

BENCHMARKS: SENSING THERAPEUTIC LANDSCAPE QUALITIES ASSOCIATED
WITH SEATING CHOICE ON TERRELL MALL ON THE WASHINGTON STATE
UNIVERSITY CAMPUS

By

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To the Faculty of Washington State University:

The members of the Committee appointed to examine the thesis of
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Abstract

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Outdoor public spaces in urban settings have potential to be restorative places for visitors. Although programmed differently than therapeutic gardens in healthcare settings, which focus on promoting well-being in patients living with specific physical and psychological conditions, outdoor public spaces in non-healthcare settings can be evaluated based on perceptions of therapeutic landscape qualities. This study sought to elucidate shifts in perception ratings of therapeutic landscape qualities by users of Terrell Mall, at Washington State University, as a result of an installation of movable chairs at the study site. During Scenario 1, October 14 - 18, 2005, one hundred respondents made perception ratings while using stationary seating already present at the study site. During Scenario 2, October 21 - 27, 2005, sixty-one respondents made perception ratings while using movable chairs placed at the study site by the investigator. A questionnaire, developed for this study, was used to gauge the proportion of respondents in both scenarios that gave positive, neutral, and negative responses regarding seating and therapeutic landscape qualities. A test of proportions was performed using computed z-values in comparison with tabulated test z-values to determine whether significant rating shifts occurred from Scenario 1 to Scenario 2. The results of this study indicate that use of movable chairs at the

study site was associated with positive shifts in perceptions of seating comfort, landscape maintenance, personal safety, positive memorable impressions of the site, and beauty of the site. A negative shift in perceptions of control over where respondents could sit associated with the use of movable chairs was contrary to previous research and raised questions about user awareness of control and site layout that might confound chair placement. Respondents who felt positively about control were nearly three times more likely to relocate chairs a distance greater than one chair width than those who felt neutrally or negatively about control. These results imply that the inclusion of movable chairs in public space design programs may positively shift user perceptions of therapeutic landscape qualities overall, perhaps allowing users a more restorative experience in that space.

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Dedication

This thesis is dedicated to those who are committed
to creating spaces for all beings where beauty,
truth and well-being may be experienced.

CHAPTER ONE

INTRODUCTION

The more living patterns there are in a thing - a room, a building, or a town - the more it comes to life as an entirety, the more it glows, the more it has this self-maintaining fire, which is the quality without a name.

- Christopher Alexander, *The Timeless Way of Building*

Genesis and Significance of This Study

The catalysts of this study include the experiences I had while growing up in Honolulu, Hawaii during the 1960s, 1970s, and 1980s; my introduction to the characteristics and benefits of therapeutic gardens at the Seventh Annual Legacy Health System Therapeutic Gardens Conference in Portland, Oregon, 2004; the continuing need to be mindful of place making as exemplified in writings of Christopher Alexander; and instances of Post-Modern designs that ignore the lessons of place making. The element of seating, which holds potential as a restorative component of place making in public open spaces, is a central focus of this thesis. Consideration of what makes a sound urban place in the 21st century is significant because 93% of the population of affluent countries of the northern hemisphere live in urban areas (McGowan 2003).

The Honolulu neighborhood of Kalihi, where I spent my childhood and young adult years, is the first place that inspired me to think about how the physical environment might benefit people. The two-mile section of Kalihi Street that I lived on continues to be pedestrian unfriendly. It is a physical remnant of the once sleepy country road that wound its way to the reaches of the narrow Kalihi Valley since the 1800s. As automobile traffic grew heavier in the

valley simultaneous to housing developments during the 1950s and later, this section of road became an overburdened two lane artery.

Predominantly composed of low-income to middle-income blue-collar workers, Kalihi is also home to several major public housing developments, a correctional facility, industrial areas, and halfway homes for alcoholics, furloughed prisoners, individuals with mental illness and juvenile offenders (noted in an editorial in the *Honolulu Advertiser*, 1 April 2003, by the chairwomen of the Kalihi Valley and Kalihi-Palama Neighborhood Boards). I agree with findings by the chairwomen that 151 to 181 acres of additional park space is needed in Kalihi according to the Honolulu City Department of Planning and Permitting. Of park spaces that do exist in this neighborhood of just more than 75,000 people, I have observed few sitting accommodations for quiet contemplation, visiting, or people watching.

Elucidation of what makes outdoor spaces therapeutic for people has been the work of many individuals – some of whom were present at the Therapeutic Gardens Conference in Portland, Oregon in 2004. Conference presenters such as Teresia Hazen, Coordinator of Legacy Therapeutic Gardens in Portland; Marni Barnes, landscape architect and co-author of the chapter entitled “Hospital Outdoor Spaces” in *People Places* and co-author of *Healing Gardens: Therapeutic Benefits and Design Recommendations*; and Roger Ulrich, Director of Center for Health Systems and Design, emphasized the positive impact therapeutic gardens have on hospital staff who take breaks from stressful duties to sit or walk in the hospital’s therapeutic garden. This evidence hints at the potential for therapeutic garden applications on a broader scale. The idea of transferring qualities typically associated with therapeutic gardens at care facilities into everyday public spaces, particularly into urban settings or university campuses, came into greater focus following this conference.

The important element of seating has been more thoughtfully regarded in therapeutic settings. Discussions at the Portland Conference, as well as writings by presenters, highlighted the importance of designing for a variety of sitting opportunities that can include both stationary and movable furniture. These discussions focused on seating, contexts, and configurations that would be sensitive to the moods, physical needs, and cultural needs of visitors, patients and staff.

The opening quote of this chapter by Alexander (1979) about the nameless qualities of living patterns evokes curiosity about what these qualities and patterns might be. The quote also articulates the notion that with more of these living patterns present, the more complete and alive a place can be. Alexander (1979) defined patterns as fields of energy, rather than as concrete objects, and that these fields of energy should be respected in order for designs to truly be responsive to the needs of its users. Alexander also emphasized that quality of life cannot be made but only generated in a space. Regarding the magnitude of restorative impact a public place can have, one could expect it to depend on the presence of qualities that make it restorative and how these qualities are represented. Examples of how living patterns have been ignored can be seen in designs of Modern 20th century plazas. Such designs did not focus so much on how people would use spaces as on creating a kind of dais for the building of which it sat in front (Whyte 1988; Schwartz 1998). Modern design has been criticized for not developing forms commensurate with the social and political ideals of Modernism (Bentley et al. 1985; Schwartz 1996). Design concerns of university campus planners in the United States over the last 50 years have perpetuated Modernism's focus on buildings and not the spaces between them nor how these spaces might benefit people (Cooper-Marcus and Wischemann 1998).

The Post-Modern period, from the 1960s until the present, provides a lens for critiquing the wide impact Modernism has had on seating design as well as physical urban spaces. Yet,

while the Post-Modernism movement has been regarded as an attempt to dissipate Modernism's univalent narrative, that narrative persists. Dispelling the ignorance surrounding seating and pedestrian needs in urban public spaces has been undertaken over the last 30 years (Whyte 1988; Cooper-Marcus and Barnes 1999; Project for Public Spaces 2000; Francis 2003). Gumpert and Drucker (1996) and McGowan (2003) capture how modern technologies have changed the physical and social landscape of urban space. They focus on how streets today are no longer valued as sociable places of interaction but rather as spaces, first and foremost, for speedy transport of commerce and capitalism. Jacobs (2000) also captures the essence of this argument by saying streets no longer provide spatial conditions for children's play and instead are places where they should not go. Regarding pedestrian space, Garrett Eckbo cited the automobile as the most deleterious 20th-century force. He writes, "The expanded horizontal scale which automobiles have generated has destroyed the pedestrian potentials of many campuses, as it has the centers of our cities" (Eckbo 1989, 104). There is an opportunity for Post-Modern designers to take cues from therapeutic gardens associated with healthcare settings to promote physical, social and mental well-being in public settings.

Bedard (2000), in her thesis entitled *Healthy Landscapes: Guidelines for Therapeutic City Form*, posited that design principles of therapeutic gardens in medical and adult living facilities over the previous 20 years in the United States are nearly identical to those that delineate the hallmarks of sound place making for outdoor public places. Employed in the context of therapeutic gardens, however, sound place-making principles were seen anew through the lens of promoting human well-being. Yet, the deliberate application of these principles to create urban public landscapes that possess restorative qualities for the sake of promoting human well-being can be more fully realized (Bedard 2000; Kirk 2002; McGowan 2003).

The amenity of seating holds potential to be a major component of design that emphasizes therapeutic qualities in public places. Whyte (1974) indicated in his observations of New York City plazas that the amenity of seating was the most essential element in plaza design that encouraged plaza use. He noted that a greater availability and variety of seating surfaces, including movable seating, correlated with larger numbers of plaza users. Cooper Marcus and Francis (1998) noted that movable chairs were the most popular seating type in urban plazas because of the control the user has over position and orientation. Kirk (2002), compared thirteen urban plazas to six outdoor spaces in healthcare settings in Southwestern United States cities for the presence of a list of therapeutic elements. While no movable furniture was observed in any of the urban plazas, half the outdoor spaces in healthcare settings did contain movable furniture (Kirk 2002). Zacharias et al. (2004) have shown that seating quality and microclimate, more than mere presence of public seating, are more compelling determinants of public space use.

Research Question

This thesis asks, *how might visitors to a public open space rate that space in terms of their perceptions of therapeutic landscape qualities? Can the augmentation of seating amenities in a public open space, via the introduction of movable seating, be associated with increased positive visitor perceptions of therapeutic landscape qualities in that space?*

Objectives

The use of a questionnaire instrument may elucidate how visitors to a public open space perceive therapeutic landscape qualities in that space. A comparison of questionnaire responses gathered prior to the installation of movable seating with those responses gathered after the

installation may show whether a shift in responses has occurred. The space selected for carrying out the comparison should possess landscape qualities about which pertinent study responses can be made by visitors.

Study Hypothesis

A positive shift in visitor perception ratings of therapeutic landscape qualities (found at Terrell Mall) will be associated with the introduction and use of movable seating.

CHAPTER TWO

LITERATURE REVIEW

Introduction

Writings about human experiences with movable seating in public open spaces are limited. There are more writings about seating in general - whether stationary benches, seat walls, steps or movable chairs - and the contexts for their use. As such, the current knowledge of conditions that affect use of seating in general in outdoor public spaces provides a benchmark from which to address the specific use of movable seating.

This chapter will begin with a brief review of the origin of chairs, and then move into a literature review of factors that affect the use of urban, public seating in general. The specific use of movable seating in urban public spaces during the Post-Modern era will be reviewed next. Then, the element of seating choice will be integrated into a review of recommendations for transferring therapeutic garden qualities into public open spaces. Finally, two case studies of urban public open spaces that have employed movable furniture, and one case study of a university that assessed campus outdoor seating needs are summarized.

Brief History of the Chair

The Greeks, Mesopotamians and Egyptians were the originators of sitting furniture and by the fifth century B.C. the Greeks are said to have refined the elegance and comfort of chairs (Rybczynski 1987). Sitting furniture was introduced to Europe by the Romans in the fifth century B.C. and to China in the sixth century followed by the adoption of chairs into other cultures occurring apparently independent of climate, wealth and stature of the human body

(Rybczynski 1987). During the 1600s and 1700s, European settlers in America considered a man fortunate to have more than one or two chairs in his possession (Bishop 1972). In this regard chairs were viewed as a refinement and not a utility object like a refrigerator or washing machine today. Eventually, with economic improvements, settlers were able to acquire greater material wealth, including chairs, as more craftsmen became furniture specialists (Bishop 1972).

The Modernist movement altered furniture by replacing comfort with the visual and tactile austerity encouraged by industrial-looking materials amidst a focus of changing social habits (Rybczynski 1987). During the advent of Modernism in the 20th century, urban planners in the United States did not focus on the holistic needs of people who lived in urban centers choosing instead to advance the program of their disciplines - namely traffic and building design (Project for Public Spaces 2000). Seating discomfort was, at times, intentionally designed into urban public places during the 1960s and 1970s to discourage pedestrians from lingering and assure that so called “undesirables” such as the homeless, teens and beggars would not congregate on sidewalks near business entrances (Whyte 1988). Programming that focused on automobiles and monumental buildings with little concern for pedestrian comfort helps explain why urban dwellers look to pre-modernist periods to find forms of comfort and well-being perceived to be missing in their current-day lives. The pre-Modernist paradigm that is most notably sought and revitalized in the New Urbanism movement is the slower pace, friendliness, convenience and physical appearance of small towns in the United States (Rogers 2001). Over the last 30 years, programming has shifted to improving pedestrian comfort in urban settings and seating has emerged as one of the basic and necessary elements in this effort across the United States (Project for Public Spaces 2005).

Factors that Impact Use of Outdoor Seating

The following factors that impact use of stationary seating in urban public open spaces provides a benchmark for discussing the use of movable seating in these settings. These factors are plaza typology, location preference, microclimate, gender preferences, carrying capacity, adjacencies, and seating variety.

Plaza Typologies. Cooper-Marcus and Francis (1998) identified six major urban plaza typologies: the Street Plaza; the Corporate Foyer; the Urban Oasis, the Transit Foyer; the Pedestrian Mall and; the Grand Public Place.

Street Plazas resemble widened sidewalks and “are generally used for brief periods of sitting, waiting, and watching, and they tend to be used more by men than by women” (Cooper-Marcus and Francis 1998, 20). The Corporate Foyer is usually part of a high-rise and serves the main purpose of elegant entry, but not sitting. The Urban Oasis is a more densely planted space somewhat separated from the street that provides quiet, secluded spaces that encourage sitting. Benches, shade trees, shrubbery, and lawns can be found in Urban Oases. The Transit Foyer is a plaza adjacent to public transit terminals and is used primarily to manage passing-through traffic as opposed to sitting. The Pedestrian Mall results when a downtown street is closed off to traffic and becomes primarily a space for pedestrians. Pedestrian Malls usually provide sitting furniture in conjunction with adjacencies such as restaurants, vendors, entertainment and art. The Grand Public Place is large compared to other plaza typologies, diverse in its offerings of activities and adjacencies, and is often regarded as the heart of a city. The Grand Public Place typology is associated with a wide variety of seating opportunities (Cooper-Marcus and Francis 1998).

Location Preference. The locations within an urban public space that attract sitters tend to be along edges, whether a fountain or planter ledge; steps, benches, a flag pole platform,

columns or a building (Cooper-Marcus and Francis 1998; Whyte 1988). Studies also note that people tend to sit in the corners more than the straight sections in between, whether of raised edges along pools and planters (Joardar and Neill 1978) or of steps despite heavy foot traffic, because this facilitates group visiting (Whyte 1988). Studies of circulation patterns at university campuses indicate that people tend to congregate at “front porch” locations, such as major building entrances, on “front lawn” locations usually adjacent to these front porches, and places along the heaviest pedestrian flows (Dober 2000; Cooper-Marcus and Wischemann 1998). As such, casual seating provisions for studying and eating should be placed in these areas (ibid. 1998). Locations where people tend to avoid sitting include the middle of large open spaces and where their backs are unprotected (Whyte 1988; Cooper-Marcus and Wischemann 1998). Noting a study of Vancouver, British Columbia, plazas that concluded less than one percent of activities occurred in open spaces away from edges, Cooper-Marcus and Francis quoted the investigators: “We found that *busy* open spaces were effectively utilized. They had dense furnishing, attractive focal elements and defined edges. Their pedestrian circulation channels were effectively used. This was in contrast to non-articulated expansive plazas with dispersed facilities. The latter were found to be mere concourses for random pedestrian movement” (Joardar and Neill 1998, 489).

Microclimate - Temperature. A study of Montreal plazas concludes the following relationship regarding human presence in plazas and microclimate. “It was found that temperature has a preponderant effect on presence, combining positively with sunlight and negatively with wind through a threshold temperature of 22°C (71.6°F), whereon public presence in sunlight begins to decline, along with overall presence in public space” (Zacharias, Stathopoulos and Wu 2004, 639). Within the temperature range from 11.7°C to 15.5°C (53.1°F

to 59.9°F), four times as many people were observed sitting as standing; and, within the temperature range from 15.5°C to 20.5°C (59.9°F to 68.9°F), four and a half times as many people were observed sitting as standing (ibid., 647). These observations appear to corroborate studies noted in Manhattan and Copenhagen that found the temperature range of 12.8°C to 23.9°C (55.0°F to 75.0°F) was favorable for outdoor sitting (Cooper-Marcus and Francis 1998).

Microclimate – Sunlight and Shade. Cooper-Marcus and Francis (1998) recommend that plazas be located to receive as much sunlight as possible within their settings. Having observed how New York City plaza users relocate themselves on seating surfaces according to what surfaces receive sunlight, Whyte (1988) indicates that preference for sitting in sunlight or shade, in a breeze or calm air is dependent upon the ambient air temperature associated with seasons. Compared to shaded areas, sunny areas of San Francisco plazas are occupied by 4.5 times as many people per unit area (Zacharias, Stathopoulos and Wu 2004). Furthermore, people choose to go to plazas they know have higher percentages of area exposed to sunlight (ibid., 2004).

A study of seven San Francisco plazas challenges the relationship Whyte draws between plaza use and seating quantity. The study investigators write, “This study did not reveal that the provision of seating in plazas had a significant effect on plaza use. Again, in relation to the principal factors of temperature and sunlight, the amount of seating provision is unimportant. Rather, the quality and position of such seating will largely determine whether it is used” (Zacharias, Stathopoulos and Wu 2004, 657). Whyte did write that the relationship he charted regarding plaza use versus seating quantity is rough, “We did not weight the figures for qualitative factors; we counted a foot of concrete ledge the same as a foot of comfortable bench with back and arm rests. Had we weighted the sitting-space figures, there would have been a nicer conformance with the chart on usage. We considered this but decided it would be too

manipulative. Once you start working backward this way, there's no end to it" (Whyte 1988, 110).

Microclimate – Wind. Cooper-Marcus and Francis (1998, 33) write, "The negative effect of wind will be most noticeable in a climate where the ambient temperature is just high enough to support sitting outdoors, or where many outdoor areas are not in direct sunlight. Excessive windiness is, however, an aggravation to plaza users even when it doesn't make a plaza seem cold. When clothing or hair is disarrayed, reading material at risk of blowing away, or food wrappers need to be held down, the enjoyment of outdoor experience is considerably compromised." San Francisco has adopted zoning that specifies building requirements to protect public seating areas from ground level winds exceeding seven miles per hour more than ten percent of the time between seven o'clock a.m. and six o'clock p.m. (Cooper-Marcus and Francis 1998).

Gender Preferences. Plaza typology and seating quality has been observed to affect the ratio of male to female users. Males in urban open spaces are observed to dominate its use by sitting in up-front locations near streets and pedestrian flows, whereas female users tend to sit in more quiet, secluded locations at the rear of a plaza away from the street (Dornbusch and Gelb 1977; Banerjee and Loukaitou-Sideris 1992; Whyte 1988). The "100 percent corner" plaza, that Whyte identified as the most successful in terms of shear *use*, can be categorized as a Street Plaza, a typology usually dominated by male users (Cooper-Marcus and Francis 1998, 27). Urban Oases, which offer more seclusion and sitting spaces amongst shrubs and lawns, attract greater numbers of females (Cooper-Marcus and Francis 1998). Plazas that attract at least an equal number of male and female users, if not more female users who tend to arrive in groups,

are deemed more sociable and better used than those that attract predominantly male users or users arriving alone (Whyte 1988).

Carrying Capacity. The ability to accommodate sitters, or the carrying capacity of plazas, is described by Whyte (1988) in terms of the number of sitters per linear foot of sitting surface. A single movable chair, although 19 inches in width on average, is credited with 30 inches of sitting space, and prime sitting benches average one person every three linear feet (Whyte 1988). Although the credit of 30 inches per chair is an incentive to encourage the programming of chairs into plazas, it seems logical that an additional space accommodation should be made for the surrounding space the user of a chair might appropriate.

That plaza users do not space themselves evenly over the entire plaza space also has implications for carrying capacity. Plaza users opt to sit in proximity to other plaza users in order to occupy prime sitting locations whether on movable or stationary seating. When these prime locations become fully occupied by others, people tend to accept less favorable locations until a prime location becomes available, or they choose not to sit at all (Zacharias, Stathopoulos and Wu 2004; Whyte 1988).

Adjacencies. The main reasons people come to public open places include eating, sitting, meeting others, socializing, studying, getting outdoors, entertainment, visual enjoyment of the place, people watching, or to be alone, are influenced by adjacencies (Cooper-Marcus and Francis 1998). The use of urban plazas is also impacted by the distance users must travel to the plazas. An average of 900 feet, two city blocks, is identified as an average range people are willing to travel on foot in an urban setting to access a public place (Cooper-Marcus and Francis 1998).

The Project for Public Spaces (2000, 2005) has adopted recommendations that seating should be located near other amenities such as concessions, shelters, kiosks, telephones, waste receptacles, water fountains, bathrooms, and the mainstream of pedestrian flows to complement and encourage these activities. Communications with Jeffrey Poor of Saratoga Associates: Landscape Architecture, New York, on 14 September 2005 and Jerome Barth of the Bryant Park Restoration Corporation, New York, on 23 August 2005 indicate that such amenities have been included in both the redesign of Battery Park and Bryant Park in New York City.

Seating Variety. To accommodate individual preferences and the various activities people engage in public places, a variety of seating types and configurations is commonly recommended (Zacharias, Stathopoulos and Wu 2004; Bedard 2000; Cooper-Marcus and Francis 1998; Cooper-Marcus and Barnes 1999; Devlin 1996). Because humans desire visual complexity in the landscape (Joardar and Neill 1978; Kaplan, Kaplan and Ryan 1998), variety of seating shape, size and arrangement determine urban plaza use (Joardar and Neill 1978). Other considerations that should impact variety, location, and orientation design of seating include user groups and associated behavior, age, modes of dress, and preferred time of day and microclimate (Devlin 1996).

The form of seating that individuals choose to use may also be influenced by health consideration preferences. The activity of sitting for long periods in chairs constructed with backs is detrimental to the physical integrity of human bodies (Cranz, 1998). Although Cranz has not conducted studies that indicate people consciously choose to avoid use of certain chair types based on implications for their personal health, this downside to chair usage is worth noting. Seating comfort is influenced by materials with which the seating is constructed, whether wood, metal, stone or concrete. The choice not to sit on a dangerously hot,

uncomfortably cold, or uneven surface, may be based on how people perceive their health, and not just how comfort might be impacted.

Movable Seating in Public Open Spaces

Observers of movable chair use in urban plazas have commented on aspects of context, personal space, perception of choice, user control, chair arrangement by groups, management and theft.

In contrast with settings such as theaters and stadiums where limited space and sitting in close proximity to strangers is tolerated, particularly at one's sides, Whyte (1988) observed public plazas to be suitable for movable chairs because of available open space and potential for chair configurations that support appropriation of personal space. He writes, "Fixed individual seats deny choice. They may be good to look at, and in the form of stools, metal love seats, granite cubes, and the like, they make interesting decorative elements. For sitting, however, they are inflexible and socially uncomfortable" (Whyte 1988, 121). Most stationary benches are fine for individuals or couples but awkward for groups who wish to face each other; whereas, the very presence of chairs suggests the potential for greater choice and control (Whyte 1988). Movement of chairs by individuals were understood to be signals of space appropriation as well as signals of respect for the personal space of others who may have been sitting nearby (Whyte 1988). The addition of movable chairs to the plaza in front of Dallas City Hall, for instance, opened up greater seating configurations that accommodated groups, and also created variety for individuals who sat on chairs and used stationary benches as foot rests (Whyte 1988).

Although fears of chair theft and concerns for chair maintenance are unwarranted given the documentation of low vandalism and theft of chairs at several New York City plazas

(correspondence with Jerome Barth of the Bryant Park Restoration Corporation, New York, on 23 August 2005; Berens 1997; Whyte 1988), plaza management decisions continue to be shaped by this concern. For example, the plaza facing Fourth Avenue in front of the Seattle City Hall contains chairs that are technically movable, but are too heavy for the average person to lift. Nonetheless, these heavy, metal chairs are further protected from theft by steel cables connecting them to nearby tables. A principal at Gustafson Partners Ltd., the firm that designed the plaza in front of Seattle City Hall, in a response to questions regarding the programming of movable furniture (Seattle, 30 September 2005), indicated that control over furniture style, maintenance and security ultimately is in the hands of city hall managers. Gustafson Partners Ltd. included movable furniture in their design because they found it to be a desirable amenity for public places. An email correspondence with Jerome Barth of the Bryant Park Restoration Corporation, New York, on 23 August 2005, corroborated the desirability of movable furniture expressed by Gustafson Partners Ltd. and indicated the theft rate of chairs placed in Bryant Park was about ten percent annually - a minor cost. A greater cost concern is associated with chair maintenance, which requires replacement of one third of all chairs annually. Paley and Greenacre parks in New York City have not suffered theft of movable chairs although it is speculated that this is due to park closure at night (Cooper-Marcus, Francis and Russell 1998).

Recommendations for Transferring Therapeutic Garden Qualities to Public Spaces

Employment of therapeutic garden design qualities to achieve an environment capable of augmenting comfort and well-being in urban public open spaces has been proposed by others (McGowan 2003; Kirk 2002; Bedard 2000; Welsh 1999). For the purposes of this thesis, *therapeutic* is defined as health-giving, relaxing, or stress-reducing (The New Shorter Oxford

English Dictionary, 4th ed., s.v. “therapeutic”). Unlike the design program for therapeutic gardens, however, the inclusion of therapeutic garden qualities in the design of public open spaces is not necessarily aimed at affecting measurable outcomes for any specific medical ailment (Kirk 2002). This difference of design intent can be illustrated in the programming for seating. Movable furniture in the context of healing gardens offers recovering patients a sense of control over their bodies and their surroundings, which they often experience a loss of within healthcare settings (Tyson 1998). The importance of seating configurations that induce sociability is also key in therapeutic garden settings because social contact, particularly with loved ones, is important to healing (Ulrich 2004; Cooper-Marcus and Barnes 1999). Although seating in public open spaces has traditionally not been applied with the same goals described for therapeutic settings, seating nonetheless facilitates a sense of control and sociability (Whyte 1988; Project for Public Spaces 2000).

