purpose of the pilot study was to discover if the factors of work environment and job satisfaction were measurable concepts. The instrument was distributed to the faculty in College of Human Environmental Science (HES) at Oklahoma State University, in Stillwater, Oklahoma. For the survey, twenty-seven faculty were selected from three departments in HES. They were given a cover letter and a copy of the

questionnaire. Fifteen completed questionnaires were returned over a period of ten days yielding a response rate of 56%.

The data from the pilot study were statistically analyzed for frequencies, means, Pearson correlation coefficients, and ANOVA. The results indicated that a positive correlation existed as satisfaction with physical environment increased, so did the satisfaction with job. Those who were satisfied with the size and location of the workspace were also satisfied with the relationship with supervisor. Respondents who were satisfied their amount of work surface and storage space and the heating, air conditioning, and ventilation were satisfied amount of time to prepare for class.

Although differences found the relationship between physical environment and number of years teaching, other demographic characteristics (i.e., age, gender, rank, and department) did not appear to significantly impact relationship between physical work environment and job satisfaction

In this study, the five factors (size, location, lighting quality, height of work surface and chairs, and esthetics) were the sources of satisfaction by the majority of respondents. In general, greater dissatisfaction was reported for noise level and the heating, air conditioning, and ventilation. One respondent noted that the building was too cold or hot.

The study found a relationship with time spent in workspace and demographic characteristics. The time spent in their workspace with others and gender were significantly different. In general, the differences revealed female respondents spent more of their time with others than male respondents.

Final Survey Procedures

A final instrument was compiled using the findings from the literature review and the pilot study. The instrument was mailed at January 13, 2001 to faculty in the College of Education at Oklahoma State University, in Stillwater, Oklahoma. Sixty-three faculty were given a cover letter (Appendix A) and a copy of the questionnaire (Appendix B) with a return envelope. The subjects asked to complete the instruments and return the survey in the enclosed envelope by campus mail. Two weeks after the initial distribution of the questionnaire, reminder letters with questionnaires were sent to those who had not responded.

Methods of Data Analysis

After gathering the questionnaires, the data were entered into the Statistical Package for the Social Sciences (SPSS). The research hypotheses were tested at $p \leq .05$ level of significance. The following statistical techniques were used to analyze the data: To analyze the first hypothesis that space, furnishings, aesthetics, and ambient conditions are positively related to one another as factors of physical work environment, Pearson correlation coefficients were used. For the second hypothesis that is to investigate the relationship between satisfaction of physical work environment and job satisfaction t-test analysis were used. The Chi-square procedure, means, and frequencies were used to study the relationship between satisfaction of physical environment and their job and personal characteristics such as age, gender, current job rank, level of education, and the number of years teaching.

CHAPTER IV

RESULTS OF THE STUDY

Introduction

The purpose of this study was to explore the relationship between selected factors of the physical work environment and job satisfaction of university faculty members. It was also the purpose of study to determine if a relationship exists between those selected factors influencing office environment and job satisfaction with certain demographic characteristics of university faculty members.

Data collected for this study represented the responses of 35 faculty members who are in College of Education at Oklahoma State University. The purpose of this chapter is to present the data classified from these responses and to report those facts revealed through analysis of this data.

Description of the Sample

The population for this study consisted of 63 tenure track faculties who have offices in Willard Hall and are employed by the College of Education at Oklahoma State University. The College of Education office reported that one faculty is not at this university anymore and one faculty will not be in their office until October 2001. Therefore, the total potential sample was 61 faculty. The study is for the collection of data from faculty who occupy offices that are very similar in size and shape. The

furnishing are similar and are from one manufacturer. Although faculty who were here during the renovation project had some input into furnishings, it was mainly for color selection or type of chair from prototypes that were developed. The major source of data for this study was the three-part questionnaire completed by 35 respondents, which represented a response rate of 57.4 percent.

Table 1 summarizes the demographic information of the sample used in this study. The age categories in this survey ranged from “under 35” to “between 55 and 64 years”. Of the 35 respondents, 17.1% (N=6) fell between the ages of 35 and 44 and 54.3% (N=19) fell between the ages of 45 and 54 years. Of the 35 respondents, almost 30% were between the age of 55 and 64 years. No respondents reported his or her ages less than 35 years. There were 17 (48.6%) female respondents and 18 (51.4%) male respondents.

Respondents in this study fit into three categories according to professional rank: 9 respondents (25.7%) were professors, 15 respondents (42.9%) were associate professors, and 11 respondents (31.4 %) were assistant professors. Almost 74.3 % (26 respondents) indicated their level of education was a Ph.D. degree and 22.9% (8 respondents) indicated their level of education was an Ed.D. Only one respondent (2.9%) indicated his or her education level was a master’s degree.

The average of years of teaching experience for respondents in the College of Education was 11.9 years. Ten respondents (28.6%) had teaching experience of less 5 years in the College of Education. Eight respondents (22.9%) in this study represented 6-10 years of teaching experience in the College of Education. Eight respondents (22.9%) in this study represented between 11-15 years of teaching experience and only two

respondents had teaching experience between 16 and 20 years in the College of Education. Of the 35 respondents, 11.4% (4 respondents) fell between 21 and 25 years of teaching and 8.6% (3 respondents) had over 25 years teaching experience in the College of Education.

Table 1.
Demographic Information of the Sample

(N=35)

Variable	Frequency	Percent (%)
Age		
35-44	6	17.1
45-54	19	54.3
55-64	10	28.6
Gender		
Male	18	51.4
Female	17	48.6
Rank		
Assistant Professor	11	31.4
Associate Professor	15	42.9
Professor	9	25.7
Level of Education		
Ph.D	26	74.3
Ed.D	8	22.9
Other	1	2.9
Years of Teaching		
Less than 5 years	10	28.6
6-10 years	8	22.9
11-15 years	8	22.9
16-20 years	2	5.7
21-25 years	4	11.4
Over 25 years	3	8.6

Findings of Physical Environmental Factors

Respondents answered questions about the amount of control they had over physical aspects of their work area. Twenty-five respondents (71.4%) indicated they were able to plan the furnishings used in their workspace and nine respondents (25.7%) indicated they were not able to choose the furnishings. Nine respondents (25.7%) indicated they were not able to select any items and 16 respondents (45.7%) were able to select the desk type and 13 respondents (37%) were able to select the type of storage. Seventeen respondents (48.6%) were able to select their chair type and six respondents (17%) were able to select their chair color. The distribution of the respondents' ability to select the furnishings in their work area is found in Table 2.

Table 2.
Listings of Furnishings Selected by Faculty Members

(N=35)

Type of Furnishings	Frequency of Response	Percentage of Total
Desk type	16	45.7
Type of storage	13	37
Chair type	17	48.6
Lighting	1	2.85
Wall color	1	2.85
Chair color	6	17
Desk top color	1	2.85
Nothing	9	25.7

The questionnaire asked the respondents to indicate the number of furniture items in their office. The results of this question are found Table 2.1. Note that 77.2% (N=27) respondents have more than one work surface in their office. Twenty-two respondents (62.9%) have three chairs in their office.

