SEMIOTICS AND NEW URBANISM IN NORTH TEXAS:

COMPARING DESIGNER INTENTION AND

USER PERCEPTION

by

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ABSTRACT

Semiotics and New Urbanism in North Texas:

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User Perception

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Design is a means of communication and the conduit for transmitting a message between designers and users of their built work (Fiske, 1990). The design work resembles the cultivated construction and carrier of a message as a language. The designer encodes the message or information into design elements through his/her built work, and the user decodes it. Therefore, designers convey their intentions by incorporating them into the patterns of shape, structure, material, and landscape of the site (Krieger and Saunders, 2009).

A design element has no intrinsic meaning. According to Manning (2004), a design element "is something that makes sense in the mind of some person, [and it] may be seen usefully as the connection between an expression and a content" (p.567). Accordingly, design work can have a penumbra of meanings, depending on who is interpreting them. No observers have exactly the same background and point of view. In order to understand how people construct a meaning from the interpretation of the built environment, this research examines the relationship between the designer's intentions and the user's perceptions. The theoretical

background of this study is semiotics, an examination of how designers and users interpret design elements as non-verbal communication.

Semiotics is a transparent and appropriate tool that offers a suitable framework for the study of meaning transference in places (Krampen et al., 1987; Rose, 2007; Gottdiener, 1995). Meaning is not something apart from function, but is itself a most important aspect of function. Additionally, semiotics offers a very full box of perspectives for taking a built environment apart and tracing how it works in relation to broader systems of meaning and how people explain design elements of new urbanism projects. This study explores the relationship between designer's intentions and users perceptions in new urbanism project. The purpose of this research is to demonstrate and explore how transference of meaning into the built landscape represent and organized those intentions through the perspective of Addison Circle and Austin Ranch in North Texas.

This research uses the qualitative research method, supported primarily by face-to-face interviews with in-depth, open-ended questions. Data from the interview were transcribed and analyzed according to Taylor and Bogdan's grounded theory approach (1998). The results indicate that meaning is an active process. When people start generating meaning through the use of elements from the places, a signification system is an autonomous occurrence (Danesi, 2007, p.180). This process can have three levels of meaning, including denotative meaning, connotative meaning, and deeper connotative meaning. Denotative meaning refers to the common-sense or the obvious meaning. Connotative meaning is the extended meaning of the design elements. Deeper connotative meaning is a catalyst for appropriation by designers and users. Consequently, the incorporation of meaning in the design work can revive the users' senses and stir their subconscious to create an environment that will facilitate personal association for an individual and a community.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This research focuses on the transference of meaning of design elements in the built environment as defined by their designers and users. The purpose is to explore the transference of meaning from designers through their built work to users and how users perceive those design intentions. This study investigates the deeper meaning of the design work hidden beneath the superficial meaning of the environment. As Manning (2004) states, a design element "is something that makes sense in the mind of some person, [and it] may be seen usefully as the connection between an expression and a content" (p.567). Specifically, a close look is taken at what the elements in the space reveal about the resultant meanings that create a perspective of the district. The data were collected from face-to-face interviews with in-depth, open-ended questions. Interviews were conducted with the designers and the users of Addison Circle and Austin Ranch, two new urbanism projects in the Dallas-Fort Worth metropolitan area.

1.2 Problem Statements and Significance of the Study

Turner (1995) pointed out that, landscape designers have a potential duty to the built environment to assign meaning to places.

> [T]here will be no 'going back to nature'; the nature we would go back to never existed, in the sense of the unspoiled, uninterfered with, harmoniously balanced wilderness. The wild is ourselves. Indeed, the whole universe will become our garden; and if that is a claustrophobic thought, consider the deep wildness of the English countryside, with its layers of history, its ghosts, the visionary and mystical qualities that Blake, Wordsworth, Hardy and Bronte celebrated in it, and reflect that all England is a garden, a human-made landscape. It is up to us to make our gardens wilder than any 'virgin' forest (Turner, 1995, p.236)

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The idea of the design intentions is to establish an identity within a place and to prevent a muddling of characteristics. This is an opportunity for designers to instill design intentions in their built work. When designers explicate those meanings, it becomes possible to create a sense of place.

Eckbo (1950) wrote a major influential book, names *Landscape for Living*. The author sought to develop an approach that would address the social and economic challenges of the modern world. He believed "a landscape was the site of the interaction of people and place, and landscape architecture exterior spatial design the purposeful formation of that interaction" (Treib, 1982-2004, p.2). After that, in 1960s, when meaning, symbolism, and communication gradually became hot topics, designers were searching around for a theoretical base. Then in the 1980s, several essays were published that discussed the meaning in landscape, referred to as built environment in the research. According to Treib (2011), the investigation of significance in landscape architecture was *The Meaning of Garden: Idea, Place, and Action*, by Mark Francis and Randolph T. Hester, Jr., published in 1990. This book focused on what the garden means and how the garden is perceived, designed, used, and valued. Another contributor to the study of meaning was Laurie Olin, author of the essay *Form, Meaning, and expression in Landscape Architecture*. He focused on three aspects of the endeavor for a considerable amount of social value and artistic strength of landscape design including "1) the richness of the medium in sensual and phenomenological terms; 2) the thematic content concerning the relationship of society and individuals to nature; and 3) the fact that nature" (Landscape Journal, 1988, p.149).

Simultaneously, Anne Whiston Spirn wrote *Nature, Form and Meaning* in an issue of Landscape Journal (1988). In the article, she asked:

> Where do landscape forms come from, both those of natural and cultural landscapes? How can those forms be employed in the design of landscape? What sorts of meaning do these forms embody and how do these meanings come to stand for the view and values of a group or a society as a whole? (Spirn, 1988)

These questions provide a good opportunity for introspection by designers who try to validate their design efforts by reference to significance.

Design knowledge affects perceptions about the built landscape, and it separates environment decision-makers from users of those environments. This study concerned with perceptions about design elements. The word "element" is used here to refer specifically to the sign of semiotic viewpoints. The role of sign can be used to express meaning; can have a denotative and/or conative meaning; can combine with other signs. Furthermore, the sign creates a memorable urban landscape and offers designers opportunities to provide an environment that will facilitate personal association for an individual and a community.

1.3 Research Purposes and Objectives

The purpose of this research is to demonstrate how transference of meaning into the built landscape represents and organizes information through the perspective of Addison Circle and Austin Ranch, Texas. By studying their frameworks, this research discloses their intricate meaning. The goal is not only to understand the meaning of design elements but also to uncover the discrepancies between the designers' intentions and the users' perceptions of these built environments. This study also is intended to provoke further thinking about significance in general, and landscape design significance in particular.

The objective of this study is to seek specific methodologies for transference of meaning by applying existing theories to new urbanism projects. These methodologies are intended to promote the furtherance of semiotic theory, as it relates to these projects, which can be the basis for ongoing research. This demonstrates that transference of meaning is an important design approach for landscape architecture in Texas and in the United States.

There are three objectives incorporated into this study. The primary objective of the study is to explore the transference of meaning from designers through their built work to users. A secondary objective of this research is to determine the roles of both the designers and users

in the transference of meaning in the selected projects. Finally, this research illustrates examples of built works that have successfully used such influence.

1.4 Research Site

The Dallas-Fort Worth metropolitan area in Texas has been selected for the study because it was developed largely during the modern era of architecture and design and has enjoyed many years of economic prosperity. Consequently, the region has many examples of new urbanism projects designed by highly regarded practitioners in the fields of landscape architecture, architecture, and urban planning.

To provide a focus for this research, the selection criteria for the two works examined for transference of meaning are located in the northern suburbs of Dallas, Texas, and open to the public. The next criterion is mixed-use development with ground-floor retail uses, as well as human-scale and context-sensitive design. Further, the new urbanism projects selected for this study were built between in 1990 to 2012 and designed by different teams. The last criterion is the selected project should be a new development in a very culturally dissipated area.

The final determined projects are Addison Circle and Austin Ranch for examining the designer's intentions and user's perceptions. These two projects have been selected for study because they provide an illustrative example of the newer cities in the United States that have used and continue to use contemporary techniques to accommodate their population's changing needs.

1.5 Research Questions

Based upon the established purposes of the study, the following research questions use a qualitative research approach advocated by Taylor and Bogdan (1998). This approach includes in-depth interviews with the designers and the district users as the techniques for data collection. Primary questions addressed from the foundation for this research are as follows:

1. Can the intended meanings be transferred from designers to users?

2. What design intentions did the selected designers intend to convey?

3. How do these designers instill these meanings in their work?

    3.1 What are the characteristics of the selected projects?

    3.2 What design elements reflect the designer's intentions?

    3.3 Does the metaphor or metonymy present transfer meaning into the selected projects?

    3.4 How does the metaphor or metonymy express the designer intentions?

4. What perceptions of the designer intentions do users hold in the selected projects?

5. What are the commonalities and discrepancies between the designers' intentions and the users' perceptions?

1.6 Definition of Terms

The following definitions give background information on words or subjects that need clarification in the context of semiotics and meaning.

Architect: A person who is trained in the planning, design, and supervision of the construction of buildings (King, 1987). The American Institute of Architects (AIA) emphasizes the architect is the profession of designing buildings, open areas, communities, and other artificial constructions and environments, usually with some regard to aesthetic effect (AIA, 2011). Therefore, an architect has a design or technical focus and is responsible for significant project activities.

Built Environment: A space where human life takes place. It is not a mathematical, isomorphic space but a living space designed by a group of people who modify the natural environment to survive, to create order, and to produce a just and lasting society (Jackson, 1985; Norberg-Schulz, 1988). It is the sum of the parts that can be seen, the layers and intersections of time and culture that comprise a place, and a natural and cultural palimpsest (Steiner, 2000).