Bedard (2000), in her masters thesis *Healthy Landscapes, Guidelines for Therapeutic City Form*, identified concepts that promote healthy landscapes. She writes, “At the personal level, a healthy landscape is an outdoor area that facilitates the renewal of one’s physical, emotional, and spiritual self, and affirms feelings of well-being. On a community level, a healthy landscape is the framework within which day-to-day living is done - easily, efficiently, equitably and responsibly. It embraces all facets of community life - physical, social, environmental, political and economic - and presents itself in thoughtful public and private spaces” (Bedard 2000, 5). Bedard compiled a list of therapeutic city form concepts, the order of which does not imply greater importance of any one concept (table 1), based in part on her own observations and writings by leading investigators of therapeutic garden space and public open space. The concepts are Safety and Security, Comfort, Diversity, Access, Connection to the Environment,

Paths, Identity and Meaning, Participation and Control, Vitality, Fit, Beauty, Memory-making, and Maintenance (Bedard 2000). Bedard analyzed the frequency in which these concepts were mentioned in writings on therapeutic garden design versus general urban design and found relative parity. To test the validity of her list of healthy landscape concepts, Bedard assessed Ruston Way Waterfront of Tacoma, Washington, on the premise that it was regarded by her colleagues as an example of successful place making, and concluded that all listed therapeutic city form concepts were present in its design.

Regarding seating, Bedard (2000) proposed that as many seating choices as possible should be provided to promote comfort. And, Bedard's recommendation that an economy of elements be used to achieve comfort while avoiding amenity congestion implies opportunities for programming movable seating.

Table 1. Therapeutic City Form Guideline Concepts (Bedard 2000)

Concept	Indicators	Measurements
Safety and Security	Crime, pollution, and diseases statistics, Shelter from the weather, Maintenance, Craftsmanship	Perception of safety, Measures of water and air quality, Fence and gate locations, Weather shelters
Comfort	Appropriate microclimate, Seating choices, Facilities to meet basic human needs, Familiarity	Perceptions of comfort, Use patterns, Seating areas, Food, Water, Restrooms
Diversity	Differing spaces and uses, Privacy, Rest, Recreation, Socializing, Cooperation, Commerce, Activism, Service	Number of uses, Types of spaces
Accessibility	Access to Nature, People, Activities, Resources, Places, Information	Physical and visual accessibility, Admission policies, Signage, Wayfinding
Environment	Nature integrated with place, Opportunity for interaction with environment	Natural area, Environmental programs
Paths	Paths appropriate for various uses, Opportunities to connect with others and alternate modes of transport	Transportation networks, Diversity and number of users, Links, Contacts with others, Accessibility
Identity and meaning	Landmarks, Customs, Historic elements, Cultural symbols, Celebrations	Landmarks, Customs, Historic elements, Cultural symbols, Celebrations
Participation and control	Citizen participate in decision-making about their environment and express pride or ownership	Presence of adaptable elements, Evidence of pride/ownership, Unofficial caretaker
Vitality	Community-based commerce, Entrepreneurship, Active use	Number of users throughout the day/night, Commerce activities
Fit	Appropriate scale, furnishings, and context	Patterns of use/non-use, Environmentally sound practices
Beauty	Aesthetic plantings and materials, Opportunities to create beauty	Appearance, Opportunities for creativity
Memory	Landmarks and unique features, Seasonal changes, Spatial orientation, Sacred elements	Landmarks, Sacred and unique elements, Wayfinding
Maintenance	Cleanliness, Sound infrastructure, Healthy vegetation, Maintenance program	Trash, Graffiti, Healthy vegetation, Maintenance frequency

Project for Public Spaces, Inc., whose mission is “to create and sustain public places that build communities” (Project for Public Spaces 2000, 11), has studied what makes public places successful in over 1,000 communities around the world since 1975. Project for Public Spaces, Inc. delineates a list of concepts, similar to Bedard's, by drawing on both their own observations and the writings of urbanologists Jane Jacobs and William Whyte, among others. The four key attributes Project for Public Spaces, Inc. (2000) identifies are Sociability, Uses and Activities, Access and Linkages, and Comfort and Image (table 2). These attributes are further subdivided into intangible qualities and measurable elements. The attribute *Comfort and Image* focuses attention on seating as well as surrounding elements. Project for Public Spaces writes, “Perceptions about safety and cleanliness, the scale of adjacent buildings, and a place’s character or charm are often foremost in people’s minds in deciding whether to use a place – as are more tangible issues such as having a comfortable place to sit! The importance of giving people the choice to sit where they want is generally underestimated” (Project for Public Spaces, Inc. 2000, 18).

Kirk (2002) synthesized a list of therapeutic landscape design elements and compared the presence of these elements in thirteen southwestern United States plazas to six therapeutic gardens in health care settings. Table 3 lists the therapeutic landscape design elements Kirk synthesized as appropriate for public open spaces. One of Kirk’s study hypotheses stated: “Outdoor spaces in healthcare settings will demonstrate a greater presence of therapeutic landscape design elements compared to urban plazas” (Kirk 2002, 14). Kirk (2002) observed a significant difference in the presence of movable furniture on public plazas compared to open spaces in health care settings. None of the plazas observed had movable furniture whereas half

the therapeutic gardens in health care settings provided movable furniture (Kirk 2002). This signifies an untapped potential for movable furniture programming in public open spaces.

Table 2. Key Attributes for Successful Public Spaces (Project for Public Spaces, 2000)

Key Attribute	Intangible Qualities	Measurements
Sociability	Cooperation Neighborliness Stewardship Pride Gossip Welcoming Story telling Diversity Friendliness Interactivity	Street life Social networks Evening use Volunteerism Number of women, children, elderly
Use and Activities	Realness Sustainability Specialness Affordability Uniqueness Usefulness Fun Activity Celebration Vitality Indigenesness “Homegrown” quality	Property values Rent levels Land-use patterns Retail sales Local business ownership
Access and Linkage	Reliability Continuity Readability Proximity Connectedness Walkability Convenience Accessibility	Traffic data Mode splits Transit usage Pedestrian activity Parking usage patterns
Comfort and Image	Safety Cleanliness “Green”-ness Charm Walkability Sittability Spirituality History Attractiveness	Crime statistics Sanitation rating Building conditions Environmental data

Table 3. Therapeutic Landscape Design Elements Recommended for Urban Public Plazas (Kirk 2002, 62)

Private space
Semiprivate space
Gathering space
Grade change
Distant views of nature
Evidence of wildlife
Map/directional signage
Paving change
Focal point
Marked entry/exit
Brisk path
Contemplative path
Handrails
Recommended richness of plants
Lawn
Buffer planting – perimeter
Buffer planting – internal
Movable furnishings
Circular seating
Variety in seating
Water feature
Designated smoking area
Maintained plantings
Maintained garbage-free
Maintained furnishings
Overhead lighting
Private space

The lists of landscape qualities compiled by Bedard and Project for Public Spaces, Inc. are related to the list of therapeutic landscape elements Kirk compiled (Table 4). The Therapeutic City Form Guideline Concepts (table 1) established by Bedard (2000) employs an economy of terms, forms distinct categories that are comprehensive, and is not redundant.

Table 4. Comparison of Therapeutic Landscape Qualities Recommended for Public Open Spaces

Therapeutic City Form Guideline Concepts (Bedard 2000, 33)	Key Attributes for Successful Public Spaces (Project for Public Spaces 2000, 17)	Therapeutic Landscape Design Elements Recommended for Urban Public Plazas (Kirk 2002, 62)
<i>Safety</i> from crime, pollution, diseases and <i>Security</i> within shelter from the weather	<i>Comfort and Image:</i> Safety	Overhead lighting, Ground level lighting Handrails, Paving change
<i>Comfort</i> via appropriate microclimate, seating, basic needs, and familiarity	<i>Comfort and Image:</i> Sittability, Spirituality, Walkability	Designated smoking area, Movable furnishings, Circular seating, Map/directional signage, Variety in seating
<i>Diversity</i> of spaces for a diversity of uses including privacy, rest, recreation, socializing, cooperation, commerce, activism, and service	<i>Uses and Activities:</i> Sustainability, Affordability Usefulness, Fun, Activity <i>Sociability:</i> Cooperation, Neighborliness, Gossip, Welcoming, Story telling, Diversity, Friendliness	Designated smoking area, Private space Semiprivate space, Gathering space
<i>Accessibility</i> to nature, people, activities, resources, places and information	<i>Access and Linkages:</i> Reliability, Readability, Proximity, Walkability, Convenience Accessibility	Marked entry/exit Map/directional signage
<i>Vital connection to the environment</i> including nature	<i>Access and Linkages:</i> Continuity, Connectedness	Distant views of nature Evidence of wildlife
<i>Network of paths</i> are appropriate for various uses, provide opportunities to connect with others and alternate modes of transport	<i>Access and Linkages:</i> Continuity, Connectedness	Brisk path Contemplative path
<i>Identity and meaning</i> via landmarks, customs, historic elements, cultural symbol	<i>Comfort and Image:</i> History <i>Uses and Activities:</i> Celebration, Uniqueness, Specialness, Realness	Focal point
<i>Citizens/users exercise control</i> in decision-making about their environment and express pride or ownership	<i>Sociability:</i> Stewardship, Pride	
<i>Economically alive</i> as evidenced by community-based commerce, entrepreneurship, and active use	<i>Uses and Activities:</i> Vitality, Indigenoussness, “Homegrown” quality	
<i>Use fits the space</i> in terms of its scale, furnishings, and context	<i>Uses and Activities:</i> Sustainability, Usefulness	
<i>Beauty</i> is evident via plantings and other materials as well as in the opportunities to create beauty	<i>Comfort and Image:</i> Attractiveness, “Green”-ness	Water feature, Recommended richness of plants, Lawn, Buffer planting – perimeter, Buffer planting – internal Paving change, Grade change
<i>Memory making</i> landmarks and features	<i>Comfort and Image:</i> Charm	Focal point
<i>Well maintained</i> as evidenced by cleanliness, sound infrastructure, and healthy vegetation	<i>Comfort and Image:</i> Cleanliness	Maintained plantings Maintained garbage-free Maintained furnishings

Case Studies

Bryant Park in New York City, Occidental Square in Seattle, and the University of New Mexico in Albuquerque are pertinent case studies for this thesis because two involve the programming of moveable furniture and one focuses on a university campus setting. Following are critiques of these case studies.

Bryant Park. This urban park, 4.6 acres in size and located behind the New York Public Library in the center of New York City, has existed as an urban open space since the mid-1850s (Francis 2003), and matches the Urban Oasis plaza typology. Bryant Park has been redesigned several times, the latest a design by Hanna/Olin Landscape Architects, between 1991 and 1995. This latest redesign effort, which was commissioned to rehabilitate the park due to maintenance neglect as well as social and crime problems, actually began in the 1970s when it became clear the park was deteriorating due to these issues (Francis, 2003; Project for Public Spaces, Inc. 2000; Berens 1997). Efforts to understand park use included behavioral research interviews with park users done by environmental psychology doctoral students, Anita Nager and Wally Wentworth, and observations by William Whyte in 1979 (Francis 2003). A summary of findings in 1979 produced the following main recommendations: improve visual and physical access since it was revealed the public perceived Bryant Park as physically and psychologically hidden; provide access for the handicapped; open access to the back terrace of New York Public Library; restore the fountain; and restore the historic restroom buildings. Twenty-four-hour security patrols and several new entrances that opened up the park physically and visually from the street contributed to improved safety and access (Francis, 2003).

Later, recommendations were made for adding movable chairs and extensive new plantings (Francis 2003; Berens 1997). According to an email correspondence with Sophie

Robitaille of Hanna/Olin Landscape Architects, New York, on 30 January 2006, the idea for adding movable chairs came in part from Laurie Olin's observations of French and English gardens where movable furniture is used, and in part from previous studies of movable furniture in public places. One key study done in 1969 by Arthur Rosenblatt, who placed 200 movable chairs in front of the Metropolitan Museum of Art, resulted in increased foot traffic and a positive reception by the public (Berens 1997). That thousands of people use the chairs in Bryant Park daily attests to the good fit of this amenity in Bryant Park.

The Bryant Park Restoration Corporation (BRPC), begun in 1980, was charged with intensifying maintenance and management with the goal "to fill Bryant Park with activity, to attract to the park as many legitimate users as possible" (Francis 2003, 48). Since its redesign and new management, Bryant Park has experienced a diversity of uses, for instance concerts, arts and crafts shows, dance events, and fashion shows, thus living up to design goals of the landscape architects and the program recommendations from preliminary studies (Francis 2003).

Not without its critics, however, Bryant Park Restoration Corporation is perceived to have designed low income and homeless people out of the park via privatization of space - most notably by allowing a Starbucks, an upscale restaurant, and for a few years a high end fashion shows that occupied the space for a whole month during the best outdoor weather (Francis, 2003). Nonetheless, Bryant Park has inspired a standard for successful public spaces.

In summary, the attributes identified as key to Bryant Park's redesign success are programming, movable chairs, food, maintenance, and design and detailing (Francis 2003). Movable furniture enables greater comfort as well as user participation and control. Vitality was boosted by the introduction of various vendors to complement park use activities and by the participation of adjacent businesses in the redesign effort (Francis 2003). The attributes of

Bryant Park’s redesign are summarized in table 5 according categories from Therapeutic City form Guidelines.

Table 5. Therapeutic City Form Guideline Adherence at Bryant Park

Therapeutic City Form Guideline Concepts (Bedard 2000, 33)	Indicators Found at Bryant Park, New York.
Safety and Security	24 hour security
Comfort	Movable bistro chairs, Drinking fountains, Baby changing station in the restrooms
Diversity	Games areas, Carousel, Large lawn for sunning, Shady side paths, Food vendors, Flower vendor, Book vendor
Accessibility	Visual and physical access improved via shrub removal and additional entrances, ramps
Environment	Provides oasis environment within park boundaries while offering views of the New York skyline
Paths	Additional pedestrian paths into the park created, Low volume side paths, High volume main paths
Identity and meaning	The New York Public Library provides a historic backdrop; Bryant Park has a long history at the current location; Programmed fairs, shows, concerts
Participation and control	Movable chairs, Book fairs, Observations of park use that involved user interviews/ input from neighboring businesses
Vitality	Food vendors, Flower vendor, Book vendor , Restaurants, Adjacent business/residential community
Fit	The furnishing of movable bistro chairs supports desired use of the space. The scale of the park, 4.6 acres, is large enough to create an oasis in the intense urban setting of New York
Beauty	Considerable lawn area and surrounding vegetation, Flowers in planters, Flowers in restrooms, Fountain, Walkways, Wide steps
Memory	New York Public Library, Fountain Terrace, Various statues
Maintenance	Bryant Park Restoration Corporation manages staff of 35 ground keepers for the park

Occidental Square. Located in the historic Pioneer Square District just south of downtown Seattle, Occidental Square occupies an area approximately the size of half a city block. It is bordered on the west side by three story, 100-plus year old Victorian Era brick buildings housing a few cafes and shops, and on the remaining three sides by Washington Street, Main Street and Occidental Avenue, none of which are major thoroughfares. Project for Public Spaces, Inc. completed two analyses of the use of this square, the first in 1991, the second in 2004 (Project for Public Spaces 2005). The main criticism of Occidental Square was that although it sits at the center of Seattle's historic Pioneer Square District, the potential of this important public space has not been captured. This was indicated by a lack of diverse uses and thus an absence of a diverse group of users who cared to linger in the square. The predominant user group identified at Occidental Square was the homeless.

Although the square is accessible on foot, by public transit, and contains place making elements such as totems, sculpture, a pavilion, and adjacent food vendors, its image was criticized for lacking comfort. Specifically, the predominance of shade trees, few sunny spaces, few places to sit, little color, overt dominance of the space by one user group, and a lack of vitality in terms of connection with surrounding businesses serve to decrease user comfort (Project for Public Spaces, Inc. 2006).

Kevin Carl, Pioneer Square Community Association Chairman, touted the improvements that had been made to Occidental Square in 2002 in comments posted on the Project for Public Spaces, Inc. website, 1 February 2002. Carl invited Project for Public Spaces Staff to revisit Occidental Square following their earlier assessment to witness actions taken on PPS recommendations to improve the park. The effectiveness of these initial improvements - that

included hardscaping, lighting, movable seating, signage, flowers and special events – to actually changed the public’s perceptions of the square has been debated, however.

A letter in the opinion column of the Seattle Post-Intelligencer, 17 May 2005 by guest columnists Ken Bounds and Jo Thompson suggests that despite recent changes made to Occidental Square, it was still not succeeding as a town square should. Among their main criticisms were that it was still perceived as unsafe and dark. Mention of the planned improvements: tree removal; improved paving; improved programming; revitalization of the totem pole; improved lighting; installation of chess tables and bocce courts; and replacement of the obsolete pavilion with a food concession, indicate Seattle Parks and Recreation Department is following steps similar to those taken by Bryant Park Restoration Corporation in New York. As with the renovation of Bryant Park, there are controversies such as the proposed thinning of Occidental Square’s London Plane trees and the introduction of private vendors in the proposed concession kiosk. As in New York, Seattle is attempting to foster community participation regarding park maintenance and management by soliciting stakeholders such as non-profits, the Pioneer Square Community Association and the Downtown Seattle Association.

Another columnist, Susan Paynter, wrote in the Seattle Post-Intelligencer, 2 May 2005 that the City of Seattle should do away with proposed improvements for Occidental Square. Her main point was that commercialization of public space and the removal of trees would not guarantee improvement. Yet, in the process, she too bemoaned the problems that still plagued Occidental Square, most notably the dominance of this space by the homeless and the occurrence of drug dealing.

A personal visit to Occidental Square in summer of 2005 revealed that it contains movable chairs and tables in the central space where an opening in the tree canopy allows users to sit in

sunshine. The addition of movable furniture, one of the recommendations Project for Public Spaces made, allowed users at mid-day to eat lunch and socialize in seating configurations and locations of their choosing. Yet, the square did not appear busy despite pleasant summer weather, nor did it appear very colorful. In fact, Occidental Square was at that point still awaiting major renovation slated for September, 2005. Occidental Square does not follow a number of Therapeutic City Form Guidelines including: safety and security; comfort; diversity of uses; connection to the environment; paths, vitality; and beauty (table 6).

In an email correspondence with the author 2 February 2006, David Goldberg of Seattle Parks and Recreation Department indicates how the public received the movable furniture at Occidental Square. From anecdotal evidence, the chairs are liked universally, although stationary park bench seating is iconic and expected in parks. He felt that movable seating might be a solution to people sleeping on park benches, however.

The analyses presented on Occidental Square highlight the importance of capitalizing on the context of the historic district. Project for Public Spaces, Inc. has determined that comfort *and* image influence whether people will decide to use a space. Important most of all is the management and maintenance of the space in order to upkeep comfort, image, vitality and activities programming. Without consideration of these important items, placement of moveable furniture alone is not likely to turn Occidental Square into a successful public space.

Table 6. Therapeutic City Form Guideline Adherence at Occidental Square

Therapeutic City Form Guideline Concepts (Bedard 2000, 33)	Indicators Found at Occidental Square, Seattle.
Safety and Security	Perceived as lacking due to presence of homeless
Comfort	Space is dark and cold due to trees, Movable chairs present but there is still a lack of sitting places
Diversity	Lacking in terms of things to do and in terms of who uses the space
Accessibility	Accessible on foot and from transit
Environment	Not well connected to adjacencies, Trees give feeling of oasis but hardscape does not
Paths	Cobbles not appropriate for those wishing to cross the site – particularly those in high heeled shoes and the physically challenged.
Identity and meaning	Some feel the unique 1973 design for Occidental Square should be preserved, Some feel the 1973 design failed to capture the potential of a historic district center
Participation and control	Lacking, There are signs of a coalition forming between City of Seattle, Pioneer Square Community Association, Downtown Seattle Association and non-profits, in the interest of improving the space.
Vitality	Lacks connection with adjacent businesses
Fit	The setting has a human scale, Amenities currently in place do not support a diversity of users or uses
Beauty	Lacks color and plantings
Memory	The homeless, Unique bench design, Shady trees
Maintenance	Extra maintenance issues due to use of the space by homeless

University of New Mexico. The Institute for Environmental Education, University of New Mexico, Albuquerque, completed an outdoor space use study in 1982 entitled *An Evaluation of Outdoor Space Use: The University of New Mexico Campus*. Although this study was completed nearly 25 years ago, it discusses issues for outdoor comfort and contexts that are still pertinent today.

The goal of the University of New Mexico study was to develop recommendations for improving outdoor space quality (Institute for Environmental Education 1982). The investigators evaluated the outdoor campus in terms of how well it supported social interaction, how well its design fit current uses, and how valuable its visual/aesthetic qualities were to campus users. These objectives were based on what was referred to as the three levels of habitability, each being necessary for a successful site. The triad includes Health and Safety Performance, Functional Task Performance, and Psychological Comfort and Satisfaction Performance (Institute for Environmental Education 1982). The study evaluated ten major outdoor settings through observations and a questionnaire administered to select groups of student classes to reflect usage of the entire campus. Information from each site was summarized with a description of the site, the activities that take place in the site, the visual/aesthetic qualities, the environmental support of activities, the health and safety concerns, selected user responses, and recommendations for improving the site (Institute for Environmental Education 1982).

An important focus of this study was to evaluate sites according to how well environmental support, such as seating, accommodated social interaction. Most of the sites examined are near major building entrances and are places people gather, thus these are sites where seating is needed. Not surprisingly, recommendations for all ten sites evaluated called for either more seating or different seating types and configurations. For instance, regarding the plaza adjacent to the Student Union Building, investigators framed the concern for promoting social interaction citing one user's response writing, "... (You are) unable to have a conversation unless you are standing up" (Institute for Environmental Education 1982, 9). Hence, recommendations for this site called for seating that supported face to face conversations. Yet

the solution for achieving this did not go beyond stationary benches constructed in an L-shape configuration. Implications for the use of moveable furniture are made for just one site, the plaza near the Fine Arts Building entrance, although the word *movable* was not used. The investigators write, “Consider its (the plaza) role as a setting for the “intermission” crowd from the Fine Arts Center (e.g., by providing small groupings of seating and tables as well as shading devices)” (Institute for Environmental Education 1982, 48).

Another focus of this investigation was to evaluate visual/aesthetic qualities in all ten sites. Much of the outdoor spaces at the pedestrian scale are paved with gray concrete and sit between buildings with adobe facades painted brown or beige (Institute for Environmental Education 1982). While this was identified by survey respondents as an appropriate, unique identifier for the University, this program was also overwhelming and monotonous (Institute for Environmental Education 1982). The investigators write in their recommendations, “the abundant use of a variety of accent colors through such elements as certain wall surfaces, signage, banners, sculpture, umbrellas and other assorted outdoor furniture, will dramatically improve the visual quality of the UNM Campus, thus reducing the predominance of the concrete gray” (Institute for Environmental Education 1982, 59). This recognition of the need for visual diversity is in line with other studies that have identified a human preference for coherent complexity (Kaplan, Kaplan and Ryan 1998). According to the campus survey, one plaza in particular that has a variety of colors, patterns and users was deemed a stimulating place to be (Institute for Environmental Education 1982).

This study also investigated pedestrian and traffic patterns, wayfinding, safety issues, accessibility, outdoor activities programming, and landscaping and grounds maintenance. The

identified campus-wide issues can be correlated to the Therapeutic City Form Guidelines (table 7).

Table 7. Therapeutic City Form Guidelines Addressed by Outdoor Space Use Study at University of New Mexico, Albuquerque

Therapeutic City Form Guideline Concepts (Bedard 2000, 33)	Guideline Issues Observed at University of New Mexico
Safety and Security	Identify and eliminate dangers pertaining to pedestrian path blind spots, Safety improvement via night lighting
Comfort	Improve seating, Improve visual diversity via accent colors to offset dominance of concrete and adobe colors, Promote human scale in certain settings that are very large
Diversity	Improve sociability via amenities such as seating configuration, Create subspaces for socializing or being alone, Encourage vendors, Encourage organized activities
Accessibility	Improve universal access, Respect pedestrian access points onto campus and improve accordingly, Improve signage and information kiosk placement
Environment	Some places have grassy park like appearances, such as the Duck Pond, that are easily accessible on campus, Some spaces have mature groves of trees, Other spaces are devoid of trees and plantings, View of distant Sandia Mountains unobstructed from major east-west plaza, Adobe style connects with the regional culture
Paths	Reported rise in user conflict in terms of bicycles, skateboards, pedestrians, wheelchair users addressed, Some spaces criticized for having no “shoreline” for blind users to navigate
Identity and meaning	The adobe style and color requirement for campus buildings is unique.
Participation and control	Survey of student perceptions of campus, Campus campaign to name a waterfall near the duck pond, Seating configurations that will get people to linger and socialize in outdoor spaces
Vitality	Vendors, Crafts fairs encouraged in certain spaces, Improve entrance to Student Union Building
Fit	Augment certain large spaces to bring them into a human scale via seating and overhead shading structures, Current seating configurations and options in some spaces aren’t a good fit for desired level of sociability.
Beauty	Improve appearance by adding complexity and new plantings, New focal points, Current mountain vistas good
Memory	Placement of key focal points, adobe style
Maintenance	Complete current landscaping, Upgrade certain areas that have been neglected, Maintenance should be assisted by an appropriate selection of plants suitable for the climate in Albuquerque.