Table 2.1
Listings of the Number of Furniture Items

(N=35)

Furniture Items		Frequency of Response	Percentage of Total
Work surfaces	1	6	17.1
	2	22	62.9
	3	4	11.4
	4	1	2.9
Chairs	1	1	2.9
	2	7	20.0
	3	22	62.9
	4	3	8.6
File drawers	1	6	17.1
	2	3	8.6
	3	5	14.3
	4	6	17.1
	5	2	5.7
	6	3	8.6
	8	2	5.7
	10	4	11.4
	12	1	2.9

Physical Work Environment Factors

There were four physical factors defined for this study. The series of factors included space, furnishings, aesthetics, and ambient condition.

Space. The concept of space was measured by creating an index of three questions directed at learning the perception of space in the respondent's workspace. Nearly 65.7% of the respondents (N=23) liked the amount of space around their desk. Four respondents (11.4%) neither agreed or disagreed and seven respondents (20%) disagreed or strongly disagreed with the statement, "the amount of space around the desk is adequate to accommodate visitors".

Seven respondents (20%) strongly agreed and twenty-one respondents (60%) were satisfied with office size. Four respondents (11.4%) neither agreed or disagreed and three respondents (8.6%) disagreed or strongly disagreed with the statement, "overall, my office size is adequate to work efficiently".

Nine respondents (25.7%) strongly agreed and forty-six percent (N=16) respondents agreed with the statement, "I have enough space to display what I want in my office". Five respondents (14.3%) neither agreed or disagreed and five respondents (14.3%) who responded to the questionnaire disagreed or strongly disagreed. The distribution of satisfaction of amount of space is detailed Table 3.

Furnishings. The furnishings in the workspace were measured by five questions directed at amount of work surface and storage space, furniture arrangement, comfortable chairs, and proper equipment.

Table 3. Summary of Responses under the Amount of Space Satisfaction
(N=35)

Factor	Strongly disagree		Disagree		Neither agree or disagree		Agree		Strongly agree		Mean response	Std. Dev
	N	%	N	%	N	%	N	%	N	%		
Amount of space around the desk	3	8.6	4	11.4	4	11.4	16	45.7	7	20.0	3.58	1.21
Overall office size	2	5.7	1	2.9	4	11.4	21	60.0	7	20.0	3.86	0.97
Space to display	2	5.7	3	8.6	5	14.3	16	45.7	9	25.7	3.77	1.11

Seven respondents (20%) strongly believed that the amount of work surface around them supports their work tasks. Fifty-one percent (N=18) agreed and two respondents (5.7%) neither agreed or disagreed with the statement, “the amount of work surface in my office supports my work tasks”. Seven respondents (20%) who responded to the questionnaire disagreed or strongly disagreed with the statement.

Six respondents (17.1%) strongly agreed and fifteen respondents (42.9%) agreed with the statement, “the amount and type of storage space in my office is adequate”. Five respondents (14.3%) neither agreed or disagreed and eight respondents (22.8%) disagreed or strongly disagreed with the statement.

One respondent (2.9%) strongly agreed and five respondents (14.3%) agreed with the statement, “the furnishings in my office can be easily arranged”. Four respondents (11.4%) neither agreed or disagreed and twenty-five respondents (71.4%) indicated that their furnishings could not be easily arranged with the statement.

Eight respondents (22.9%) strongly agreed and sixteen respondents (45.7%) agreed with the statement, “ my office chair is comfortable”. Six respondents neither agreed or disagreed with the statement. Five respondents (14.3%) indicated that their office chair is uncomfortable.

Nearly seventy-one percent (N=25) agreed or strongly agreed with the statement, “I have proper equipment to do my work satisfactorily,” and six respondents (17.1%) neither agreed or disagreed with statement. Four respondents (11.5%) disagreed or strongly disagreed. The distribution of satisfaction with furnishings is detailed Table 3. 1.

Table 3.1
Summary of Responses under the Furnishings Satisfaction

(N=35)

Factor	Strongly disagree		Disagree		Neither agree or disagree		Agree		Strongly agree		Mean response	Std. Dev
	N	%	N	%	N	%	N	%	N	%		
Amount of work surface	2	5.7	6	17.1	2	5.7	18	51.4	7	20.0	3.63	1.17
Amount of storage space	2	5.7	6	17.1	5	14.3	15	42.9	6	17.1	3.50	1.16
Furnishing arrangement	12	34.3	13	37.1	4	11.4	5	14.3	1	2.9	2.14	1.14
Comfortable chairs	2	5.7	3	8.6	6	17.1	16	45.7	8	22.9	3.71	1.10
Proper equipment	1	2.9	3	8.6	6	17.1	18	51.4	7	20.0	3.77	0.97

Aesthetics. Thirty-three respondents (94.3%) indicated that they had agreed by satisfactory office wall and floor color. Two respondents (5.7%) neither agree or disagree with the statement, “existing wall/floor colors are pleasing,” and no respondent disagreed or strongly disagreed with statement.

Twenty-seven (77.1%) respondents had objects (pictures, artworks, or plants) in their office. Three respondents (8.6%) neither agreed or disagreed and five (14.3%) respondents disagreed or strongly disagreed with the statement, “many objects (pictures, artwork, or plants) are present in my office”.

Twelve respondents (34.3%) agreed or strongly agreed with the statement, “I had input into the design of space in my office,” and 17% of respondents (N=6) neither agreed or disagreed. Seventeen (48.6%) respondents disagreed or strongly disagreed with statement. The distribution of satisfaction with aesthetics is detailed Table 3. 2.

Table 3.2
Summary of Responses under the Aesthetics Satisfaction

(N=35)

Factor	Strongly disagree		Disagree		Neither agree or disagree		Agree		Strongly agree		Mean response	Std. Dev
	N	%	N	%	N	%	N	%	N	%		
Wall/floor colors	0	0	0	0	2	5.7	18	51.4	15	42.9	4.37	0.60
Having many objects	1	2.9	4	11.4	3	8.6	14	40.0	13	37.1	3.97	1.10
Input into the design of space	9	25.7	8	22.9	6	17.1	7	20.0	5	14.3	2.74	1.42

Ambient conditions The satisfaction of ambient conditions was measured by five questions. Three questions reported the respondents' lighting conditions in their workspace. The other two questions recorded the amount of noise and the heating, air conditioning, and ventilation in the respondent's workspace.

Seventy-seven percent (N=27) of those respondents responding to the questionnaire indicated they agreed or strongly agreed with the statement, "The lighting in my office is satisfactory to work efficiently". Five respondents (14.3%) neither agreed or disagreed with the statement. Only two respondents (5.8%) disagreed or strongly disagreed that the lighting in their office was satisfactory to work efficiently. Neither agreeing or disagreeing with the statement, "task lighting or a desk lamp is available for my work surfaces". Seven respondents (20.0%) disagreed and fifteen respondents (42.9%) strongly disagreed with statement.