Codes: A set of conventionalized ways of making meaning that is specific to particular groups of people (Gottdiener, 1995; Rose, 2007). It can be "a system in which signs are

organized and that determines how they relate to one another and can thus be used for representation and communication" (Danesi, 2007, p.172).

Connotation: The extended or secondary meaning of the sign which derives from the signifier of a denotative sign (so denotation leads to a chain of connotations) (Chandler, 2002), i.e., the word "rose" signifies passion.

Denotation: The most basic, literal, or intentional meaning of a sign (Smith-Shank, 2004), i.e., the word "rose" signifies a shrub with a prickly-stem, pinnate-leaf, and showy-flower.

Feedback: The transmission of the receiver's (the user) reaction back to the sender (the design team) (Fiske, 1990). According to Danesi (2007), feedback is "Information, signals, or cues issuing from the receiver of a message as detected by the sender, allowing him/her to adjust the message, in order to make it clearer, more meaningful, more effective" (p.200).

Icon / Iconic: A sign in the object aspect "in which the signifier has a direct (non arbitrary), simulative connection to its signified or referent" (Danesi, 2007, p.175), i.e., the visual signs denoting men's and women's lavatories.

Index / Indexical: A sign in the object aspect "in which the signifier has an existential connection to its signified or referent" (Danesi, 2007, p175), i.e., a yellow police tape is an index of the crime area.

Interpretant: An effect in the mind of the user. According to Peirce an interpretant is a mental concept produced both by the sign and by the user's experience of the object (Fiske, 1990).

Landscape Architect: The American Society of Landscape Architecture (ASLA) offers the definition: "Landscape architecture is the profession which applies artistic and scientific principles to the research, planning, design stewardship and management of both natural and built environment" (as cited by Cal Poly, 2008, p.1).

Meaning: Non-verbal communication from the built environment to people. Meaning is a concept that is understandable in a personal and cultural way (Backhaus and Murungi, 2009).

According to Krampen et al. (1987), "meaning is a property which an element has by virtue of its function in a system, or that it acquire[s] with it" (p.233). The human mind works by trying to impose meaning on the world through the use of cognitive taxonomies, categories, and schemata, and that built forms are physical expressions of these schemata (Rapoport, 1982; 1990, p.15).

Metaphor: A transfer-of-meaning process from one thing or phenomenon to another by which two referential domains (A, B) are connected (A=B) (Fontanille, 2006; Spirn, 1998). Metaphor is the figurative representation of an experience narrating the meaning of the situation (Quaid, 1997, p.18), i.e., the wavy lines of gravel stand for water in the Zen garden.

Metonymy: a transfer-of-meaning process by which an entity is used to refer to another that is related to it (Rose, 2007; Spirn, 1998). Metonymy is a thing or concept not called by its own name but by the name of something intimately associated with that thing or concept (Gottdiener, 1995), i.e., Hollywood is used as a metonymy for U.S. cinema.

Paradigm / Paradigmatic: A structural relation between signs that keeps them distinct and therefore recognizable. In other words, paradigmatic is where signs get meaning from their association with other signs (Sebeok et al., 2000). i.e., the set of color include red, yellow, green, blue, purple, white, black, and so on.

Perception: A general state of awareness concerning need, values, properties, and so on within one particular field of experience (King, 1987).

Semiotics: The science that studies signs and their meaning-making practices and representation (Sless, 1986; Danesi, 2007). Semiotics is the study of signs and symbols as elements of communicative behaviors people (Backhaus and Murungi, 2009). In other words, semiotics is a vocabulary to bring together insights and observations from the built environment (Sebeok, 1991; Culler, 1981).

Sign: The basic unit of semiotics and a fundamental unit of meaning (Rose, 2007). A sign is used for communication and is composed of a signifier and signified (Gottdiener, 1995).

Also, it has no intrinsic meaning and becomes a sign only when sign-users invest them with meaning (Chandler, 2002).

Signification: A relationship between the signifier and signified within the sign, as well as the sign with its referent in external reality (Chandler, 2002). Signification is "a process of generating meaning through the use of sign" (Danesi, 2007, p.180), and it has two levels of signification, including denotation and connotation (Gottdiener et al., 1986; Chandler, 2002).

Signified: The mental concept of a sign or an object of the sign (Fiske, 1990, p.44). In other words, the signified is displaced, and the tacit element of the sign (i.e. a referent or mental concept) appears in the mind.

Signifier: The image of a sign as people perceive it (Fiske, 1990; Danesi, 2007). A signifier is the explicit aspect of a sign and physical existence that is an image or a word that is attached to the signified (Rose, 2007).

Symbol / Symbolic: "A sign that represents a referent through cultural convention" (Danesi, 2007, p.181), and it connects with it object in a convention, agreement, or rule way (Sebeok, 1994), i.e., Roman numerals such as I, II, or III are symbols.

Synecdoche: A sign is either a part of something standing in for a whole, or a whole representing a part (Ross, 2007), i.e., the roof to as a metaphor for the whole house.

Syntage / Syntagmatic: A structural relation that guides the combination of signs or parts of signs in a coherent and consistent way (Sebeok et al., 2000). In other words, syntagmatic is where signs get meaning from their sequential order (Fontanille, 2006; Ross, 2007), i.e., an architect designing a house makes a syntagma of the style of doors, windows, columns and so on.

Urban design: An activity that focuses on the physical form of the city with an emphasis on both function and aesthetic quality (Trancik, 1986). As the American Institute of Certified Planners (APA) states, "urban design works to improve the welfare of people and their communities by creating more convenient, equitable, healthful, efficient, and attractive places

for present and future generations" (APA, 2012) Urban design is one of the components of culture and design, thereby establishing the structural form and character of the city (King, 1987; Lozano, 1993).

Urban planner: According to the definition by the American Institute of Certified Planners (APA), urban planners "are dedicated to advancing the art, science and profession of good planning — physical, economic and social — to create communities that offer better choices for where and how people work and live." Urban planners help government officials, business leaders, and citizens create a vision for the community that offers better choices for where and how people work and live (APA, 2012).

1.7 Research Methods

This research uses the qualitative research method, supported primarily by face-to-face interviews with in-depth, open-ended questions. Qualitative research is the primary method used in this study to better understand the designer intentions and the user perceptions, as well as how various components of the site interact to create meaning.

Through the use of the qualitative research method, this study presents a comprehensive view of both denotative and connotative meaning found in Addison Circle and Austin Ranch. This insight is based upon the perceptions, experiences, and intuition of selected people who possess theoretical and/or applied knowledge about the development of new urbanism projects (architects, landscape architects, developers, planners, and program administrators), and a select group of users.

The face-to-face interviews are conducted with two groups: the designer group and the user group. The designer group is composed of the landscape architects, architects, and urban planners, who were responsible for design decisions in the determined projects. The user group is selected randomly from an open public space in the study area.

The interview with in-depth, open-ended questions designed to understand the perception from the respondents of the interviewee. This method provides respondents the

opportunity to discuss topics they consider relevant to the study, and to provide insights into the points they think are significant.

1.8 Delimitations

The scope of the study is delimited in several ways. To begin with, the first interview group subjects are limited to landscape architects, architects, and urban planners who were responsible for design decisions in the selected projects. This was done to minimize the possible differences in attitudes and opinions on the objects from other designers. The second interview group subjects are restricted to those living in each of the selected projects for at least six months.

The second delimitation of this research is that the selected projects may not necessarily be the best examples in North Texas. However, this study focuses on built environments with which the researcher had ready access and either already knew of or was suggested by an interview subject. The two selected sites are different in that they offer a variety of context, site character, and building style, and they have different design teams that are compared.

The research was conducted at the two study areas during the weekday and weekend lunch and dinner hours from 11:00 am to 1:00 pm and 5:00 pm to 7:00 pm and/or all day for the weekend. This time-frame was selected because the study areas are active with a large number of residents from 5-7 pm, Monday through Friday. Interviewing the selected projects at that time allowed the researcher to get a large pool of responses.

1.9 Chapter Summary

The primary objective of this thesis is to examine the transference of meaning from the design teams to the users in two selected new urbanism projects in North Texas. Through the use of qualitative research methods, this study presents a comprehensive view of both denotation and connotation of the built landscape found in Addison Circle and Austin Ranch.

The framework for this study is organized into five principal sections: 1) Introduction, 2) Literature review, 3) Research methodology, 4) Analysis finding; and 5) Conclusion. Chapter one is an introduction which frames the problem and includes a basic review of the study. The second chapter is a literature review of the core concepts surrounding the theoretical foundation for the study of design intentions within the built environment. Chapter three discusses and outlines the research methods used in this study. The fourth chapter presents, analysis and findings, reports of the responses from the interviews and the categorization of them for analysis. The final chapter, the conclusion, discusses research objective inquiries, the implications based on the study findings, and suggestions for future research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of research and deals with several topics including design intentions, semiotic viewpoints incorporated with design work, and human perceptions. The first section covers the design intentions in making connections between people and places. It briefly describes the levels of the intended meanings in the built work from designers. The next section of this chapter looks at the ways to measure the meaning from the built environment. This section explains the origins of semiotic theories and is designed to provide a strong theoretical foundation for the study within the built environment and the subsequent measurement of meaning. Additionally, it is also intended to offer basic information of particular value to urban landscape and refers to the built environment component of this thesis. Moreover, this chapter also discusses the relationship between design intentions and semiotic viewpoints. The next section provides a brief introduction as well as defining the urban design and New Urbanism. The final section is a brief explanation of human perceptions toward the built environment. Altogether, in this study, intentions, meanings, and perceptions are proposed as the major elements influencing the built work of modern social spaces.