CHAPTER THREE

METHODOLOGY

Introduction

This chapter is comprised of four sections describing the methodology used in this study: Study Design, Study Site Overview, Sampling, and Data Analysis. Each section is described in the order listed.

Study Design

A core set of therapeutic landscape qualities (table 8) was assembled based on the studies by Bedard (2000), Kirk (2002), and the Project for Public Spaces (2000) as covered in Chapter Two. A questionnaire (Appendix One) was developed to gauge perceptions of these core qualities and was administered to users of Todd Hall's front porch immediately adjacent Terrell Mall. The front porch of Todd Hall is a gathering place and vantage point, physically and visually connected to Terrell Mall, from which questionnaire respondents could rate their perceptions of the Mall, Todd Hall's front porch, and seating.

An initial trial of the questionnaire was conducted on September 29, 2005 at the study site to determine if the questionnaire was clear to respondents. Twenty nine questionnaires were completed in this trial. The following modifications were made as a result of the trial: response choice wording was tailored to correspond to specific questions instead of using a standard set of responses for all questions; questionnaire instructions were abbreviated; and blank spaces were inserted to capture written comments on positive memorable impressions and final comments if respondents were inclined to offer any.

Assessment of whether movable seating could be associated with increased positive perceptions of therapeutic landscape qualities was accomplished using two scenarios. Scenario 1 involved no moveable chairs and only stationary seating already present at the site. Scenario 2 involved placement of ten moveable chairs at the site.

The first questionnaires were administered during Scenario 1, no moveable chairs present, to capture responses from users of stationary seating. Scenario 1 lasted for three study days and established a baseline of responses. Then, ten moveable chairs (figure 1) were placed on the site at the start of Scenario 2. Chair users who had not completed a questionnaire during Scenario 1 were solicited to complete it. The chairs had the following dimensions: seat height was 16 inches above the ground, arm rests were 25 inches above the ground, seat backs were 33 inches high, seats were 21 inches wide and 20 inches deep.

Table 8. Therapeutic Landscape Qualities

Weather comfort for sitting outdoors

Physical locations of available places to sit on the Mall

Variety of types of seating (benches, steps, moveable chairs, rocks, low walls, the ground)

Comfort of seating used by the respondent

Control over where one can sit given the available variety of types and locations of places to sit

General landscape maintenance

Personal safety within the physical landscape

Terrell Mall's physical trait(s) that leave a positive memorable impression

Terrell Mall's physical beauty

Unique identity about Terrell Mall

All chairs were set up daily by 8 a.m. and then gathered and secured by 5 p.m. Each chair was numbered and placed in a predetermined pattern at the start of each day. Most chairs were positioned along edges of Todd Hall's front porch, with the concrete benches, ledges or large rocks on the back sides of the chairs. Two chairs were usually positioned somewhere near the center of the front porch in order to observe user response to this typically undesirable location for sitting (Joardar and Neill 1978; Whyte 1988).

The target population solicited to complete the questionnaire was Washington State University students, faculty, staff and visitors using Todd Hall's front porch. Todd Hall is home to the College of Business. There were just over 22,000 seats filled by students enrolled in courses taught in Todd Hall in the fall semester of 2005 (IR 2005). The College of Business was composed of 3,454 students, many of whom were likely enrolled in several courses taught in Todd Hall. The assumption was made that students matriculating in Todd Hall would be represented among its front porch users. An additional assumption was made that an equal population of Terrell Mall users, not matriculating in Todd Hall, would also be represented in the study site. Also, prior observations of this site indicated a presence of gender and ethnic diversity.

The questionnaire was administered during October, 2005, when favorable weather was forecasted. "Favorable weather" was defined by the following criteria: 1) no rain; 2) no uncomfortably low air temperature or wind chill; 3) no excessive heat; 4) no blowing dust. Criteria number two was further defined by a threshold temperature of 22°C (71.6°F).



Figure 1. Example of Study Chair
(Shianco, Norfolk, VA, USA).

Study Site Overview

Terrell Mall measures 700 feet long by 111 feet wide and is oriented lengthwise on an east-west axis at the center of Washington State University's Campus (figure 2). The width of Terrell Mall falls within the 450 feet maximum width recommended for the smallest dimension in a public plaza (Cooper-Marcus and Francis 1998). The length of the Mall is indicative of the roadway it replaced. In a conversation with the author on 15 November 2005, Lawrence Stark, Assistant Archivist at Washington State University Libraries, indicated that Terrell Mall was

created in the 1970s when a section of Wilson Street was converted to a pedestrian mall. The Mall is named after Glenn Terrell, president of Washington State University from 1967 to 1985. Wilson Road and Library Road lie at either terminus of Terrell Mall and are still active campus roadways. Two other buildings besides Todd Hall sit along the southern edge of Terrell Mall. College Hall, a three story building, sits to the west of Todd Hall and Wilson Hall, a four story building, sits to the east. Pass-through, outdoor walkways separate the buildings. Holland Library and the Compton Union Building, both four story buildings, and the new Holland Library Addition, one story at Mall level, occupy the north edge of Terrell Mall. The roof of Holland Library Addition, directly across Todd Hall, supports a terrace with lawns, stationary seating, a large glass dome, and pedestrian walkways. While it is accessible from Terrell Mall, all but the glass dome is visually hidden from Terrell Mall (figure 3).

Terrell Mall is paved largely with concrete pavers. A sub-area in front of College Hall is paved with red brick, and the walk through the allee of Tulip trees in front of College Hall is paved with gray granite. Stationary wood-surfaced seating is situated in front of most buildings except College Hall, Holland Library Addition and Todd Hall (figure 4). Several large stones sit in front of Compton Union Building as well as Todd Hall. Except for the area in front of Holland Library Addition, several species of evergreen and deciduous trees are located along the length of Terrell Mall (figure 5). Lighting fixtures are located along the length of the Mall. Steps are located in certain places to transition from the sloping Mall to building entrances. Views of Bryan Hall Clock Tower are had at the east and west (figure 6) entries to Terrell Mall, but are obstructed at the center of the Mall by Holland Library.

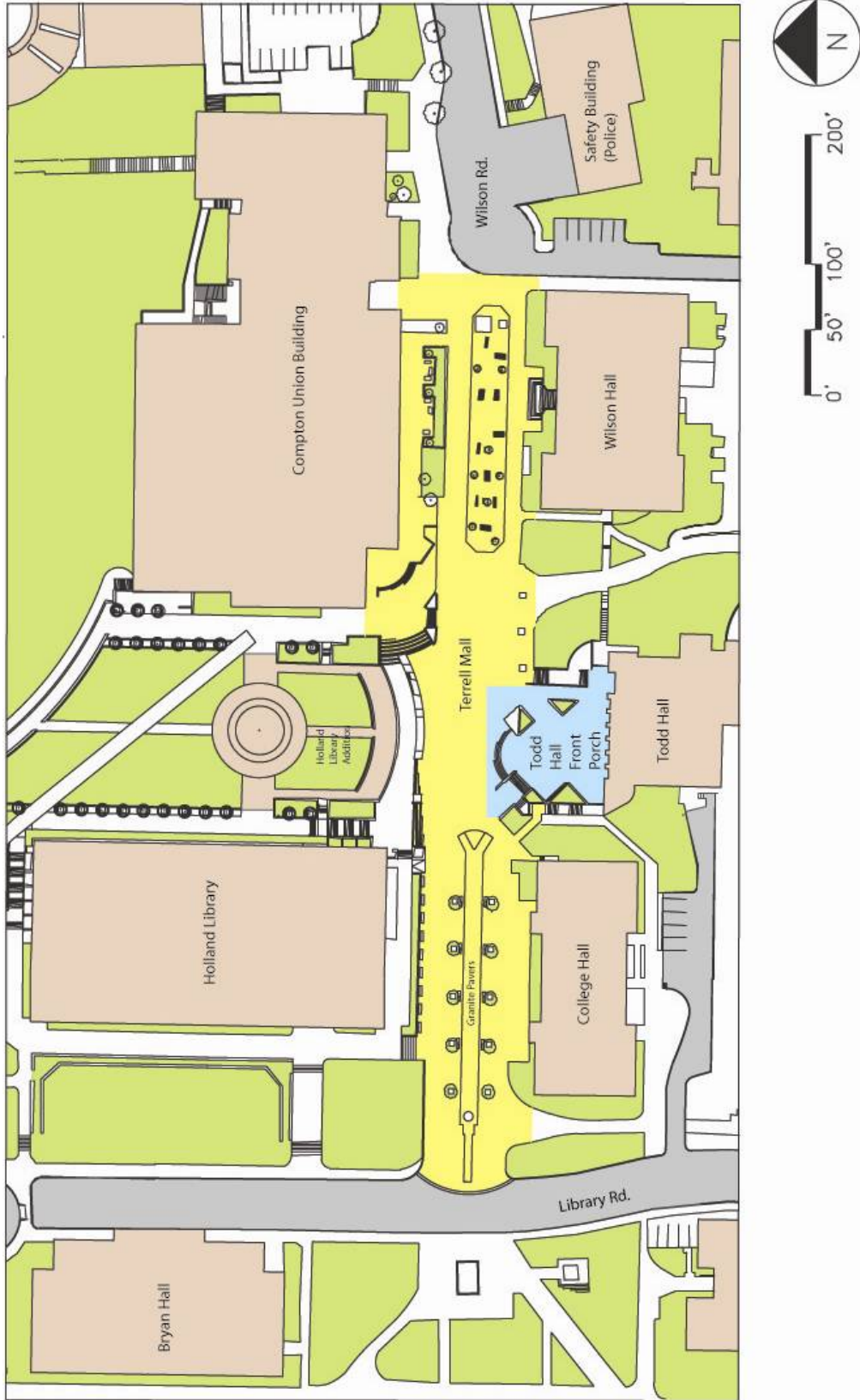


Figure 2. Plan view of Terrell Mall, Todd Hall front porch and surrounding buildings
 Source of CAD file for this image courtesy of Washington State University Senior Campus Planner.

Todd Hall is set back 85 feet further from the Mall than neighboring buildings. This setback creates a plaza like space in front of Todd Hall, hereafter referred to as its front porch. Within this space are sitting surfaces including concrete benches, curved steps leading up from Terrell Mall, and large rocks that bookend the steps. Todd Hall's front porch is rectangular in shape measuring 106 feet wide along the edge of Terrell Mall and 85 feet deep. This space is smaller than the 230 to 330 feet length by 65 to 80 feet width recommended for an intimate outdoor space (Cooper-Marcus and Francis 1998).



Figure 3. Holland Library Addition glass dome



Figure 4. Typical wood surface bench found along Terrell Mall



Figure 5. Allee of deciduous trees and backdrop of evergreen trees near the west end of Terrell Mall



Figure 6. Bryan Hall Clock Tower visible from the west end of Terrell Mall

Within Todd Hall's front porch, four raised, triangular planters support concrete bench seating 16 inches deep, ranging from 22 to 31 inches in height and 15 to 20 feet in length (figure 7). The largest planter contains ground covers and three columnar trees. A second planter holds a Japanese Maple and a grouping of ground covers. The third planter contains low shrubs and ground covers. The smallest planter holds just ground covers. A large, flat triangular quarried stone 22 feet wide by 11 feet deep, with sitting surfaces 29 to 40 inches high on the front edges, sits to the east side of the curved steps (figure 8). The curved steps are 6.5 inches high, 16 inches deep and 40 feet wide. A second large quarried, flat stone on the west side forms a low wall varying from 31 to 70 inches in height, with a thickness of 21 inches and a length of 21 feet (figure 9).



Figure 7. Concrete bench on Todd Hall's front porch



Figure 8. Large quarried stone and curved steps on Todd Hall's front porch



Figure 9. Quarried stone positioned on its side

Application of the formula Whyte used to determine minimum expected daily usage based on *area* for Bryant Park, New York (Berens 1997), yielded a minimum daily visitor number of 45 people for Todd Hall's front porch. This is based on an assumption of five people per thousand square feet of area per day. And according to Whyte's formula for determining the carrying capacity of *seating surface*, Todd Hall's front porch should accommodate 94 people (stationary seating use only) at any given moment. This is based on 283 linear feet of seating surface and the assumption that one person would occupy three linear feet. Seating surfaces in this estimate include concrete benches, the edge of the top three tiers of the curved steps, and the front edges of the large flat rock.

The one type of seating not present on Todd Hall's front porch was moveable chairs. Across Terrell Mall on a northeast diagonal from Todd Hall, the Compton Union Building, which houses student government and organization offices as well as dining and other services, has a patio with moveable furniture (figure 10). This patio, however, is visually separated from the Mall by raised planters containing large shrubs and trees (figure 11). Thus, it is not a good vantage point from which to evaluate the Mall. A tall sculpture serves as a focal point on Todd Hall's front porch (figure 12) and is the only sculpture along Terrell Mall. The east side of Todd Hall's front porch lies at the same elevation as Terrell Mall whereas the west side sits 28 inches above Terrell Mall due to the five percent slope that runs downhill from east to west.

Pedestrian traffic into and out of the front entrance to Todd Hall is heavy during the day - there were 3,454 College of Business students enrolled in classes taught in Todd Hall at the time of the study. Students gather on Todd Hall's front porch, tending to stand or sit along edges defined by the concrete benches, rocks, steps and low railing walls that delineate the front porch's east edge. Some of these edges provide opportunities for moveable seating placement

that would facilitate face-to-face sitting configurations. The base of the sculpture near the center of the front porch (figure 12) also provides a possible edge for chair placement.



Figure 10. Moveable tables and chairs on the patio in front of Compton Union Building



Figure 11. Planter surrounding the Compton Union Building patio



Figure 12. Sculpture on Todd Hall's front porch

Sampling

The target study population size was initially estimated to be close to 20,000 – the approximate student, faculty and staff population at Washington State University’s Pullman Campus. Consultation with Institutional Research at Washington State University resulted in a decrease of the target population size to 7,000 (3,454 College of Business students plus an equal number of non-Business students from Terrell Mall). Based on this population, a sample size of 370 respondents per scenario was recommended to achieve a sampling error of plus or minus 5% and a confidence level of 95% (Salant and Dillman, 1994). Potential respondents were selected based on two criteria: 1) They were sitting somewhere on the front porch of Todd Hall or in a moveable chair placed for this study; 2) They were willing to complete a questionnaire.

Every 15 minutes during hours of the day when questionnaires were administered, notes were made on pre-printed site maps to track the location and facing direction of each respondent. A map that summarizes each study day is presented in Appendix Four. Questionnaire numbers paired with each respondent were used on the maps to denote their location. During Scenario 2, with the chair installation, location and orientation of chairs was mapped. Each chair was numbered and denoted on the maps along with an indication of initial chair orientation at setup for each day. Chair relocation distances greater than a chair width (21 inches) were noted by arrows pointing to the new location.

A daily journal was kept that described the main activities on Terrell Mall and Todd Hall’s front porch. A summary of the daily journals can be found in Appendix Three.

Data Analysis

The questionnaire was written to solicit a response along a five point scale that represented a range from positive to negative. For example, a set of responses along the scale was “Really like it”, “Somewhat like it”, “Neutral”, “Somewhat dislike it”, and “Really dislike it.” The responses, “Really like it” and “Somewhat like it”, were paired with the values 5 and 4, respectively, on the five point scale and categorized as positive responses. The responses “Somewhat dislike it”, and “Really dislike it.” were paired with values 2 and 1, respectively, on the scale and categorized as negative responses. “Neutral”, given a value of 3 on the scale, was categorized as neither a positive nor negative response. Respondents could indicate responses that were in between points, in which case a half point was assigned. For example, a response between “Neutral” and “Somewhat dislike it” received a numerical value of 2.5. Response values equal to or greater than 3.5 were grouped as positive responses. Response values equal to or less than 2.5 were grouped as negative.

For questions 7 through 16, the frequency of responses categorized as positive, neutral or negative were determined. This frequency was translated into a proportion of the total number of respondents per scenario. A test of proportions was performed to determine if statistically significant differences existed between scenarios. For example, the positive response proportion of Scenario 1 was compared to the positive response proportion for Scenario 2 for significant difference. The same test was carried out for neutral and negative response proportions. Differences were tested between all respondents as well as between males and females. The basis for testing responses between gender, found in studies by Whyte (1988) and Cooper-Marcus and Francis (1998), indicate differences in space preference exist due to gender. Determination of statistical significance was accomplished in two steps. First a z-value for each

proportion comparison was computed. The formula for the z-value was described by Salant and Dillman (1994). Second, the computed z-value was compared to a tabulated test z-value (Ott 1988) to determine whether significant differences existed between proportions.

A comparison of the approximate amount of time spent on Terrell Mall and/or Todd Hall's front porch was performed based on gender across both scenarios. This was determined by multiplying the reported number of days each respondent visited the Mall per week by the reported amount of time spent per visit. The reported amount of time was determined as the mid-point of the category ranges respondents chose from. For example, a value of 7.5 minutes was used when a respondent chose the "5 to 15" minute category. When the "> 60" category was chosen a value of 61 minutes was assigned. The product of days and time spent per visit was summed for all males and all females as groups regardless of scenario. This sum was then divided by the number of males or females. This finding was compared to what has been reported in the literature regarding space use by males versus females.

A list of the comments respondents offered regarding positive memorable impressions about the Mall was made for each scenario. The comments were ranked according to the frequency with which each was mentioned. These findings were compared to what has been written in the literature regarding landscape qualities people reported liking.

Daily maps of respondent and chair locations were made and observed for patterns of recurring space use. These observations were compared to what has been reported in the literature regarding preference for seating location and type.

CHAPTER FOUR

RESULTS

Introduction

This chapter begins with a summary of findings from questionnaire responses in three parts. Part 1, questions 2 to 6, is a summary of respondent demographics. Part 2, questions 7 to 11 is a summary of perception ratings of the element of outdoor seating. Part 3, questions 8 to 16, is a summary of perception ratings of therapeutic landscape qualities. All findings are summarized in both tables and bar charts. Charts for questions 7 through 16 depict findings ordered according to ascending proportion of positive responses. The purpose for this ordering is to illustrate which scenario had the greater proportion of positive responses. For example, if it was found that a greater proportion of Scenario 2 respondents rated a particular element positively compared Scenario 1 respondents, then Scenario 2 response summaries would appear at the top of the chart. This chapter concludes with findings from daily study site mappings of respondent locations during both scenarios.

The target number of respondents per scenario of 370, as established in Chapter Three, was not achieved because of weather. Administration of the questionnaire at the study site took place in October, usually the last month of the year when sitting outdoors comfortably is possible. Sampling was done only on days when weather criteria was met (See Chapter Three). The number of days devoted to each scenario was curtailed given weather forecasts. If the study involved more days, the final number of respondents achieved per scenario would have been closer to the target.

Questionnaire Responses Part 1: Respondent Demographics

Questions 2 through 4: Demographics. Questionnaire respondents were largely students in the 18 to 25 age category. The gender distribution of respondents for Scenario 1, stationary seating use only, was 49 percent males, 49 percent females, and two percent did not report gender. The distribution for Scenario 2, movable seating use only, was 62 percent males and 38 percent females (tables 9 and 10, figures 13 and 14).

Questions 5 & 6: Frequency and Duration of Visits. When the total amount of time spent on the Mall regardless of scenario was compared, males spent 33% more time there than females. Males spent an average of 126 minutes per week on the Mall compared to an average of 95

Table 9. Respondent Affiliation with WSU, by Scenario

(Percentage)

	<u>N</u> ^a	Student	Staff	Faculty	Other	NA	Total
Scenario 1	100	93.0	2.0	0.0	4.0	1.0	100.0
Scenario 2	61	96.8	1.6	1.6	0.0	0.0	100.0

^a N = Number of Respondents

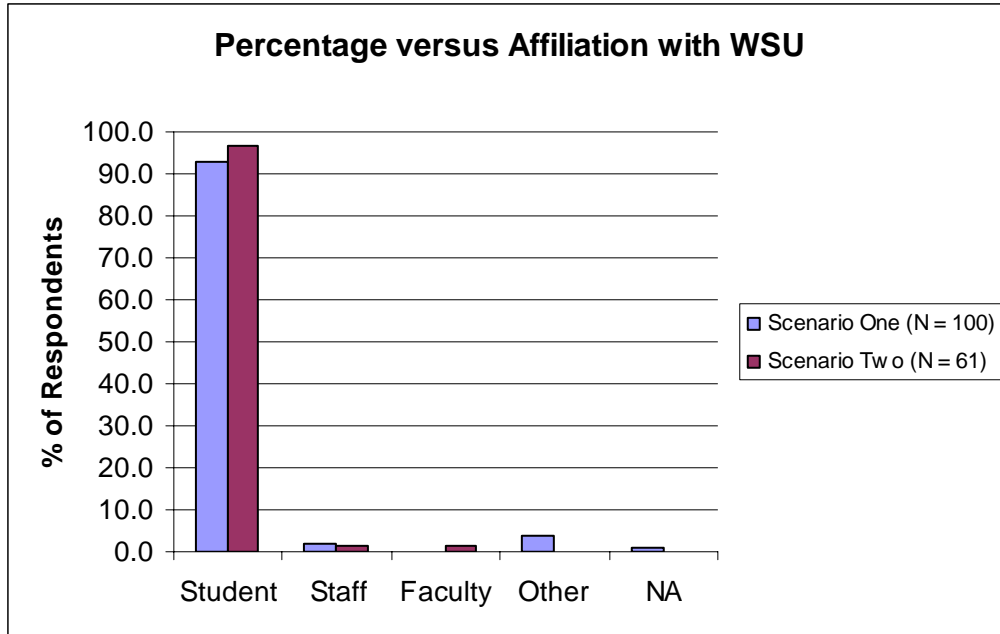


Figure 13. Affiliation with WSU

Table 10. Respondent Age Range and Gender, by Scenario

(Percentage)

	N ^a	Age Range						Gender				
		18-25	26-35	36-45	46-55	56-65	66+	N	Males	Females	A	Total
Scenario 1	100	90.0	8.0	1.0	0.0	0.0	0.0	1.0	49.0	49.0	2.0	100.0
Scenario 2	61	91.8	4.9	3.3	0.0	0.0	0.0	0.0	62.3	37.7	0.0	100.0

^a N = Number of Respondents

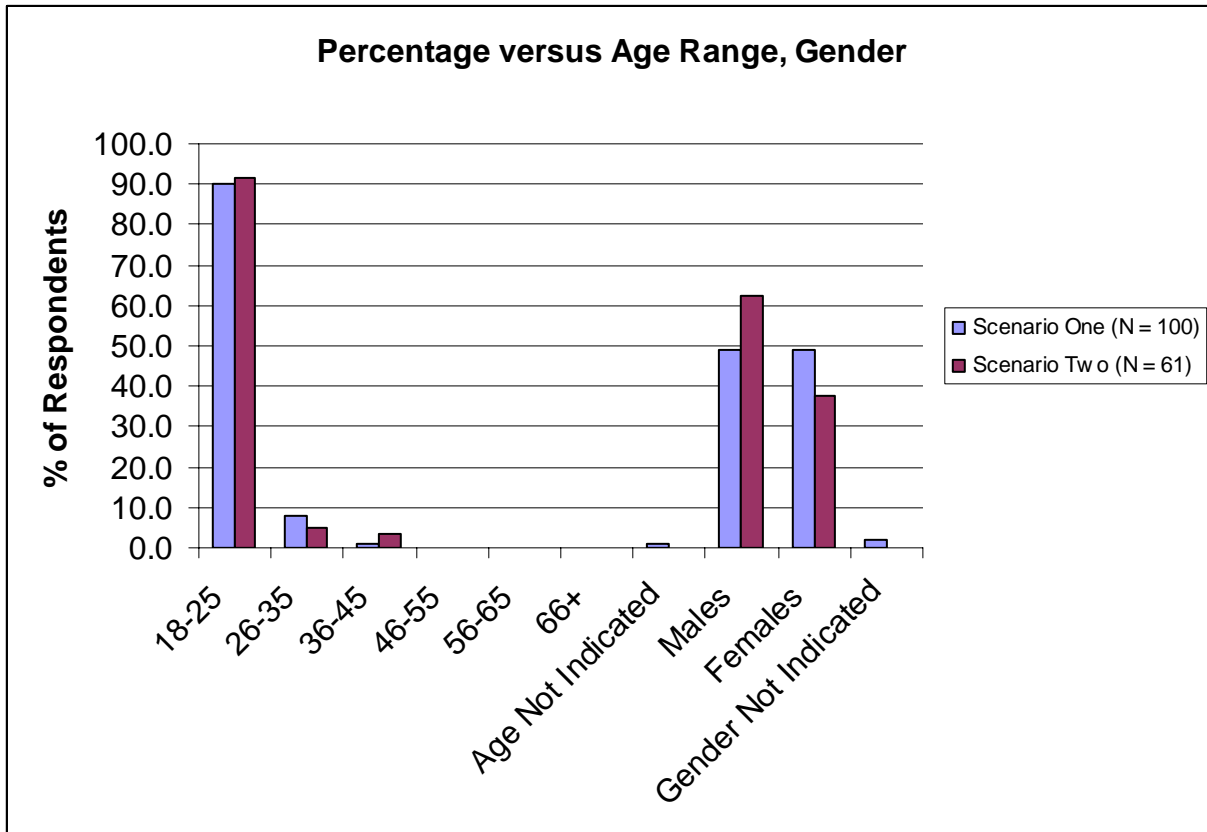


Figure 14. Age Range and Gender

minutes spent by females. This may be explained partially by the significantly higher proportion of males that reported spending greater than 60 minutes per visit, 10.3%, than females, 2.8%. Also, significantly fewer males chose the 5 to 15 minutes per visit category, 20.7%, compared to females at 37.5%. The proportion of all females that visited Terrell Mall just two days per week, 9.7%, was significantly higher than the proportion of all males that visited two days per week, 1.1% (table 11 and 12, figures 15 and 16). Finally, no relationship was observed between the amount of time a respondent spent on the Mall with a tendency to answer positively, neutrally or negatively to any of the perception questions.

