

AN ABSTRACT OF THE THESIS OF

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Title: EFFECTS OF INTERIOR AND EXTERIOR BUILDING DESIGN  
ON PERCEIVED COMPETENCE

Abstract approved: Christopher A. Joseph

The present study investigated the effect of two contrasting exterior and interior building designs on the perception of therapist competence. Subjects (64 females and 64 males) viewed a videotape which displayed, for 10 seconds, the exterior of a building representative of either a hard design (cement walls, flat roof, no windows), or a soft design (conventional wall siding, angled roof, windows). The subjects then viewed a five minute segment of a male therapist interviewing a male client in a room representative of either a hard design (gray walls, masonite flooring, metal chair, overhead fluorescent light) or a soft design (neutral-warm wall color, cushioned chair, soft lighting, carpet).

The subjects then rated the therapist on nine Likert-type scales. Ratings were then compared among the four groups (hard and soft, exterior and interior)

and between male and female subjects. It was hypothesized that the subjects would rate the therapist higher in the soft exterior/soft interior condition. The hypothesis was not supported. The therapist's behavior appeared to mediate the divergent interior treatment conditions. However, there were consistent interaction effects involving subject gender and building exterior for eight of the nine questionnaire items. The male subjects consistently rated the therapist higher in the hard exterior condition while the female subjects consistently rated the therapist lower in the hard exterior condition. There was also a main effect for gender on one questionnaire item and a main effect for exterior design on one questionnaire item. In both instances the male subjects' higher ratings in the hard exterior condition accounted for the significant main effects.

EFFECTS OF INTERIOR AND EXTERIOR BUILDING  
DESIGN ON PERCEIVED COMPETENCE

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A Thesis  
Presented to  
the Division of Psychology and Special Education  
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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Science

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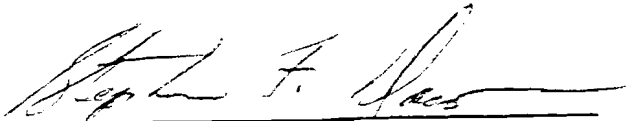
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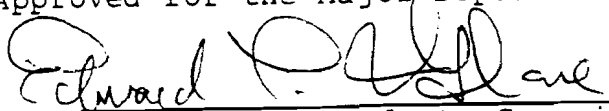
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CHAPTER 1  
INTRODUCTION

Community mental health centers utilize a wide variety of building designs. Their exterior designs may resemble those of office buildings, commercial businesses, single or multi-family homes, or in some cases, industrial warehouses. Interior designs are countlessly varied in the use of color, wall treatment, lighting, type of furniture and floor covering. This diversity is indicative of the lack of a prominent design philosophy for the current system of mental health centers. The system began in the early 1960's and grew rapidly in response to the large number of patients being released from state mental hospitals. Since there was no architectural tradition to guide in its development, the result was a diverse variety of designs found in new and retrofitted buildings.

Building environments, according to environmental psychologists, affect building user attitudes and behaviors (Proshansky, Ittleson, and Rivlin, 1976; Sommer, 1974). Studies which focus on the impact of the built environment are concerned with the combined

environmental effect of variables in a particular setting. Traditional experimentation had dealt with variables on a molecular level in which a stimulus event was isolated from the environment (Ward & Russell, 1981). Conversely, the molar approach considered collective environments as affective agents.

Considering the wide range of building designs found in mental health centers, it would be valuable to determine whether certain exterior and interior building images affect the manner in which the mental health professionals are perceived. With this knowledge administrators and architects could better plan the physical environments of mental health facilities. The result could strengthen therapeutic relationships, enhance individual outcomes and raise community awareness and acceptance of the mental health profession.

This thesis will examine building designs, more specifically, the combined effect of exterior and interior building images on perceived therapist competence. Previous research has focused exclusively on interior design and decorative components. Bloom, Weigel, and Trautt (1977) found a significance in room

variables for therapist credibility in a humanist versus traditional therapy office. The research of Amira and Abramowitz (1979) supported the notion of room variables affecting aspects of therapist competence. In another study, design was found to be a significant factor in the amount of self-disclosure in a therapeutic setting (Chaikin, Derlega, and Miller, 1976). Of the cited studies only Chaikin, Derlega and Miller used a treatment based on a design philosophy (hard versus soft architecture). None of the studies considered building exterior as a contributing factor.

In a mental health setting it is important to understand the impact of the designed environment on client attitudes, behaviors and perceptions. Well designed buildings may encourage client involvement. Unattractive buildings may actually drive clients away. According to Sommer (1974), "unresponsive buildings will increase (building user) isolation . . . [and] a building can make a good situation better or a bad situation worse," (pp. 143-145). This study was primarily concerned with how interior and exterior building images affect perceived therapist competence.

Few studies have been conducted which have tested the theoretical framework regarding affective response to the built environment. Purcell (1986) has suggested that affective reactions to the built environment are prototypically organized. A prototype, or schema, may be defined as a mental representation which is formed as a result of many experiences and is used as a model against which other experiences are compared. When there is a mismatch between the environmental stimuli and the prototype, an interruption or blocking of the prototype-based processing occurs which causes an affective response to the environment. According to Purcell, "the range of affective experiences related to the physical environment . . . should be related to increasing amounts of interruption and blocking and consequent cognitive processing produced by increasing departures from the default values defined by the prototypes," (pp. 8-9). Purcell's 1986 study compared ratings of color slides of churches by architectural and nonarchitectural students along four aesthetic judgment scales. Using a multidimensional scaling technique in analyzing the data, Purcell concluded the data patterns were representative of an increasing

discrepancy from the examples of the prototypes. Purcell stated that the positive results and implications of the study could be used by the design professions to identify environments which are representative of certain environmental prototypes which would support ongoing experience and reinforce affect within the environment. This may be related directly to the mental health field in that environments may be identified which are conducive to reinforcement of the therapist's image and which could enhance the client/therapist relationship.

Kaplan (1982, 1975) offers a construct similar to Purcell's in his cognitive-evolutionary approach to environmental perception. Kaplan's position emphasizes the use of a cognitive map or model to organize and make sense out of the environment. The cognitive map is not conceptualized in a literal sense, but exists as a series of connections and serves as "a sort of accumulation or summary of . . . experience. It is, in other words, the schematic knowledge a person has about a familiar environment," (p. 24). The building blocks of the cognitive map are called representations which are similar to Purcell's prototypes. Kaplan defines representations as "an

internal summary of a class of stimulus patterns. Its role is to take the place of--that is, to represent, or stand for--some object in the world," (p. 26). He also describes them as "a collection of salient features, weighted in terms of their importance," (p. 30). The continuity of representations is directly related to earlier sequences of experience. The experiences that share a commonality will be overlapped in memory and will form a network of associations. In this manner cognitive maps or models are created. Even though an experience may be new, it is affected by past experiences which shared a patterned overlap of association (Kaplan, 1982).

Both Purcell and Kaplan stress the importance of prior experience in the process of affective response to the environment. It may be presumed that prototypes of mental health facilities exist. What features describe them? Is there a particular design philosophy which more accurately represents them? To answer these questions it is necessary to briefly review the history of mental health facilities since prototypes and representations are based on past experience.

The original function of mental health facilities was to isolate and imprison the mentally ill. The interiors and exteriors of the buildings which housed the inmates were at best, austere and monumental, and at worst, overpowering and spirit breaking (Good, Siegel, and Bay, 1965). Philippe Pinel initiated a reform movement in the late 18th century which sought to halt the inhumane treatment of mental patients. Inmates were no longer chained to the walls and beaten as a matter of course. Humane treatment and improved nourishment and sanitation became the order of the day (Coleman, Butcher, and Carson, 1984), however, the designs of mental institutions remained virtually unchanged. Building designs were eventually altered to reduce the austere prison-like image. Dr. Thomas Kirkbride, an American born in 1809, was influential in bringing attention to the need for considering alternatives to the typical fortress-like buildings. Kirkbride assisted in designing low profile, linear buildings to house mental patients (Good, Siegel, and Bay, 1965). Treatment regimens also changed along with the building designs and consisted mainly of supportive therapy and occupational training.