2.2 Design Intentions

The term "design intention" is a concept or special purpose used to describe or present a relation between what is in a designer's mind and the object of the design work. Accordingly, design intentions allow the designer to create both a functional and meaningful work. For example, the design intention of Teardrop Park is to provide an experience of natural environments according to American Society of Landscape Architects (ASLA) (2009). The park is widely recognized as an important part of early childhood development offering an area of adventure for them, and yet, many urban playgrounds have removed plants in favor of equipment. Therefore, the park not only provides an open area for people to socialize, but also provides a playground for childhood.

Accordingly, some designers endeavor to create a vision and character for an area after they gather information from clients regarding the history, culture, climate, economy, and geography of the region. An outstanding example is Central Park in Manhattan, New York City. Olmsted recognized that this area of New York was at the time unhealthy, crowded, and a filthy place to live. Therefore, He asserted that urban parks can replenish people's souls in the face of the constant stress of city life. He and Vaux became the chief architect and landscape architect for Central Park. Their major intention was to provoke sensations of relaxation. Accordingly, they preserved and enhanced the natural features of the terrain, such as open meadows, splashing waterfalls, wooded areas, walkways, bridges, arches, bridle paths, and so on. The park's terrain and vegetation are highly varied and range from flat grassy swards, gentle slopes, and shady glens to steep, rocky ravines. The park offers interesting vistas and walks at nearly every point.

Accordingly, the designers should always consider the regional context as they develop their projects. Furthermore, designers can provide physical design concepts to facilitate environmentally responsible developments (Duany and Talen, 2002; Calthorpe, 1993) and improve social life, enhancing a sense of community (Kelbaugh, 1997; 2002; Kunstler, 1993).

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Designers have the unique opportunity to build connections between people and places, movement and urban form, and nature and the built environment (Fainstein et al., 2002).

2.2.1 Non-verbal Communication

As was previously mentioned, designers can reveal their intentions through their built work; however, it is important how the design intentions are perceived by the residents. The built environment resembles a scene of life, cultivated construction, and a carrier of a message as a language (Rapoport, 1990). Designers convey their intentions by incorporating them into the patterns of shape, structure, material, formation, function, and landscape of the site (Krieger and Saunders, 2009).

The transmission of these intentions is the conduit for non-verbal communication (NVC) in the built environment. As Shannon and Weaver explained, NVC requires a message, a sender, an intended recipient, and a channel (Leeds-Hurwitz, 1993). This reason is because communication is the transfer and conveyance of information as thoughts and messages (Fiske, 1990). The receiver need not be present or aware of the sender's intent to communicate at the time of inception. Therefore, NVC can occur across vast distances in time and space through the sending and receiving of wordless, primarily visual messages between people.

As illustrated in figure 2.1 below, this sequence illustrates the transmission of design intentions as a process of communication. Designers gather information from the site regarding an area's history, culture, climate, economy, geography, and so on. Additionally, the designer decides which information to send or selects messages out of a set of intentions. The selected information is transformed by designers into a sign, referred to as the "design element" in this research, which is sent, through the process of communication, to the receiver. During this transmission, the intention is possibly distorted as it is received and decoded by noise sources, such as culture, gender, language, and so on. The reason is because people come from different backgrounds, and those backgrounds can influence their interpretations.
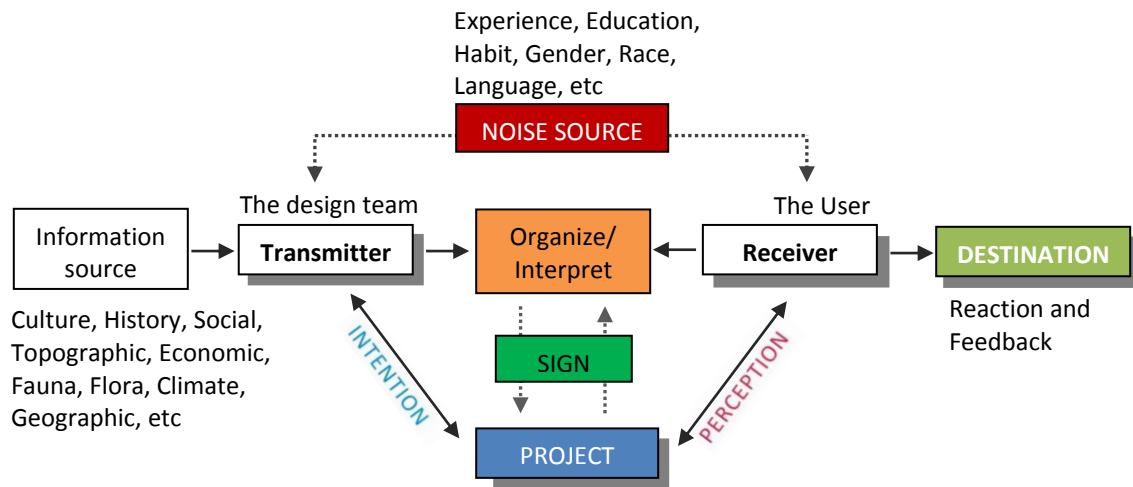
Figure 2.1 The transmission of design intentions

In this study, the designers can be considered as the transmitters (encoders). The signs are the design elements which pass through the channel of the study area. The users in the selected projects are the receivers (decoders). Further, intentions can be communicated through colors, materials, statues, streetscapes, landscapes, architectures, artifacts, and so on.

2.2.2 The Meaning in Places

The designer draws his/her information sources together, creating a vision for an area and then deploying the resources and skills needed to bring the vision to his/her built work. Design elements are a way to display this vision.

Design elements can be physical elements and/or abstract elements, such as buildings, streets, open spaces, landscapes, architectures, and so on. Those elements have the basic properties and the individual meaning of words that can be further combined with and connected to each other. Moreover, connection can be a physical and/or abstract link because it "provides the threads of continuity that make up the larger picture of an integrated urban context, and a more complete story" (Graham, 1994, p.5). Reading between the lines of urban

composition and considering the arrangement of streets, structures, spaces, and the people in these areas can often reveal the identity of a region and a sense of its history or its story.

When space is given a contextual meaning derived from cultural or regional content by people, it becomes a place (Trancik, 1986). A place is a physical space that is full of social, personal, and cultural meaning, and has physical objects. As illustrated in figure 2.2, the identity of a place has three components according to Carmona et al. (2003), as follows:

1. The physical setting of the place;

2. The activities, situations, and events that occur at a place; and

3. The individual and communal meaning created through experiences, which is this research focus on the interpretation of meaning.

Physical Setting
(Form & space)

Place

Function
(Activities)
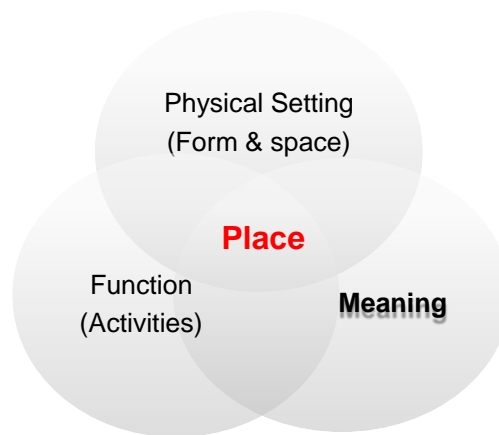
Meaning

Date Source: Carmona et al. 2003

Figure 2.2 Components of place

Places signify and symbolize the community and "the large society or culture in which [they] exist" (Carr et al., 1992, p.23). In other words, places can have a meaning, and each place has its own story to tell (Wasserman, 1998, p.42). Norberg-Schulz (1979) noted a "room" is a place with its own "particular character that is 'spiritual aura'", and a building is a "society of rooms" (p.87). The author also pointed out the street is "a room of agreement", and the city "an assembly of places vested with the care to uphold the sense of a way of life (p.87). The theme

of "meaning" in the design professions field has been articulated by similar terms as "meaning of place", "sense of place", "genius loci", or "spirit of place". These phases are a concept denoting that a place has an independent being or "spirit" that gives life and character to users, where place is a concept signifying that people give meaning and unique identity to space by relating to the built environment (Norberg-Schulz, 1979).

In addition, Krampen et al. (1987) emphasized, "every arbitrary part of environment gains a meaning as soon as it transfers the role of a meaning-carrier to the life-stage of a subject" (p.233). Accordingly, a place can convey a powerful story through its own language and is passed down from one generation to the next. The term "palimpsest" has been used metaphorically to describe how meaning can be a layering process that takes place over time and that often a layer is not completely removed or erased before another layer of meaning is added (Greenberg, 1995; Quaid, 1997; Steiner, 2000). Eliel Saarinen advised, "always design a thing by considering its next larger contest - a chair in a room, a room in a house, a house in an environment, and environment in a city plan" (Simpson, 1964, p.449). This means the built environment can "be interpreted as a series of messages through which the designers are trying to communicate to the users" (Quaid, 1997, p.30). Accordingly, Rapoport (1990, p.221) defined three levels of meaning to communicate in the built environment, as follows:

1. High-Level Meaning (Deeper Connotative Meaning) as images of cities or communities:

High-level meaning may be related to cosmologies, cultural schemata, world views, philosophical systems, the sacred concept, and values (Coolen and Ozaki, 2004). This level of meaning usually emphasizes and builds on middle-level meaning and/or lower-meaning (Smith, 2007). Besides This level of meaning is a catalyst for appropriation by designers and users. For example, Central Park is an impetus to develop an urban parks plan. Another example is High Line. The designers provided a valuable open space for New York City; the High Line has become an economic generator for the neighborhood, attracting investment in new cultural

institutions, commercial, and residential development. As previously noted, high-level meanings may not be perceived the right away.