Twenty-nine respondents (82.8%) agreed or strongly agreed that natural light is available in their office and four respondents (11.4%) neither agreed or disagreed. Only two respondents (5.7%) strongly disagreed that natural light available. None of those answering the questionnaire disagreed with this question.

Six respondents (17.2%) agreed or strongly agreed that the amount of noise in their office affected their performance of task. Seven respondents (20.0%) neither agreed or disagreed. Twenty-two respondents (62.9%) indicated that the amount of noise in their office did not affect their tasks. Approximately 46% of the respondents (N=16) agreed or strongly agreed that the heating, air conditioning, and ventilation in their office were comfortable to work efficiently. Seven respondents (20.0%) neither agreed or disagreed

and eleven respondents (31.4%) disagreed or strongly disagreed. The distribution of satisfaction of ambient condition is detailed Table 3.3.

According to tables presenting the means, respondents were most satisfied with wall/floor color (M= 4.37), the lighting in their office (M= 4.00), and available natural light (M=4.17) and least satisfied with easy arrangement of their furniture (M= 2.14), input into the design of space (M= 2.74), task lighting (M= 2.38), and HVAC (M= 2.40).

The location of the workspace. The satisfaction of location of workspace was measured by level of agreement with the statement, “ the location of my office fosters communication with others”. Over 85% respondents (N=30) agreed or strongly agreed with this statement. Four respondents (11.4 %) neither agreed or disagreed. Only one respondent disagreed and none of those answering the questionnaire strongly disagreed with this question.

Table 3.3
Summary of Responses under the Ambient Conditions Satisfaction

(N=35)

Factor	Strongly disagree		Disagree		Neither agree or disagree		Agree		Strongly agree		Mean response	Std. Dev
	N	%	N	%	N	%	N	%	N	%		
Office lighting	1	2.9	1	2.9	5	14.3	17	48.6	10	28.6	4.00	0.92
Task lighting /desk lamp	15	42.9	7	20.0	2	5.7	4	11.4	6	17.1	2.38	1.58
Natural light	2	5.7	0	0	4	11.4	13	37.1	16	45.7	4.17	1.04
The amount of noise	8	22.9	14	40.0	7	20.0	3	8.6	3	8.6	2.40	1.19
HVAC	4	11.4	7	20.0	7	20.0	9	25.7	7	20.0	3.24	1.33

The overall office environment. The final question was related to overall office environment. Twenty-nine respondents (82.9 %) agreed or strongly agreed with the statement, “overall, my office environment is designed to allow me to do my tasks efficiently”. Four respondents (11.4%) neither agreed or disagreed and only two respondents (5.8%) disagreed or strongly disagreed with this statement.

Findings of Job Satisfaction Factors

Job Satisfaction Factors

The job satisfaction index was composed of nine factors, the amount of responsibility, salary, relationship with supervisor, the physical space and arrangement, promotion, developing teaching methods, feeling isolated in the work space, degree of work, and satisfaction of current job.

Eight respondents (22.9%) were satisfied with the amount of responsibilities related their work. Another nine respondents (25.7%) neither agreed or disagreed and eleven respondents (31.5%) indicated that they were not satisfied with this question. Surprisingly, seven respondents (20.0%) did not answer this question.

Seven respondents (20.0%) were satisfied with their salary for the work they do and six respondents (17.1%) neither agreed or disagreed with this question. Twenty-two respondents (62.9%) disagreed or strongly disagreed that their salary was satisfactory for the work they do.

Twenty-three respondents (65.7%) agreed or strongly agreed with the statement, “My working relationship with my supervisor is satisfactory”. Six respondents (17.2%)

disagreed or strongly disagreed with the statement and five respondents (14.3%) neither agreed or disagreed with the statement.

Approximately 74% of the respondents (N=26) agreed or strongly agreed that the physical space and arrangement in their office support their activities. Five respondents (14.3%) neither agreed or disagreed and four respondents (11.5%) disagreed or strongly disagreed with this question.

Sixty percent of respondents (N=21) agreed or strongly agreed that they are satisfied with their chance for promotion. Six respondents (17.1%) neither agreed or disagreed and eight respondents (22.8%) disagreed or strongly disagreed with this question.

Forty percent (N=14) of respondents agreed or strongly agreed with the statement, "I am satisfied the amount of time to develop innovative teaching methods". Nine respondents (25.7%) neither agree or disagreed and twelve respondents (34.3%) disagreed or strongly disagreed and with the statement.

Eighty percent of the respondents indicated that they did not feel isolated in their work area. Three respondents (8.6%) neither agreed or disagreed and four respondents (11.4%) strongly agreed with this question.

According to the means for each factor, respondents were most satisfied with the feeling of isolation in their work area (M= 3.91), physical space and arrangement (M= 3.77), degree of their work (M= 3.94) and least satisfied with salary (M= 2.37) and the development of teaching methods (M= 2.97).

Approximately 83% of respondents agreed or strongly disagreed with the statement, "I am satisfied with the degree to which my work gives me the opportunity to

express my own ideas". Three respondents (8.6%) neither agreed or disagreed and another three respondents (8.6%) disagreed or strongly disagreed with the statement. The distribution of job satisfaction factors is detailed Table 4.

Table 4.
Summary of Responses under the Job Satisfaction

(N=35)

Factor	Strongly disagree		Disagree		Neither agree or disagree		Agree		Strongly agree		Mean response	Std. Dev
	N	%	N	%	N	%	N	%	N	%		
The amount of responsibility	3	8.6	5	14.3	9	25.7	3	8.6	8	22.9	3.29	1.36
My salary	8	22.9	14	40.0	6	17.1	6	17.1	1	2.9	2.37	1.11
Relationship /w supervisor	5	14.3	1	2.9	5	14.3	17	48.6	6	17.1	3.53	1.26
Physical space & arrangement	1	2.9	3	8.6	5	14.3	20	57.1	6	17.1	3.77	0.94
My chance for promotion	6	17.1	2	5.7	6	17.1	14	40.0	7	20.0	3.40	1.35
Developing teaching method	4	11.4	8	22.9	9	25.7	13	37.1	1	2.9	2.97	1.10
Feeling in work space	4	11.4	0	0	3	8.6	16	45.7	12	34.3	3.91	1.22
Degree of work	1	2.9	2	5.7	3	8.6	21	60.0	8	22.9	3.94	0.91
Satisfaction of current job	0	0	7	20.0	7	20.0	15	42.9	6	17.1	3.57	1.01

The overall Job Satisfaction. The final question was overall job satisfaction.

Twenty-one respondents (60%) agreed or strongly agreed with the statement, "I am

satisfied with my current job". Seven respondents (20%) neither agreed or disagreed and seven respondents (20%) disagreed with this statement. None of those answering the questionnaire strongly disagreed with this question. Table 4. presents the mean of overall job satisfaction.