This treatment philosophy was gradually replaced with one which emphasized an exclusive focus on the biologic needs of the patient. There was hope that the medical field would develop cures for mental problems as it had for the epidemic diseases of the 19th century. The building designs reverted to the monumental austerity of the earlier institutions and were described as having "an insensitive, hygienic, well regulated hopelessness" (Goshen, 1961, p. 7).

The facilities became larger and larger to accommodate the increase in the institutionalized population. New engineering techniques utilizing steel superstructures and poured concrete allowed for the economical construction of these facilities.

Goshen (1961) stated that:

hospitals built between World War I and II were 'human warehouses'--the dominant theme being the unimaginative use of indestructible reinforced concrete. Both inside and outside the most prevalent theme of these buildings is their similarity to prisons (p. 1).

The prison-like image of a large mental health facility is a common one. Since prototypes are based on past experience it would seem that this image could



influence the prototype or representation which is associated with modern mental health facilities.

Mental patients began an exodus from the "warehouses" in the early 1950's chiefly because of the development of the first antipsychotic compounds. This movement stimulated the development of the current system of community mental health centers. These federally funded projects brought mental health programs out of the institutional setting and into the mainstream of the cities (Buss, 1966). The immediate need of these facilities warranted expeditious construction of new facilities and the retrofitting of existing structures. The designs of these structures followed commercial building standards which gave little, if any, consideration to user response to building stimuli. This posture exemplifies the modern design profession's emphasis on artistic freedom for the architect and an insistence that modern architectural images are aesthetically representative of a higher moral truth which, they contend, the general public is slow to recognize. Authors Brolin (1976), Blake (1977), and Wolfe (1982) contend that modern building designs are insensitive to building user needs and have rarely met public approval. This,

along with the absence of a dominant design philosophy for mental health facilities, has resulted in a hodgepodge of mental health centers which may resemble office buildings, residential dwellings or small industrial facilities. In summary, the typical mental health facility up to approximately 1950 resembled a prison, or at best, a warehouse. With the initiation of the current system of mental health centers no design theme has dominated the field. The prototype of the mental health facility as a prison or warehouse is a negative one. Therefore designs which contradict this image may be assumed to be more prototypically acceptable than those with which it shares similarity.

Cultural influence is another factor which may moderate affective response to the built environment. Mintz (1977) suggested that Western culture devalues aesthetics to the extent that conscious perception of aesthetically different environmental settings is significantly reduced. Maslow and Mintz (1956) conducted research which measured the effect of varying levels of aesthetic appeal within molar physical environments. They used four rooms which represented "beautified," "uglified," and "average" treatment conditions. Subjects were brought into the

rooms and asked to describe them and decide if they would like to spend time looking at materials in them. The subjects described the beautified and uglified rooms as to their obvious positive and negative qualities, however the subjects had difficulty finding words to describe the neutral rooms and instead, described them according to their function--"office" and "classroom." The subjects emphatically stated that they would not like to spend time in the uglified room but surprisingly showed no preference for the beautified room over the average rooms for the task of looking at materials.

The authors then tested for subject performance in each of the treatment conditions. The subjects were asked to examine ten negative prints of faces and rate them as to whether they were "energetic" (Wellbeing) or "fatigued" (Displeased). The data showed that the average mean ratings were lowest in the uglified room, highest in the beautified room and at the midpoint for the two average rooms. The subjects predicted lower performance in the uglified room but were unable to predict higher performance in the beautified room compared to the average rooms. Mintz (1977) suggested that these results exemplified

the cultural dislocation of "pleasure values . . . so that there has been an impairment in the intimate connectedness that should exist for qualitative reality, aesthetic perception and estimate of function within qualitatively defined conditions," (p. 272). Mintz explained this impairment in terms of cultural influences which devalue aesthetics in the environment to the extent that performance is thought to be incompatible with pleasure, at least on a conscious level.

Mintz' study demonstrated that in a positive aesthetic environment people do not have to be consciously aware of the influence of room stimuli since performance levels will be higher. In a neutral environment that lowers performance, people tend to deny the affective potential of the environment and therefore do not form any adaptive behavior. This distortion of perception demonstrated by the subjects, according to Mintz, is representative of "a gross impairment in the population-at-large regarding openness to the qualitative aesthetic environment," (p. 284).

In the scope of a mental health environment Mintz' research implies that in a positive setting

psychotherapy may be enhanced and in a neutral or negative environment psychotherapy may be impeded whether or not the client recognizes the aesthetic influence.

In summary, two factors appear prominent in affective responses to the environment. First, there appears to be a cognitive/affective process, as described by Purcell and Kaplan, the main component of which acts as a representative model against which like objects are compared. When an environmental stimulus is nonconforming with the prototype, a blocking occurs which causes a cognitive process proportional to the discrepancy between incoming stimulus and the default values of the prototypes. Affect then occurs as a result of this process. The second factor influencing environmental affect, according to Mintz, is cultural in nature and reflects a prevailing value system which essentially denies the influence or importance of aesthetics within the built environment which may result in impaired responses.

There is a paucity of research which has examined design variables related directly or tangentially to mental health facilities. Katz (1931) conducted one of the earliest experiments which tested the color

preferences of institutionalized individuals. Katz presented a card with six spectral colors to 422 patients at a state hospital and asked them to rank them in order of preference. Katz discovered that blue was the favorite color, followed by green, red, violet, yellow and orange. Katz found that colors of shorter wave lengths (blue and green) were preferred by residents of shorter residence, while patients of longer residence preferred colors similar to those of very young children. Katz attributed these color choices to the psychological deterioration and regression of the patients. Another plausible explanation would be that since Katz conducted his study at a time when the common environments of state hospitals was drab and prison-like, the preference for brighter colors may have been an understandable reaction to a deficient, oppressive environment.

Slatter and Whitfield (1978) conducted a study based on the hypothesis that room function would dictate judged appropriateness of color. They based their study on Sivik (1974) and Inui (1966). According to Slatter and Whitfield, Sivik proposed the possibility of culturally determined norms of appropriateness governing evaluative responses to

building color. Inui found that frequencies with which specific colors occurred varied with the type of interior function. He suggested that this was an indication of the existence of norms of color appropriateness depending on room function. Subjects in Slatter and Whitfield's experiment viewed drawings of a living room and a bedroom and were given a set of nine color samples and asked to rank color samples as to their appropriateness for room colors. The subjects displayed a significant level of agreement in the ranking of colors within each condition. The results support the notion of internal representations which are used to judge appropriateness of environmental components.

Srivastava and Peel (1968) conducted an experiment which investigated room color on human movement. Rooms painted light beige and dark brown were used to display Japanese prints in a museum. The subjects' movements were recorded as they entered and moved about the display rooms. The data showed that the subjects in the dark brown room took more footsteps, covered more area and spent less time compared to the other room. The authors could offer no explanation for the subjects' behavior. Since the

subjects spent less time in the dark brown room it would appear that they found it to be less pleasant. Mintz (1956) found subjects to spend less time in negative or neutral environments than in positive ones. Srivastava and Peel's study also supports Slatter and Whitfield's findings that room function dictates judged appropriateness of color. The subjects responded to the room color as being inappropriate. The idea of cultural norms dictating judged appropriateness of room color to function also supports the notion of internal representations being used as models (Purcell, Kaplan).

Birren (1973) stated that color and light are important factors to be considered in the design of building interiors for the mentally disturbed. He suggested neutral-warm colors for most walls, and white and off-white for ceilings. Cool colors were recommended for private and rest areas, warm colors for recreational and occupational training areas. Birren stressed that artificial light sources provide full spectrum quality rather than the standard fluorescent bulb which may emit a bluish, greenish, or yellow cast. He also recommended that the artificial light source be neutral, slightly warm in quality and



provide a modest degree of ultraviolet light. Birren warns against using white or off-white for walls because high levels of brightness inhibit sight and constrict pupil openings which may be fatiguing.