Table 11. Number of Days Respondents Visited Terrell Mall the Previous Week, by Scenario and Gender (Percentage)

Number of Days	Scenario Comparison			Gender Comparison		
	One (N=100)	vs. Two (N=61)	Significant ⁱ Difference	Males (N=87)	vs. Females (N=72)	Significant ⁱ Difference
0	3.0	0.0	ns	2.3	0.0	ns
1	3.0	4.9	ns	5.7	1.4	ns
2	6.0	3.3	ns	1.1	9.7	***
3	7.0	4.9	ns	5.7	6.9	ns
4	17.0	19.7	ns	17.2	19.4	ns
5	44.0	54.1	ns	50.6	44.4	ns
6	15.0	9.8	ns	13.8	12.5	ns
7	5.0	3.3	ns	3.4	5.6	ns
Total	100	100		100	100	

ⁱ Level of Significance: * (P < 0.10), ** (P < 0.05), *** (P < 0.01), ns (no significant difference).

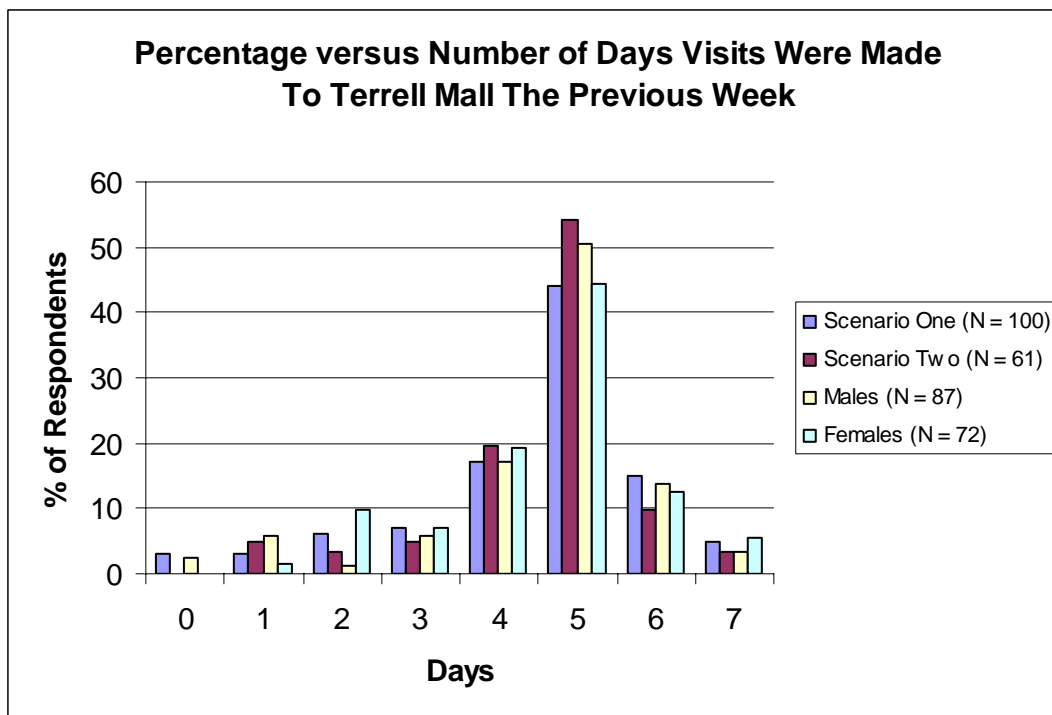


Figure 15. Number of Days Visits Were Made to Terrell Mall the Previous Week

Table 12. Duration of Each Visit to Terrell Mall the Previous Week
(Percentage)

Visit Duration (Minutes)	Scenario Comparison			Gender Comparison				
	One (N=100)	vs.	Two (N=61)	Significant ⁱ Difference	Males (N=87)	vs.	Females (N=72)	Significant ⁱ Difference
< 5	20.0		14.8	ns	18.4		15.3	ns
5 to 15	26.0		31.1	ns	20.7		37.5	***
15 to 30	25.0		24.6	ns	25.3		25.0	ns
30 to 45	16.0		11.5	ns	16.1		12.5	ns
45 to 60	6.0		11.5	ns	9.2		6.9	ns
> 60	7.0		6.6	ns	10.3		2.8	*
Total	100		100		100		100	

ⁱ Level of Significance: * (P < 0.10), ** (P < 0.05), *** (P < 0.01), ns (no significant difference).

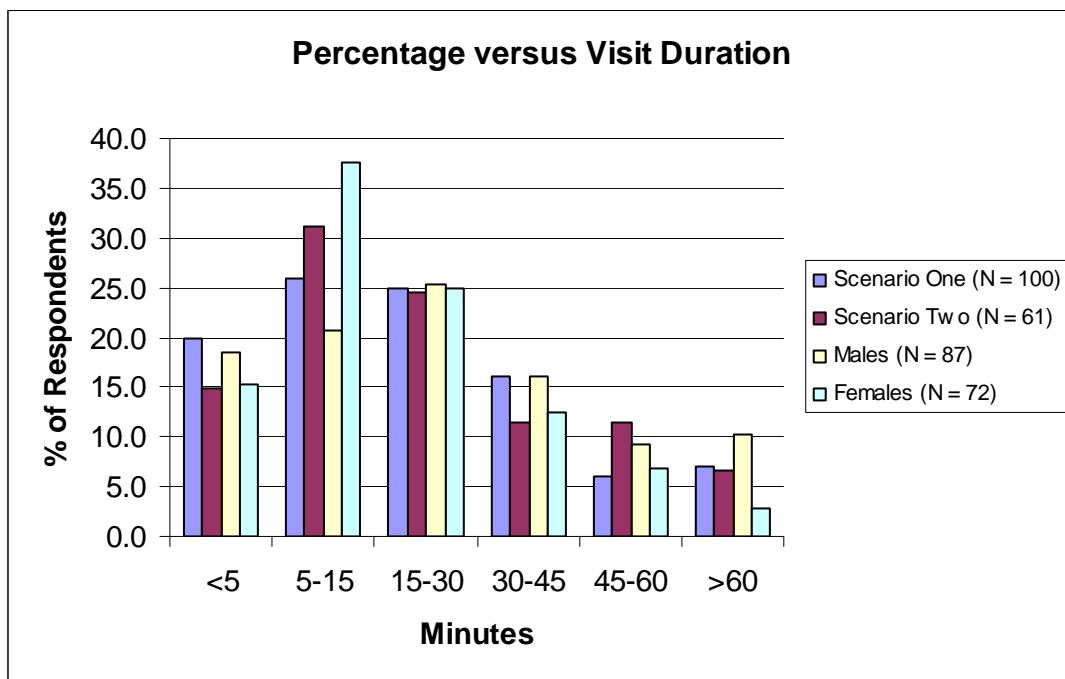


Figure 16. Visit Duration

Questionnaire Responses Part 2: Seating

Question 7: Perception of Weather Comfort for Sitting Outdoors. There were no significant differences in perceptions of weather comfort for sitting outdoors between respondents of Scenario 1 and Scenario 2. Ninety-two percent of respondents from Scenario 1 and 87% from Scenario 2 indicated a positive response for weather comfort. However, within Scenario 1, a significantly higher proportion of females reported a negative response for weather comfort, 10.2%, than males, 2.0% (table 13, figure 17). There were no significant differences between respondents of Scenario 1 and Scenario 2. This indicates criteria established for this study were able to control for this variable.

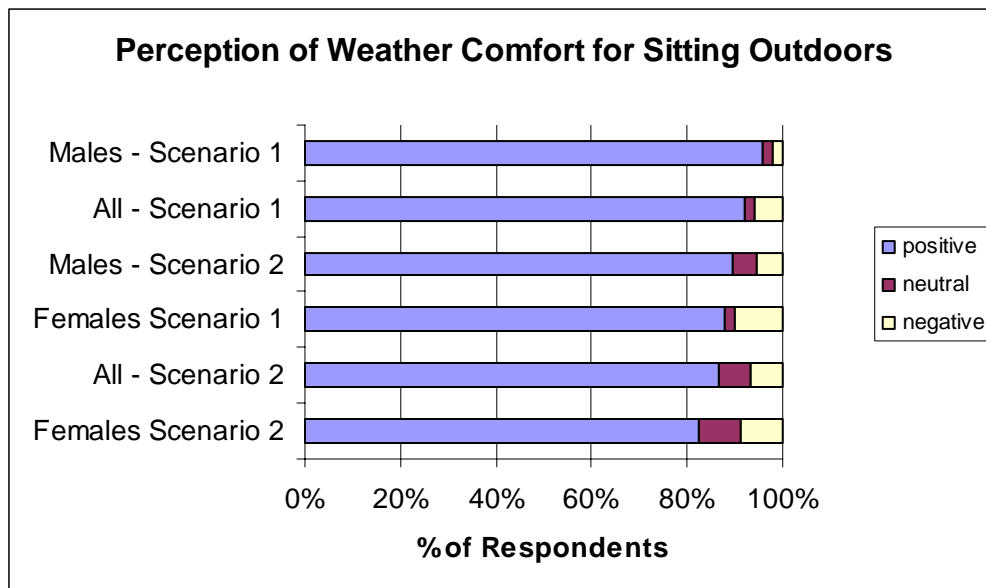


Figure 17. Weather Comfort for Sitting Outdoors

All - Scenario 1	<u>N</u> = 100	Females Scenario 1	<u>N</u> = 49	Males - Scenario 1	<u>N</u> = 49
All - Scenario 2	<u>N</u> = 61	Females Scenario 2	<u>N</u> = 23	Males - Scenario 2	<u>N</u> = 38

Table 13. Perception of Weather Comfort for Sitting Outdoors, by Scenario and Gender (Percentage)

Perception Rating	Scenario 1	Scenario 2	Significant ⁱ Difference			
	All (N = 100)	All (N = 61)				
Positive	92.0	86.9	ns			
Neutral	2.0	6.6	ns			
Negative	6.0	6.6	ns			
Total	100	100				
	Male (N=49)	Male (N=38)				
Positive	95.9	89.5	ns			
Neutral	2.0	5.3	ns			
Negative	2.0	5.3	ns			
Total	100	100				
	Females (N = 49)	Females (N = 23)				
Positive	87.8	82.6	ns			
Neutral	2.0	8.7	ns			
Negative	10.2	8.7	ns			
Total	100	100				
	Males	Females	Significant ⁱ Difference	Males	Females	Significant ⁱ Difference
Positive	95.9	87.8	ns	89.5	82.6	ns
Neutral	2.0	2.0	ns	5.3	8.7	ns
Negative	2.0	10.2	*	5.3	8.7	ns
Total	100	100		100	100	

ⁱ Level of Significance: * (P < 0.10), ** (P < 0.05), *** (P < 0.01), ns (no significant difference).

Question 8: Location of Available Places to Sit. Overall, significantly fewer respondents gave neutral responses in Scenario 2, 11.5%, compared to Scenario 1, 29.0%, regarding perceptions about locations of available places to sit. The shift away from neutral responses in Scenario 2 is reflected in an increase of positive perceptions among males and an increase in negative perceptions among females. Seventy-one percent of males in Scenario 2 gave positive responses for perceptions about locations of available places to sit compared to 49.0% in

Scenario 1. And 26.1% of females in Scenario 2 gave negative responses compared to 8.2% in Scenario 1 (table 14, figure 18).

Table 14. Perception of Locations of Available Places to Sit, by Scenario and Gender (Percentage)

Perception Rating	Scenario 1	Scenario 2	Significant ⁱ Difference			
	All (N = 100)	All (N = 61)				
Positive	58.0	68.9	ns			
Neutral	29.0	11.5	***			
Negative	13.0	19.7	ns			
Total	100	100				
	Male (N=49)	Male (N=38)				
Positive	49.0	71.1	**			
Neutral	32.7	13.2	**			
Negative	18.4	15.8	ns			
Total	100	100				
	Females (N = 49)	Females (N = 23)				
Positive	67.3	65.2	ns			
Neutral	24.5	8.7	ns			
Negative	8.2	26.1	**			
Total	100	100				
	Males	Females	Significant ⁱ Difference	Males	Females	Significant ⁱ Difference
Positive	49.0	67.3	*	71.1	65.2	ns
Neutral	32.7	24.5	ns	13.2	8.7	ns
Negative	18.4	8.2	ns	15.8	26.1	ns
Total	100	100		100	100	

ⁱ Level of Significance: * (P < 0.10), ** (P < 0.05), *** (P < 0.01), ns (no significant difference).

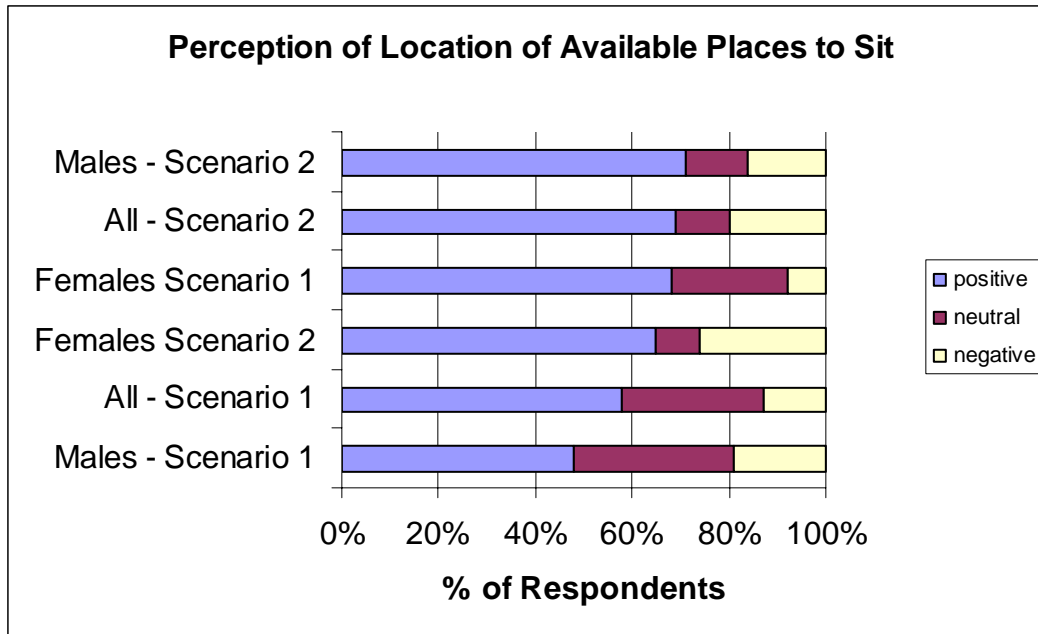


Figure 18. Location of Available Places to Sit

All - Scenario 1	<u>N</u> = 100	Females Scenario 1	<u>N</u> = 49	Males - Scenario 1	<u>N</u> = 49
All - Scenario 2	<u>N</u> = 61	Females Scenario 2	<u>N</u> = 23	Males - Scenario 2	<u>N</u> = 38

The significant shift towards positive responses among males in Scenario 2, however, lends support to the hypothesis of this study that predicted such a shift would occur in association with the use of movable seating. Yet, final comments offered at the end of the questionnaire by male respondents during both scenarios that pertained to seating location were mixed.

Comments offered by males in Scenario 1:

- Seating is very varied and there are many different places to sit.
- Divide into smoking and non-smoking areas.
- No comment to add because I think it has plenty of places to use for performance and plenty of space for rest.
- Seating is nice, but if a smoker sits in your vicinity, it detracts from the overall good experience.

- Lots of places to sit, good for talking to people, but not very many things to look at.
- Many students just sit on stairs. Could be lack of benches on lower Mall area.

Comments offered by males in Scenario 2:

- Very nice location to just sit and study. Its nice and quiet today. Good location in middle of campus.
- More places to sit other than on steps would be nice.
- Could use more chairs in varied locations.
- These green chairs are nice but awkwardly placed. More seating would be great.
- Most of the space is already used, much more seating would clutter the area.
- Terrell Mall is not seating friendly. Hard surfaces poorly spaced, little directional choices.

The significant shift in the proportion of negative responses among females in Scenario 2, regarding the question of location of available places to sit, erodes support for the study hypothesis. Final comments offered by females pertaining to seating locations during Scenario 1 offered some praise, but were predominantly complaints.

- Could use more open green space, grassy areas under trees to sit and relax, read.
- It seems like its either lots of seating or none – which is inconvenient.
- I like how there are no benches right in front of the library or Todd.
- On busy days there is a slight need for additional seating.
- Comfy seating in the shade would be nice.
- There could be more covered areas for people to sit/wait on the mall.
- More places to sit would be nice – often sitting on dirty steps – yuck!
- Where I'm sitting now is in the middle of a heavy walking traffic area. If anything, there are not enough suitable places to sit because of over crowding in this area.

Final comments offered by Scenario 2 female respondents pertaining to location were all complaints.

- Seating arrangement is a bit awkward.
- Should put more chairs and/or tables around (to obstruct large groups on the stairs that stare at you when you walk by).
- Depending on where I sit, I sometimes have to breath cigarette smoke drifting down my way - really negative aspect of layout.
- People stare too often when they are sitting, makes it somewhat uncomfortable.

Question 9: Variety of Types of Places to Sit. There was no significant difference in perceptions of variety of types of places to sit among respondents between Scenario 1 and Scenario 2. However, within Scenario 1, a greater proportion of females, 67.3%, than males, 46.9%, had positive perceptions of the variety of types of places to sit. Also, a greater proportion of males, 38.8%, than females, 18.4%, gave neutral responses in Scenario 1. (table 15, figure 19).

Table 15. Perception of Variety of Types of Places to Sit, by Scenario and Gender (Percentage)

Perception Rating	Scenario 1	Scenario 2	Significant ⁱ Difference			
	All (N = 100)	All (N = 61)				
Positive	57.0	60.7	ns			
Neutral	29.0	21.3	ns			
Negative	14.0	18.0	ns			
Total	100	100				
	Male (N=49)	Male (N=38)				
Positive	46.9	55.3	ns			
Neutral	38.8	23.7	ns			
Negative	14.3	21.1	ns			
Total	100	100				
	Females (N = 49)	Females (N = 23)				
Positive	67.3	69.6	ns			
Neutral	18.4	17.4	ns			
Negative	14.3	13.0	ns			
Total	100	100				
	Males	Females	Significant ⁱ Difference	Males	Females	Significant ⁱ Difference
Positive	46.9	67.3	**	55.3	69.6	ns
Neutral	38.8	18.4	***	23.7	17.4	ns
Negative	14.3	14.3	ns	21.1	13.0	ns
Total	100	100		100	100	

ⁱ Level of Significance: * (P < 0.10), ** (P < 0.05), *** (P < 0.01), ns (no significant difference).

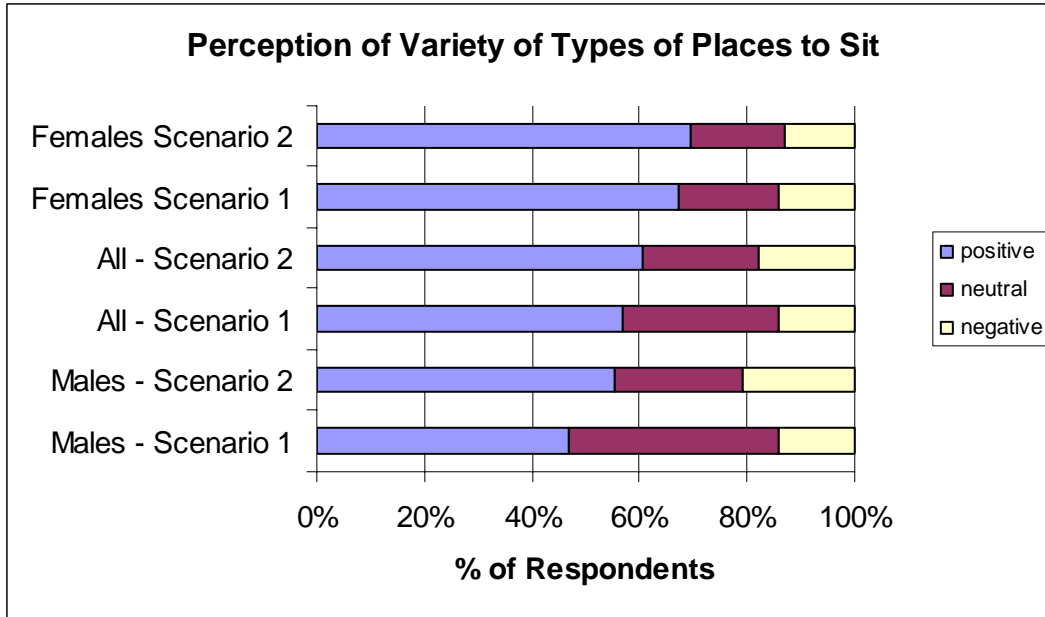


Figure 19. Variety of Types of Places to Sit

All - Scenario 1	<u>N</u> = 100	Females Scenario 1	<u>N</u> = 49	Males - Scenario 1	<u>N</u> = 49
All - Scenario 2	<u>N</u> = 61	Females Scenario 2	<u>N</u> = 23	Males - Scenario 2	<u>N</u> = 38

Final comments offered by males and females during Scenario 1 were a mix of praise and suggestions for more seating variety and comfort.

- Could use more green space, grassy areas under trees to sit and relax, read.
- I like the rock seats I can sit/relax on. It's very relaxing to chill here on a nice day.
- Seating is very varied and there are many different places to sit.
- More benches.
- May need some more benches.
- There are a lot of benches but could be more (different) seating.
- I like the rock, it dries faster than wood or plastic seating.
- Backrests = comfort.
- Need more seating.
- Need more benches.
- It would be neat if they could incorporate more comfortable seating into the rocks.
- More seating would be nice. More comfortable seating as well.
- Many students just sit on stairs. Could be to lack of benches on lower Mall area.
- It would be nice to have picnic tables.

Final comments offered by males and females during Scenario 2 also were mixed, offering praise for the movable chairs and suggestions for more seating variety.

- I like the new addition of the lawn chairs.
- I think some additional chairs or benches would be valuable.
- OK for students, I don't see alumni/guest lecturers sitting on the rocks as much as we do.
- Should put more chairs and/or tables around (to obstruct large groups on the stairs that stare at you when you walk by).
- Todd Auditorium's seating is great. It's sturdy, and enduring, but it's really comfortable – something I'm not used to with outdoor public seating.
- Get some couches.
- Make some more benches.
- I like how they've added comfortable chairs in front of Todd Hall.
- These green chairs are nice but awkwardly placed. More seating would be great.
- Whoever decided to put these chairs out on the Mall are awesome.
- I like the new seats in front of Todd.
- This is the first time I noticed the chairs, and really enjoy it!
- More chairs like the ones in front of Todd Hall.
- Not too many distinct features, could use more comfortable seating. The new chairs are great.
- Terrell Mall is not seating friendly. Hard surfaces poorly spaced, little directional choices.
- I really love the chairs that I am sitting on now (green moveable). I think if at all possible, they should be permanent.
- Picnic benches.
- I like the chairs.

Question 10: Comfort of Seating. The proportion of respondents that gave positive ratings for perceptions about comfort of seating was significantly higher in Scenario 2 than Scenario 1. Simultaneously, the proportion of respondents who gave neutral or negative responses were significantly lower in Scenario 2 than Scenario 1. Overall, 90.2% of respondents rated seating comfort positively in Scenario 2 compared to 48.0% in Scenario 1. Neutral and negative ratings dropped from 30.0% and 22.0%, respectively, in Scenario 1 to 8.2% and 1.6%, respectively, in Scenario 2 (table 16, figure 20).

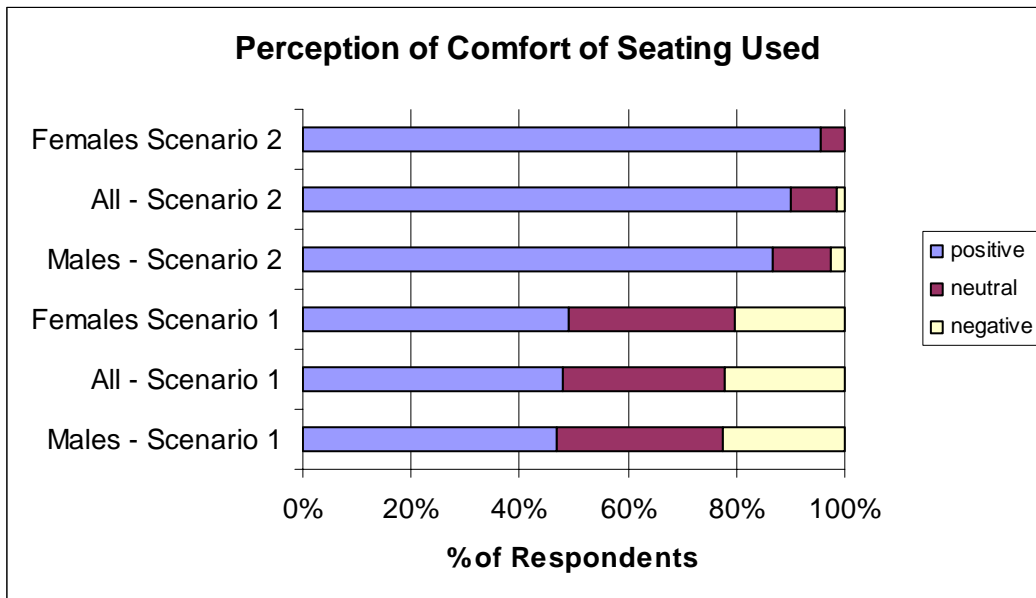


Figure 20. Comfort of Seating Used

All - Scenario 1	<u>N</u> = 100	Females Scenario 1	<u>N</u> = 49	Males - Scenario 1	<u>N</u> = 49
All - Scenario 2	<u>N</u> = 61	Females Scenario 2	<u>N</u> = 23	Males - Scenario 2	<u>N</u> = 38

Table 16. Perception of Comfort of Seating Used, by Scenario and Gender
(Percentage)

Perception Rating	Scenario 1	Scenario 2	Significant ⁱ Difference			
	All (N = 100)	All (N = 61)				
Positive	48.0	90.2	***			
Neutral	30.0	8.2	***			
Negative	22.0	1.6	***			
Total	100	100				
	Male (N=49)	Male (N=38)				
Positive	47.0	86.8	***			
Neutral	30.6	10.5	**			
Negative	22.4	2.6	***			
Total	100	100				
	Females (N = 49)	Females (N = 23)				
Positive	49.0	95.7	***			
Neutral	30.6	4.3	***			
Negative	20.4	0.0	***			
Total	100	100				
	Males	Females	Significant ⁱ Difference	Males	Females	Significant ⁱ Difference
Positive	46.9	49.0	ns	86.8	95.7	ns
Neutral	30.6	30.6	ns	10.5	4.3	ns
Negative	22.4	20.4	ns	2.6	0.0	ns
Total	100	100		100	100	

ⁱ Level of Significance: * (P < 0.10), ** (P < 0.05), *** (P < 0.01), ns (no significant difference).