Hours Per Day spent in the Office. The two additional questions asked the respondents to indicate how much time was spent in the office alone and with others each day.

Seven respondents (20%) spent more than five hours of their time in their office alone. Almost 23% of respondents (N=8) spent between 4 ½ to 5 hours of their time in their office alone. Seventeen percent (N=6) of respondents spent between 3 ½ to 4 hours, another 6 respondents (17%) spent between 2 ½ to 3 hours, and five respondents (14.3%) spent 1 ½ to 2 hours of their time in their office alone. Three respondents (8.6%) spent less than one hour of their time in their office alone.

Table 4.1.
Number of Hours Spend Alone per Day in the Office

(N=35)

Number of Hours Spent	Frequency of Response	Percentage of Total
Less 1 hour	3	8.6
1 ½ -2hours	5	14.3
2 ½ -3hours	6	17.1
3 ½ -4hours	6	17.1
4 ½ -5hours	8	22.9
More than 5 hours	7	20.0

Only one respondent spent more than five hours of his/her time in the office with others each day. Three respondents (8.6%) spent between 3½ hour to 4 hours, twenty percent of respondents (N=7) spent 2 ½ to 3 hours, and 40% (N=14) respondents spent 1 ½ to 2 hours of their time in their office with others each day. Ten respondents (28.6%) spent less than one hour of their time in their office with others. The results of these questions are found in Table 4.1. and Table 4.2.

Table 4.2.
Number of Hours Spend with Others per Day in the Office

(N=35)

Number of Hours Spent	Frequency of Response	Percentage of Total
Less 1 hour	10	28.6
1 ½ -2hours	14	40.0
2 ½ -3hours	7	20.0
3 ½ -4hours	3	8.6
More than 5 hours	1	2.9

Data Analysis

Measures of Relationship Between Being Able to Plan Furnishings (Q.1) and Satisfaction of Current Job (Q.32).

To analyze relationships between an individual's response to a single question "Are you able to plan the furnishing in your office?" and a single question ranking the respondent's level of satisfaction with current job, Chi-square analysis was used (see Table 5). Analysis indicated that there was no significant relationship between those who

were able to plan furnishings in their work area and overall satisfaction with their current job. Respondents were satisfied their current job regardless of being able to plan furnishings. However, specific factors showed some level of significance.

Table 5

Table 5.
Chi-square Analysis of Satisfaction of Current Job with Being Able to Plan
Furnishings.

(N=35)

Chi-square	Value	df	Sig. (2-tailed)
Being able to plan furnishings	4.250	3	.236

Measures of Relationship Between Being Able to Plan Furnishings and Physical Work Environment Factors

To analyze the relationship between the amount of control the respondents actually had in the work place and physical work environment factors, Pearson's correlation coefficients were calculated for two-tailed significance. The significance level for the correlation was set at $p < .05$. As expected, those who could not plan the furnishings were negatively correlated with physical work environment factors. The respondents who worked in areas where they were not able to plan the furnishings showed a negative correlations with the amount of space around their desk ($r = -.461$, $p = .007$), the amount of work surface ($r = -.433$, $p = .011$), the amount and type of storage space ($r = -.536$, $p = .001$), the furniture arrangement ($r = -.569$, $p = .000$), the proper equipment ($r = -.395$, $p = .021$), their office size ($r = -.588$, $p = .000$), the location of their office ($r = -.344$, $p = .046$), enough space to display ($r = -.404$, $p = .018$), input into the design

of space ($r=-.343$, $p=.047$), and overall satisfaction of their office environment ($r=-.506$, $p=.002$). The Pearson's correlation coefficient values are shown in Table 6.

Table 6.
Pearson's Correlation Coefficient Matrix of Relationship of Being Able to Plan Furnishings with Physical Work Environment Factors

(N=35)

Factor	the amount of space around their desk	the amount of work surface	the amount and type of storage space	the furniture arrangement	the proper equipment
Being able to plan the furnishing	-.461**	-.433*	-.536**	-.569**	-.395*

* Significant $p = <.05$ (two-tailed)

** Significant $p = <.01$ (two-tailed)

Table 6. (Continue)
Pearson's Correlation Coefficient Matrix of Relationship of Being Able to Plan Furnishings with Physical Work Environment Factors

Factor	office size	The location of office	Enough space to display	Input into the design of space	Overall satisfaction
Being able to plan the furnishing	-.588**	-.344*	-.404*	-.343*	-.506**

Measures of Selected Furnishing with Job Satisfaction Factors

Pearson's correlation coefficients were calculated for two-tailed significance. The significance level for the correlation was set at $p < .05$. It was expected that the more choices for furnishings were positively correlated with their job satisfaction. A significant positive correlation was found between the choice of furnishings and

respondent's satisfaction of salary, amount of time to develop innovative teaching methods, and feelings about their work area.

The more choices the faculty had to select their furnishings were positively correlated with their satisfaction of their salary ($r = .470, p = .006$). Significant positive correlation ($r = .412, p = .017$) were found between choice of furnishings and satisfaction of the amount of time to develop innovative teaching methods. In addition, the more choices for furnishings is correlated with that statement, "I feel isolated in my work area," ($r = .357, p = .042$). The Pearson's correlation coefficient values are shown in Table 6.1

Table 6.1
Pearson's Correlation Coefficient Matrix of Relationship of Selected Furnishings with Job Satisfaction Factors

(N=35)

Factor	The amount of responsibility	My salary	Relationship w/ supervisor	Physical space & arrangement	My chance for promotion
Selection of Furnishings	.246	.470**	-.017	.097	.202

* Significant $p = <.05$ (two-tailed)

** Significant $p = <.01$ (two-tailed)

Table 6.1 (Continue)
Pearson's Correlation Coefficient Matrix of Relationship of Selected Furnishings with Job Satisfaction Factors

Factor	Developing teaching methods	Feeling in work space	Degree of work	Satisfaction of current job
Selection of Furnishings	.412**	.357*	.120	.281

Measures of Relationship between Overall Satisfaction of Physical Work Environment (Q.21) and Satisfaction of Current Job (Q.32) (p= .000).

Overall satisfaction of physical work environment was measured by an individual's response to a single question ranking the respondent's level of satisfaction with office environment. The question ranking the respondent's level of satisfaction with current job was measured. To analyze the relationship between overall satisfaction of physical work environment and satisfaction of current job, a paired t-test was used (see Table 7). The t-test analysis indicated that there was no significant relationship between two factors.

Table 7.
t-Test of Overall Satisfaction of Physical Work Environment (Q.21) with Satisfaction of Current Job (Q.32).