An experiment which tested the effect of wall color on consumers was conducted by Belizzi, Crowley and Hasty (1983). The researchers explored approach orientation behavior and physical attraction power in a retail store setting. Large color panels and life-sized slide projections of furniture displays were different background colors were utilized. The subjects were rated as to their proximity to the stimulus panels during the experiment. The results did not support a significant relationship between color and approach orientation, however color was significantly related to physical attraction. Subjects sat closest to the yellow wall and farthest from the white wall. This data supports Birren's contention that white walls are too bright and fatiguing to the eyes. The authors also discovered that the subjects were attracted to the range of warm colors significantly more than the cool colors. The subjects also perceived the warm colors to be more tense than the cool colors.

In summary, the research of Slatter and Whitfield reinforces Purcell's prototypical organization of environmental affect, however, their research was limited to color appropriateness for standard rooms. Srivastava and Peel's study indicated that people in a room which may be color inappropriate may wish to remove themselves from the environment at a faster rate than in a color appropriate room (Maslow and Mintz, 1956; Slatter and Whitfield, 1977). Birren's ideas concerning appropriate interior colors for mental health facilities was supported by the research of Belizzi, Crowley and Hasty whose subjects seated themselves closest to a warm colored wall and farthest from a white wall.

A paucity of research exists concerning the influence of the built environment on subject evaluation of therapist competence. Kasmar, Griffin and Maurtizen (1968) studied the impact of ugly and beautiful rooms on subjects' self rated mood and ratings of a psychiatrist. The subjects, who were applicants for outpatient psychiatric treatment, were interviewed by psychiatric residents in either the beautiful or ugly room. The beautiful and ugly rooms were identical in size, wall color and furniture. The

beautiful room was carpeted, had wall decorations, an artificial plant and indirect lighting. The ugly room had an asphalt tile floor, overhead fluorescent lighting and was unkept. Half the subjects completed their ratings after a twenty minute interview, and the remainder completed the ratings after being in the room alone for three minutes. Lorr's (1965) Client Perception of Therapist Scale was used to assess therapist qualities. The Psychiatric Outpatient Mood Scale (1964) was used by the subjects to rate their own moods. The results indicated no main room effects for either self rated mood or rating of examiners. The authors report a significant interaction of Room X Sex in which there was a "more pronounced sex difference in the ugly room than in the beautiful room," (p. 225). However they suggest caution in interpreting the main effects, "for the data indicate that sex differences are not consistent over all room, sex and age combinations," (p. 225).

Room environment as a stimulus for client self-disclosure was tested by Chaikin, Derlega, and Miller (1976). The authors used Sommer's (1974) concepts of "hard" and "soft" architecture to create contrasting environments. Sommer used the term, hard

architecture, to describe the architectural designs which were characterized by a heavy use of concrete and lack of windows. According to Sommer, people perceive hard architecture as being impervious, impersonal, inorganic and nonyielding, and they react to it as a negative stimulus. Hard architecture's unalterable quality causes building users to feel that they lack control over their environment. The room representing hard architecture had a brown asphalt tile floor, an overhead fluorescent light, a table pushed to one corner, a straight back chair for the subject and an upholstered chair for the interviewer. The soft room was furnished with an oriental rug, cushioned armchair for the subject, framed pictures on the wall, and had indirect lighting. Subjects were interviewed in both environments and were rated on the degree of self-disclosure of their communication.

The data indicated that the subjects in the intimate environment disclosed at a significantly higher rate than did those in the hard environment. These results are relevant in that the subjects' behaviors indicated that the soft environment was more appropriate for self-disclosure. This reinforces Purcell's notion of a prototypical basis for

environmental affect, presuming that the soft environment was a better match to the prototype or schema of a safe place for self-disclosure. A client's perceptions of a room environment as positive may generalize to the therapist. Therefore, the possibility exists that in a positive or appropriate room environment the therapist may be perceived in a more positive vein.

There have been two studies conducted which have compared interior environments representative of traditional versus humanist therapy philosophies. Bloom, Weigel and Trautt (1977) arranged an office to represent a traditional professional decor whose main components consisted of a desk between the client and therapist and a display of professional texts and diplomas. The office was carpeted, however, carpet color, wall color and type of lighting used in the experiment was not reported. The humanist interior had the desk along the wall so the client and therapist sat facing one another. The room contained sculpture, wall posters, a bean bag chair and several throw pillows. The subjects were given a description of the therapist who supposedly occupied the office, and were then asked to rate the imagined therapist

using a therapy credibility questionnaire. The subjects rated the therapist in the traditional office as significantly more qualified than the therapist in the humanist office. However, the subjects rated the therapist in the humanist office as significantly more safe than the traditional treatment. Female subjects also rated therapists higher than male subjects. Subjects perceived a female therapist in a traditional office as more credible than a female in the humanist office. The male therapist was perceived as more credible in the humanist office than in the traditional office.

The results of this experiment demonstrate that office designs contribute to perceptions of credibility and safety. The traditional environment was perceived to be credible, but was so at the expense of the component of safety. Both factors are paramount in establishing a working relationship in psychotherapy. The client must feel confident in the therapist's ability but must also feel that the environment is a safe one for communication and self-disclosure. If the environment is too formal and business-like, safety will be lowered. If the

environment is too relaxed and casual, credibility will suffer.

Amira and Abramowitz (1979) used videotapes of a simulated therapy session in testing therapist attire and office furnishings on subject's ratings of therapist attraction. The therapist was dressed in a tie and collar (formal) or open-collar sport shirt (casual). The settings differed only in the display of diplomas and photo portraits versus a peasant wall rug and sensitivity posters. No other variables were reported. The therapy session was performed by a psychiatric resident and a graduate student, however the graduate student sat offscreen during videotaping. After viewing the five-minute tape the subjects completed an assessment form which evaluated therapist attraction. The results indicated that "a main effect for room formality was obtained for competence, the therapist being regarded as more so when he interviewed in the formally furnished rather than informally furnished room," (p. 200). The researchers also found that the subjects perceived the therapist as more positive when casually dressed in the formal room than in any other condition, and concluded "that the subjects preferred either combination of formality

and informality in the therapeutic setting over 'purely informal' or 'purely formal' dress and office arrangement," (p. 200). Although the results of this experiment were not consistent for office furnishings, they did support the notion that office interiors are a contributing factor which may affect perceptions of therapist competence.

The preceding four studies utilized a molar approach in testing the effect of room environments on attitudes and behavior in a mental health setting. They are representative of the bulk of research conducted on this topic. In two of the studies aspects of traditional (professional) versus humanist (casual) office furnishings were used as stimuli (Bloom, Weigel and Trautt, 1977; Amira and Abramowitz, 1979). A third study tested room environment on client disclosure (Chaikin, Derlega, and Miller, 1976) and a fourth utilized beautiful versus ugly design differentials in testing client self-rated mood and perception of the therapist (Kasmar, Griffin, and Maurtizen, 1968). The results of the studies are mixed. Chaikin, Derlega, and Miller found that the therapeutic environment significantly influenced rate



of client disclosure, however it is unknown if the room environment affected client perception of the therapist. Bloom, Weigel and Trautt determined that room environment affected client attitudes toward an imagined therapist. Would a live therapist have yielded different results? Kasmar, Griffin, and Maurtizen found no main effects for the room variables. It is also important to note that in all four studies the physical components of the experimental settings were incompletely reported. Absent were complete, precise descriptions of wall treatments, lighting, types of furniture, color of furniture, color of walls, and color and type of floor covering.

Since the environment appears to be an important factor in establishing a working therapeutic relationship (Chaikin, Derlega, and Miller, 1976) it would seem logical to explore the influence of different exterior and interior building designs on perceptions of therapist competence. It is expected the use of hard architecture (Sommer, 1974) will negatively affect the perceived competence of the therapist and that soft architecture will enhance the perceived competence of the the therapist.

### Statement of the Problem

Will different interior building designs (hard versus soft) produce significant differences in the way subjects perceive therapist competence?

Will different exterior building designs (hard versus soft) produce significant differences in the way subjects perceive therapist competence?

Will there be any significant differences between male and female subjects in their perception of therapist competence?

### Statement of the Hypotheses

The design of this study is established to test the following null hypotheses:

Hypotheses I. There is no significant difference between hard and soft interior designs in relation to subjects' perceptions of therapist competence.