2. Middle-Level Meaning (Connotative Meaning) as planning:

Middle-level meaning conveys "deliberate messages about identity and status" (Smith 2007, p.30) by the designers of the built environment. This level of meaning is called "latent functions" (Coolen and Ozaki, 2004, p.3) rather than "the instrumental aspects of activities and behavior" (Quaid, 1997, p.50). This level of meaning usually has many design intentions, and the designers incorporate their intentions with functionality in the design work. For example, parking lots resemble a plaza.

3. Lower-Level Meaning (Denotative Meaning) as the living functions and:

Lower-level meaning is everyday and instrumental meanings. This level of meaning is also called "manifest functions" (Coolen, 2005, p.6) and describes "the way in which the built environment channels and interacts recursively with behavior and movement" (Smith, 2007, p.30). In other words, this level of meaning refers to people's need, such as residence transportation, recreation, entertainment, and so on. Besides, lower-level meaning must be included and arranged in any built environment.

These levels may be independent or be a sequence. However, in most individual cities, communities, and buildings, there are conveyed meanings on two or three of the levels. For example, the new urbanism project provides the base living functional environment, but also can create an identity for the community. That is to say that new urbanism projects incorporate at least two levels of meanings.

2.3 The Introduction of Semiotics

The first question that arises is how meaning can be encoded in the built environment in such a way that it can be decoded by the intended users. The designer encodes the message or information into his/her built work, and the user decodes it. An example is the High Line, New York City (ASLA, 2010). The intentions of designers are to save the High Line and transform it

into an extraordinary public park. Meanwhile, they promote timely principles of ecological

sustainability, urban regeneration and adaptive reuse. Therefore, preservation and innovation

come together to establish an urban corridor for habitat, wildlife and people. In order to

introduce their intentions, the designers provide the strategies, as follows:

> [F]irst the invention of a new paving system, built from linear concrete planks with open
> joints, specially tapered edges and seams that permit the free flow of water (collected for
> irrigation) and the intermingling of organic plant-life with harder materials. Less a pathway
> and more a combed or furrowed landscape surface, this intermixing of plants with paving
> creates a rambling, textural effect of immersion, strolling "within" and "amongst" rather
> than feeling distanced from. The selection and arrangement of grasses and plants further
> helps to define a wild, dynamic character, distinct from a typical manicured landscape, and
> representative of the extreme conditions and shallow rooting depth. The second strategy is
> to slow things down, to promote a sense of duration and of being in another place, where
> time seems less pressing. Long stairways, meandering pathways, and hidden niches
> encourage taking one's time. The third approach involves a careful sense of dimension
> and scale, minimizing the current tendency to make things bigger and obvious, seeking
> instead a more subtle gauge of the High Line's measure. This blend of old with new, of
> organic with inorganic, of close-up with distant, and of landscape with urbanism provide an
> episodic and varied sequence of public spaces and landscapes set along a simple and
> consistent line—a line that cuts across some of the most remarkable elevated vistas of
> Manhattan and the Hudson River (ASLA, 2010).

If the design intentions can be encoded by designers and decoded by users, another

question that emerges is how these meanings are construed and what these meanings

communicate. It is not simply descriptive, or "relies on quantitative estimations of significant"

(Rose, 2007, p.74). Instead, semiotics is a transparent and appropriate tool that offers a suitable

framework for the study of meaning transference in places (Krampen et al.,1987; Rose, 2007;

Gottdiener, 1995). Additionally, semiotics also offers a wide variety of viewpoints for taking a

built environment apart and tracing how it works in relation to broader systems of meaning. The

following section shows the relationship between the semiotic theories and the built works.

2.3.1 Signs as Design Elements

The next two sections, design elements are discussed as analogous to signs. Semiotics

is the study of signs (design elements) and their meaning-making practices and representations.

A sign is the most fundamental unit of semiotics (Fiske, 1990; Leed-Hureitz, 1993). In reality,

signs may create meaning in complex ways and are part of people's everyday experience. Therefore, it is important to be clear about what the researcher means by a "sign" (design elements), as Ball (2010, p.6) stated:

1. A sign is anything which can be used to express meaning. It is a resource that has been "drawn into the domain of communication" (Van Leeuwen, 2005, p.4).

2. A sign can have a denotative and/or connotative meaning. Some signs denote their meaning directly; some signs have a connotative meaning, which signifies something indirectly or by imagery or association. Some signs do both.

3. Some signs are metaphor and/or metonymy.

4. A sign can combine with other signs.

A sign has no intrinsic meaning. However, when a sign makes sense in people's minds, it becomes infused with meaning as a connection between an expression and content (Chandler, 2002; Manning, 2004). The meaning of signs is not stagnant because people change the environmental contexts and their understanding over time. The essence of signs should be common, fast, and easy to communicate and understand in order to simply transform something complex into symbol. This is because people create this system by sharing their common knowledge and language (Smith-Shank, 2004).

The semiotic theories regard the settlement spaces of cities, districts, and/or communities as a system of signs composed of landscape and spatial elements (Imazato, 2007). Fiske (1990) noted there are three main areas of semiotic study (p.40):

1. The sign itself:

   Signs convey meaning, if they relate to the people who use them. Gottdiener and Lagopoulos (1986) stated, "Signs also relate to the recognition of the social and built environment of an individual" (p.2). Accordingly, signs are "human constructs and can only be understand in terms of the uses people put them do" (Fiske, 1990, p.40).

2. The codes or system into which signs are organized:

The system of signification can be understood and elaborated upon through the operation of signs. Fiske (1990) emphasized in order to meet the needs of society or culture, the variety of codes or systems have developed.

3. The culture within which these codes and signs operate:

This in turn is "dependent upon the use of these codes and signs for its own existence and form" (Fiske, 1990, p.40). This way is through across to a deep meaning of discourse possessing, as the connotation of the sign, and the ability to comment on the signs of the primary level, as the denotation of the sign, as the middle-level meaning or high-level meaning (Gottdiener et al., 1986).

Meaning is the undefined material with which semiotics concerns itself in the built environment (Fontanille, 2006). Thus, semiotic viewpoints can deconstruct and unlock interactional meaning, as well as describe the precise ways in which a sign (design element) makes sense, and identify the signs and their function. In this research, signs are the design elements and semiotics can potentially aid in the understanding of interpretations of the built environment over time.

This study is not designed to force semiotic theory on anyone, so the following section provides the potential contributions of semiotic theories to the built environment. Different points-of-views allow different ways of looking at the signs (design elements) and can present a more holistic evaluation of semiotic study.

As illustrated in figure 2.3, the research organizes the semiotic theories from Ferdinand de Saussure, Charles Sanders Peirce, Roland Barthes, Louis Hjelmslev, Umberto Eco, Charles Kay Ogden, Ivor Armstrong Richards, Algirdas Julien Greimas, and Roman Jakobson. Each theory shares a broadly similar root in semiotics, especially in the work of Ferdinand de Saussure and Charles Sanders Peirce (Gottdiener et al., 1986; Chandler, 2007, Leeds-Hurwitz, 1993; Sebeok, 1994; Deely, 1990).

REORGANIZATION OF SEMIOTIC THEORIES

Ferdinand de Saussure

- Sign = Signifier + Signified
- Signification
- The Organization of Signs:
  paradigmatic and syntaglmatic analysis
- Signification

Charles Sanders Peirce

- Representation of Signs
- Triadic Relation: sign, object, and interpretant
- Categories of Signs: icon, index, and symbol

Roland Barthes

- Denotation and Connotation
- Signification
- Systems and Codes
- Metaphor and Metonymy

Louis Hjelmslev

- Sign= context + expression
- Substance and Form
- Two Level of Meaning
- Signification

Umberto Eco

- Deep Structure of Sign
- Recognition
- Ostension

Ogden and Richards

- Triadic Relation: sign, referent,
  and reference/thought

Algirdas Julien Greimas

- Developing to shift the focus of discipline from
  signs to system of signification

Roman Jakobson

- Metaphor and Metonymy
- Synecdoche
- Ostension
- Communication with semiotic

Figure 2.3 Reorganization of semiotic theories

As figure 2.3 showed, Ferdinand de Saussure and Charles Sanders Peirce began independent investigations into the relation between knowledge and signs. After that, Roland Barthes, Louis Hjelmslev, Umberto Eco, Charles Kay Ogden, Ivor Armstrong Richards, Algirdas Julien Greimas, and Roman Jakobson further developed their theory individually. Form and content comprise a sign. When people start "generating meaning through the use of sign" from the places (Danesi, 2007, p.180), a signification system is an autonomous occurrence. This process can have two levels of meaning, including denotative and connotative meaning. Therefore, the following sections (2.3.2 to 2.3.3) address the viewpoints of semiotic theories and trace its development.

2.3.2 Two Root Theories of Semiotics

The two most influential models of meaning from the roots of semiotics come from Ferdinand de Saussure and Charles Sanders Peirce (Gottdiener et al., 1986; Chandler, 2007, Leeds-Hurwitz, 1993; Sebeok, 1994; Deely, 1990). Saussure was a linguist, and Peirce was a philosopher and logician. On one hand, Saussure asserted that the concept of a sign comprises its physical form and an associated mental concept (Manning, 2004). On the other hand, Peirce observed the sign and its users as three points of a triangle (Rose, 2007). In Peirce's triangle theory, "each [point] is closely related to the other two, and can be understood only in terms of the other" (Fiske, 1990, p.41). The following sections address the Saussurian signs that are a dyadic relation, and the Peircean signs that are a triadic relation.