(N=35)

Factor	Mean	S.D.	t-score	df	Sig. (2-tailed)
Pair Physical * Current Job	.3714	1.3080	1.680	34	.102

Measures of Relationship between the Amount of Time Spend per Day in Office with Job Satisfaction

To analyze relationship between the amount of time to spend per day in the office and job satisfaction, each of the factors of job satisfaction were summed to create a value for job satisfaction.

A paired t-test was used to determine if there was a significant relationship between the two concepts. Analysis indicated that there was a significant relationship

between the amount of time to spend per day in the office and job satisfaction ($p=.000$). The result showed that respondents who spend more time alone and less time with others have higher job satisfaction (see Table 8).

Table 8.
t-Test of the Amount of Time Spend per Day in the Office with Job Satisfaction

(N=35)

Factor	Mean	S.D.	t-score	df	Sig. (2-tailed)
Pair 1 Time alone * Job score	-21.8571	5.4132	-23.888	34	.000
Pair 2 Time w/other * Job score	-23.5714	5.5322	-25.207	34	.000

Findings related to Hypothesized Relationship

Three hypotheses were presented in Chapter One. The purpose of the hypotheses was to find the relationships between physical work environment and job satisfaction and demographic variables.

Hypothesis #1.

Space, furnishings, aesthetics, and ambient conditions are significantly related to one another as factors of the physical work environment.

When calculating the correlation among physical work environment factors such as space, furnishings, aesthetics, and ambient conditions, each of the items for the factors were summed to create a value for four factors.

Pearson's correlation coefficients were calculated for two-tailed significance. The significance level for the correlation was set at $p < .05$. Pearson's correlation coefficient proved that the majority of physical work environment factors were generally positive and significantly correlated to one another.

As expected, those who were satisfied with the space in their work area were positively correlated with their furnishings ($r=.705, p=.000$) and aesthetics ($r=.355, p=.036$). Those who were satisfied with the furnishings in their work areas showed positive correlations with aesthetics ($r=.471, p=.004$) and ambient conditions ($r=.490, p=.003$). Positive correlations were displayed between aesthetics and ambient conditions in their work area ($r=.519, p=.001$).

Additionally, those who were satisfied with their space ($r=.722, p=000$), furnishings ($r=.708, p=.000$), and aesthetics ($r=.400, p=.017$) showed positive correlations with their satisfaction of overall office environment. The first hypothesis was supported. The Pearson's correlation coefficient values for the four factors are shown in Table 9.

Table 9.
Pearson's Correlation Coefficient Matrix among Physical Work Environment Factors

(N=35)

Factor	1.	2.	3.	4.	5.
1. Space					
2. Furnishings	.705**				
3. Aesthetics	.355*	.471**			
4. Ambient Condition	.186	.490**	.519**		
5. Overall Satisfaction	.722**	.708**	.400*	.305	

* Significant $p < .05$ (two-tailed)

** Significant $p < .01$ (two-tailed)

Hypothesis #2.

Satisfactions with the physical work environment and job satisfaction are significantly related.

When calculating the relationship between factors of physical environment and job satisfaction, each of the factors of physical work environment and job satisfaction were summed to create a value for satisfaction of physical environment and job.

A paired t-test was used to determine if there was significant relationship between two satisfaction factors (see Table 10). Analysis indicated that there was a significant relationship between physical environment and job satisfaction ($p=.000$). The result indicated that respondents who were satisfied with their physical work environment were satisfied their job. The second hypothesis was supported.

Table 10.
t-Test of Satisfaction of Physical Work Environment Factors with Job Satisfaction Factors.

(N=35)

	Factor	Mean	S.D.	t-score	df	Sig. (2-tailed)
Pair	Physical Factors * Job Factors	33.2571	8.8728	22.175	34	.000

Hypothesis #3.

The personal variables of age, gender, rank of faculty, and years of teaching experience are significantly related to the factors of physical work environment and job satisfaction.

Chi-square analysis was used to examine the relationship between personal variables, which are age, gender, current rank, education level, and years of teaching, and the factors of physical work environment and job satisfaction. Again, each of the factors of the physical environment and job satisfaction were summed to create a value for satisfaction of physical environment and job.

The chi-square analysis indicated that there were no significant relationship between personal variables and physical work environment (see Table 11). Most respondents were satisfied with their office environment regardless of personal variables. However, there is a possibility that the relationship between the physical work environment and level of education approaches significance at $p = .1$ level ($\chi^2(42) = 55.888, p = .074$). Compared mean scores indicated that the faculty who had the Ed. D were more satisfied with their physical work environment than those who had the Ph.D. degree.

Even though satisfaction with the physical work environment by summing the eighteen factors displayed no significant relationship with personal variables, some individual factors showed significant correlation with personal variables (see Table 11.1).

Furniture arrangement ($r = .334, p = .050$) and available natural light ($r = .394, p = .019$) were positively correlated with gender meaning that male respondents were more dissatisfied with their furnishings than female respondents and female respondents were more satisfied with the available natural light than males.

The amount and type of storage space ($r = .349, p = .043$) and enough space to display ($r = .371, p = .028$) were positively correlated with level of education. In addition, the heating, air conditioning, and ventilation in their office ($r = .470, p = .005$) was

positively correlated with years of teaching experience, meaning that those with less years of teaching experience were not as satisfied the heating, air conditioning, and ventilation in their office (see Table 11.1).

Table 11.
Chi-square for the Relationship between the Physical Work Environment Factors and Personal Variables

(N=35)

Chi-square	Value	df	Sig. (2-tailed)
Age	33.195	42	.832
Gender	25.125	21	.242
Rank	47.732	42	.251
Education	55.888	42	.074
Year of Teaching	106.575	105	.439

Table 11.1.
Pearson's Correlation Coefficient Matrix for the Relationship between of Physical Work Environment Factors and Personal Variables

(N=35)

Factor	storage space	Furniture arrangement	Enough space to display	Natural light	HVAC
Personal Variables					
Gender	-.155	.334*	-.006	.394*	-.125
Education	.349*	.177	.371*	.016	.290
Years teaching	.000	-.074	.048	-.232	.470*

* Significant $p = <.05$ (two-tailed)

** Significant $p = <.01$ (two-tailed)

The chi-square analysis indicated that there were no significant relationship between personal variables and job satisfaction (see Table 12). Even though job satisfaction by summing the nine factors displayed no significant relationship with personal variables, some individual factors showed significant correlation with personal variables (see Table 12.1).

Table 12.
Chi-square for the Relationship between the Job Satisfaction Factors and Personal Variables

(N=35)

Chi-square	Value	df	Sig. (2-tailed)
Age	42.400	36	.241
Gender	19.454	18	.364
Rank	37.470	36	.402
Education	30.928	36	.708
Year of Teaching	100.212	90	.217

Satisfaction for salary ($r=.336$, $p=.048$) and amount of time to develop innovative teaching methods ($r=.348$, $p=.040$) were positively correlated with rank of faculty, meaning that assistant and associate professors were not as satisfied with their salary and the amount of time to develop innovative teaching methods and professors were more satisfied these two factors. A higher number of years of teaching were negatively correlated with the relationship with supervisor ($r=-.344$, $p=.047$) and level of education were negatively correlated with satisfaction of promotion chance ($r=-.377$, $p=.026$). However, the results indicate that most respondents were satisfied with their jobs regardless of these personal variables. The third hypothesis was not supported.