Hypotheses II. There is no significant difference between hard and soft exterior designs in relation to subject's perceptions of therapist competence.

Hypotheses III. There is no significant difference between male and female subjects in relation to their perception of therapist competence.

### Definition of Terms

Hard architectural design: Designs characterized by the use of hard, impervious wall surfaces, the minimization or lack of windows, and the minimization of color (Sommer, 1974).

Soft architectural design: Designs characterized by the use of alterable wall surface material, the use of windows, softer natural light, and the use of color for walls, floor surfaces, furniture and furnishings (Sommer, 1974).

## CHAPTER 2

## METHOD

Subjects

The subjects for this study were Introductory Psychology and Developmental Psychology students at Emporia State University. The total number of subjects were 128 of which 64 were male and 64 were female.

Materials

The subjects' perceptions of the therapist were measured with a questionnaire which consisted of nine 11-point Likert-type scales. The questionnaire was based on one developed by Post (1985). Subjects rated the therapist on nine qualities. These were: Warmth, Formality, Ability to Help, Concern, Genuineness, Understanding, and Acceptance, followed by two items which asked, how comfortable the subject would be in disclosing personal feelings to the therapist, and how likely the subject would contact the therapist if the need arose. A complete copy of the questionnaire is included in Appendix B.

Using Sommer's (1974) concepts of hard and soft architecture as a guide, two videotapes were produced

to represent hard and soft interior treatments. The same room was used for both taping sessions but was altered in the following manner: wall color, floor covering, furniture, lighting and room embellishment. The wall color of the hard room was a grayish off-white (Sherwin Williams' "Crushed Ice" SW 1010). The lighting was provided by an overhead fluorescent fixture (GE VC8T9-CW cool white), the floor covering was brown masonite, and the furniture consisted of a gray office chair. The soft room was painted with a light peach (Davis' "Dawn Echo" Q431P). The lighting was provided by two incandescent lamps (75 watt soft white bulbs) and natural light from two windows, the floor covering was a multi-colored (brown, rust, gold, orange) short pile carpet, and the furniture consisted of an upholstered cloth-covered rust-colored easy chair. A brown-orange pot containing a blue and straw-colored dried flower arrangement was placed next to the chair. In each videotape the same two males portrayed the "therapist" and "client." The "therapist" was a holder of a Master's degree in Psychology and was a practicing alcohol/drug counselor. The "client" was a graduate student in rehabilitation counseling. The "therapy" session was

an enactment of alcohol/drug evaluation. Only the "therapist" was included on camera. The client sat out of view but could be heard.

The exterior treatments consisted of footage shot of two buildings whose designs represented hard and soft architecture. The exterior shots were 10 seconds in length and were placed at the beginning of each interior treatment in the following four combinations: hard exterior/hard interior, hard exterior/soft interior, soft exterior/hard interior, soft exterior/soft interior. The videotapes were displayed on a 26-inch color television.

### Procedure

The four experimental conditions were randomly assigned to the subjects using a table of random numbers. A total of 10 Introductory Psychology classes and one Developmental Psychology class participated in the study over a four day period. Most of the students received extra credit for their participation. The following instructions were read to each group of subjects:

You are going to participate in the evaluation of a psychotherapist. You will be viewing a short

videotape. The first thing you will see is the mental health center where the therapist is employed. You will then view a short segment of a therapy session with this therapist. After completion of the tape you will be asked to complete a short questionnaire.

The subjects then viewed a tape which displayed, for ten seconds, one of the building exteriors. Then they viewed a five minute segment of the session. The television was then turned off and the questionnaire was disseminated. The subjects were then instructed to indicate their gender on the first page. The subjects were then given these instructions:

This questionnaire consists of nine items. Each item concerns itself with one aspect of the therapist's performance. The possible responses for each item range from 1 to 11, or from low to high. You are to rate the therapist on each item by circling the approximate number. Respond to each item according to your impressions of the therapist's performance.

Upon completion, the questionnaires were collected and the subjects were thanked for their cooperation.

### Statistical Design

The independent variables in this study were interior building design, exterior building design, and subject gender. The dependent variable was the subjects' rating on each of the questionnaire items. The data were computer analyzed by a 2 x 2 x 2 (Interior design x Exterior design x Gender) between subjects ANOVA (Linton and Gallo, 1975). One ANOVA was completed for each of the nine questionnaire items, and one ANOVA was completed for the combined responses for each individual subject within each treatment condition.



## CHAPTER 3

## RESULTS

The independent variables in the present study were subject gender, building exterior and building interior. The dependent measure was the rating given by subjects on each of the nine questionnaire items which were developed to address qualities of therapist competence (Post, 1985). The data were analyzed by a 2 x 2 x 2 between subjects ANOVA (subject gender x building exterior x building interior). The mean ratings and standard deviations for each item by exterior and interior treatment conditions and subject gender are show in Table 1. A separate ANOVA was performed for each of the nine questionnaire items. The individual subjects' total questionnaire responses were combined and evaluated as a method of determining overall subject reactions to the therapist's performance. The results indicated no consistent main effects for gender or exterior building design and no main effects for interior building design. There were, however, consistent interaction effects involving subject gender and exterior building design for eight of the nine questionnaire items and for the combined scores of individual subjects' total

Table 1

Means and Standard Deviations for Each Item By Gender, Exterior, and Interior

|                                     |   | Hard Exterior |       |                |       | Soft Exterior |       |                |       |
|-------------------------------------|---|---------------|-------|----------------|-------|---------------|-------|----------------|-------|
|                                     |   | Male Subject  |       | Female Subject |       | Male Subject  |       | Female Subject |       |
| Item #                              |   | Mean          | S.D.  | Mean           | S.D.  | Mean          | S.D.  | Mean           | S.D.  |
| H<br>A<br>R<br>D<br><br>I<br>N<br>T | 1 | 5.25          | 1.53  | 4.50           | 2.03  | 4.31          | 1.54  | 4.19           | 2.17  |
|                                     | 2 | 6.19          | 2.81  | 5.06           | 2.38  | 5.75          | 3.02  | 5.38           | 1.82  |
|                                     | 3 | 5.63          | 2.00  | 4.56           | 2.37  | 4.50          | 1.75  | 5.13           | 2.60  |
|                                     | 4 | 5.63          | 1.78  | 5.06           | 1.91  | 4.81          | 1.60  | 5.25           | 2.14  |
|                                     | 5 | 5.19          | 2.59  | 5.00           | 1.90  | 4.56          | 1.93  | 5.31           | 2.15  |
|                                     | 6 | 6.50          | 1.86  | 5.44           | 1.55  | 5.88          | 2.16  | 5.75           | 2.05  |
|                                     | 7 | 6.19          | 1.83  | 5.69           | 2.06  | 5.63          | 1.89  | 5.44           | 1.97  |
|                                     | 8 | 4.44          | 2.50  | 3.44           | 2.45  | 3.06          | 1.95  | 3.00           | 2.97  |
|                                     | 9 | 4.19          | 2.79  | 3.56           | 2.45  | 2.69          | 2.15  | 3.00           | 2.71  |
| Combined                            |   | 48.75         | 14.85 | 41.69          | 16.12 | 40.50         | 11.80 | 42.69          | 14.45 |
| S<br>O<br>F<br>T<br><br>I<br>N<br>T | 1 | 6.00          | 1.67  | 3.94           | 1.61  | 4.31          | 2.24  | 4.50           | 2.50  |
|                                     | 2 | 5.88          | 2.13  | 5.13           | 2.39  | 6.63          | 2.73  | 6.94           | 2.49  |
|                                     | 3 | 6.13          | 2.16  | 4.25           | 2.11  | 4.44          | 2.97  | 6.13           | 2.36  |
|                                     | 4 | 6.38          | 2.36  | 4.00           | 2.31  | 5.56          | 4.66  | 6.19           | 2.46  |
|                                     | 5 | 6.06          | 2.21  | 4.56           | 2.56  | 4.94          | 2.72  | 6.13           | 2.36  |
|                                     | 6 | 7.50          | 1.63  | 4.81           | 2.31  | 5.31          | 2.24  | 7.00           | 2.37  |
|                                     | 7 | 6.75          | 1.73  | 5.38           | 2.80  | 5.25          | 2.08  | 5.25           | 2.08  |
|                                     | 8 | 5.56          | 2.66  | 3.19           | 3.04  | 3.00          | 2.56  | 3.44           | 2.97  |
|                                     | 9 | 4.50          | 3.20  | 2.50           | 2.68  | 2.94          | 2.43  | 4.00           | 3.37  |
| Combined                            |   | 54.31         | 15.03 | 37.75          | 17.04 | 41.50         | 18.27 | 51.38          | 19.21 |

questionnaire responses. The results of the analyses of variance for each questionnaire item and the individual total responses are summarized below.