Question 11: Control Over Where You Can Sit. The proportion of respondents giving positive ratings for perception about control over where they can sit, given the types and locations of places to sit in each scenario, was significantly lower in Scenario 2, 52.5%, compared to Scenario 1, 66.0% (table 17, figure 21).

Table 17. Perception of Control Over Where You Can Sit, by Scenario and Gender (Percentage)

Perception Rating	Scenario 1	Scenario 2	Significant ⁱ Difference			
	All (N = 100)	All (N = 61)				
Positive	66.0	52.5	*			
Neutral	26.0	31.1	ns			
Negative	8.0	16.4	ns			
Total	100	100				
	Male (N=49)	Male (N=38)				
Positive	67.3	55.3	ns			
Neutral	22.4	28.9	ns			
Negative	10.2	15.8	ns			
Total	100	100				
	Females (N = 49)	Females (N = 23)				
Positive	65.3	47.8	ns			
Neutral	28.6	34.8	ns			
Negative	6.1	17.4	ns			
Total	100	100				
	Males	Females	Significant ⁱ Difference	Males	Females	Significant ⁱ Difference
Positive	67.3	65.3	ns	55.3	47.8	ns
Neutral	22.4	28.6	ns	28.9	34.8	ns
Negative	10.2	6.1	ns	15.8	17.4	ns
Total	100	100		100	100	

ⁱ Level of Significance: * (P < 0.10), ** (P < 0.05), *** (P < 0.01), ns (no significant difference).

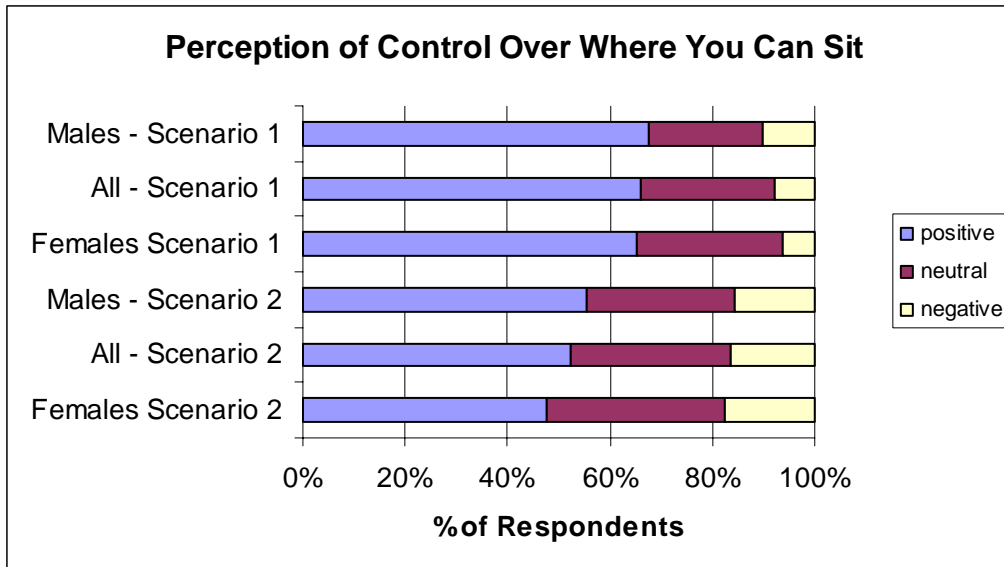


Figure 21. Control Over Where You Can Sit

All - Scenario 1	<u>N</u> = 100	Females Scenario 1	<u>N</u> = 49	Males - Scenario 1	<u>N</u> = 49
All - Scenario 2	<u>N</u> = 61	Females Scenario 2	<u>N</u> = 23	Males - Scenario 2	<u>N</u> = 38

Evaluation of the daily seating location maps revealed that of those who rated their perception of control neutrally or negatively, 13% relocated their chairs a distance greater than the width of the chair. Of those who rated perception of control positively, 35.5% relocated their chairs a distance greater than the width of the chair. A comparison of ratings for control based on gender revealed 56.5% of females and 44.7% of males rated their perception of control neutrally or negatively; whereas, 43.5% of females and 55.3% of males rated their perception of control positively. Females did articulate a desire for greater privacy and protective cover in their final comments whereas males did not.

Questionnaire Responses Part 3: Therapeutic Landscape Qualities

Question 12: Maintenance. A significantly higher proportion of respondents in Scenario 2 gave positive responses, 80.3%, compared to Scenario 1, 68.0%, when asked to rate perceptions of mall maintenance. The shift towards more positive ratings in Scenario 2 may be attributed to a significantly higher proportion of males who gave positive ratings in Scenario 2, 81.6%, compared to Scenario 1, 65.3% (table 18, figure 22).

Final comments from Scenario 1 respondents pertaining to maintenance were as follows.

- Poorly maintained, although not through the fault of the U. Students seem to mistreat – smoking, garbage, gum.
- Need more plants.
- More places to sit would be nice – often sitting on dirty steps – yuck!

Final comments from Scenario 2 respondents pertaining to maintenance were as follows.

- It is unique, pretty well kept place to be.
- Leaves need to be picked up a little.

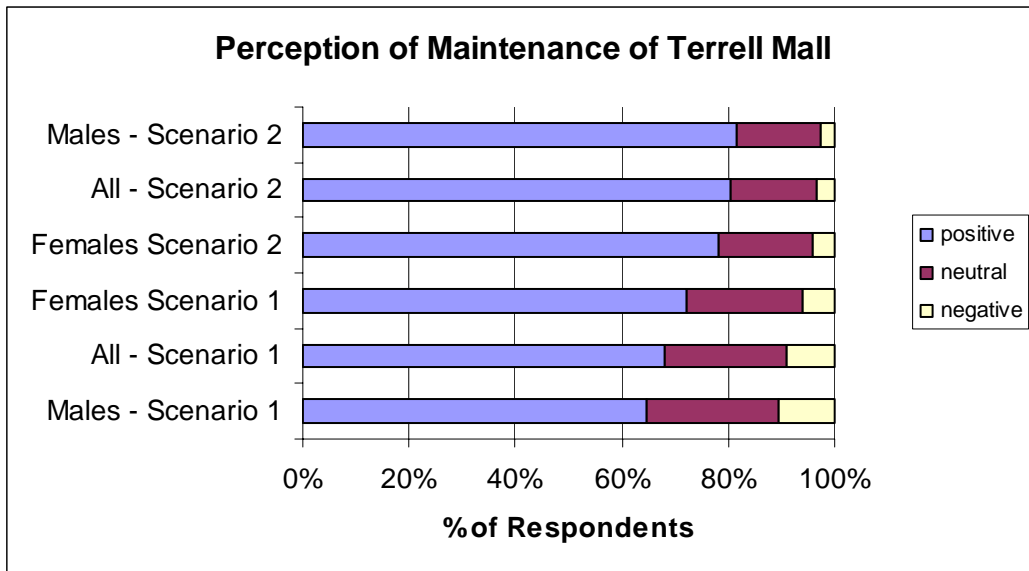


Figure 22. Maintenance of Terrell Mall

All - Scenario 1	<u>N</u> = 100	Females Scenario 1	<u>N</u> = 49	Males - Scenario 1	<u>N</u> = 49
All - Scenario 2	<u>N</u> = 61	Females Scenario 2	<u>N</u> = 23	Males - Scenario 2	<u>N</u> = 38

Table 18. Perception of Maintenance of Terrell Mall, by Scenario and Gender
(Percentage)

Perception Rating	Scenario 1		Scenario 2	Significant ⁱ Difference		
	All (N = 100)		All (N = 61)			
Positive	68.0		80.3	*		
Neutral	23.0		16.4	ns		
Negative	9.0		3.3	ns		
Total	100		100			
	Male (N=49)		Male (N=38)			
Positive	65.3		81.6	*		
Neutral	24.5		15.8	ns		
Negative	10.2		2.6	ns		
Total	100		100			
	Females (N = 49)		Females (N = 23)			
Positive	71.4		78.3	ns		
Neutral	22.4		17.4	ns		
Negative	6.1		4.3	ns		
Total	100		100			
	Males	Females	Significant ⁱ Difference	Males	Females	Significant ⁱ Difference
Positive	65.3	71.4	ns	81.6	78.3	ns
Neutral	24.5	22.4	ns	15.8	17.4	ns
Negative	10.2	6.1	ns	2.6	4.3	ns
Total	100	100		100	100	

ⁱ Level of Significance: * (P < 0.10), ** (P < 0.05), *** (P < 0.01), ns (no significant difference).

Question 13: Personal Safety. A significantly greater proportion of respondents in Scenario 2 gave positive responses, 96.7%, than Scenario 1, 86.0% regarding their perceptions of personal safety. This shift may be attributed to the higher proportion of males giving positive responses in Scenario 2, 100.0%, compared to Scenario 1, 85.7% (table 19, figure 23).

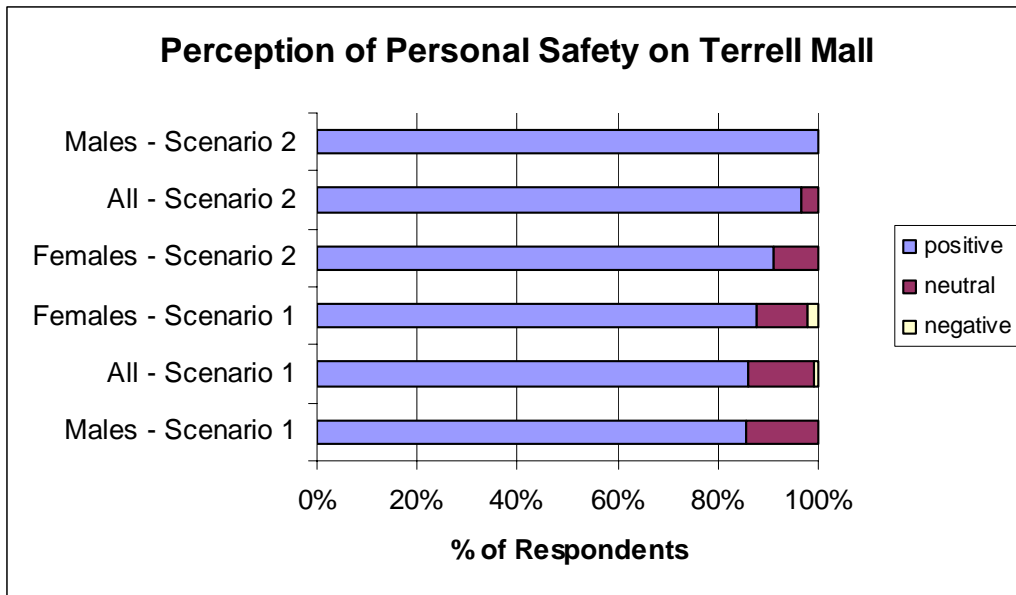


Figure 23. Personal Safety on Terrell Mall

All - Scenario 1	<u>N</u> = 100	Females Scenario 1	<u>N</u> = 49	Males - Scenario 1	<u>N</u> = 49
All - Scenario 2	<u>N</u> = 61	Females Scenario 2	<u>N</u> = 23	Males - Scenario 2	<u>N</u> = 38

Table 19. Perception of Personal Safety, by Scenario and Gender
(Percentage)

Perception Rating	Scenario 1	Scenario 2	Significant ⁱ Difference			
	All (N = 100)	All (N = 61)				
Positive	86.0	96.7	**			
Neutral	13.0	3.3	**			
Negative	1.0	0.0	ns			
Total	100	100				
	Male (N=49)	Male (N=38)				
Positive	85.7	100.0	***			
Neutral	14.3	0.0	***			
Negative	0.0	0.0	ns			
Total	100	100				
	Females (N = 49)	Females (N = 23)				
Positive	87.8	91.3	ns			
Neutral	10.2	8.7	ns			
Negative	2.0	0.0	ns			
Total	100	100				
	Males	Females	Significant ⁱ Difference	Males	Females	Significant ⁱ Difference
Positive	85.7	87.8	ns	100.0	91.3	*
Neutral	14.3	10.2	ns	0.0	8.7	*
Negative	0.0	2.0	ns	0.0	0.0	ns
Total	100	100		100	100	

ⁱ Level of Significance: * (P < 0.10), ** (P < 0.05), *** (P < 0.01), ns (no significant difference).

Question 14: Positive Memorable Impression. The proportion of respondents that rated their perception of positive memorable impressions negatively in Scenario 2, 1.6%, was significantly lower than Scenario 1, 9.0%. The proportion of respondents who gave positive and neutral ratings for this question did not differ significantly between scenarios. (table 20, figure 24). Fifty-nine percent of Scenario 1 respondents and 67% of Scenario 2 respondents offered comments on what they thought made a positive memorable impression. These comments are summarized according to the frequency each was mentioned (table 21).

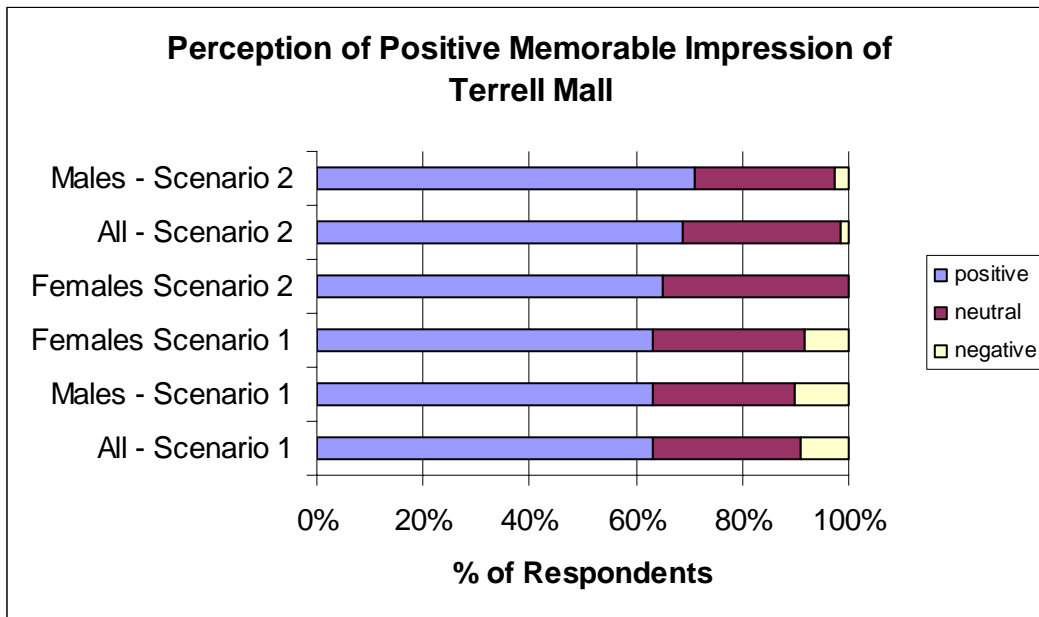


Figure 24. Positive Memorable Impression of Terrell Mall

All - Scenario 1	<u>N</u> = 100	Females Scenario 1	<u>N</u> = 49	Males - Scenario 1	<u>N</u> = 49
All - Scenario 2	<u>N</u> = 61	Females Scenario 2	<u>N</u> = 23	Males - Scenario 2	<u>N</u> = 38

Table 20. Perception of Positive Memorable Impression, by Scenario and Gender
(Percentage)

Perception Rating	Scenario 1	Scenario 2	Significant ⁱ Difference			
	All (N = 100)	All (N = 61)				
Positive	63.0	68.9	ns			
Neutral	28.0	29.5	ns			
Negative	9.0	1.6	*			
Total	100	100				
	Male (N=49)	Male (N=38)				
Positive	63.3	71.1	ns			
Neutral	26.5	26.3	ns			
Negative	10.2	2.6	ns			
Total	100	100				
	Females (N = 49)	Females (N = 23)				
Positive	63.3	65.2	ns			
Neutral	28.6	34.8	ns			
Negative	8.2	0.0	ns			
Total	100	100				
	Males	Females	Significant ⁱ Difference	Males	Females	Significant ⁱ Difference
Positive	63.3	63.3	ns	71.1	65.2	ns
Neutral	26.5	28.6	ns	26.3	34.8	ns
Negative	10.2	8.2	ns	2.6	0.0	ns
Total	100	100		100	100	

ⁱ Level of Significance: * (P < 0.10), ** (P < 0.05), *** (P < 0.01), ns (no significant difference).

Table 21. Positive Memorable Impressions Respondents Identified by, Scenario and Frequency

Scenario 1	Frequency	Scenario 2	Frequency
Trees	15	Trees	8
Rocks	8	People	7
People	7	Library	6
Library	6	Open area of the Mall	6
Open area of the Mall	5	Artwork	5
Fall Colors	5	General Landscape Layout	4
Library Dome	5	Rocks	4
Artwork	4	Fall Colors	3
General Activity	3	General Activity	2
Concerts	3	Plants	2
Atmosphere	3	Buildings in General	2
General Landscape Layout	2	Steps in Front of Todd Hall	1
Nice Weather	2	Tree-lined Paths	1
View on Top of the Library	2	Grass	1
Sense of Community	2	Chairs	1
Shades Areas	2	Library Dome	1
Plants	1	Todd Hall Front Porch	1
Buildings in General	1	Red Brick on All Buildings	1
Steps in Front of Todd Hall	1	Pavers	1
Tree-lined Paths	1	High Places	1
Todd Hall Front Porch	1	Concerts	1
Red Brick on All Buildings	1	Cookouts/BBQ	1
Cookouts/BBQ	1	Rest	1
Rest	1	Atmosphere	1
Center of Campus	1	Nice Weather	1
Historic Buildings	1	Clean	1
Nice Place	1	Interaction with Chairs	1
Benches	1	Compton Union Building Concessions	1
Marble	1	Center of Campus	0
Warm Spots	1	View on Top of the Library	0
Grass	0	Historic Buildings	0
Pavers	0	Nice Place	0
High Places	0	Benches	0
Clean	0	Marble	0
Interaction with Chairs	0	Sense of Community	0
Compton Union Building Concessions	0	Warm Spots	0
Chairs	0	Shades Areas	0

An evaluation of general final comments from Scenario 1, aside from comments solicited that specifically asked respondents about positive memorable impression, indicates a mix of negative and positive impressions about Terrell Mall.

- Sculpture or art in front of Todd is not attractive and lessens the beauty of the gathering space.
- The Mall lacks warmth and a good traffic flow.
- I like the rocks.
- The physical rocks are a plus.
- I hate the artwork, shallow and pedantic.
- Mostly cold concrete.
- There is a lot of natural looking feeling.
- I enjoy our place at the top of the hill and center of campus.

Final comments from Scenario 2 indicate more positive than negative impressions about the Mall. The significant shift away from negative responses associated with movable chair use supports the study hypothesis.

- Good location in middle of campus
- Love the trees – more trees.
- For Todd Hall, I don't like Red Horse Capture (sculpture) – find another centerpiece.
- In general, I like Terrell Mall. It has a good central location.
- Not too many distinct features.
- I like it. It's great place to meet people or relax between classes.
- I love the trees after a fresh snow.

Also offered by Scenario 2 respondents were eleven favorable comments specifically about the chairs placed for this study.

Question 15: Beauty. The proportion of respondents that rated their perception of Terrell Mall’s beauty negatively in Scenario 2, 8.3%, was significantly lower than Scenario 1, 18.0%. The proportion respondents who gave positive and neutral responses for this question did not differ significantly between scenarios (table 22, figure 25).

Question 16: Unique Identity. There were no significant differences among respondents between scenarios regarding a unique identity for Terrell Mall (table 23, figure 26).

Table 22. Perception of Beauty on Terrell Mall, by Scenario and Gender (Percentage)

Perception Rating	Scenario 1	Scenario 2	Significant ⁱ Difference			
	All (N = 100)	All (N = 61)				
Positive	69.0	71.7	ns			
Neutral	13.0	20.0	ns			
Negative	18.0	8.3	*			
Total	100	100				
	Male (N=49)	Male (N=38)				
Positive	67.3	73.0	ns			
Neutral	14.3	18.9	ns			
Negative	18.4	8.1	ns			
Total	100	100				
	Females (N = 49)	Females (N = 23)				
Positive	69.4	69.6	ns			
Neutral	12.2	21.7	ns			
Negative	18.4	8.7	ns			
Total	100	100				
	Males	Females	Significant ⁱ Difference	Males	Females	Significant ⁱ Difference
Positive	67.3	69.4	ns	73.0	69.6	ns
Neutral	14.3	12.2	ns	18.9	21.7	ns
Negative	18.4	18.4	ns	8.1	8.7	ns
Total	100	100		100	100	

ⁱ Level of Significance: * (P < 0.10), ** (P < 0.05), *** (P < 0.01), ns (no significant difference).

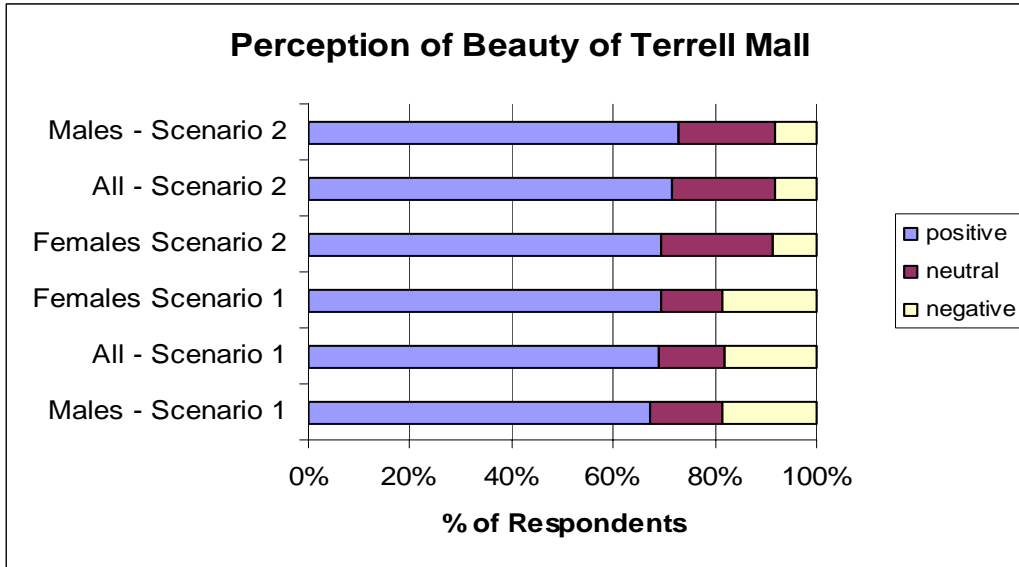


Figure 25. Beauty of Terrell Mall

All - Scenario 1	<u>N</u> = 100	Females Scenario 1	<u>N</u> = 49	Males - Scenario 1	<u>N</u> = 49
All - Scenario 2	<u>N</u> = 61	Females Scenario 2	<u>N</u> = 23	Males - Scenario 2	<u>N</u> = 38

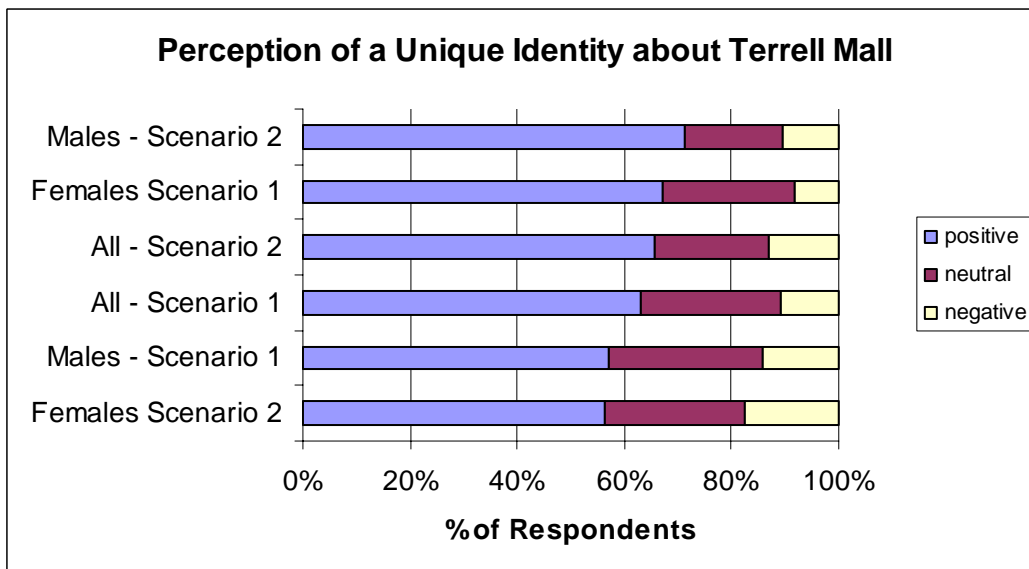


Figure 26. Unique Identity about Terrell Mall

All - Scenario 1	<u>N</u> = 100	Females Scenario 1	<u>N</u> = 49	Males - Scenario 1	<u>N</u> = 49
All - Scenario 2	<u>N</u> = 61	Females Scenario 2	<u>N</u> = 23	Males - Scenario 2	<u>N</u> = 38

Table 23. Perception of a Unique Identity for Terrell Mall, by Scenario and Gender
(Percentage)

Perception Rating	Scenario 1	Scenario 2	Significant ⁱ Difference			
	All (N = 100)	All (N = 61)				
Positive	63.0	65.6	ns			
Neutral	26.0	21.3	ns			
Negative	11.0	13.1	ns			
Total	100	100				
	Male (N=49)	Male (N=38)				
Positive	57.1	71.1	ns			
Neutral	28.6	18.4	ns			
Negative	14.3	10.5	ns			
Total	100	100				
	Females (N = 49)	Females (N = 23)				
Positive	67.3	56.5	ns			
Neutral	24.5	26.1	ns			
Negative	8.2	17.4	ns			
Total	100	100				
	Males	Females	Significant ⁱ Difference	Males	Females	Significant ⁱ Difference
Positive	57.1	67.3	ns	71.1	56.5	ns
Neutral	28.6	24.5	ns	18.4	26.1	ns
Negative	14.3	8.2	ns	10.5	17.4	ns
Total	100	100		100	100	

ⁱ Level of Significance: * (P < 0.10), ** (P < 0.05), *** (P < 0.01), ns (no significant difference).