Table 12.1. Pearson's Correlation Coefficient Matrix for the Relationship between the Job Satisfaction Factors and Personal Variables

(N=35)

Factor	My salary	Relationship w/ supervisor	My chance for promotion	Developing teaching methods
Rank	.336*	-.173	-.006	.348*
Education	.015	-.151	-.377*	.170
Years teaching	-.091	-.344*	-.284	.193

* Significant $p = <.05$ (two-tailed)

Measures of Relationship between Overall Satisfaction of Physical Work Environment and Personal Variables.

The chi-square analysis indicated that there were no significant relationship between personal variables and the statement “Overall, my office environment is designed to allow me to do my tasks efficiently”. (see Table 13). The result indicated that most respondents were satisfied with their office environment to do their tasks efficiently. However, there is a possibility that the relationship between overall office environment (Q.21) and number of years teaching at $p=.1$ level ($\chi^2(20)=29.259, p=.083$) approaches significance.

Measures of Relationship between Satisfaction of Current Job and Personal Variables.

The chi-square analysis indicated that there were no significant relationships between personal variables and the statement “I am satisfied with my current job”.

The results indicated that regardless of personal variables most respondents were satisfied with their current job. This analysis is found in Table 14.

Table 13.
Chi-square for the Relationship between Overall Satisfaction of Physical Work Environment (Q.21) and Personal Variables

(N=35)

Chi-square	Value	df	Sig. (2-tailed)
Age	6.103	8	.636
Gender	2.298	4	.681
Rank	6.287	8	.615
Education	4.006	8	.857
Year of Teaching	29.259	20	.083

Table 14.
Chi-square for the Relationship between Satisfaction of Current Job (Q.32) and Personal Variables

(N=35)

Chi-square	Value	df	Sig. (2-tailed)
Age	6.217	6	.399
Gender	2.135	3	.545
Rank	5.017	6	.542
Education	9.835	6	.132
Year of Teaching	14.886	15	.460

CHAPTER V

SUMMARY, CONCLUSION, IMPLICATION, AND RECOMMENDATIONS

Summary

An office is defined as a place where people and information sources are brought together, and in which they can communicate with one another and with other people outside of the office (Owen, D. 1993). Owen (1993) also indicated that an office is a place where people research, manipulate, create and document information. Therefore, it is a place for people to work. Offices are all designed and this design affects how people work. Fisher, Bell, & Baum (1984) and Wineman (1982) suggested design elements that influence the work environment and affect the worker's satisfaction. Designs of the work environment that can influence job satisfaction are factors for concern.

This study was concerned with the physical work environment and job satisfaction of university faculty members. The purpose of this study was to explore the relationship between selected factors of the physical work environment and job satisfaction of university faculty members.

This study examined three relationships: the relationship among factors of physical work environment, the relationship between the physical office environment and job satisfaction, and the relationship between factors of physical work environment and job satisfaction and demographic characteristics of faculty members.

Survey questionnaires was sent 61 faculty who were in the College of Education. The questionnaire had three sections: existing workspace assessment questions, job satisfaction questions, and demographic information. Data were obtained from 35 questionnaires (57.4 percent) and were analyzed using frequencies, correlations, Chi-square, and t-tests.

Discussion of Research Findings

Demographic Characteristics

The majority of the faculty had a Ph.D. degree (74.3percent), were between the ages of 45 and 54 years (54.3 percent) and had been worked in the College of Education an average of 11.9 years. Half of the faculty were male (51.4 percent) and half of them were female (48.6 percent). Almost 43 percent were associate professors, 31 percent were assistant professors, and 26 percent were professors.

Physical Work Environment

The study utilized faculty that had recently moved into a newly renovated building. Ten faculty came here after building renovation and twenty-five faculty came before building renovation. The survey contained four factors: space, furnishings, aesthetics, and ambient conditions. Mean score revealed that the most faculty members were able to plan the furnishings used in their office and almost 26 percent of the faculty were not able to select the furnishings in their office. As expected, those who could not plan the furnishings were negatively correlated with several physical work environment factors. Faculty working in areas where they were not able to plan the furnishings

showed less satisfied with the amount of space around their desk, the amount of work surface, the amount and type of storage space, the furniture arrangement, the proper equipment, their office size, the location of their office, enough space to display, input into the design of space, and overall satisfaction of their office environment than those who could to plan the furnishings in their office.

Faculty who came here before or after building renovation were correlated with the number of choices in their furniture ($r=-.420$, $p=.015$). Faculty who came here before building renovation had more choice in their furniture.

Faculty with a higher rank were correlated positively with the number of choices in their furniture. Professors had more choice about their furniture in their office ($r=.379$, $p=.030$) than associate professors who had more choice of their office than assistant professors. Compared mean score revealed that assistant professors came here after building renovation. This may relate to the fact that professors were here and moved into the space, whereas the assistant professors are newer here and had their say in the selection of their furnishings.

Mean scores indicated that several physical factors were significant factors of the physical work environment that could influence with the satisfaction of office environment. The faculty were satisfied with space factors (amount of space around the desk, overall office size, and space to display) and furnishings factors (amount of work surface, amount of storage space, comfortable chairs, and proper equipment) and were not satisfied their furniture arrangement. In addition, respondents were satisfied with aesthetic factors (wall/floor colors and having many objects) and were not satisfied with the input into the design of space. The faculty were satisfied on ambient condition

factors such as office lighting and available natural light and were not satisfied with task lighting/desk lamp and the amount of noise. They were neutral about HVAC.

The faculty were most satisfied with wall/floor color, the lighting in their office, and available natural light and least satisfied with the ability to arrange the furniture, have input into the design of space, task lighting, and HVAC. The faculty were neutral on the heating, ventilation, and air conditioning. Additionally, over 85 percent of the faculty members were satisfied with the location of their office. Most of the faculty (83 percent) were satisfied overall their office environment.

Job Satisfaction

Job satisfaction was assessed using nine factors. The mean score revealed that faculty were satisfied with the physical space and arrangement, feelings about the workspace, and degree of work and the opportunity to express their own ideas. Faculty members were neutral on amount of responsibility, relationship with supervisor, and chance for promotion. They were dissatisfied with salary and time to develop teaching methods. Although the mean of overall job satisfaction was neutral, sixty percent of the faculty were satisfied with their overall job. Faculty were most satisfied with feeling about their work area, physical space and arrangement, degree of their work and least satisfied with salary and the development of teaching methods.

Additionally, faculty were asked to indicate the amount of time spent in their office alone and with others each day. Most faculty members spent more time alone than time with others. The result of the relationship between the amount of time spent per day

in their office and job satisfaction indicated that the more time spent alone and less time spent with others increased job satisfaction.