On item 1 (the therapist's personal warmth), there was a main effect for gender. Male subjects rated the therapist as being significantly warmer than did female subjects,  $F = 4.004$ ,  $p < .05$ . Male subjects' ratings in the hard exterior condition were significantly higher,  $p < .05$ ,  $M = 4.9$  than female subjects' ratings in the hard exterior condition,  $M = 4.2$ . There was also a significant interaction involving subject gender and building exterior at the .05 level:  $F = 4.376$ . The interaction appears graphically in Figure 1. Male subjects' ratings of the therapist in the hard exterior treatment were significantly higher,  $M = 5.6$ ,  $p < .05$ , than the female subject's ratings for the same condition,  $M = 4.2$ . There were no significant interactions for gender x interior  $F = .529$ ,  $p > .05$ , exterior x interior  $F = .008$ ,  $p > .05$  or for gender x exterior x interior  $F = 1.398$ ,  $p > .05$ .

On item 2 (how formal the therapist appeared) there were no significant main effects for gender,  $F = 1.197$ ,  $p > .05$ , exterior,  $F = 1.895$ ,  $p > .05$ ,

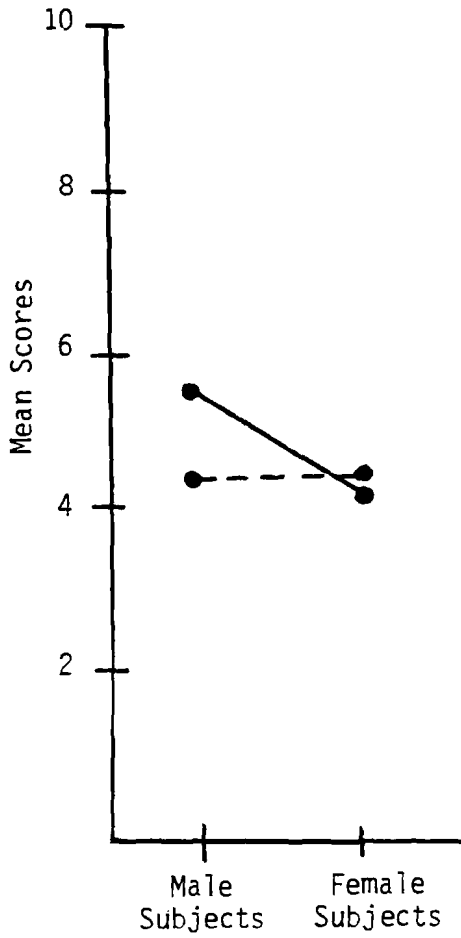
Figure 1

Subject Gender x Building Exterior Interaction  
for Item 1

LEGEND:

Hard Exterior \_\_\_\_\_

Soft Exterior - - - - -



interior,  $F = 1.526$ ,  $p > .05$ , or for the interactions, gender x exterior  $F = 1.048$ , gender x interior  $F = .360$ , interior x exterior  $F = 2.304$ , gender x exterior x interior  $F = .031$ .

On item 3 (the therapist's ability to help) there were no significant main effects for gender,  $F = .145$ ,  $p > .05$ , exterior,  $F = .052$ ,  $p > .05$ , or interior,  $F = .0471$ ,  $p > .05$ . There was a significant gender x exterior interaction,  $F = 10.273$ ,  $p < .01$ . The interaction appears graphically in Figure 2. The male subjects' ratings of the therapist in the hard exterior treatment were higher,  $M = 5.8$ , than the female subjects' ratings in the same condition,  $M = 4.4$ . The female subjects' ratings in the soft exterior condition were higher,  $M = 5.6$ , than the male subjects' ratings in the same condition,  $M = 4.4$ . There were no significant interactions for gender x interior  $F = .023$ ,  $p > .05$ , exterior x interior  $F = .209$ ,  $p > .05$  or gender x exterior x interior  $F = 1.31$ ,  $p > .05$ .

On item 4 (the therapist's concern for others), there were no significant main effects for gender,  $F = 1.067$ ,  $p > .05$ , exterior  $F = .170$ ,  $p > .05$ , or interior,  $F = 1.214$ ,  $p > .05$ . There was a significant

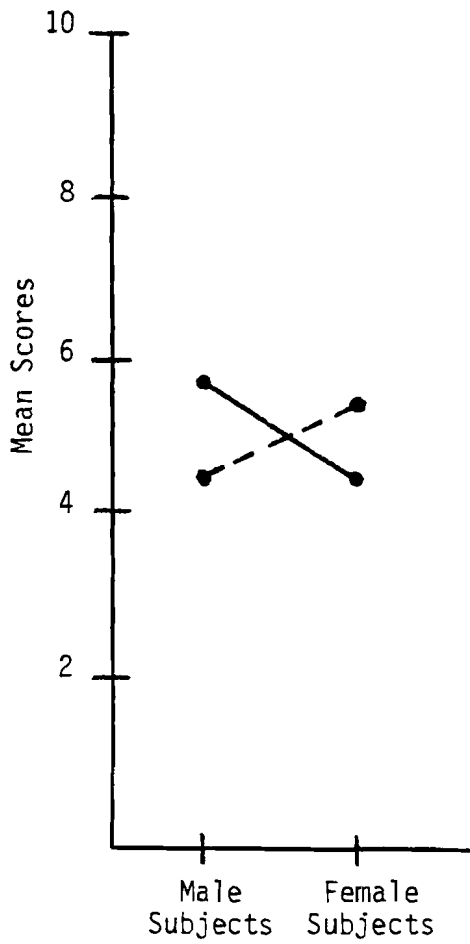
Figure 2

Subject Gender x Building Exterior Interaction  
for Item 3

LEGEND:

Hard Exterior \_\_\_\_\_

Soft Exterior - - - - -



gender x exterior interaction,  $F = 4.859$ ,  $p < .05$ . The interaction appears graphically in Figure 3. The male subjects' ratings of the therapist in the hard exterior treatment were higher,  $M = 6.0$ , than the female subject's ratings in the same condition,  $M = 4.5$ . The female subjects' ratings in the soft exterior condition were higher,  $M = 5.7$ , than the male subjects' ratings in the same condition,  $M = 5.1$ . There were no significant interactions for gender x interior  $F = .802$ ,  $p > .05$ , exterior x interior  $F = 1.214$ ,  $p > .05$  and gender x exterior x interior  $F = 1.214$ ,  $p > .05$ .

On item 5 (the therapist's genuineness) there were no significant main effects for gender,  $F = .022$ ,  $p > .05$ , exterior,  $F = .005$ ,  $p > .05$  or interior,  $F = .930$ ,  $p > .05$ . There was a significant gender x exterior interaction,  $F = 4.628$ ,  $p < .05$ . The interaction appears graphically in Figure 4. The male subjects' ratings of the therapist in the hard exterior treatment were higher,  $M = 5.6$ , than the female subjects' ratings in the same condition,  $M = 4.7$ . The female subjects' ratings in the soft exterior condition were higher,  $M = 5.7$ , than the male subjects' ratings in the same condition,  $M = 4.7$ .