2.3.2.1 The Saussurian Signs

According to Ferdinand de Saussure, a sign is composed of two sides, "which are only distinguishable at the analytical level; in practice they are always integrated into each other" (Rose, 2007, p.79). That is to say, the sign is a combination of the signifier and the signified. The signifier is defined as a sound or an image as people perceive it (Deely, 1982). A signifier is the explicit aspect of a sign and could be the marks, an image, or a word that is attached to the

signified (Leeds-Hurwitz, 1993). Moreover, the signified is defined as a mental concept or an object to which a signifier refers (Smith-Shank, 2004).

For instance, as illustrated in figure 2.4, one can think of the way in which different languages use different words for the same signified: "envelope" in English is "信封" in Chinese, "envelop" in Dutch, "envelope" in French, "umschlag" in German, or "sobre" in Spanish.
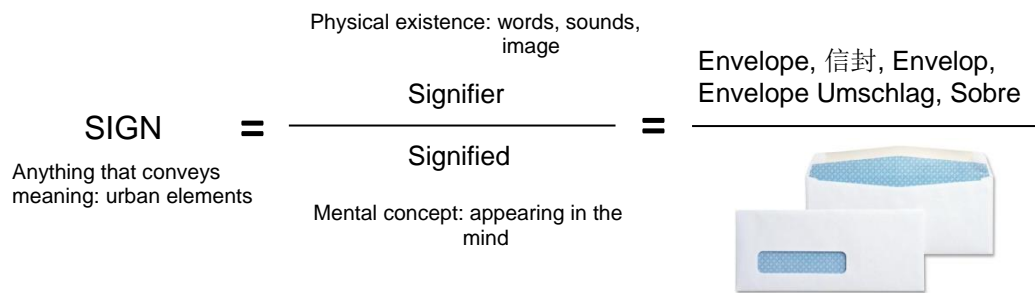
Figure 2.4 The theory of Saussure's sign

Currently, there are critics that argue with Saussure because they deem a sign has no absolute dyadic relation (Culler, 1977). The first argument is that sound and objects are one and the same. For instance, the sound "wolf" stimulates a thought or image in the mind, and this process produces a sign. As Manning (2004) stated, a sign can be produced because it is based on the people's thoughts. Another argument is that a sign may unite sound and concept. For example, "beverage" (signifier) can refer to any number of liquid refreshments.

The same signifier can also have various (signified) meanings. For example, "envelope" is a flat container for a latter. It is used to enclose a letter and is usually rectangular in shape with a flap that can be folded over and sealed. In English "envelop" does not only refer to a flat paper container for a letter, but is rather a verb that means to serve as a wrapping or covering. In other words, the same word (signifier) can have different meanings (signified) depending on the people interpreting. Accordingly, Ross (2007) pointed out, "whatever stability attaches to a

particular relationship between a signifier and signified does not depend on an inherent connection between them" (pp.79-80).

Consequently, Louis Hjelmslev, a Danish linguist, further considered the relationship between signifier and signified and developed the semiotic theory of Ferdinand de Saussure. He proposed a theory intended to form the basis of a more rational linguistics and as a contribution to general epistemology (Gottdiener et al., 1986). As Mark Gottdiener and Alexandros PH. Lagopoulos (1986) wrote:

> For Hjelmslev, the semiotic sign is a "bifacial unit" consisting of signifier and signified which accounts for the way in which sources of signification grounded in more general cultural circumstances are united with material artifacts….Thus, both Hjelmslev's "expression and "content," which correspond respectively to the signifier and signified in Saussure's terminology, can be broken down further into two levels corresponding to their "form" or to their "substance" (pp.16-17).

According their research, Hjelmslev renamed the signifier and signified as expression and content respectively. He divided a sign into four combinations, including form of content, form of expression, substance of content, and substance of expression.

As illustrated in figure 2.5, both signifier and signified are connected relationally and functionally to their respective cultural and material context (Nöth, 1990). According to Hjelmslev's model, in the built environment a sign can be decomposed into four separate levels conforming to form and substance of both the content and expression (Trabant, 1987). Hence, the content form and the expression form are the sign's function. Also, a sign can be divided into two substances: the content substance and the expression substance. The content substance is the psychological or conceptual manifestation of the sign. The expression substance is the material substance wherein a sign is manifested (Nöth, 1990).

$$\text{SIGN} = \frac{\text{Signifier}}{\text{Signified}} = \frac{\text{Expression}}{\text{Content}} = \frac{\dfrac{\text{Expression Substance}}{\text{Expression Form}}}{\dfrac{\text{Content Substance}}{\text{Content Form}}}$$

SIGN — Anything that conveys meaning

Signifier — Physical existence

Signified — Metal concept

Figure 2.5 The theory of Hjelmslev's sign

An observation, for example, would be collected based on the expression substance and the expression form. When the researcher (reader) describes the material place, the expression substance would be obtained through them; on the other side, the spatial elements are the expression form. If the researcher (reader) implicates the culture into a place, content form and content substance occur in the place. In this case, the content form establishes and realizes signification into the place, so it investigates the general cultural traits of the society within which the settlement space is embedded. The content substance is the codified ideology structuring of space; therefore, according to codified ideology, the researcher can uncover the sign through different material elements, practice models and interpret physical place. In short, Hjelmslev's theory approach in the built environment is divided further to two distinctions between production and the conception of settlement places (Gottdiener et al., 1986).

2.3.2.2 The Peircean Signs

In contrast, Charles Sanders Peirce takes a different approach to look at a sign. Peirce was an American philosopher, logician, mathematician, and scientist. In Peirce's theory, a sign is a thought, and the sign relation is a triadic relation including sign, object, and interpretant, as Peirce (1955) observed:

A sign is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. The sign which it creates I call the interpretant of the first sign. The sign stands for something, its object (p.99).

```
                          SIGN


        INTERPRETANT                      OBJECT
```

Figure 2.6 The theory of Peirce's sign

As illustrated in figure 2.6, the double-ended arrows emphasize that each term can be understood only in relation to the other. Peirce explained a "sign" refers to something other than itself; an "object" is understood by somebody; and an "interpretant" has an effect in the mind of the user (Fontanille, 2006; Peirce, 1991). The interpretant is not the users of the sign, but it is a mental concept produced both by the sign and by the user's experience with the object. For example,

> The interpretant of the word (sign) SCHOOL in any one context will be the result of the user's experience of that word (s/he would not apply it to a technical college), and of his or her experience of institutions called 'schools', the object. Thus, it is not fixed, defined by a dictionary, but may very within limits according to the experience of the user (Fiske 1990, p.42).

Similar to Fiske's example of "school", Peirce asserted that signs differ from ideas because the meaning of a sign is not self-evident (Peirce, 1991). Thereupon, a sign receives its meaning by being interpreted by a subsequent thought or action. For instance, "DO NOT ENTER" sign, as illustrated in figure 2.7, is first perceived as a square shape bearing a red circle, white rectangle, and the letters "DO NOT ENTER".

Figure 2.7 DO NOT ENTER sign

It is in relation to a subsequent thought, what Peirce called an interpretant, that the sign attains meaning. Besides, the interptetant could be a body of knowledge, a formalized code book, or an abstract statement, but it is not a person or an interpreter (Manning, 2004, p.570). The meaning lies not in the perception, but in the interpretation of the perception as a signal to not enter. Peirce (1991) held that, as with the perception of the 'DO NOT ENTER' sign, "every thought is a sign without meaning until interpreted by a subsequent thought, an interpretant" (p.7). Therefore, the meaning of every thought is established by triadic relation, "an interpretation of the thought as a sign of determining [the] object" (Peirce, 1991, p.7). The model of triadic relation makes no distinction between encoders (designers) and decoders (users) because decoding is as active and creative as encoding. Therefore, "the interpretation is the mental concept of the user of the sign, whether the user be a speaker or auditor, writer or reader, painter or viewer" addresser or addressee (Fiske, 1990, p.42). In brief, Peirce's theory emphasizes the interactional-indicative sequence by which messages or groups of signs are decoded by users (reader).

Additionally, Ogden's and Richards' theory was derived in a similar way, the triangular model of meaning (Oehler, 1987). Their symbol corresponds closely to Peirce's sign, their referent to his object, and their reference/thought to his interpretant. Fiske (1990) noted that in the model of Ogden and Richards, referent and reference/thought are directly connected, and

symbol and reference/thought are the same. However, the symbol and referent have an indirect or imputed connection.
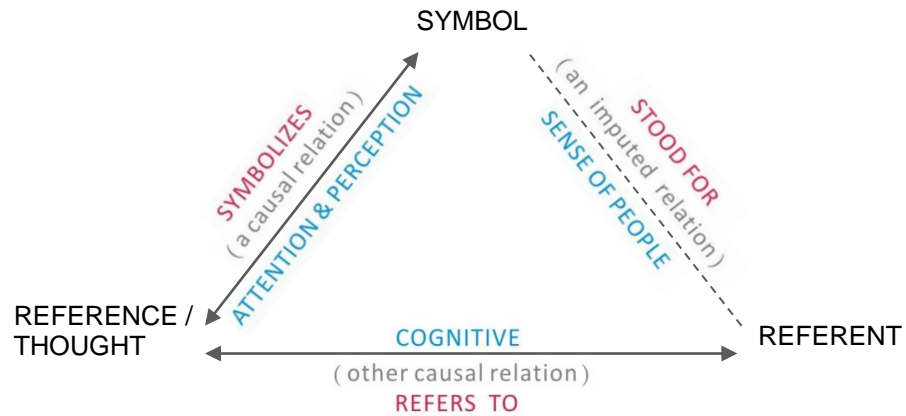
Figure 2.8 The model of Ogden' and Richards's sign

Ogden and Richards (1923) explained symbol as the word that calls up the referent through the mental processes of the reference. Referent is the objects that are perceived and that create the impression stored in the thought area; and reference/thought indicates the realm of memory where recollections of past experiences and contexts occur (pp.9-12). They were concerned with understanding the signs and how they come to have meaning.