Locations of Seated Respondents

The daily summary maps of respondent locations and facing directions from Scenario 1 and Scenario 2 showed no clear physical dominance of any particular locale of Todd Hall’s front porch by either gender. The proportion of males versus females occupying high visibility front locations or low visibility rear locations did not differ in either scenario (table 24, Appendix Four). Seating, whether stationary or movable, located near the flows of pedestrian traffic tended to be the most occupied locations. Chairs placed in the open area near the center of Todd Hall’s front porch were sometimes moved to an edge away from the center, moved toward another chair in the center, or not used. The predominance of Scenario 2 respondents sitting in rear locales is due partly to placement of chairs in this locale at setup each day. A few of the chairs were relocated to front locales, but most respondents did not move chairs far from setup spots – opting instead to move the chairs only a few inches.

Table 24. Locale Occupation by Gender
(Percentage)

Locale	Scenario 1			Scenario 2		
	Males (N = 49)	Females (N = 49)	Significant ⁱ Difference	Males (N = 38)	Females (N = 23)	Significant ⁱ Difference
Front	43	49	ns	32	30	ns
Rear	57	51	ns	68	70	ns
Total	100	100		100	100	

ⁱLevel of Significance: * (P < 0.10), ** (P < 0.05), *** (P < 0.01), ns (no significant difference).

Final Comments Offered by Respondents

Final comments were offered by 57% of Scenario 2 respondents, a significantly greater proportion than the 40% of respondents in Scenario 1 that offered final comments. The installation of chairs for Scenario 2 was associated with a greater proportion of *complimentary* final comments as well. Of Scenario 2 comments, 46% could be interpreted as complimentary, 34% as complaints or suggestions for improvements, and 20% as neutral. Of the Scenario 1 comments, 27.5% could be interpreted as complimentary, 60% as complaints or suggestions for improvements, and 12.5% as neutral (refer to Appendix Five).

CHAPTER FIVE

DISCUSSION

Introduction

Significant increases in the proportion of positive ratings for three of the ten therapeutic landscape qualities and significant decreases in the proportion of negative ratings for two others, in association with chair use, lends support for validating the hypothesis of this study. These positive shifts outweigh the negative shift seen for one of the qualities in Scenario 2. This chapter will focus on reasons for these shifts within the context of the study hypothesis. Shifts in perception ratings of seating will be discussed first followed by perception ratings of therapeutic qualities in the landscape. Both sections will rely on observations made of respondent location and chair movement at the site.

Shifts in Perception Ratings of Seating

Comfort of Seating. The largest shift in ratings from Scenario 1 to Scenario 2 pertained to seating comfort. The comfort of concrete benches, steps and large rocks at the site did not receive as high a proportion of positive ratings as the chairs with vinyl seats and backs. Concrete bench surfaces in the shade can be cold in the month of October in Pullman due to latitude. Most of the concrete benches were shaded between 11 a.m. and 2 p.m. during the study. The steps, although exposed to sunlight between 11 a.m. and 2 p.m., were sometimes seen as dirty according to comments offered by female respondents. The large sitting rock, which was universally appreciated as a place to sit, received more sunlight than the concrete benches and a bit less than the steps, yet was not as highly rated as the chairs. The location map summaries for

Scenario 2, October 21 and October 25 (Appendix Four), show that 3 and 2 chairs, on those dates respectively, were moved from shaded areas near concrete benches, where chairs were setup, towards the steps so the occupant could sit in a sunny location. Most of the ten chairs, however, remained in shaded areas. Questionnaires were not administered unless weather conditions were at or near the delineated conditions to assure some continuity of weather conditions from one study day to the next. Therefore, the increase in positive ratings for comfort may reflect microclimate in some instances, but, more likely ratings reflect the comfort of the materials the chair was constructed from. A number of the final comments offered by respondents regarding the chairs, summarized in Chapter Four, express appreciation for comfort of the chairs and the availability of the chairs. This kind of appreciation supported the programming of chairs for Bryant Park and Occidental Square which were two of the case studies reviewed in Chapter Two. The recognition that movable furniture received in those studies is reflected in the hypothesis of this study – namely that comfort of movable chairs would be perceived more positively than comfort of stationary seating.

Control Over Where One Could Choose to Sit. That the respondents in this study might perceive greater control over where they could choose to sit while using the chairs was reasonable given the studies of urban plazas that made this observation (Cooper-Marcus and Francis 1998; Whyte 1988). That there was a clear decline in positive ratings for perceptions of control by respondents in this study raises several questions. Who did and did not feel in control of where they could choose to sit? How aware are people of the control they have with movable furniture in public spaces? Is the finding of this study an expression on the part of respondents of a pre-existing frustration regarding seating that was heightened by the chair installation? Is

the finding an expression of respondent frustration with the layout of Todd Hall's front porch that precludes a feeling of control?

With regard to the first question, there was a shift towards positive perceptions of locations of available places to sit among males in association with moveable chair use. Perceptions among females, on the other hand, shifted in the negative direction (table 14, Chapter Two). Males, who made up 62% of respondents in Scenario 2 may have displaced more females from using movable chairs. Although there was typically a few chairs unoccupied and available for use, equal appropriation of chairs by both genders did not occur. This may also explain why positive perceptions of control dropped 18% among females compared to 12% among males in association with chair use (table 17). Those who rated perceptions of control positively were nearly 3 times as likely to move chairs a distance greater than one chair width than those who rated control neutrally or negatively.

With regard to the question of awareness, respondents were not asked to consider control they might have felt with the movable chairs specifically. Thus, they were free to comment about all seating in general *or* about the movable chairs they were sitting on. The study of chair repositioning by users in public places that Whyte (1988) completed did not focus on the level of *awareness* people have of control over chair positioning. Conclusions drawn in his study regarding control were made as a result of observations from a distance and not from interviews with the users. A study done in Hong Kong found the amenity of seating in public places to be the third most important criteria for urban space users behind microclimate and landscaping (Lo et al. 2003). This suggests that while seating is an important amenity for designers to be mindful of, it is not foremost on the list of amenities in the minds of public space users.

About 20% of the final comments offered by respondents in both Scenarios 1 and 2 suggested more and varied seating would improve Terrell Mall. Scenario 2 respondents, however, offered nearly as many compliments about the movable chairs that were new to the site. The chairs, therefore, may have provided a foil against which existing discontent with stationary seating on the Mall was magnified. This magnified awareness may have been expressed in the decline of positive perception ratings for control over where users could choose to sit in Scenario 2.

Lastly, the current layout of the Mall and Todd Hall's front porch are not optimal for movable furniture. Except for the patio in front of the Compton Union Building, there are no niches designed to accommodate movable furniture specifically. Todd Hall's front porch has articulated edges, almost all of which are occupied by concrete benches, and might be more suited for movable furniture if the benches did not occupy all the edge space. The location summary maps indicate that except for one day during Scenario 2, October 25, 2005 when virtually all chairs were moved considerable distances, a majority of chairs were not moved more than a chair width from their original setup locations (Appendix Four). Some respondents suggested that better options for chair placement would allow greater privacy or optimize views on Todd Hall's front porch. A focal point like a fountain, and tables and more chairs were other comments offered that imply a need for more options to intentionally place and orient chairs. Indeed, placement of ten chairs on Todd Hall's front porch during Scenario 2 did not alter the space enough to affect a significant change in perceptions about seating variety (table 15, Chapter Two) nor locations of available places to sit (table 14, Chapter Two). Lacking these features, the study site layout, in combination with the chairs, may be the cause for a decline in perceptions of control over where users could sit.

Perception Shifts in Ratings of Therapeutic Qualities in the Site

Maintenance. From the perspective of therapeutic garden management, maintenance is important in order to maximize the positive experience of those convalescing in healthcare settings. Dead plants or unsound infrastructure in such settings can impact individuals emotionally and physically (Hines 2005, Cooper-Marcus and Barnes 1999). From the perspective of public space management, maintenance is vital because it conveys that the space is cared for, thus extending a positive image (Cooper-Marcus and Francis 1998) that allows visitors to feel welcome and comfortable (Kaplan, Kaplan and Ryan 1998). Bryant Park Restoration Corporation, which increased the number of maintenance personnel overall at Bryant Park following its restoration, steps up the number of maintenance crew during peak use hours to ensure the image of a well kept park (Berens 1997). The increase in the proportion of positive perception ratings in Scenario 2 regarding maintenance supports the study hypothesis that such an increase would be associated with the installation of movable chairs. This shift in perceptions took place despite no change in the program for maintenance of Terrell Mall during the study.

Personal Safety. The significantly higher proportion of positive responses and the lower proportion of neutral responses regarding personal safety, as expressed by respondents of Scenario 2 compared to Scenario 1, support the study hypothesis that such a shift would occur in association with chair use. The maps of respondent locations in both scenarios indicated that females were as likely as males to occupy highly visible, front locales near the stream of pedestrian traffic. This suggests that college students do not conform to observed gender preferences for locations as observed in studies that found males to dominate up front locales in public spaces (Cooper-Marcus and Francis 1998; Whyte 1988). Furthermore, that females did

occupy the same locales as males confirms their level of personal safety during the day on Terrell Mall.

Personal safety is a key attribute of successfully designed public open spaces (Kirk 2002; Bedard 2000; Project for Public Spaces 2000; Cooper-Marcus and Barnes 1999; Cooper-Marcus and Francis 1998; Berens 1997). Even prior to the introduction of chairs to the study site, 86% of respondents offered positive ratings. The ability to find one's way in an outdoor setting is linked to feelings of comfort and safety (Ulrich 1999; Kaplan, Kaplan and Ryan 1998). Student familiarity with Terrell Mall is an additional factor that facilitates way-finding and therefore a feeling of safety.

The case studies in Chapter Two offer additional insights to Terrell Mall's high safety ratings. Occidental Square was criticized for lacking comfort, partly due to a lack of security and the reputation the space has for illegal activities as noted in editorial columns in the *Seattle Post-Intelligencer*, 2 May 2005 and 17 May 2005, and by Project for Public Spaces, Inc.(2006). A police station on the Washington State University campus, just off the east end of Terrell Mall on Wilson Road (figure 2, Chapter Three), may have some bearing on the positive responses regarding safety.

Improved access to New York's Bryant Park, both physical and visual, along with 24-hour security has resulted in a decline of illegal activity and an increase in visits by mothers with their children (Berens 1997). The University of New Mexico also addressed safety by eliminating blind spots affecting pedestrian flow in some areas on campus. Perhaps Terrell Mall succeeds in this regard due to the ease with which it can be visually understood at a glance. The straight, axial layout and open space of the Mall allow for easy way-finding.

Positive Memorable Impression. The significant decline in the proportion of negative perceptions reported for positive memorable impressions about the Mall in Scenario 2 supports the hypothesis that a positive shift associated with chair use would occur. Yet the results also indicate that Terrell Mall is limited in terms of therapeutic landscape qualities and the magnitude with which these qualities make a memorable impression.

Written comments offered by respondents in both scenarios, when specifically asked to name something about Terrell Mall that would leave a positive memorable impression, most frequently mentioned trees (see table 21, Chapter Four). People naturally seek “every day nature”, such as trees or natural areas, to alleviate fatigue that results from continuous directed attention (Kaplan and Kaplan 2005). Cooper-Marcus and Wischemann (1998) indicated that the most frequently mentioned aspect of favorite outdoor spaces by college students were natural areas with trees and greenery. The next most frequently offered comments by respondents in both scenarios, were people, the library, the large rocks, and the open area of Terrell Mall. People and people-watching, and open space were also among the most mentioned aspects of favorite outdoor spaces in the survey of college students by Cooper-Marcus and Wischemann (1998).

Landmarks, such as the large rocks or the Library’s Glass Dome identify Terrell Mall and assist with way-finding. The deciduous trees on the Mall, particularly those that produce fall color, are also memorable because they mark seasons and passage of time. That these specific elements were mentioned as leaving a positive memorable impression is not surprising given the benefit they impart.

Beauty. The significantly lower proportion of negative ratings in Scenario 2, compared to Scenario 1, regarding perceptions of Terrell Mall’s beauty mirrored the rating trend for

perceptions of positive memorable impressions. This outcome can be interpreted as a positive shift in perceptions of beauty associated with chair use. However, the results suggest a limited shift reflective of respondent comments offered about the Mall. Both the list of positive memorable impressions (table 21) and final comments (Appendix Five) provide a glimpse of *what* respondents regard as beautiful about Terrell Mall. The measurement of beauty, as suggested by the Therapeutic City Form Guideline Concepts (table 1, Chapter Two), may be based on how pleasing the appearance of plantings and construction materials are, the number of opportunities for creation of beauty such as art within the space, and maintenance. The concept of people being part of the attraction in public open spaces has been recognized in this study and others (Francis 2003; Project for Public Spaces 2000; Cooper-Marcus and Barnes 1999; Cooper-Marcus and Francis 1998; Whyte 1988). Activities, such as the concerts and barbeques that take place on Terrell Mall (table 21), can be considered among the opportunities to people watch and for people to be part of the scene.

CHAPTER SIX

CONCLUSIONS

Study Conclusions

Support for the inclusion of a diversity of therapeutic qualities in the design of urban public open spaces stems from observations that without such qualities spaces fail to promote well-being (Frumkin 2005; Kirk 2002; Bedard 2000), and to attract people (Lo et al. 2003; Project for Public Spaces 2000; Berens 1997; Jacobs 1961). The introduction of movable chairs, one element found more often in therapeutic garden spaces (Kirk 2002), to Todd Hall's front porch, a public space on the Washington State University Campus, bolstered perceptions of therapeutic landscape qualities in that space. The results of this study indicate that use of movable chairs, compared to the use of stationary seating, was associated with positive shifts in perceptions of seating comfort, landscape maintenance, personal safety, positive memorable impressions of the Mall, and beauty of the Mall.

The use of chairs in this study was also associated with a shift toward negative responses regarding perceptions of control over where one could sit. This appears contrary to published literature about movable chair use (Cooper-Marcus and Francis 1998; Whyte 1988). Relocation of chairs was nearly three times as likely to occur if the respondent indicated a positive perception of control over where they could choose to sit rather than a neutral or negative perception. Males comprised 62% of chair users who gave responses during Scenario 2 and may have caused females to feel more negatively about their control to choose where to sit.

Respondents, who were mostly students, equally appropriated front and rear locales on Todd Hall's front porch regardless of gender and whether chairs or stationary seating was used.

This is contrary to findings in the literature that indicate males prefer front locales while females gravitate to rear locales in urban public plazas and parks (Cooper-Marcus and Francis 1998; Whyte 1988).

Limitations of the Study

Unlike experimental studies that measure efficacy of a therapeutic garden design in terms of measurable patient responses in health care settings (Westphal 2004), this study attempted neither to assess whether therapeutic qualities perceived on Terrell Mall affected measurable therapeutic responses in Terrell Mall visitors, nor to state that movable chairs placed on Terrell Mall were the sole cause of any shifts in perceptions. This was a quasi-experimental study that observed perception rating shifts of therapeutic qualities associated with the introduction of seating, the independent variable, to the study site. Control over uniformity of the respondents was not desired. Within public open spaces, a diversity of space users *is* desired and is often an indicator of the success of that space.

The mapping of *every* Todd Hall front porch visitor location and visit duration, regardless of whether they participated in the questionnaire or not, was not done due to limited human resources. The author operated as the only investigator at the study site, often interacting with multiple respondents at once during peak use times of the day. Therefore, information pertaining to seating location and visit duration was limited to questionnaire respondents only.

The setup of chairs each day during Scenario 2 followed several patterns instead of just one. The cue for varying chair setup patterns came from the case study of Bryant Park, New York City. Movable chairs at Bryant Park are left to be arranged by park users and are not arranged in any one fashion by park managers each day. For this study, however, the varying

chair setup locations may have hindered observation of user preferences particular to Todd Hall's front porch. The four day duration of Scenario 2 may also have been too brief a period in which to discern such a preference pattern.

Suggested Issues for Future Studies

This study employed a questionnaire instrument based on therapeutic landscape qualities deemed important by previous investigators (Zacharias et al. 2004; Kirk 2002; Bedard 2000). This instrument has not been previously applied to a university campus setting. Following are suggestions for future investigations pertaining to introduction of movable chairs into outdoor public spaces.

- Future studies could determine if movable furniture use results in users staying for longer periods of time per visit and whether more frequent visits result.
- Further investigation into user awareness of control over chair placement may elucidate reasons for the increase in negative perception ratings observed in this study.
- The critical mass of movable furniture required at a site to affect notice and a higher level of use could be delineated.
- Determination of whether females are less likely than males in a public setting to appropriate movable furniture, and what changes are necessary to negate differences in use based on gender.
- Determination of whether there are measurable therapeutic effects associated with the use of movable furniture compared to the use of stationary seating in public spaces.

Implications of This Study For University and Urban Open Space Design

As this study concluded, the placement of movable chairs in a public space on a university campus has potential to enhance perceptions of other therapeutic qualities in that space. The findings from Terrell Mall and Todd Hall's front porch would seem applicable to other university campuses and urban plaza typologies such as street plazas, urban oases, pedestrian malls and grand public places.

The findings in this study imply that programming of movable chairs on other university campuses or urban spaces is likely to be greatly appreciated by users at the very least. On the other end of the potential spectrum, the programming of chairs may become part of a synergy, such as that seen at Bryant Park, that excels at providing users a restorative experience. The findings from this study and the case studies also draw attention to spatial contexts for movable and stationary seating. A full complement of therapeutic landscape qualities give a space potential to be restorative that seating alone cannot accomplish. For instance, although movable chairs and tables were part of Occidental Square's programming, other qualities such as safety, variety of spaces, comfort and vital connection to surrounding businesses were lacking. Thus, to this day Seattle Parks and Recreation Department is striving to renovate its design to include more of these qualities at Occidental Square. Terrell Mall and Todd Hall front porch also lacked a full and strong complement of therapeutic qualities that planners should consider. Notably, space design that makes the accommodation of movable furniture appear intentional may enhance user experience. Such designs will have edge niches of various sizes to accommodate greater or lesser numbers of chair and table groupings. The inclusions of overhead structures for shade and open spaces that receive full sun will also provide microclimate variety important to chair users. These variations in spaces will also allow a variety of users to feel comfortable in the

space. An engaging focal point, whether a fountain on site or a borrowed view, such as the Sandia Mountains visible from the University of New Mexico Campus, will further give chair users an opportunity for intentional chair placement and orientation.

The inclusion and perception of a complement of therapeutic landscape qualities in public spaces is not that different a goal than Jane Jacobs' recommendations for space use variety in urban neighborhoods (Jacobs 1961). Such a goal may remedy the univalent programming of urban spaces that have made modern life stressful by ignoring the needs of people in those spaces. The redesign of urban spaces is currently taking place in many cities in order to make them pedestrian friendly (Berens 1997; Frumkin 2005; Project for Public Spaces 2006). The attention given to context and user needs, as embodied in the Guidelines for Therapeutic City Form reviewed in this study, will lead to space design with multivalent uses. In the end, such spaces will be more satisfying to a variety of space users, and, importantly, be more restorative.

As J. B. Jackson wrote, "we recognize that certain localities have an attraction which gives us a certain indefinable sense of well-being and which we want to return to, time and again" (Jackson 1994, 157-158). This indefinable sense is the "quality without a name" that Alexander (1979) referred to when he wrote about the need for many living patterns to be present in order for a place to be enlivened. The writings of Jackson and Alexander embody the sense we have of place. This study strived to sense therapeutic landscape qualities and whether the addition of just one element, chairs, could enhance perceptions of therapeutic qualities. With enhanced perceptions of therapeutic qualities it seems reasonable to expect space users will have a more restorative experience in that space.

WORKS CITED

- Alexander, C. 1979. *The Timeless Way of Building*. New York: Oxford University Press.
- Banerjee, T. and A. Loukaitou-Sideris. 1992. *Private production of downtown public open spaces: experiences of Los Angeles and San Francisco*: 150. Quoted in Claire Cooper-Marcus and Carolyn Francis, *People Places* (New York: John Wiley & Sons, 1998), 26.
- Barth, J. Email communication with author, 23 August 2005.
- Bedard, M. 2000. Healthy landscapes: guidelines for therapeutic city form. Master's thesis, University of California, Davis.
- Bentley, I., A. Alcock, P. Murrain, S. McGlynn, and G. Smith. 1985. *Responsive Environments: A Manual for Designers*. London: The Architectural Press.
- Berens, G. 1997. Bryant Park. *Urban Parks and Open Space*. Washington D.C.: The Urban Land Institute.
- Bishop, R. 1972. *Centuries of Styles of The American Chair 1640-1970*. New York: E.P. Dutton & Co., Inc.: 12-15.
- Bounds, K and J. Thompson. 2005. Park Redesigned for All Seasons. *Seattle Post-Intelligencer*, May 17, 2005.
http://seattlepi.nwsourc.com/opinion/224489_occidentalk17.html.
- Cooper-Marcus, C. and M. Barnes. 1999. *Healing Gardens: Therapeutic Benefits and Design Recommendations*. New York: John Wiley & Sons, Inc.
- Cooper Marcus, C. and C. Francis. 1998. *People Places*. New York: John Wiley & Sons, Inc.
- Cooper-Marcus, C. and T. Wischemann. 1998. Campus outdoor spaces. Chap. 4 in *People Places*. New York: John Wiley & Sons, 1998.
- Cooper-Marcus, C., C. Francis and R. Russell. 1998. Urban plazas. Chap. 1 in *People Places*. New York: John Wiley & Sons, 1998.
- Cranz, G. 1998. The Chair: Rethinking Culture, Body, And Design. New York, NY: W.W. Norton & Company. pp 15-19, 185-221.
- Devlin, J. A. 1996. A Survey of Seating Preferences in Urban Open Spaces. Master's thesis, Virginia Polytechnic Institute and State University, Blacksburg.
- Dober, R. P. 2000. *Campus Landscape: Functions, forms, Features*. New York: John Wiley & Sons, Inc.

- Dornbusch, D. M. and P. Gelb. 1977. High-rise impacts on the use of parks and plazas. In *Human response to tall buildings*, edited by D. J. Conway: 208. Quoted in Claire Cooper-Marcus and Carolyn Francis, *People Places* (New York: John Wiley & Sons, 1998), 26.
- Eckbo, G. 1989. Prospect. *Landscape Architecture*. 79(10): 104. Washington D.C.: American Society of Landscape Architects.
- Francis, Mark. 2003. *Urban open space*. Washington: Island Press.
- Frumkin, H. 2005. The Health of Places, the Wealth of Evidence. Chap. 11 in *Urban Place: Reconnecting with the Natural World*, edited by P. Barlette. Cambridge: The MIT Press.
- Gumpert, G. and S.J. Drucker. "Communication and the Built Form: The Changing Social Landscape." Paper presented at the Twenty-seventh Annual Conference of the Environmental Design Research Association, Salt Lake City, Utah. June 1996.
- Goldberg, D. Email communication with the author, 1 February 2006.
- Hines, S. 2005. In Search of Healing Gardens. *Landscape Architecture*. 95(12): 108-113. Washington D.C.: American Society of Landscape Architects.
- Institute for Environmental Education (IEE). University of New Mexico. 1982. *An Evaluation of Outdoor Space Use: The University of New Mexico Campus* Monograph Series No. 13. Albuquerque.
- Institutional Research (IR). *Fall 2005 – Washington State University Student Data Warehouse*. Pullman, WA: Institutional Research.
- Jackson, J. B. 1994. *A Sense of Place, A Sense of Time*. New Haven: Yale University Press. Quoted in *Urban Place: Reconnecting with the Natural World*, edited by P. Barlett. (Cambridge: The MIT Press, 2005), 253.
- Jacobs, J. 1961. *The Death and Life of Great American Cities*. New York, NY: Vintage Books.
- Jacobs, J. 2000. The sidewalks of cities. *The City Cultures Reader*. (2000). Quoted in B. McGowan, Private space, open space and asylum. *Therapeutic Communities*, 24(3): 167-186.
- Joardar, S. D., and Neill, J. W. 1978. The subtle differences in configuration of small public spaces. *Landscape Architecture*. 68(11): 487-491. Quoted in Claire Cooper-Marcus and Carolyn Francis, *People Places* (New York: John Wiley & Sons, 1998), 26, 41-42.
- Johnson, M. 1997. Ecology and the urban aesthetic. In *Ecological Design and Planning*, edited by G. Thompson and F. Steiner. New York: John Wiley & Sons.