Figure 3

Subject Gender x Building Exterior Interaction  
for Item 4

LEGEND:

Hard Exterior \_\_\_\_\_

Soft Exterior - - - - -

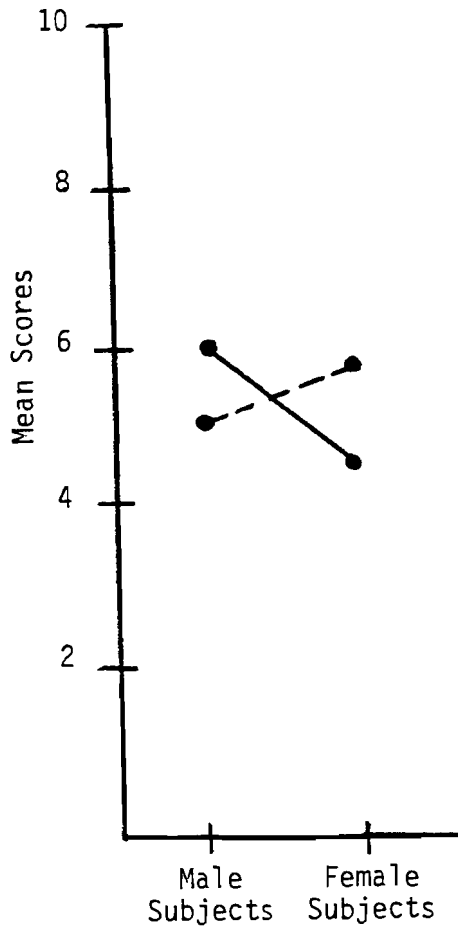




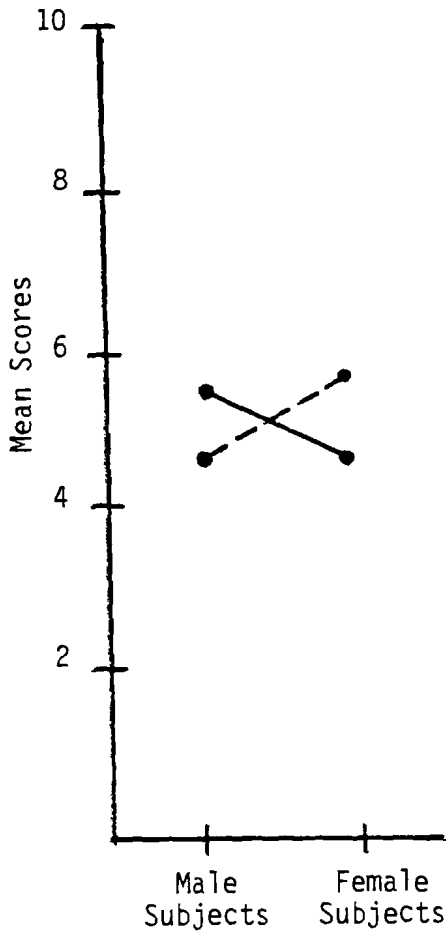
Figure 4

Subject Gender x Building Exterior Interaction  
for Item 5

LEGEND:

Hard Exterior \_\_\_\_\_

Soft Exterior - - - - -



There were no significant interactions for gender x interior,  $F = .269$ ,  $p > .05$ , exterior x interior  $F = .198$ ,  $p > .05$ , or gender x exterior x interior  $F = 1.078$ ,  $p > .05$ .

On item 6 (the therapist's ability to understand problems) there were no significant main effects for gender,  $F = 2.294$ ,  $p > .05$ , exterior,  $F = .046$ ,  $p > .054$ , or interior,  $F = .541$ . There was a significant gender by exterior interaction,  $F = 13.531$ ,  $p < .01$ . The interaction appears graphically in Figure 5a. The male subjects' ratings of the therapist in the hard exterior treatment were significantly higher,  $M = 7.0$ ,  $p < .05$ , than the female subjects' ratings in the hard exterior treatment,  $M = 5.1$ . There was a significant gender x exterior x interior interaction  $F = 5.665$ ,  $p < .05$ . The interaction appears graphically in Figure 5b. The difference between male,  $M = 7.5$ , and female,  $M = 4.8$ , ratings in the hard exterior condition were strongest in the soft interior condition  $p < .05$ . There were no significant interactions for gender x interior  $F = .016$ ,  $p > .05$ , or exterior x interior  $F = .046$ ,  $p > .05$ .

On item 7 (how the therapist appeared to accept others), there were no significant main effects for

Figure 5

Subject Gender x Building Exterior Interaction  
for Item 6

LEGEND:

Hard Exterior \_\_\_\_\_

Soft Exterior - - - - -

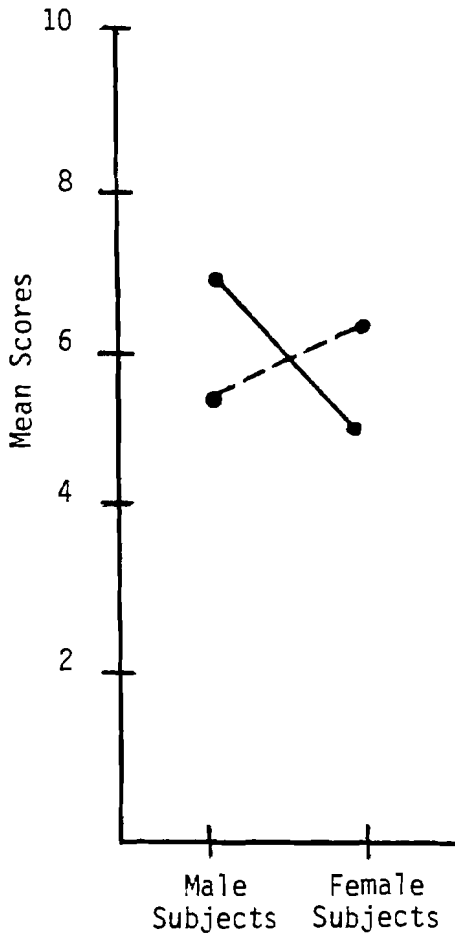


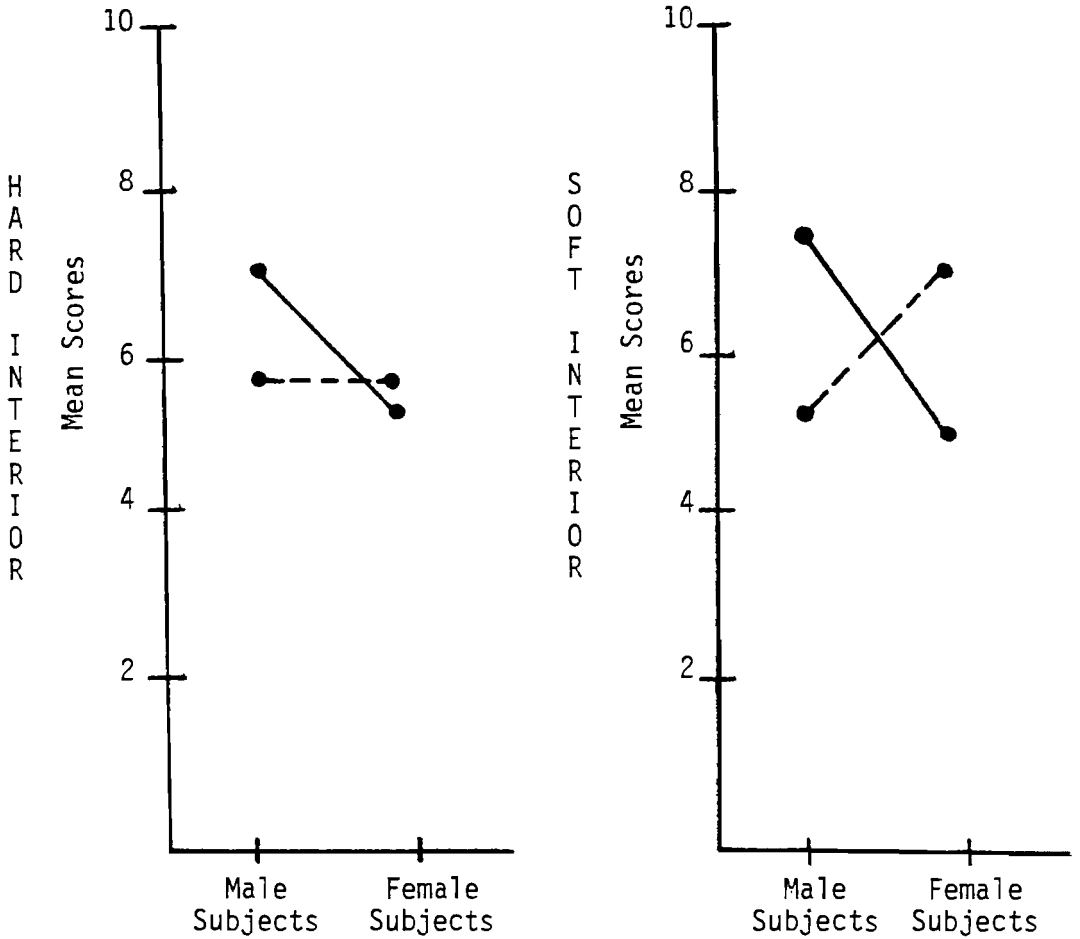
Figure 6

Subject Gender x Building Exterior x Office  
Interior Interaction for Item 6

LEGEND:

Hard Exterior \_\_\_\_\_

Soft Exterior - - - - -



gender,  $F = .027$ ,  $p > .05$ , exterior,  $F = .171$ ,  $p > .05$ , or interior,  $F = .985$ ,  $p > .05$ . There was a significant gender by exterior interaction,  $F = 5.362$ ,  $p < .05$ . The interaction appears graphically in Figure 6. The male subjects' ratings of the therapist in the hard exterior treatment were higher,  $M = 6.4$ , than the female subjects' ratings in the same condition,  $M = 5.53$ . The female subjects' ratings in the soft exterior treatment were higher,  $M = 6.2$ , than the male subjects' ratings in the same condition,  $M = 5.4$ . There were no significant interactions for gender x interior  $F = .554$ ,  $p > .05$ , exterior x interior  $F = .437$ ,  $p > .05$  or gender x exterior x interior  $F = 3.61$ ,  $p > .05$ .

On item 8 (how comfortable the subject would be in disclosing personal feelings to the therapist), there was a significant main effect for exterior treatment,  $F = 4.82$ ,  $p < .05$ . The significantly higher,  $p < .05$  male subjects' ratings of the therapist in the hard exterior treatment,  $M = 4.16$ , versus female,  $M = 3.1$ , was responsible for the main effect. There was no main effect for gender,  $F = 2.549$ ,  $p > .05$ , or interior,  $F = .442$ ,  $p > .05$ . There was no significant interaction for gender x interior,

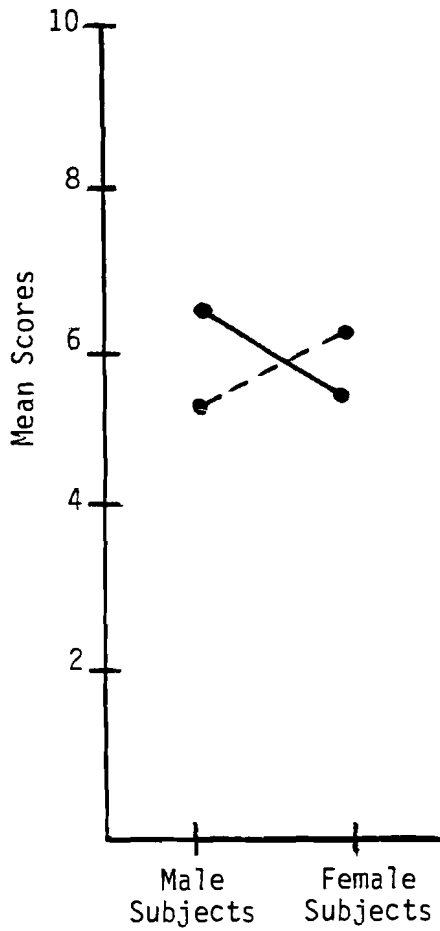
Figure 7

Subject Gender x Building Exterior Interaction  
for Item 7

LEGEND:

Hard Exterior \_\_\_\_\_

Soft Exterior - - - - -



$F = .216$ ,  $p > .05$ , exterior x interior,  $F = .216$ ,  $p > .05$ , or gender x exterior x interior,  $F = .996$ ,  $p > .05$ . There was a significant gender by exterior interaction  $F = 3.984$ ,  $p < .05$ . The interaction appears graphically in Figure 7. The male subjects' ratings of the therapist in the hard exterior treatment were significantly higher,  $M = 5.0$ ,  $p < .05$ , than the female subjects' ratings in the same condition  $M = 3.3$ .

On item 9 (how likely the subject would consult the therapist) there were no significant main effects for gender,  $F = .413$ ,  $p > .05$ , exterior,  $F = 1.195$ ,  $p > .05$ , or interior,  $F = .066$ ,  $p > .05$ . There was a significant gender x exterior interaction,  $F = 4.234$ ,  $p < .05$ . The interaction appears graphically in Figure 8. The male subjects' ratings of the therapist in the hard exterior treatment were higher,  $M = 4.3$ , than the females subjects' ratings in the same condition,  $M = 3.0$ . The female subjects' ratings in the soft exterior condition were higher,  $M = 3.5$ , than the male subjects' ratings in the same condition,  $M = 2.8$ . There were no significant interactions for gender x interior  $F = .103$ ,  $p > .05$ , exterior x

Figure 8

Subject Gender x Building Exterior Interaction  
for Item 8

LEGEND:

Hard Exterior \_\_\_\_\_

Soft Exterior - - - - -

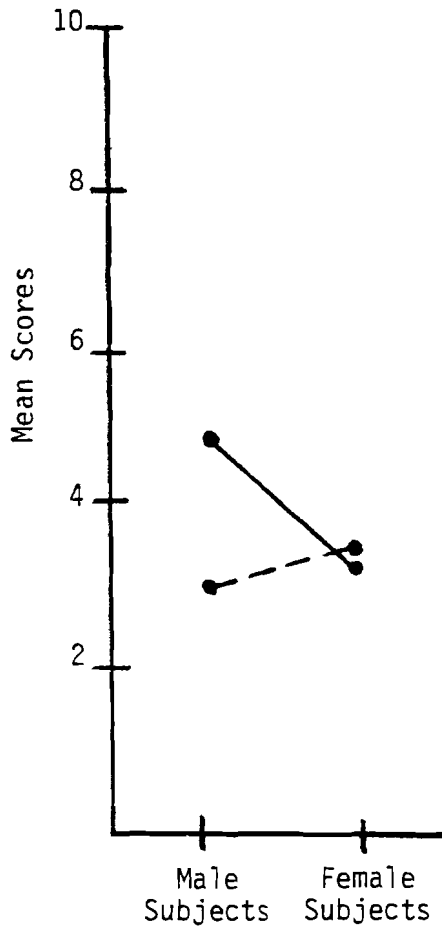




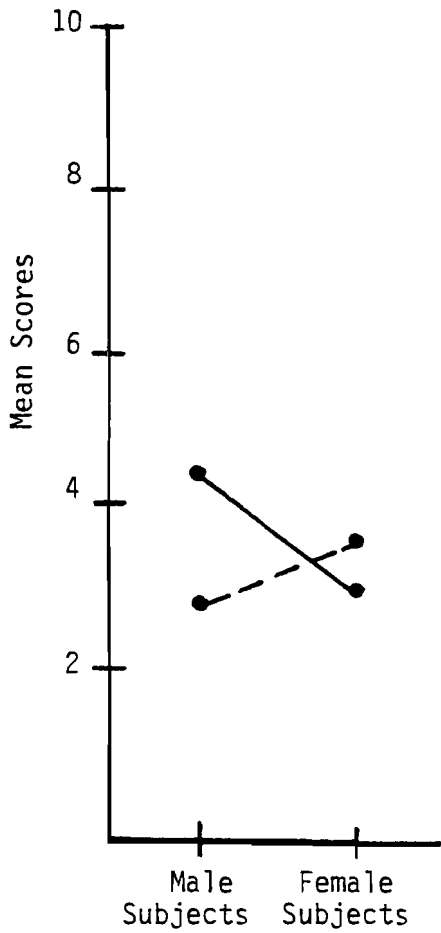
Figure 9

Subject Gender x Building Exterior Interaction  
for Item 9

LEGEND:

Hard Exterior \_\_\_\_\_

Soft Exterior - - - - -



interior  $F = .058$ ,  $p > .05$  or gender x exterior x interior  $F = 1.195$ ,  $p > .05$ .