A positive correlation was displayed between selected furniture and job satisfaction factors. More choices of furniture were positively correlated with the satisfaction with salary, the amount of time to develop innovative teaching methods, and feelings about their workspace. Faculty who could select more furniture were more satisfied with their salary and the amount of time to develop innovative teaching methods. In addition, faculty who could select more furniture did not feel as isolated in their office.

Hypotheses Testing

The three hypotheses were tested using Pearson's correlation coefficient, Chi-square, and t-test. Hypothesis one was supported. Four factors of physical work environment were positively and significantly correlated to one another. Faculty who were satisfied with their space were satisfied with the furnishings and aesthetics. Faculty who were satisfied with their furnishings were satisfied with the ambient condition and aesthetics in their office.

Hypothesis two was also statistically supported that relationships between physical work environment and job satisfaction. Faculty who were satisfied with their physical work environment were more satisfied their jobs.

Hypothesis three, however, was not supported because there were no relationship between the factors of the physical work environment and job satisfaction and personal variables. Although they were not significantly related, there was a possibility that the

relationship between physical work environment and level of education and number of years teaching approached significance.

Conclusions

The following conclusions are drawn based upon the data analysis.

1. Previous research indicated that a number of physical work environment factors such as ambient environment, arrangement of furnishings, size and shape of the room, aesthetics affect the comfort of workers and their satisfaction (Wineman, 1982; Lunden, 1972; Davis, 1984; Farrenkopf & Roth, 1980). This study supports these previous findings that physical work environment factors show that significantly affect faculties' satisfaction and are related to one another. Faculty in this study were satisfied with most factors of the physical work environment. This result may conclude that the physical factors contribute to positive ratings of faculty' satisfaction based on the building condition. In addition, faculty who could not plan their furnishings were less satisfied their physical work environment than those who could plan their furnishings.
2. Several job satisfaction factors show that significantly affect faculties' satisfaction. Faculty in this study were satisfied with physical space and the arrangements in their office supporting the activities and the degree to which their work give them the opportunity to express their own ideas. They did not feel isolated in their work area.
3. A relationship was found between physical work environment and job satisfaction in this study. The result indicated that as satisfaction with physical work environment increased, so did satisfaction with job. The findings of this study supported previous research that the correlation between the work space and job satisfaction was

- examined among office workers (Crouch & Nimran, 1989) and Tack and Patitu (1992) suggested that poor working conditions lead to job dissatisfaction. This appears to be the most significant finding of the study because many researchers overlooked this issue for the past fifteen years.
4. None of the personal characteristics of the faculty emerged as being significant influential factors of physical work environmental and job satisfaction. Previous research indicated that variables such as age (Weaver, 1978), rank (Farrenkopf and Roth, 1980), and number of years teaching (Gaziel, 1986) are related to physical work environment and job satisfaction. Although differences may exist in the level of the physical work environment and job satisfaction among faculty with different demographic characteristics (i. e., rank, years of teaching, level of education) these factors do not appear to significantly impact the relationship between physical work environment and job satisfaction. The results conclude that faculty did not perceive their office environment and job satisfaction differently based on demographic characteristics.

Farrenkopf and Roth (1980) found that higher-ranking faculty have more choice over offices. The findings of this study supported previous research that professors had more choice about the furniture in their office than associate professors who had more choices for their office than assistant professors.

Implications

Many have suggested that the employee satisfaction is critical for all segments of the workforce. Researches consistently points to the importance of faculty satisfaction

and the effects of working conditions on faculty work place have looked at numerous aspects of the university environment. Faculty are essential educational resources and they require full responsibility for teaching, performing research, advising students, and performing professional and university service. To enhance these roles among faculty, knowing about the level of satisfaction of faculty on campus is the first step for this valuable of educational resources.

In order to improve effectiveness and satisfaction of the functioning and identify areas in need of change, factors affecting physical work environment and job satisfaction need to be addressed. This study is important because of the approach to assessing faculty work life. The findings in this study provide a better understanding of the influence of faculty' perception toward their physical work environment related to job satisfaction. Also this study raises awareness of the importance of positive or negative perceptions of their work environment. These findings may be useful in enhancing the workplace environment.

Because physical work environment has been found to influence job satisfaction, the results of this study should be considered when implementing related programs. When universities and interior designers are aware of the relationship between satisfaction of office environment and faculty' job, it may be possible to design more productive spaces.

Recommendations

The following recommendations are offered for future studies based upon the results of this study.

1. Although the results of this study presented some significant findings, it must be remembered that these findings can only be generalized to the population of the faculty members from the College of Education which was involved in the study. Therefore, it is recommended that the study be replicated using a sample more representative of faculty in general.
2. Based on the findings of this study, future studies might focus on more detailed information about current conditions of work environment using other factors (i. g., desk placement, window preference) that were not measured in this study.
3. Research is needed relating to the barriers of faculty' physical work environment in order to gain a better understanding of these constraints which may influence university faculty' job satisfaction.
4. This study provides information concerning relationships between physical work environment and job satisfaction of university faculty. Research investigating this relationship among other educators is needed to gain a more accurate view of educator's physical work environment and the influence on job satisfaction.
5. Assuming the results remained consistent, significant differences would be found for the relationship between physical work environment and job satisfaction. A researcher would survey a larger sample to gain more additional findings.
6. A similar study investigating this relationship using a different instrument for physical work environmental and job satisfaction is necessary to confirm the results of this study and may provide additional insight into the relationship of physical work environment and job satisfaction of faculty members.

7. Further research is suggested that would compare the physical work environmental and job satisfaction of those faculty who have worked in new offices with that of faculty who have been in old offices.
8. A longitudinal study is recommended to determine if faculty' physical work environment and job satisfaction remain constant over a period of time.

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APPENDICES



College of Business Research

OSU 10/13/14

College of Business

APPENDIX A - 10/13/14
COVER LETTER - 10/13/14



Physical Environment and Job Satisfaction Research

Dear professor,

The physical environment within the workplace is a critical part of job satisfaction. For faculty at an university, working conditions and attitude toward their job are important.

You have been selected as a professor of College of Education to participate in this study. Because you are in recently renovated office spaces, the office spaces are expected to influence the job satisfaction of the faculty members. The researcher will be asking questions about your physical work conditions and level of job satisfaction. In order that the results will truly represent participants, it is important that each questionnaire be completed and returned.

Participation in the study is completely voluntary. No information concerning your identity is requested. All responses will be handled confidentially by the researcher.

If you have questions about this research, you may contact the researcher, Hye-Sun Han (744-5035) at 101 HES; or Sharon Bacher (Institutional Review Secretary), 203 Whitehurst Hall, Stillwater, OK 74078 (744-5700). Thank you for your assistance.