- Kaplan, R., S. Kaplan and R. Ryan. 1998. *With People In Mind: Design and Management of Everyday Nature*. Washington, D.C.:Island Press.
- Kaplan, R., S. Kaplan. 2005. Preference, Restoration, Action and Nearby Nature. Chap. 12 in *Urban Place: Reconnecting With The Natural World*, edited by P. F. Barlett. Cambridge: MIT Press.
- Kirk, P. A. 2002. Evaluating therapeutic landscape design elements of urban plazas in the southwestern United States. Master's thesis, University of Arizona.
- Lo, S.M, C.Y. Yiu, and Alan Lo. 2003. An analysis of attributes affecting urban open space design and their environmental implications. *Management of Environmental Quality: An International Journal*, 14(5): 604-614.
- McClelland, Maryrose and Young, Bernadette. 2003. No More Unwanted Projects for Kalihi. *The Honolulu Advertiser*, 1 April, final edition.
- McGowan, Bill. 2003. Private space, open space and asylum. *Therapeutic Communities*, 24(3): 167-186.
- Mostafavi, M. 2003. *Landscape Urbanism: A Manual for the Machinic Landscape*. Spain: SYL.ES.
- Ott, L. 1988. *An Introduction to Statistical Methods and Data Analysis*. Boston: PWS-Kent Publishing Company.
- Paynter, S. 2005. City Should Ax Its Plans for Occidental Park. *Seattle Post-Intelligencer*, May 2, 2005. http://seattlepi.nwsourc.com/paynter/222295_paynter02.html.
- Project For Public Spaces. 2005. *Health and Community Design*, March 16, 2005. http://www.pps.org/info/placemakingtools/issuepapers/health_community/.
- Project For Public Spaces. 2006. *Great Public Spaces*, January 28, 2006. http://www.pps.org/gps/one?public_place_id=151.
- Project For Public Spaces, Inc. 2000. *How to Turn a Place Around*. New York: Project for Public Spaces.
- Robitaille, S. Email communication with the author, 30 January 2006.
- Rogers, E. B. 2001. *Landscape Design: A Cultural and Architectural History*. New York: Harry N. Abrams, Inc.
- Rybczynski, Witold. 1987. *Home: A Short History of An Idea*. New York: Penguin Books.
- Salant, P. and D. Dillman. 1994. *How To Conduct Your Own Survey*. New York: John Wiley & Sons, Inc.

- Schwartz, M. 1996. Landscape and common culture since modernism. In *Modern Landscape Architecture: A Critical Review*, edited by M. Treib. Cambridge: The MIT Press.
- Stark, L. 2005. Conversation with author. Pullman, WA, 15 November.
- Tyson, M. 1998. *The Healing Landscape: Therapeutic Outdoor Environments*. San Francisco: McGraw-Hill.
- Ulrich, R. 1999. Effects of Gardens on Health Outcomes: Theory and Research. Chap. 2 in *Healing Gardens: Therapeutic Benefits and Design Recommendations*, edited by C. Cooper-Marcus and M. Barnes. New York: John Wiley & Sons, Inc.
- Ulrich, R. 2004. Current Research on Healthcare Gardens. Keynote presented at Seventh Annual Legacy Health System Therapeutic Garden Conference, 16-18 May, at Emanuel Hospital, Lorenzen Conference Center, Portland, Oregon.
- Welsh, B. 1999. Adapting therapeutic garden design to public space. *LAND*, 41(1), 6. Quoted in Kirk, A. K., Evaluating therapeutic landscape design elements of urban plazas in the southwestern United States. Master's thesis, University of Arizona.
- Westphal, J. 2004. *Putting 'therapy' in therapeutic site design: a historic and contemporary view of health in the built environment*. Spokane, Washington: DVD.
- Whyte, W. H. 1974. The best street life in the world. *New York Magazine* (July 15): 26-33. Quoted in Claire Cooper-Marcus and Carolyn Francis, *People Places* (New York: John Wiley & Sons, 1998), 38.
- Whyte, W. 1988. *City: rediscovering the center*. New York: Doubleday.
- Zacharias, J., T. Stathopoulos, and H. Wu. 2004. Spatial behavior in San Francisco's plazas: the effects of microclimate, other people, and environmental design. *Environment And Behavior*, 36 (5): 638-658.

APPENDIX A
QUESTIONNAIRE INSTRUMENT

Questionnaire

Study: **Personal Sense of Therapeutic Landscape Qualities as Influenced by Choice of Seating Used on Terrell Mall on the Washington State University Pullman Campus**
Investigator: Mario Martin, Graduate Student, Department of Horticulture and Landscape Architecture, Washington State University

1) Today's date _____ Time _____

2) What is your affiliation with WSU? (Check one)

___ Student ___ Staff ___ Faculty ___ Other

3) What age group do you belong to? (Check one):

___ 18-25 ___ 26-35 ___ 36-45 ___ 46-55 ___ 56-65 ___ 66 +

4) Indicate your Gender:

___ Female ___ Male

Instructions

- The following numbered questions will ask for data about your use and perceptions of Terrell Mall. You will be asked to rate Terrell Mall regarding key criteria, indicated in *italicized* text.
- Before indicating your responses please consider what you can observe from where you sit including your personal space as well as the wider landscape that makes up Terrell Mall.

5) Last week, how many days were you on the Terrell Mall? Check One)

___ 7 ___ 6 ___ 5 ___ 4 ___ 3 ___ 2 ___ 1 ___ 0

6) Last week, how many minutes per day did you stop to sit somewhere on Terrell Mall? (Check One)

___ >60 min. ___ 45-60 min. ___ 30-45 min. ___ 15-30 min. ___ 5-15 min. ___ <5 min.

7) Please rate how comfortable today's weather is for sitting outdoors? (Circle your response on the scale)

+-----+-----+-----+-----+
Very comfortable Somewhat comfortable Neutral Somewhat uncomfortable Very uncomfortable

8) Please rate how you feel about the physical *location of available places to sit* on the Mall (eg. where benches, steps, chairs, etc. are placed in consideration of Mall users)?
 (Circle your response on the scale)

+-----+-----+-----+-----+
 Really like it Somewhat like it Neutral Somewhat dislike it Really dislike it

9) Please rate how you feel about the available *variety of types of places to sit* (benches, steps, moveable chairs, rocks, low walls, the ground) available on Terrell Mall?
 (Circle your response on the scale)

+-----+-----+-----+-----+
 Really like it Somewhat like it Neutral Somewhat dislike it Really dislike it

10) What rating best describes your feeling about the *comfort of what you are sitting on now*?
 (Circle your response on the scale)

+-----+-----+-----+-----+
 Very comfortable Somewhat comfortable Neutral Somewhat uncomfortable Very uncomfortable

11) What rating best describes the level of *control* you have over where you can sit given the available variety of types and locations of places to sit on Terrell Mall?
 (Circle your response on the scale)

+-----+-----+-----+-----+
 Very good control Good control Neutral Poor control Very poor control

12) What rating best describes your feeling about *maintenance* (eg. the soundness of physical structures and landscape plantings) of Terrell Mall's physical landscape?
 (Circle your response on the scale)

+-----+-----+-----+-----+
 Very Good Good Average Poor Very Poor

13) What rating best describes your feeling about *personal safety within the physical landscape* on Terrell Mall?
 (Circle your response on the scale)

+-----+-----+-----+-----+
 Very Good Good Average Poor Very Poor

14) **What rating would best describe the ability of Terrell Mall's physical trait(s) to leave a *positive memorable impression* in your mind?**
(Circle your response on the scale)

+-----+-----+-----+-----+
Very Good Good Average Poor Very Poor

Indicate what, if anything, leaves a positive memorable impression: _____
_____.

15) **What rating best describes Terrell Mall's level of physical *beauty*?**
(Circle your response on the scale)

+-----+-----+-----+-----+
Very Beautiful Somewhat Beautiful Neutral Somewhat lacks beauty Really lacks beauty

16) **What rating do you feel best describes the level of presence of a *unique identity* (eg. attribute(s) that exist(s) only in this place) for Terrell Mall?**
(Circle your response on the scale)

+-----+-----+-----+-----+
Very Unique identity Somewhat unique identity Neutral Somewhat lacks identity Really lacks identity

Please make any other comments about seating and features of Terrell Mall if you wish:

Thank you for your time and responses.
Please return questionnaire to investigator.

This section for investigator use only:

Seat Type Used: Bench / Rocks / Steps / Ground / Planter Ledge / Moveable Chair

Activity: Sitting alone / Sitting with others / Eating / Smoking / Cell Phone Use / Talking /
People Watching / Studying / Reading / Coffee Break /Other _____

Weather: Sunny / Partly sunny / Cloudy / Temperature (F) _____

APPENDIX B

COVER LETTER/HUMAN SUBJECTS APPROVAL

Survey Subject Rights and Consent Form
Washington State University

Study: Personal Sense of Therapeutic Landscape Qualities as Influenced by Choice of Seating Used on Terrell Mall on the Washington State University Pullman Campus
Investigator: Mario Martin, Graduate Student, Department of Horticulture and Landscape Architecture, Washington State University

This information sheet describes your rights and consent terms as a potential survey subject so you can decide if you wish to participate in this study. Your participation is voluntary. This means that even if you agree to participate you may choose to withdraw at any time while taking the questionnaire without penalty. If you feel your privacy will be invaded by answering a particular question you may choose not to answer it.

Participants are randomly chosen from visitors of the plaza in front of Todd Hall, adjacent to Terrell Mall on the Washington State University Campus. To assure your anonymity please do not write your name on the questionnaire. Once you are finished please hand the questionnaire to the project investigator who solicited your participation. You will receive a copy of this Survey Subject Rights and Consent Form to keep for your records.

The purpose of this questionnaire is to gain information that cannot be obtained through documented publications. The focus of the study, for which this questionnaire is administered, is to gain understanding of the public's opinion about Terrell Mall's physical landscape and how seating type affects opinions. Your participation could benefit future design of public open spaces as well as afford you the opportunity to contemplate physical qualities of this campus. The questionnaire results will help me in writing my thesis and any subsequent publications about this research.

Thank you for your time,

Mario M. Martin
Principal Investigator, Graduate Student
Department of Horticulture and Landscape Architecture,
Washington State University
509-335-3245

Consent Statement:

I have read the terms of the Subject Rights and Consent Form and agree that by my participation in completing the questionnaire, my consent to do so and that I am at least 18 years of age are implied. I give my permission for you to use my answers in your master's thesis and any subsequent publications. I understand that if I have any questions regarding this project, I can contact the study's investigator at 509-335-3245. Furthermore, if I have questions concerning my rights as a participant in this study, I can contact the WSU Institutional Review Board at 509-335-9661.

APPENDIX C
SITE OBSERVATION JOURNALS

October 17, 2005 (Monday)

There are flurries of students that appear all at once, it seems, just before classes start. About ten to fifteen minutes before class many people sit on the benches and rocks, steps. The sunny, calm weather today is conducive to congregation out of doors. No events were scheduled for the Todd Plaza today unlike last Friday, 10/14/05, when a drag show was taking place until 1:30 p.m. Todd Plaza was literally used as a stage so nobody but performers occupied this space. Mall visitors were gathered on the adjacent open space of Terrell Mall that Todd Plaza overlooks.

People were very willing to take questionnaires today. The leaves on adjacent Silver Maples, Tulip Trees, Redbud, Silver Linden and Japanese Maples are vibrant now. There is an anti-sexual violence campaign on the center of Terrell Mall today that will continue through the week. T-Shirts with hand painted notes by victims or friends of victims are strung between the Tulip Trees making a colorful display that reminds me of Tibetan Buddhist Prayer Flags.

October 18, 2005 (Tuesday)

Today is another beautiful, sunny, calm day for sitting outdoors. Like yesterday, students filled the plaza in front of Todd Hall ten to fifteen minutes before the start of classes. These were the people I asked to fill out the survey - most were willing. I spent more time on the plaza today coinciding with the busiest time for traffic. I did manage to gather the most number of questionnaires from plaza visitors of any day I've been out so far. I gathered 48 completed questionnaires and met my goal of 100 total questionnaires prior to the chair installation. No event was scheduled for the Todd Plaza today. The anti-violence T-Shirt display was again

strung between the Tulip Trees on Terrell Mall. The trees still have colorful displays. Tomorrow I will deploy the chair installation. The forecast is for showers, however.

October 19, 2005 (Wednesday)

Today was too cloudy and rainy a day for contemplating sitting outdoors on Terrell Mall or Todd Plaza. Even the T-Shirt display was down due to weather. Students mostly hurried into buildings to get to class. There was a brief moment of sunshine between 1:00 p.m. and 2:00 p.m. that even allowed some seating surface to dry off. But the sky was still threatening.

Just one of the 10 chairs was appropriated for use – a male used it as a foot rest while sitting on one of the concrete bench ledges. I guess water does not evaporate as quickly from the woven vinyl straps on the movable chairs as quickly as from concrete benches.

No questionnaires were administered today due to weather. I have a conditional weather requirement of “no rain” in order for questionnaires to be administered. At any rate, I did place chairs out if only to get people to notice them and become accustomed to their presence.

October 20, 2005 (Thursday)

Today was a brisk, breezy, chilly day. Air temperatures never got above 60 degrees F – well outside the conditional temperature range I set up for administering questionnaires. I would rather have air temperatures approach 65 degrees F at a minimum before asking people to fill out the questionnaires in order to maintain some environmental consistency for the duration of the study. The sky was also cloudy, adding to the discomfort of the chilly breeze. This is only the second day chairs have been out on the plaza and people are just getting used to them. There has been little movement of chairs over wide distances, greater than one to two feet for example.

Most chairs, except for a couple, are very close if not exactly where I placed them. It is true that if they were moved it was only over a very short distance of one foot or less. I did run into a fellow Landscape Architecture student using one of the chairs near where I've seen him sit on the concrete bench in days before the chair installation. He commented that the chair he was on was comfortable. In light of today's weather and newness of the chairs to the plaza, I made only visual observations of chair movement and use without administering questionnaires.

October 21, 2005 (Friday)

Today was a sunny, calm, dry weather day. Gathering questionnaires for the first time with the chair installation in place was challenging in part because there are only ten movable chairs, and thus only ten movable seating surfaces, from which I could sample respondents. There are many more available surfaces of stationary seating that people can use such as the concrete benches, rocks, steps and planter ledges. The other thing that limited the number of questionnaires was that Business College students apparently don't have classes in Todd Hall, which fronts the plaza where the chairs are placed, on Fridays. But the weather was great. I only gathered 15 surveys. I'm inclined to omit one of these because the person was not actually using a movable chair. Three people who completed the questionnaire did ask afterwards if the chairs were my doing. I responded that they were. I don't know that their questioning in their minds whether I had anything to do with the chairs would have skewed their responses on the questionnaire. I figured that since they already completed the questionnaire I could be truthful. These individuals actually did take the time to talk to me more at length about Terrell Mall and what they felt was lacking. One person in particular commented that this central area of campus should be more of a gathering place. I did comment to two of these individuals that I thought a

better view of Bryan Clock Tower would greatly change the feel of the Mall, that a greater identity would be attached to the Mall. It is ironic that the Clock Tower is visible from many places around Pullman except the main mall due to the placement of Old Holland Library. I'm considering doing a separate survey that might ask whether people perceive Bryan Clock Tower as an icon of WSU.

October 24, 2005 (Monday)

Today the respondents to the questionnaire tended to be mostly males. They were the ones using the chairs for the most part – a phenomenon I did not expect. The weather was great – sunny, calm, dry. Although most of the plaza in front of Todd Hall was in shadow, people still sat on the chairs and benches. There were signs of chairs having moved before I arrived at 11:30 a.m.. Tomorrow I'll get to the Mall an hour earlier to hopefully capture responses from these early birds. Sampling was painfully slow – only 20 questionnaires completed today. If I only get twenty more tomorrow I'll likely fall short of the 200 total questionnaires goal I set for this study. After Tuesday the weather is expected to be quite unfavorable for sitting outdoors.

I did notice many people using the wood benches on the far side of the Mall from Todd Plaza, in front of the old Holland Library. Most were taking advantage of benches on that side of the Mall which was in the direct sunshine. Visitors to Todd Plaza still gravitated to the stationary seating, the benches and rocks, as much or more than the movable chairs.

I set chairs up this morning using a different configuration than the one since the start of the installation. I brought several chairs from the back of the plaza to the front, closer to the edge of Terrell Mall. I noticed last week that those at the rear of the plaza received little use

since people are more interested in sitting up front where they can watch others. The edge closer to Terrell Mall also receives more sunlight whereas the rear of the plaza is mostly in shade.

I had one person ask me before taking the questionnaire if I placed the chairs on the plaza – I said yes.

October 25, 2005 (Tuesday)

The weather was great again today. I measured the air temperature to be in the mid-60s. The weather was dry and sunny all day, with a little to slight breeze. I had a few more inquiries today as to whether I had a hand in placing the chairs on the plaza in front of Todd Hall. Mostly, these inquiries came from people who had completed the questionnaire on previous days. I had a fairly lengthy introduction/conversation with a woman who initially said she was not interested in taking the questionnaire. She said she came out to sit specifically because of the new chairs. I think I may have given too much of my opinion of the design of the Mall by suggesting that before I conclude individually that the mall had something wrong with it that I wished to survey people who are mall visitors/users. I also casually suggested that since she came to the Mall because of the chairs that she'd be a good candidate to take the questionnaire. I felt after handing her the questionnaire that I gave her too much information. Certainly this was a departure from the way I sampled other questionnaire takers. She did turn out to be hypercritical giving responses to a number of questions at the lowest end of the scale. I'll omit this respondents questionnaire from the study.

A chair did end up being moved clear across Terrell Mall to the entrance of Holland Library directly across from Todd Hall Plaza – a first! I surveyed the person responsible for moving the chair since I was able to catch her still using it.

I stayed on the Mall until 5 p.m. to gather the last responses for the day since there was a small surge of chair use at day's end.

A couple of chair users who completed the questionnaire days earlier prior to the chair installation were back on the Mall today and asked if I placed the chairs out – I admitted that I did. By far, people taking the survey did not inquire about who placed the chairs on the plaza. Inquiries to this effect were the exception.

There were repeat chair users today. A couple (male, female) use the same two chairs in front of the sculpture at two different times during the day. They moved the chairs closer facing each other at a little less than a 90 degree angle which allowed them to look out onto Terrell Mall. People appeared to like sitting in the chairs for long periods of time. Two people who were together sat for at least 45 minutes in two of the chairs. The couple described above also occupied their seats for at least half an hour. Another woman sitting alone sat for at least 45 minutes in one chair.

October 26, 2005 (Wednesday)

The weather was soggy and cold today as forecasted. I placed the chairs out anyway thinking a long enough dry spell might encourage use – no luck. The chairs stayed in the places I put them at set up time this morning before 8 a.m.

While contemplating some of the preliminary results from completed surveys so far and wondering if the questions were phrased right, I came up with more questions I or someone else might ask in future studies:

Make the questions very pertinent to the seating choice and not necessarily to the whole surrounding. This might be appropriate if one is interested in rating seating and nothing else.

For example, instead of asking about the location of places to sit on the mall in general, ask about the choice of location the respondents made, how does he/she feel about that specific choice. Another example might be to inquire about the amount of control they feel they have with the kind of seating choice they made instead of seating choices on the Mall in general.

I believe, however, that I am asking the questions that are pertinent to this study – which focuses on the environment – because I believed there should logically be a shift in perceptions of the environment as well as about seating.

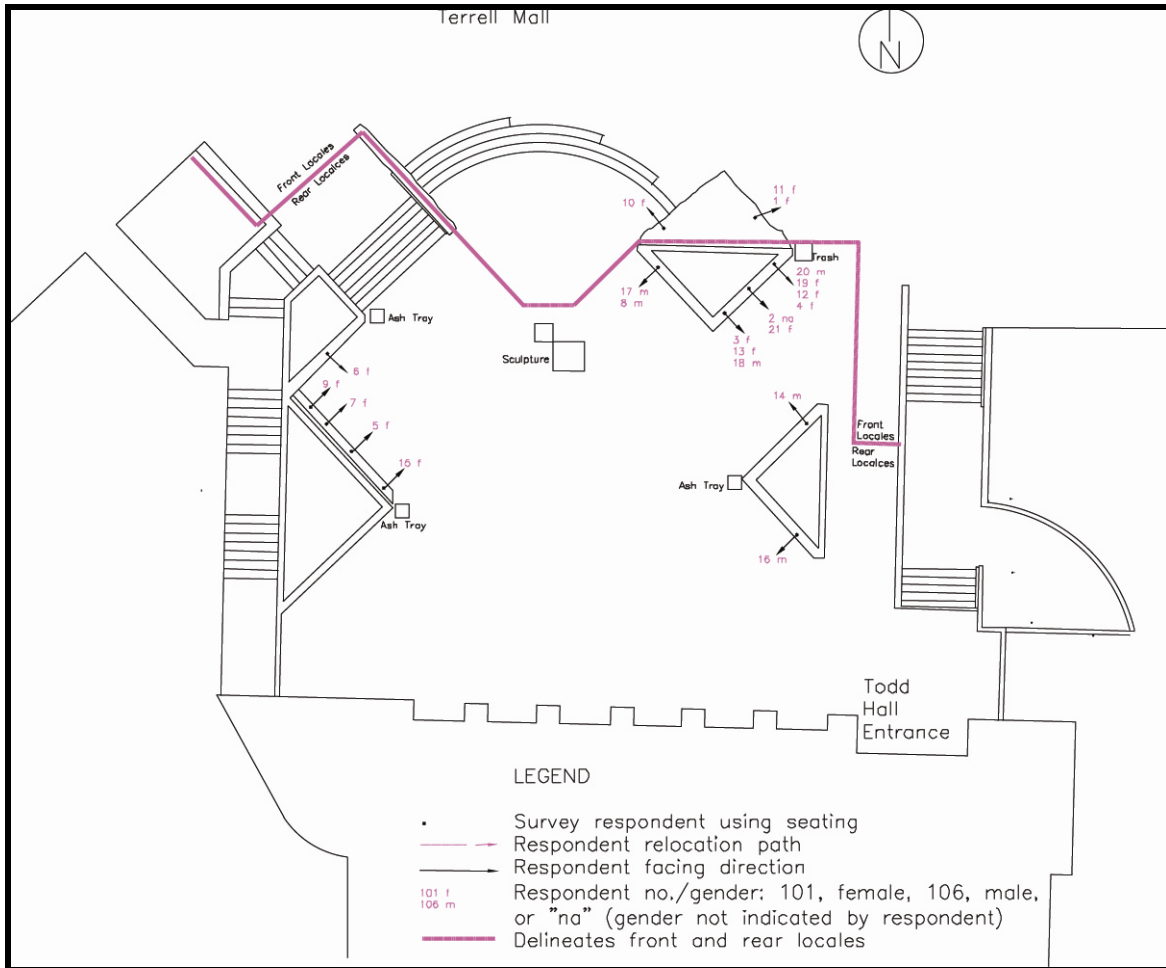
October 27, 2005 (Thursday)

The weather was cool today, at around 50 degrees F, for much interest in sitting outside comfortably. I noticed that the few chair users today were often persons whom I previously gave the questionnaire to. I only had three chair-using respondents today. I found myself needing to go indoors to warm up a number of times throughout the observation period between 10:30 a.m and 2:30 p.m..