For the individual subjects' combined scores there were no significant main effects for gender,  $F = 1.044$ ,  $p > .05$ , exterior,  $F = .323$ ,  $p > .05$ , exterior,  $F = .323$ ,  $p > .05$  or interior,  $F = .507$ ,  $p > .05$ .

There was a significant gender by exterior interaction,  $F = 9.9$ ,  $p < .01$ . The interaction appears graphically in Figure 9. The male subjects' ratings of the therapist in the hard exterior treatment were significantly higher,  $M = 51.5$ ,  $p < .05$ , than the female subjects' ratings in the hard exterior condition,  $M = 39.7$ . There were no significant interactions for gender x exterior  $F = .025$ ,  $p > .05$ , exterior x interior  $F = .507$ ,  $p > .05$ , or gender x exterior x interior  $F = 2.308$ ,  $p > .05$ .

Summarizing the above results, there were significant main effects for items 1 (Warmth) and 8 (Disclosure). On item 1 the male subjects rated the therapist as significantly warmer than did the female subjects ( $p < .05$ ). The male subjects' significantly higher ratings in the hard exterior condition accounted for the main effect. On item 8 the ratings involving the hard exterior condition were

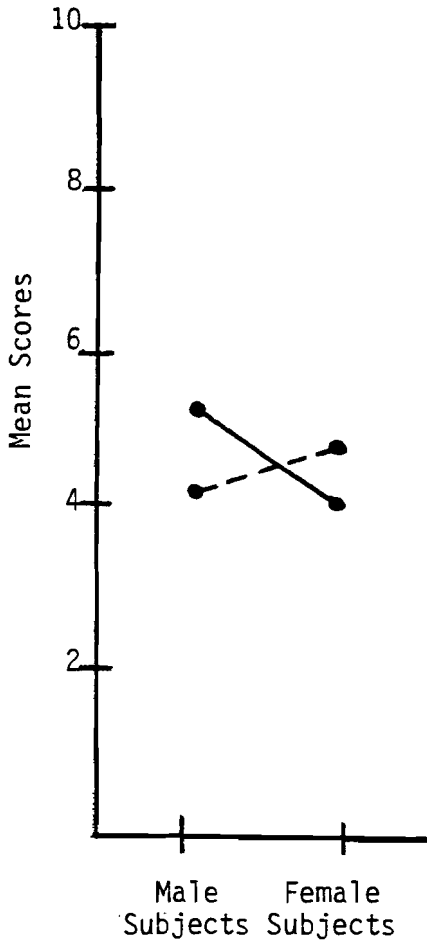
Figure 10

Subject Gender x Building Exterior Interaction  
for Combined Individual Responses

LEGEND:

Hard Exterior \_\_\_\_\_

Soft Exterior - - - - -



significantly higher ( $p < .05$ ) than the soft exterior conditions. The male subjects' significantly higher,  $p < .05$ , ratings in the hard interior condition accounted for the main effect. There were no main effects for any of the other items. There were significant gender by exterior interactions for 8 of the 9 questionnaire items and for the individual subjects combined scores. For these interactions the male subjects' ratings of the therapist in the hard exterior treatment were significantly higher than the female subjects ratings in the same condition on items 1, 6, 8, and the combined scores, ( $p < .05$ ). There were no other 2-way interactions for any of the items. There was a 3-way interaction for item 8 (gender x exterior x interior),  $p, < .05$ . For the soft interior condition men rated the therapist higher in the hard exterior treatment, while the women rated the therapist higher in the soft exterior treatment. For the hard interior condition men rated the therapist higher in the hard exterior treatment than did women but men and women rated the therapist on the same level in the soft exterior treatment. There were no other third level interactions.

## CHAPTER 4

## DISCUSSION

The present study contended that the images of the built environment would affect the manner in which subjects perceived the competence of a mental health therapist. It was projected that the therapist in the experiment would be perceived as more competent in a softer environmental setting versus a harder environmental setting. The study asked three questions: 1) Will different interior building environments (hard versus soft) produce significant differences in the way subjects perceive therapist competence? 2) Will different exterior building designs (hard versus soft) produce significant differences in the way subjects perceive therapist competence? 3) Will there be any significant differences between male and female subjects in their perception of therapist competence?

The results indicated no main effects for interior treatment, and a lack of consistent main effects for exterior treatment and subject gender. The lack of main effects for interior design may be clarified by previous research which yielded similar

results (Amira and Abramowitz, 1979; Kasmar, Griffin and Mauritzen, 1968). These researchers found no consistent main effects for interior components and reasoned that the therapist's behavior mediated the influence of environmental variables on client's perceptions. Similarly, the influence of the radically different interior treatment conditions in this study did not produce main effects. The therapist's behavior appeared to be a stronger mediating factor than did interior design.

There was a main effect for exterior condition for item 8 (Disclosure). The subjects rated the therapist as significantly higher in the hard exterior condition. The significance was explained by the male subjects' higher ratings in the hard exterior condition.

There was a main effect for gender for item 1 (Warmth). The male subjects rated the therapist significantly higher than did the female subjects. The significance was explained by the male subjects' higher ratings in the hard exterior condition.

There was a consistent pattern of exterior treatment x gender interactions for 8 of the 9 questionnaire items and for the mean scores based on

total individual responses. The male subjects consistently rated the therapist higher in the hard exterior treatment than did female subjects. The consistent differences between the sexes for exterior treatments may be an indication that the subjects had been relatively unaffected by past prototypical images of monumental, prison-like mental health facilities. The subjects, most of whom were first year college students, were born after the inception of the community mental health system and were therefore minimally exposed to the former designs.

The male subjects' higher ratings in the hard exterior condition may be an indication that the subjects made a positive association between the hard image in this study and the monumental building images commonly found in corporate/business architecture. Proponents of these designs consider them strong, and functional and many perceive them as symbols of power, wealth and prestige. Critics of these designs consider them overbearing, cold, and impersonal (Sommer, 1974) which may explain the female subjects' lower ratings in the hard exterior condition.

Mintz (1977) has discussed how perceptive capabilities of men and women are influenced by

Western culture's emphasis on efficient performance and devaluation of esthetics. It has been suggested that men have been influenced more and women less by these cultural values which may help explain the gender differences in the results of this study. The male subjects may have perceived the hard exterior as being strong, functional, and efficient, whereas the female subjects may have perceived the building as esthetically inappropriate for the task of intimate communication.

In summary, it must be noted that no previous research has tested the effect of building exterior on subjects' perceptions of a therapist. Future studies may take a closer look at the effects of exterior building design on public perceptions of the mental health profession in general. It would be important to ascertain the approach/avoidance capabilities of particular building images and determine what building designs possess traits which are attractive to potential clients.



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APPENDIX A

## INFORMED CONSENT DOCUMENT

The Department/Division of Psychology and Special Education supports the practice of protection for human subjects participating in research and related activities. The following information is provided so that you can decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time, and that if you do withdraw from the study, you will not be subjected to reprimand or any other form of reproach.

1. Procedures to be followed in the study, as well as identification of any procedures which are experimental.

You will view a short videotape of a therapy session. Afterward you will rate the therapist's performance on a scale of 1 to 11 using a 9 item questionnaire.

2. Description of any attendant discomforts or other forms of risk involved for subjects taking part in the study.

There should be no discomfort involved.

3. Description of benefits to be expected from the study or research.

This research will help mental health professionals better understand the psychotherapeutic process.

4. Appropriate alternative procedures that would be advantageous for the subject.

"I have read the above statement and have been fully advised of the procedures to be used in this project. I have been given sufficient opportunity to ask any questions I had concerning the procedures and possible risks involved. I understand the potential risks involved and I assume them voluntarily. I likewise

understand that I can withdraw from the study at any time without being subjected to reproach."

\_\_\_\_\_  
Subject

\_\_\_\_\_  
Date