In the long run, the theories of Saussure and Peirce are different in emphasis. On one hand, Peirce's theory understands the users' experience and signs' interpretation which is found in triadic relationship of signs, people, and object (Skidmore, 1981; Oehler, 1987). On the other hand, Saussure is more concerned with the way a sign related to other signs. In other words, Saussure's signifier corresponds closely to Peirce's sign, and Saussure's signified to Peirce's interpretant.

2.3.3 Signification

A signification is an autonomous occurrence when people construct meaning from the sign (Danesi, 2007). It is also the result organized by analysis (Fontanille, 2006). For Saussure, meaning was not considered as a process of negotiation between sender and receiver (Fiske,

1990). As Umberto Eco (1976) described Saussure's description of the relationship between signifier and signified within the sign, the sign with its referent in external reality, which he calls signification, as illustrated in figure 2.9.

Physical existence

SIGN = $\dfrac{\text{Signifier}}{\text{Signified}}$ SIGNIFICATION ········▶ External reality or meaning

Anything that conveys meaning

Metal concept

Composed of

Figure 2.9 The signification of Saussure

Even though the first order of signification appeared on one of Saussure' works, Roland Barthes further develops his semiotic theory, as well as that of Louis Hjelmslev. Bathes was a French literary theorist, philosopher, critic, and semiotician.

From the beginning, Barthes wanted to create a way for people to deepen their understanding of language, literature, and society. He began to study the subject of semiotics which is the study of signification, not as a process, but as an attitude. Barthes started to focus on non-verbal signs; and he thought of society as a construction perpetuated by signs as the dominant values within its culture.

Barthes emphasized that there are two levels of signification. The first level of signification is denotation. According to Danesi (2007) and Fiske (1990), this is the primary level, the intentional meaning of the sign, and refers to the common-sense, obvious meaning. The second level of signification is connotation, which is also the way signs work. Connotation is the extended or secondary meaning of the sign which derives from the signifier of a denotative sign (Chandler, 2002).

As illustrated in figure 2.10, Barthes pointed out that the sign of the first level becomes the signifier in second level. He also mentioned that the signifier and signified correspond respectively to the form and concept during the second level of signification (Sebeok, 1994). In other words, "denotation is what; connotation is how" (Fiske, 1990, p.86). Also, denotation always leads to a chain of connotations.

Signifier + Signified

SIGN
(Signifier)
FORM
+
Signified
CONCEPT

DENOTATION
(First order of signification)

Refer to culture or experience

SIGN

CONNOTATION
(Second order of signification)
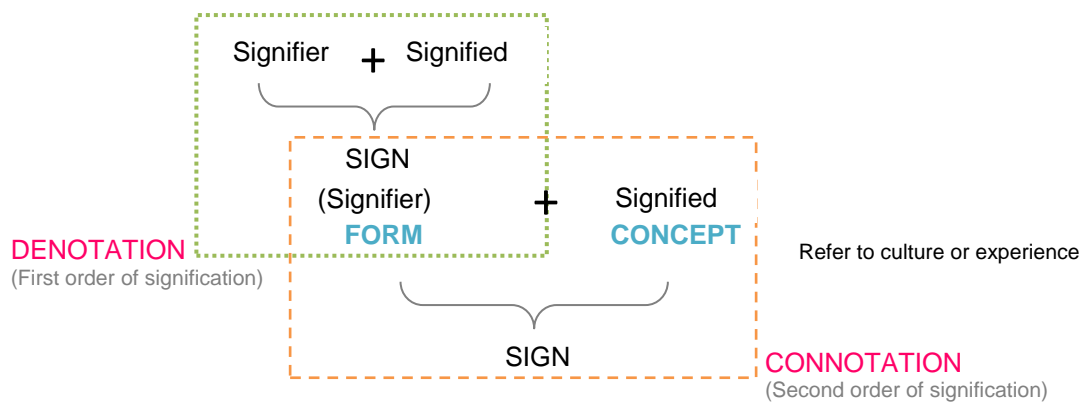
Figure 2.10 The two levels of signification of Barthes

The word "rose", for example, as illustrated in figure 2.11, elicits an image of a shrub with a prickly stem, pinnate leaf, and showy flower. This is its denotative meaning, which is intended to point out what distinguishes it from some other shrubs. The connotative meaning of a rose is passion or love. When a man gives a bouquet of roses to a woman during a date, the rose becomes an expression of love.
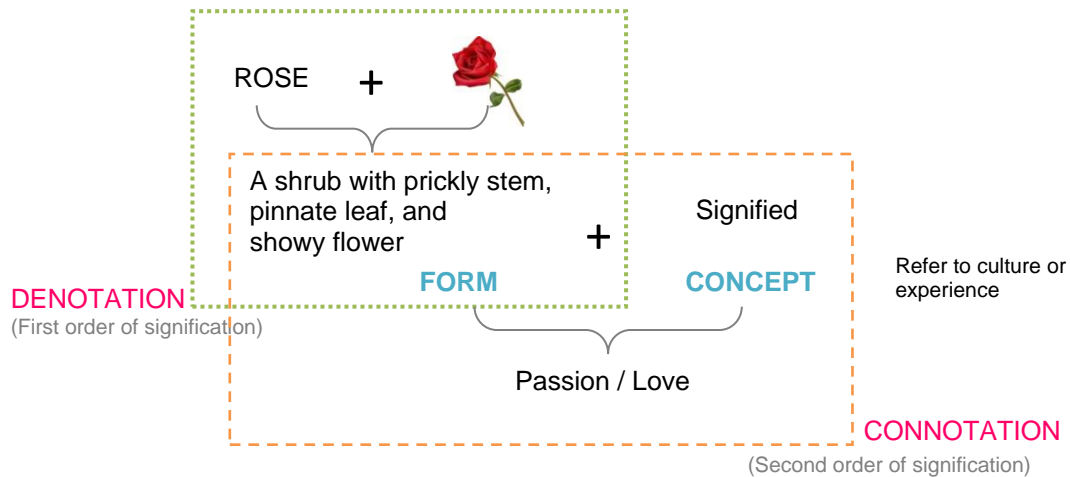
Figure 2.11 The example of two levels of signification of Barthes

As Fiske (1990) observed "connotation is largely arbitrary, specific to one culture, through it frequently has an iconic dimension" (p.87). It also encompasses all kinds of senses, including emotional ones. According to Danesi (2007), connotation is "the operative sense-making and sense-extracting mode in the production and decipherment of creative texts" such as novels, movies, poems and the built environment, and poems (p.15). Moreover, denotation corresponds closely to intension and connotation corresponds closely to extension (Sebeok, 1994).

2.4 Design Expression

Meaning is not an absolute, static concept found neatly parceled up in the message (Fiske, 1990, p.63). Accordingly, meaning is an active process, and is the result of the dynamic interaction between sign, interpretant, and object (Sebeok, 1994). This section discusses how the design intentions instill into the sign (design elements) and display in the built landscape.

The design elements can form a link between expression and content, and they have various representation. As Manning (2004) indicated that "any system of signs, [such as] Morse code, etiquette, street signs, language, or chemical formulae, ranges in the extent of its internal coherence and interpretive possibilities" (p.571). The system can be operated through different

relations among expressions and content. The following section addresses how the sign can be a representation and how the design intentions (message) can be instilled into the design elements of the built environment in contemporary society.

2.4.1 Categories of Signs

Throughout the origins of semiotics, several researchers, such as Peirce, Bruner, Bally, and Jakobson, attempted to identify and classify signs. For example, Peirce designated twenty-seven possible classificatory combinations. In this study, the researcher does not discuss all type of the signs. The researcher only delineates four basic types of signs which occur most frequently in the built environment (Sebeok, 1994; Danesi, 2007; Sebeok and Danesi, 2000).These include icon/iconic, index/indexical, symbol/symbolic, and name.

2.4.1.1 Icon/Iconic Signs

Danesi (2007) described that icons can be defined simply as objects that have been constructed to resemble their referents in some way, whether this object actually exists or not (p.41). In other words, an icon bears a resemblance to an object, and the icon may not act as a physical object. Indeed, an icon is often most apparent in visual signs. For example as illustrated in figure 2.12 (a), the common visual signs denoting men's and women's lavatories are icons. An aerial photograph of the Washington Monument is an icon, as illustrated in figure 2.12 (b). When people see the photograph, they can recognize the area by the icon. In other words, the icon can be a significant object that is representative of the area or of the place.
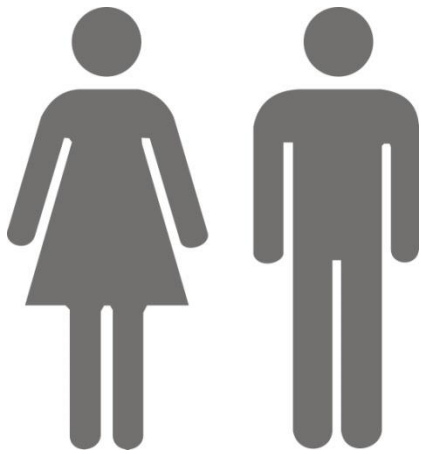
(a)   (b)

Figure 2.12 The example of an icon. Graphical representation of (a) visual signs denoting ladies'
and gentlemen's lavatories and (b) the Washington Monument is representative of the area.

Furthermore, according to Peirce, an icon attempts to reproduce in concrete form the
abstract structure of a relationship (Oehler, 1987). Thereupon, a space can be the icon, and it
may have more than one object. For example as illustrated in figure 2.13, a Zen garden is also
called a dry landscape garden or a rock garden. It is a type of garden concept and serves an aid
to meditation about the true meaning of life. The Zen garden is intended to imitate the intimate
essence of nature, not its actual appearance. Therefore, stones, sand or gravel, and plants
stand for mountains and water.