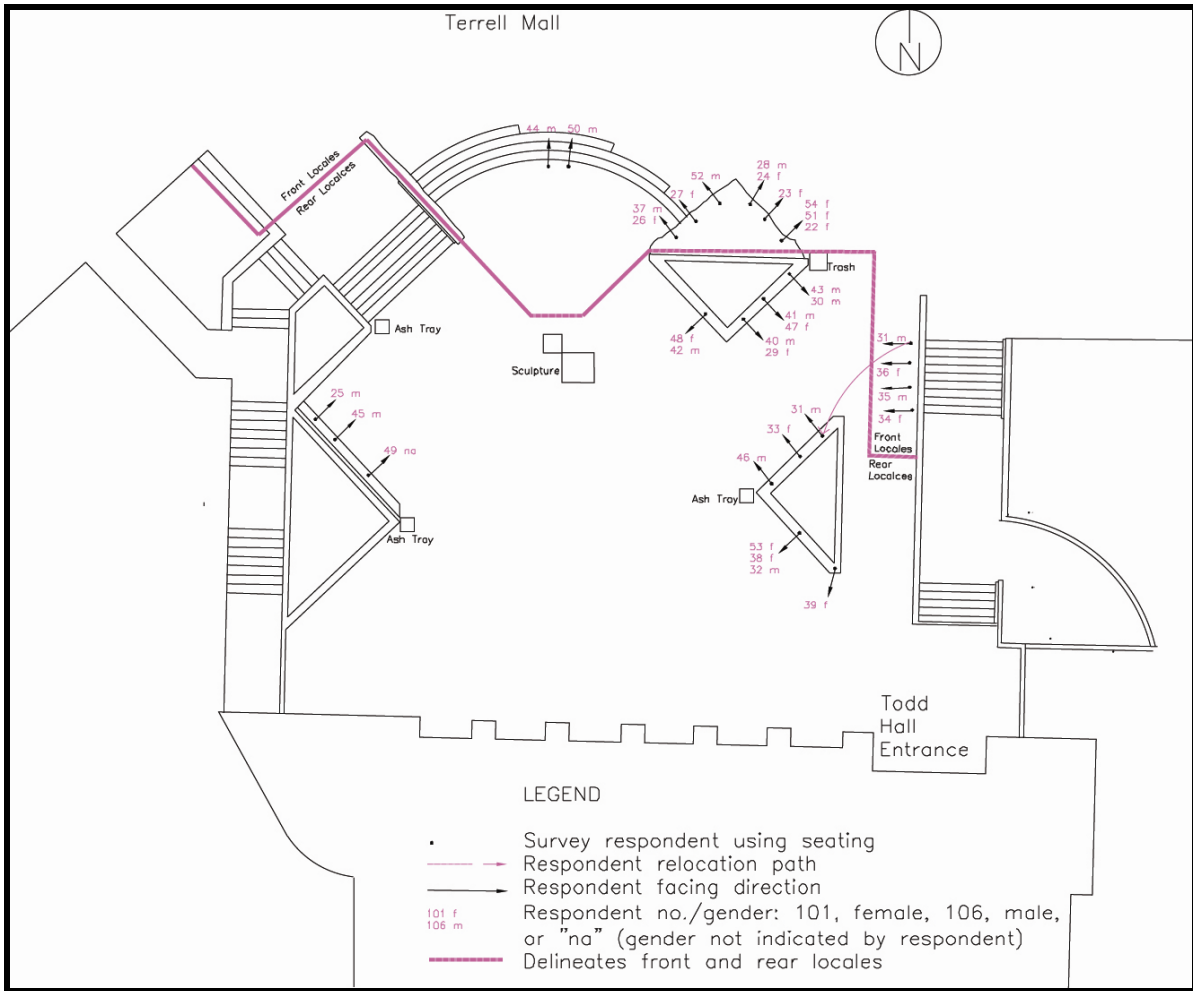
I did note the chairs placed in the center of the plaza did get used once again the same way as before. Chairs that were spaced out were brought closer together for individuals to use for conversation facing the flow of traffic. Individuals did not want to sit alone in these chairs compared to the chairs on the perimeter of the plaza. When someone did sit alone the chair they used in the middle of the plaza was located close to the another chair – albeit an empty chair. Apparently, just having the other chair nearby afforded some security.

Only one person asked if I placed the chairs on the plaza. This person was someone who happened to be sitting on a planter ledge. I said yes thinking I would not be getting usable responses from her via the questionnaire since she was not using the movable chairs.

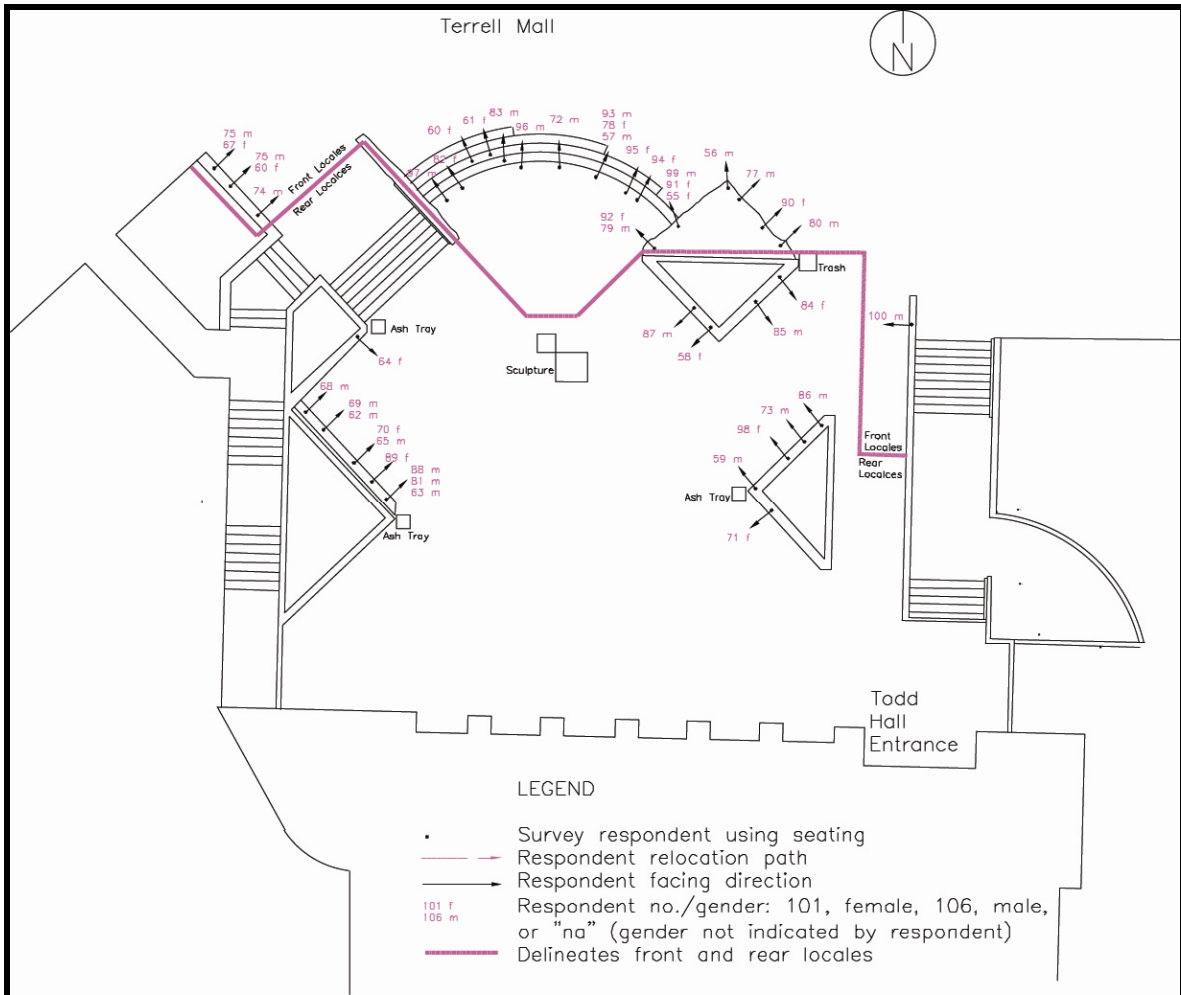
APPENDIX D
RESPONDENT AND CHAIR MAPPING



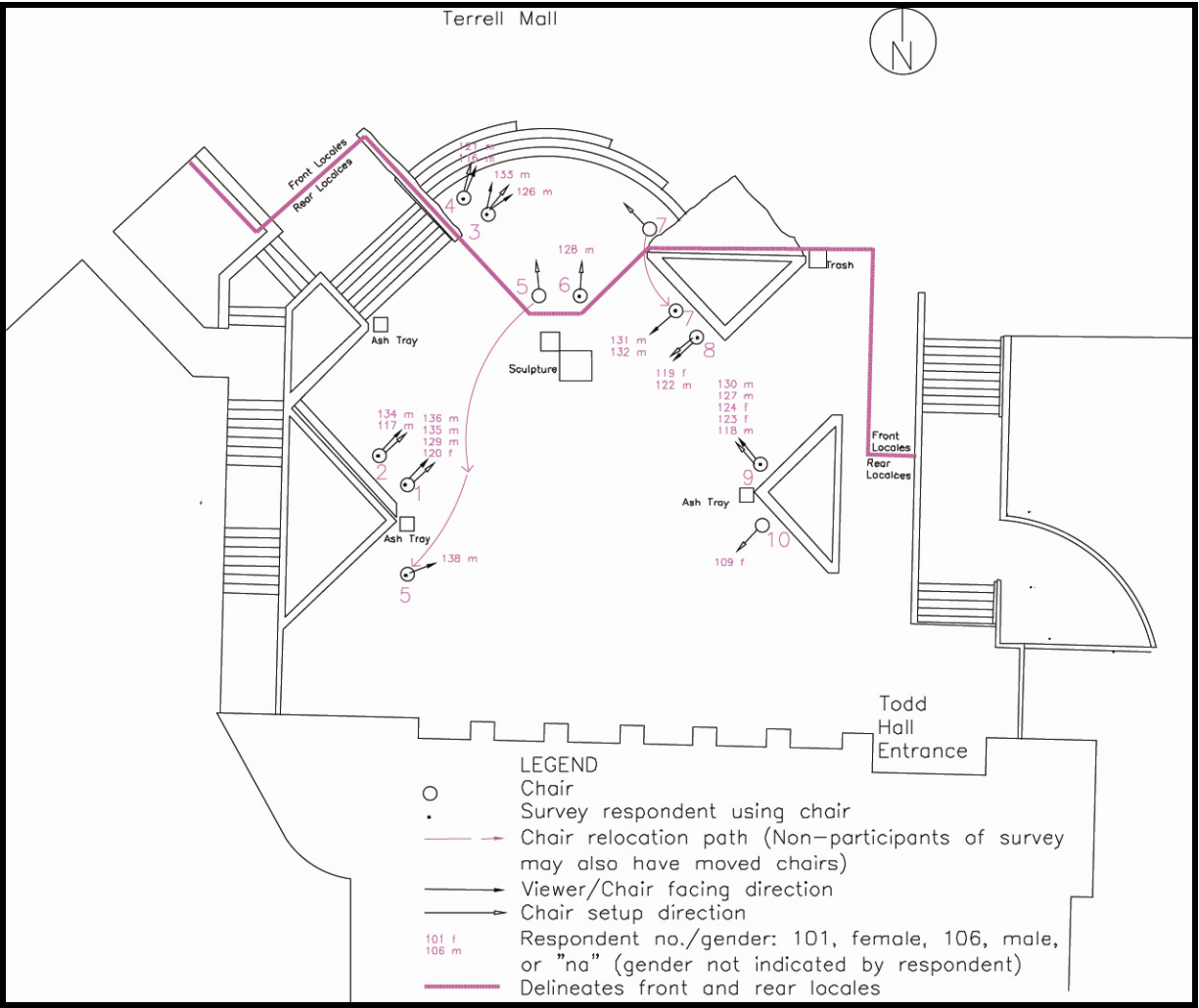
Scenario 1
 Todd Hall front porch respondent location summary for 10/14/05.
 Respondent locations mapped between 12:00 p.m. and 4:00 p.m.



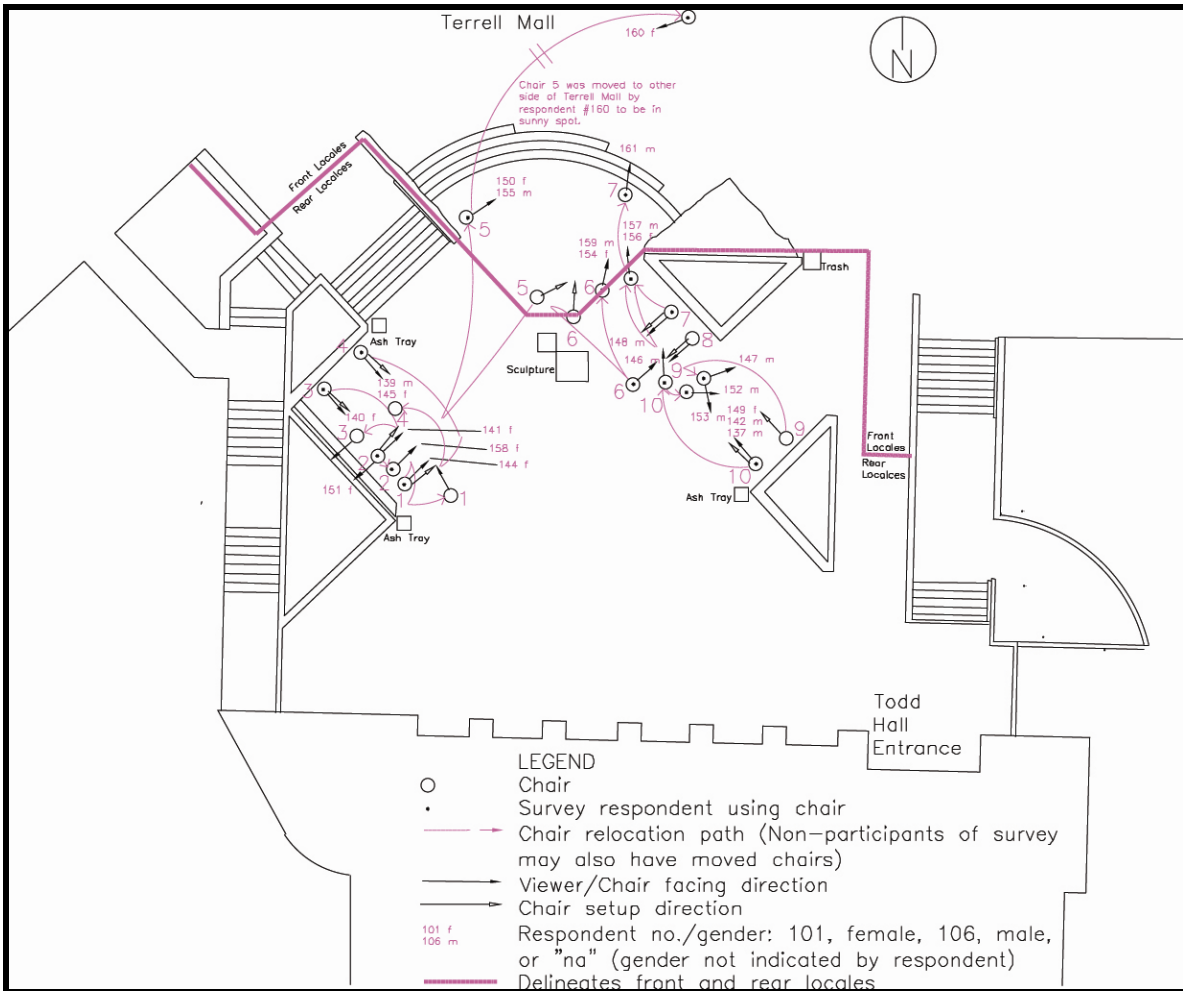
Scenario 1
 Todd Hall front porch respondent location summary for 10/17/05.
 Respondent locations mapped between 12:30 p.m. and 4:00 p.m.



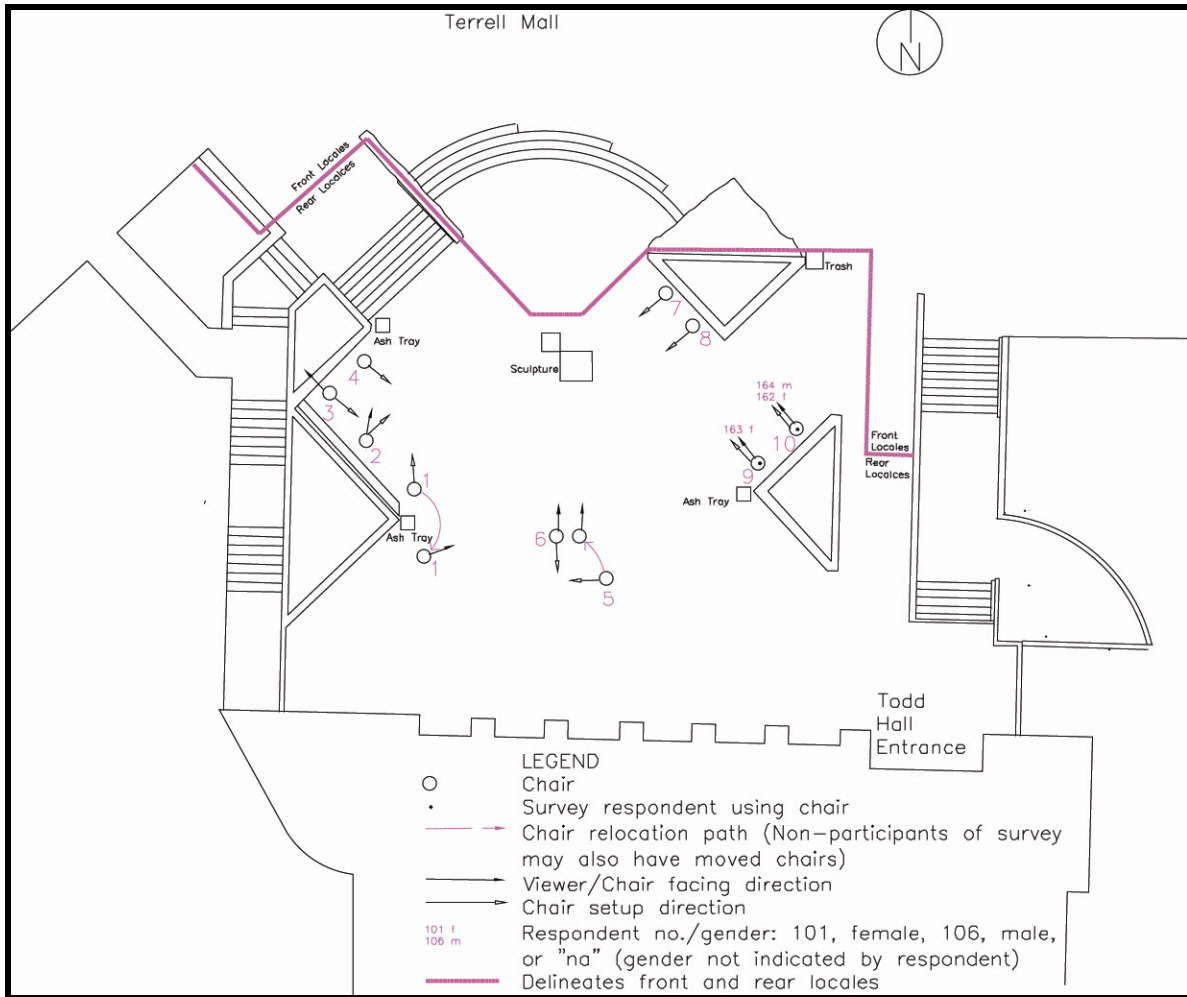
Scenario 1
 Todd Hall front porch respondent location summary for 10/18/05.
 Respondent locations mapped between 11:15 a.m. and 2:45 p.m.



Scenario 2
 Todd Hall front porch respondent location summary for 10/24/05.
 Respondent/Chair locations mapped between 11:30 a.m. and 4:30 p.m.



Scenario 2
 Todd Hall front porch respondent location summary for 10/25/05.
 Respondent/Chair locations mapped between 10:15 a.m. and 5:15 p.m.



Scenario 2
 Todd Hall front porch respondent location summary for 10/27/05.
 Respondent/Chair locations mapped between 10:30 a.m. and 2:30 p.m.

APPENDIX E
FINAL COMMENTS FROM QUESTIONNAIRE

Questionnaire Final comments
Scenario 1 – Without Movable Seating

Questionnaire Number	Gender	Final comments
1	F	N/C
2	NA	Very nice place
3	F	N/C
4	F	N/C
5	F	Sculpture or art in front of Todd is not attractive and lessens the beauty of the gathering space
6	F	N/C
7	F	Could use more open green space, grassy areas under trees to sit and relax, read
8	M	I like the rock seats I can sit/relax on, It's very relaxing to chill here on a nice day
9	F	I think the mall lacks a central focus, Something like a fountain would be a nice addition
10	F	Pretty nice when weather is warm
11	F	N/C
12	F	N/C
13	F	It seems like its either lots of seating or none which is inconvenient
14	M	N/C
15	M	N/C
16	M	N/C
17	M	Seating is very varied and there are many different places to sit, The mall is very unique place to hang out
18	M	N/C
19	F	N/C
20	M	N/C
21	F	N/C
22	F	I like how there are no benches right in front of the library and Todd
23	F	On busy days there is a slight need for additional seating
24	F	N/C
25	M	N/C
26	F	N/C
27	F	The mall lacks warmth and a good traffic flow
28	M	N/C
29	F	N/C
30	M	N/C
31	M	Divide into smoking and non-smoking areas
32	M	Compared to other Pac-10 schools – the mall is horrible
33	F	More benches
34	F	N/C
35	M	N/C
36	F	N/C
37	M	No comments to add because I think it has plenty of places to use for performance and plenty of space for rest
38	F	N/C
39	F	N/C
40	M	N/C
41	M	N/C
42	M	Seating is nice, but if a smoker sits in your vicinity, it detracts from the overall good experience
43	M	N/C
44	M	N/C
45	M	N/C
46	M	Poorly maintained, although not through the fault of the U., Students seem to mistreat – smoking, garbage, gum
47	F	N/C
48	F	N/C
49	NA	N/C

- Continued -

Questionnaire Number	Gender	Final comments
50	M	I guess its alright, may need some more benches
51	F	There are a lot of benches but could be more (different) seating
52	M	N/C
53	F	Needs more plants
54	F	I like the rocks
55	F	Comfy seating in the shade would be nice
56	M	The physical rocks are a plus
57	M	N/C
58	F	N/C
59	M	Lots of good places to sit, good for talking to people, but not very many things to look at
60	F	N/C
61	F	N/C
62	M	I hate the artwork, shallow and pedantic
63	M	N/C
64	F	N/C
65	M	Mostly cold concrete
66	F	I like the rock, it dries faster than wood or plastic seating
67	F	N/C
68	M	Backrests = comfort
69	M	Need more seating
70	F	N/C
71	F	Beauty represents old professors (building names), poor landscape
72	M	N/C
73	M	N/C
74	M	N/C
75	M	Need more benches
76	M	N/C
77	M	It would be neat if they could incorporate more comfortable seating into the rocks
78	F	There could be more covered areas for people to sit/wait on the mall
79	M	N/C
80	M	N/C
81	M	N/C
82	F	More places to sit would be nice, often sitting on dirty steps – yuck!
83	F	N/C
84	F	There is a lot of natural looking feeling
85	M	N/C
86	M	More seating would be nice, more comfortable seating as well
87	M	N/C
88	M	N/C
89	F	I enjoy our place at the top of the hill and center of campus
90	F	N/C
91	F	N/C
92	F	N/C
93	M	Many students just sit on stairs, could be to lack of benches on lower Mall area
94	F	Where I'm sitting now is in the middle of a heavy walking traffic area, If anything, there are not enough suitable places to sit because of overcrowding in this area
95	F	It would be nice to have picnic tables
96	M	N/C
97	M	N/C
98	F	N/C
99	M	N/C
100	M	N/C

Questionnaire Final comments
 Scenario 2 – With Movable Seating

Questionnaire Number	Gender	Final comments
101	F	It is unique, pretty well kept place to be
102	M	N/C
103	M	Very nice location to just sit and study, Its nice and quiet today, Good location in middle of campus
104	M	N/C
105	M	N/C
106	M	I like the new addition of the lawn chairs
107	M	Love the trees/more trees
109	F	The seating arrangement is a bit awkward
110	F	N/C
111	F	N/C
112	F	I think some additional chairs or benches would be valuable, I think in order to make Terrell Mall a better place we will need to increase people's use of it even during times when they are not in school, This should become a place for people to be social, a meeting place
113	M	OK for students, I don't see alumni/guest lecturers sitting on the rocks as much as we do
114	M	T-shirt display is pretty somber compared to the rest of the Mall, but is only temporary
115	F	Should put more chairs and/or tables around (to obstruct large groups on the stairs that stare at you when you walk by)
116	M	More places to sit other than on steps would be nice and the CUB building could use improvements aesthetically
117	M	N/C
118	M	Todd Auditorium's seating is great, it's sturdy, and enduring, but it's really comfortable, something I'm not used to with outdoor public seating
119	F	I feel like this is a very unique layout for a university campus, it forces students to unite
120	F	N/C
121	M	N/C
122	M	I like the book with water, For Todd Hall I don't like Red Horse Capture – find another centerpiece
123	F	N/C
124	F	N/C
126	M	N/C
127	M	Could use more chairs in varied locations
128	M	Get some couches
129	M	Make some more benches
130	M	N/C
131	M	N/C
132	M	I like how they've added comfortable chairs in front of Todd Hall
133	M	N/C
134	M	N/C
135	M	N/C
136	M	N/C
137	M	These green chairs are nice but awkwardly placed, More seating would be great
138	M	The backs to the concrete benches are too close to the seating edge outside Todd
139	M	Whoever decided to put the chairs out on the Mall are awesome
140	F	N/C
141	F	N/C
142	M	In general I like Terrell Mall, it has a good central location
144	F	I like the new seats in front of Todd
145	F	This is the first time I noticed the chairs and really enjoy it!
146	M	N/C
147	M	More chairs like the ones in front of Todd Hall
148	M	N/C

- Continued -

Questionnaire Number	Gender	Final comments
149	F	Not too many distinct features, could use more comfortable seating, The new chairs are great
150	F	Depending on where I sit, I sometimes have to breath cigarette smoke drifting down my way – really negative aspect of layout
151	F	I like it, It's great place to meet people or relax between classes
152	M	N/C
153	M	N/C
154	F	N/C
155	M	Terrell Mall is not seating friendly, Hard surfaces poorly spaced, little directional choices
156	F	Good
157	M	I live the trees after a fresh snow
158	F	People stare too often when they are sitting, makes it somewhat uncomfortable, Leaves need to be picked up a little
159	M	I really love the chairs that I am sitting on now (green moveable), I think if at all possible they should be permanent
160	F	Picnic benches
161	M	Most of the space is already used, much more seating would clutter the area
162	F	N/C
163	F	N/C
164	M	I like the chairs