Sincerely,

Hye-Sun Han
Graduate Student
Design, housing and Merchandising

Margaret J. Weber, Ph.D.
Advisor
Human Environmental Science

APPENDIX B
QUESTIONNAIRE

WORK ENVIRONMENT AND JOB SATISFACTION SURVEY

EXISTING WORKSPACE ASSESSMENT

The questions in this section ask about your work area; that is, the space surrounding you in which you conduct most of your work. Please answer the questions in the space provided.

1. Are you able to plan to arrange the furnishings in your office?

a. _____ Yes	b. _____ No
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2. Indicate any of the following items you were able to select for your office. Please check all that apply:

a. _____ Desk type	b. _____ Type of storage	c. _____ Area rug
d. _____ Chair type	e. _____ Lighting	f. _____ Wall color
g. _____ Chair color	h. _____ Desk top color	i. _____ Nothing

3. Indicate the number of furniture items in your office.

a. _____ Work surfaces	b. _____ Chairs	c. _____ File drawers
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Please indicate your level of agreement with each of the following questions by circling the number that most closely corresponds to your opinion.

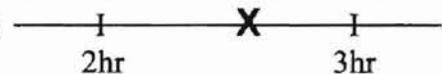
1. Strongly Disagree 2. Disagree 3. Neither Agree or Disagree 4. Agree 5. Strongly Agree

4 The amount of space around my desk is adequate to accommodate visitors.	1	2	3	4	5
5 The amount of work surface in my office supports my work tasks.	1	2	3	4	5
6 The amount and type of storage space in my office is adequate.	1	2	3	4	5
7 The furnishings in my office can be easily arranged.	1	2	3	4	5
8 My office chair is comfortable.	1	2	3	4	5
9 I have the proper equipment to do my work satisfactorily.	1	2	3	4	5
10 Overall, my office size is adequate to work efficiently.	1	2	3	4	5
11 The location of my office fosters to communication with others.	1	2	3	4	5
12 I have enough space to display what I want in my office.	1	2	3	4	5

13	Existing wall/floor colors are pleasing.	1	2	3	4	5
14	Many objects (pictures, artwork, or plants) are present in my office.	1	2	3	4	5
15	I had input into the design of space in my office.	1	2	3	4	5
16	The lighting in my office is satisfactory to work efficiently.	1	2	3	4	5
17	Task lighting or a desk lamp is available for my work surface	1	2	3	4	5
18	Natural light is available in my office.	1	2	3	4	5
19	The amount of noise in my office affects my tasks.	1	2	3	4	5
20	The heating, air conditioning, and ventilation in my office are comfortable to work efficiently.	1	2	3	4	5
21	Over all, my office environment is designed to allow me to do my tasks efficiently.	1	2	3	4	5

JOB SATISFACTION

The questions in this section ask about job satisfaction related to your office environment.

Please indicate time spent in your office with an X. ex 

22. How much time do you spend in your office alone each day?



23. How much time do you spend in your office with others each day?



Please indicate your level of agreement with each of the following questions by circling the number that most closely corresponds to your opinion.

1. Strongly Disagree 2. Disagree 3. Neither Agree or Disagree 4. Agree 5. Strongly Agree

24	I am not satisfied the amount of responsibilities indirectly related my wor	1	2	3	4	5
25	I believe my salary is satisfactory for the work I do.	1	2	3	4	5
26	My working relationship with my supervisor is satisfactory.	1	2	3	4	5

27	The physical space and arrangement in my office support the activities.	1	2	3	4	5
28	I am satisfied with my chance for promotion.	1	2	3	4	5
29	I am satisfied the amount of time to develop innovative teaching methods.	1	2	3	4	5
30	I feel isolated in my work area.	1	2	3	4	5
31	I am satisfied with the degree to which my work gives me the opportunity to express my own ideas.	1	2	3	4	5
32	I am satisfied with my current job.	1	2	3	4	5

DEMOGRAPHIC CHARACTERISTICS

The questions in this section ask information about you. Please check answers that apply to you.

33. Your age:

a. _____ Under 35	b. _____ 35-44	c. _____ 45-54	d. _____ 55-64
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34. Your gender:

a. _____ Male	b. _____ Female
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35. What is your current rank?

a. _____ Assistant Professor	b. _____ Associate Professor	c. _____ Professor
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36. What is the highest level of education you have completed (ex:PhD): _____

37. Indicate the number of years you have been at OSU in Education College:
 _____ years

Thank you very much for your help in this survey!
Please return the survey in the enclosed return envelope to:
Hye-Sun Han
101 HES Bldg.

QSI

APPENDIX C
FOLLOW UP LETTER



January 29, 2001

Dear, Professor,

I mailed a letter to you seeking your opinion regarding your office environment and job satisfaction about two weeks ago. I have not received your questionnaire. I need your assistance in making this study a success. If you are concerned about the nature of the information requested of you on the questionnaire, you can be assured that your responses will remain anonymous. In order for the results to truly be representative, it is important that the questionnaire be completed and returned by February 9, 2001.

Thank you for taking a few minutes from your busy schedule for this study.

Sincerely,

Hye-Sun Han
Graduate student
Design, Housing and Merchandising
Sciences

Dr. Margaret Weber
Advisor
Human Environmental

Oklahoma State University
Institutional Review Board

Protocol Expires: 12/3/2001

Date: Monday, December 04, 2000

IRB Application No HE0128

Proposal Title: PHYSICAL ENVIRONMENT FACTORS AFFECTING JOB SATISFACTION

Principal
Investigator(s):

Hye-Sun Han
110 E. Lakeview Rd A-5
Stillwater, OK 74075

Margaret Weber
109 HES
Stillwater, OK 74078

Reviewed and
Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

Signature



Carol Olson, Director of University Research Compliance

Monday, December 04, 2000
Date

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modifications to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office MUST be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

VITA²

Hye Sun Han

Candidate for the Degree of

Master of Science

Thesis: PHYSICAL ENVIRONMENT FACTORS AFFECTING JOB SATISFACTION

Major Field: Design, Housing and Merchandising

Biographical:

Personal Data: Born in Seoul, Korea, on October 20, 1967, the daughter of Kyu-Hyun Han and Jae-Suk Hong.

Education: Graduated from Myung-ji High school, Seoul, Korea, in Feb, 1985; received Bachelor of Fine Arts degree in Graphic Design from Sang Myung University, Seoul, Korea, in Feb, 1989; received Bachelor of Science degree from Oklahoma State University, December, 1999; completed requirements from the Master of Science degree with a major in Design, Housing, and Merchandising at Oklahoma State University in May, 2001.

Professional Experience: Interior Designer, Inter Fac. Seoul, Korea, 1989-1990; Interior Designer, Urban Inc. Seoul, Korea, 1991-1992; Interior Designer (Assistant manager), 3D Pacific Inc. Seoul, Korea, 1993-1995; Teaching assistant, Human Environmental Sciences Department, Oklahoma State University, Fall semester, 2000.