(a)   (b)

Figure 2.13 The example of the spatial icon. Graphical representation of (a) Zen garden at Ryoan-ji in Kyoto and (b) the Zen garden of meditation at Zuiho-in, a sub-temple of Daitoku-ji

Moreover, the icon may be verbal because onomatopoeia is one way to create a language iconic (Fiske, 1990). Onomatopoeia is a word that imitates or suggests the source of the sound that it describes. A common occurrence of onomatopoeia is animal sounds, such as meow, roar, or chirp. For example, the moo of cow makes the sound of the words that resemble the sound of the cow. Accordingly, an icon contains the visible object or the incorporeal object, such as stones, sands, fountains, buildings, space, and so on.

2.4.1.2 Index/Indexical Signs

An index is a sign with a direct existential connection with its object (Sebeok, 1994). It is also designed to place referents in an inherent relation to one another, to a sign-user, or to the context(s) in which they occur (Danesi, 2007, p.44). In other words, index stands in real, causal and direct relation to its object, points to it directly or indicates it. For example, one common index of fire is smoke; a badge is an index of the police; yellow police tape with "POLICE LINE DO NOT ENTER" is an index of the crime area.

(a)   (b)   (c)

Figure 2.14 The example of Islamic garden. Graphical representation of (a) Original layout with subsequent alteration at Acequia, Generalife garden, (b) the Court of the Lions, Alhambra, Granada, and (c) the Court of the Oranges, Great Mosque

Additionally, the space can be an index when a designed space has a physical and symbolical manifestation. As illustrated in figure 2.14, an Islamic garden represents paradise in the courtyard. The general theme of an Islamic garden is water and shade because they are used symbolically to represent the life-giving, sustaining, and purifying aspects. Therefore, a straight, geometrically elaborated watercourse and a raised platform for garden viewing are two indispensable elements of an Islamic garden (Rogers, 2001). Within the culture, the essence of an Islamic garden formula of those two elements for sedentary viewing was further developed as a quadripartite space in which the divisions were articulated by narrow water channels that could be thought of as symbolizing the four views of paradise (Rogers, 2001). Hence, when people perceive those characteristics by the central presence of water (usually a fountain), walls and screens, leafy greens and the number eight (a major design element of most Islamic gardens), they can realize that all of the features are an index of an Islamic garden.

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Thereupon, Danesi (2007) noted that indexes can be divided into four types, as follows:

1. Location indexes: These relate referents to users in spatial contexts, i.e. the Central Park is a location index of Manhattan in New York City.

2. Temporal indexes: These relate referents to one another in terms of time, i.e. The Flushing Meadows Corona Park is an temporal index of the 1964/1965 New York World's Fair.

3. Identification indexes: These relate the participants involved in a specific situation or context to one another, i.e. the Eiffel Tower is an identification index of Paris, France

4. Organizational indexes: These allow people to organize, classify or categorize things in relation to one another or to other things.

2.4.1.3 Symbol/Symbolic Signs

A symbol is a sign that is without either similarity or contiguity, but it connects with its object in a convention, agreement, or a rule (Skidmore, 1981). In other words, a symbolic sign neither delineates nor indicates its object, but is composed independently of the object. Besides, a symbolic sign would lose its character if it has no interpretation by users.

For example, numbers are symbols; letters of the alphabet are symbols; Roman numerals, such as I, II, or III, are symbols; the Red Cross is a symbol. A sign becomes a symbol when it acquires through convention and use a meaning that enables it to stand for something else.

Furthermore, a symbolic sign refers to the object that it denotes by virtue of a law or a rule, usually an association of general idea, which operates as a symbol to be interpreted as referring to that object (Rose, 2007). The code of ordinance for Arlington County, Virginia is an example. The commercial areas, one tree shall be planted at least every thirty-five feet along a public right-of-way. This is to say, a tree and twenty -five feet are not similar, but are connected by a rule (law).

6" CURB
(STANDARD)

13'

8"

6'4"   6'

12'

25' 45'
MIN. MAX.
TREE SPACING
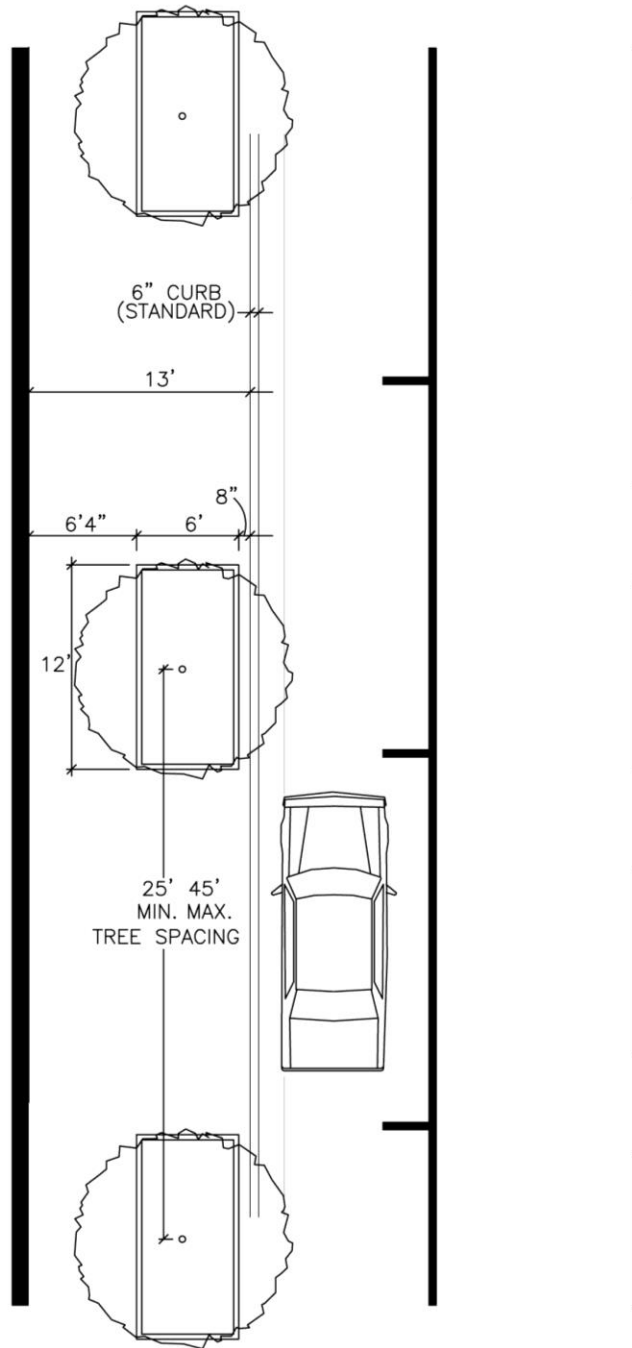
Photos Source: Arlington County, Virginia, 2012, reference detail no. II B.3

Figure 2.15 Thirteen foot combined sidewalk and planting area. Graphical representation of tree planting standards for site plan projects. One tree shall be planted at least every twenty-five feet along a public right-of-way

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2.4.1.4 Name

A name identifies an object or space (Sebeok et al., 2000, p.27). Additionally, name trends are remarkable and stable in most societies because they link people to culture, tradition, experience and memory. For instance, Bethesda Fountain in Central Park stands for a welcome place and a new purifying water system in New York City. Bethesda was the name of a basin in ancient Jerusalem that had five entryways. Its waters were considered to possess healing powers, and many who were ill, crippled, or in physical or mental distress came there to bathe. The representation of a source of cleansing, healing, and recovery was both personally and publicly an emotional and welcome message to be understood and appreciated. Additionally, parks were seen by Olmsted as performing a cleansing or purifying role within cities, an association of great lineage. Another example is Bosque that in Spanish means woodland. The designer used Bosque in Addison Circle to define the character of the space.

In short, Fiske (1990) explained, these four categories of a sign may not be separable and/or distinct because a sign may be composed of various types, such as the road sign as illustrated in figure 2.16. The red triangle is a symbol that means "warning". The T in the middle is a mixture of icon and symbol because T is an icon and its form is determined partly by the a shape of realistic object. Besides, T is also a symbol in that people need to know the rules in order to understand it as an intersection and not as the letter T. Thereupon, this sign also indicates that people are about to reach a T-road (an intersection).

Figure 2.16 An example of combination categories of sign

2.4.2 System and Codes

As previously mentioned that certain types of signs refer to wider systems of built environment, but signs are not isolated, but rather in groups. Semioticians name a group or a set of signs a 'code'. Code is synonymous with system, pattern, and network, into which signs are organized (Leeds-Hurwitz, 1993, p.51). This means the designer can select and combine in specific ways to construct messages and carry out actions in meaningful ways. Fiske (1990) also pointed out these codes "are governed by rules which consented to by all number of communities" (p.64). In other words, understanding the codes can emphasize the social dimension of communication. Roman Jakobson indicated the idea that the production and interpretation of texts, referred to as built environment in this research, depends on the existence of codes or conventions for communication (Krampen et al., 1987). In other words, codes can provide a framework where signs make sense and the meaning of a sign depends on the code within which it is situated.

Codes represent an interpretative framework used by both sender and receiver to encode and decode the messages (Rapoport, 1990). The concept of code implies rules for the organization of individual signs and a set of conventionalized ways of making meaning specific to particular groups of people (Rose, 2007). Expanding the definition of code to a set of signs and rules for designer use encourages investigation of how people actually use signs to create and exchange meaning (Leeds-Hurwitz, 1993).

According to Fiske (1990) wrote that codes have several basic characteristics, as follows (pp. 64-65):

1. Codes have a number of units arranged in paradigmatic form which one selection is chosen.

2. These chosen units may be combined by rules or conventions in syntagmatic form into a message or text.

3. Codes convey meaning from shared cultural experience or cultural background.

4. Codes are transmittable by their appropriate channels of communication.

5. Codes can be a way of classifying, organizing, and understanding material as well as of transmitting or communicating it (Leeds-Hurwitz, 1993, p.53).

6. Codes perform an identifiable social or communicative function.

Codes are used to convey information about the relationship rather than about the speaker because codes can provide more context and meaning to the built environment and reference the way people think of the world and how it works.

2.4.3 Expression of Signs

Metaphor and metonymy are two concepts of expression of signs which are widely used to describe aspects of semiotics. Metaphor and metonymy are powerful instruments in the eyes of Roland Barthes and Roman Jakobson, a Russian linguist and literary theorist. Jakobson believed that metaphor and metonymy concepts can "identify the fundamental ways that message perform their referential function" (as cited by Fiske, 1990, p.92). Moreover, Barthes emphasized that signs can be expressed by metaphor and metonymy in deep meaning in the built environment, and both concepts help people to make sense of our experiences within a culture (Lakoff and Johnson, 1980). The following sections describe how metaphor and metonymy express and serve in the built work.

2.4.3.1 Metaphor

A metaphor is a transfer of meaning process from one thing or phenomenon to another by which two referential domains (A, B) are connected (A=B) (Fontanille, 2006; Spirn, 1998). In other words, it is commonly described as a figure of speech in which a name or a descriptive term is transferred to some object to which it is not properly applicable. For example, "a ship ploughed the waves" is using "the action of a ploughshare to stand for that of ship's bow" (Fiske, 1990, p.92). Thereupon, people usually use metaphors to express the unfamiliar in terms of the familiar. As in the previous example, it assumes that the ploughshare's action is familiar, and the ship's bow is not. Moreover, a metaphor is the describing or presentation of one thing in

terms of another. Olin (1988) claimed that a metaphor does in some way make sense and gives us a new understanding of the world or some aspect of it. For instance, the wavy lines of gravel stand for water in the Zen garden.

A common way to present the metaphorical concept is to choose a word or an object to express an idea. The word 'Kleenex' is another example of a metaphor for a tissue. A Kleenex (A) is a tissue (B), but the reverse, a tissue is not a Kleenex. The theory does not account for the structuring of different aspects of a concept, nor with the fact that when we say A is B, B is always the more concrete and clearly defined (Lakoff and Johnson, 1980). Thereupon, metaphors have entailments that organize our experience, uniquely express that experience, and create necessary realities.

In the design field, the designer uses many metaphorical concepts to transfer his/her intended ideas into his/her built work so that the idea is further elaborated. There are two types of purpose for metaphors in the built environment (Conan, 2003). The first is aimed at leading users or visitors to "discover for themselves an interpretation of the motion through which they had explored the place in the form of a narrative that they never suspected when entering" (Conan, 2003, p306). The second, "assumed perfect knowledge of the narrative to be emulated during the procession and sought rather to prove its verisimilitude with the biblical narrative" (Conan, 2003, p306). Therefore, a metaphor is very helpful in expressing and transferring the concept through non-verbal communication by making it easier to understand a concept that is unfamiliar or unapproachable. For example, a designer uses a river as a metaphor for time of life. Another example in the architecture field is the Chapel of Nôtre Dame du Haut in Eastern France by Le Corbusier, as illustrated in figure 2.17. Corbusier used the praying hands and a preacher's hat as a metaphor for the function of a building. The Korean War Veterans Memorial in Washington DC by Frank Gaylord is another example in the landscape architecture field. Gaylord used juniper bushes to represent the soldiers were walking on the wooded area, as illustrated in figure 2.18.
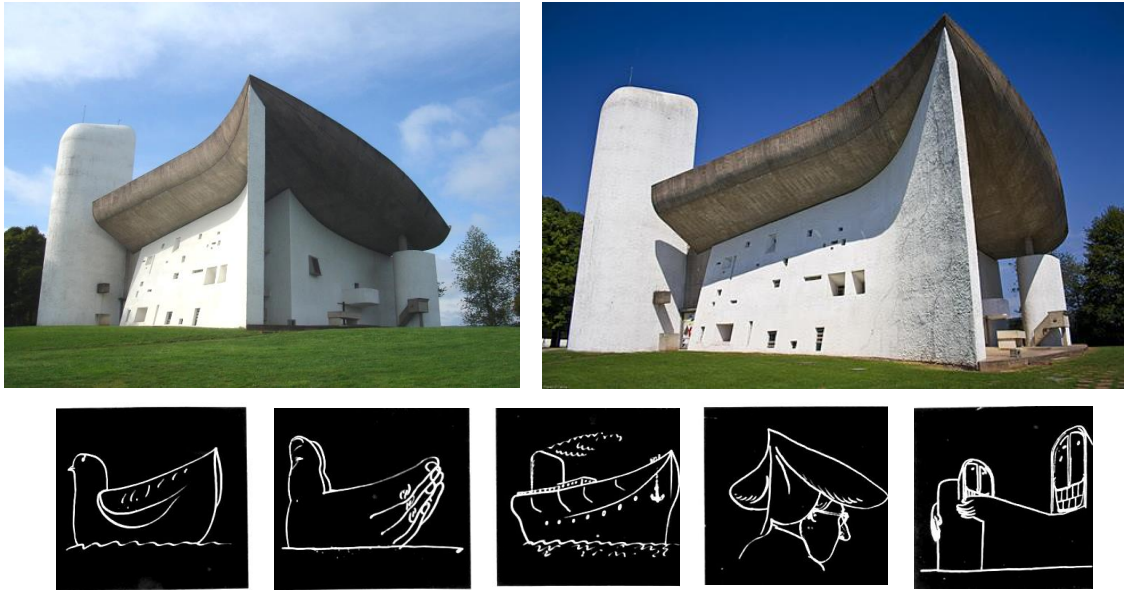
Figure 2.17 Chapel of Nôtre Dame du Haut in eastern French by Le Corbusier

Figure 2.18 Korean War Veterans Memorial in Washington DC by Frank Gaylord

Furthermore, a metaphor can be read on several levels from readability to abstraction in the built landscape. Examples include Founder's Green and Harlequin Plaza. Founder's Green and Harlequin Plaza represent the natural features; however, their expressions are different in materials.

Founder's Green could be an easily accessible perceived element of design intentions. The project is located at the redeveloped Stapleton Airport in Denver, Colorado is an example of using natural features as a community focal point. The design intention represents the natural and cultural history in the public park. The designer used a lot of material and form to stand for natural features. The granite dome symbolizes the Colorado Mountains; sandstone columns represent the mountain and valleys carved by the flow of water; the light runnels (the narrow channels) for water that extends north and south of grey stone stands for river. As Hopman (2010) stated, the designers strove to make the project expressive of the regional elements without making them overly obvious or literal.

Photos Source: David Hopman, 2010

Figure 2.19 Founder's Green, Denver, Colorado

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(a)   (b)

Figure 2.20 Founder's Green, Denver, Colorado. Graphical representation of (a) slot canyon
and (b) mountain water source

Harlequin Plaza is a highly abstract and (probably) imperceptible metaphor. As Spirn
(1998) wrote:

> Mirror-clad pyramids at Harlequin Plaza echo the form of Rocky Mountain parks, the
> checkerboard paving echoes the Midwestern grid…the designer George Hargreaves took
> elements of the office park's "anyplace" character and used them inventively, calling
> attention to the distant mountains and highlighting the unsettling character of the new
> development. The plaza is a metaphor that can be read on several levels (pp.226-227).

Figure 2.21 Harlequin Plaza in Colorado by George Hargreaves

In short, the use of a metaphor to generate form involves conceiving of or describing the landscape as another (normally) unrelated thing or action in a non-literal way. According to those examples, a familiar context could be easily accessible and help people to create an integrative theme. It also provides a shortcut to concepts and a way to hash out meanings for less understood concepts.

2.4.3.2 Metonymy

A metonymy is another a transfer of meaning process by which an entity is used to refer to another that is related (Spirn, 1998). A metonymy is a thing or concept that is not called by its own name, but by the name of something intimately associated with that thing or concept

(Gottdiener, 1995). In Lakoff's and Jakobson's terms the basic definition of metonymy is "making a part stands for the whole" (Fiske, 1990). According to Barthes and Jakobson, the representation of metonymy also involves the substitution of one term for another, and the substitution is based on some understood association. In other words, metonymy can be either real or fictional concepts representing other concepts real or fictional, but they must serve as an effective and widely understood "second name" for what they represent. People usually choose a word or a phrase that is used to stand in for a second word or phrase. For example, the word "Hollywood" is used as a metonymy for U.S. cinema because of the fame and cultural identity of Hollywood as the historical center of movie studios and movie stars.

A metonymy is between "ideas" and "library" (Fass, 1988, p.177). The ideas are expressed in signs, signs are printed on objects, objects are in the built environment, and the built environment is found in a "mental library". Moreover, a photograph can be a metonymy of a particular type of city life, as illustrated in figure 2.22. As Fisk (1990) emphasized, "a photographed street is not meant to stand for the street itself, but as a metonymy of a particular type of city life, inner city squalor, suburban respectability, or city centre sophistication" (p.95).

As illustrated below in figure 2.22 (a), the photograph is in the main Chinese district in any city outside China, and has crowded tenements and primarily Chinese residents. Photograph 2.22 (b) is stated is taken in the area situated in the main business section of a city and has a lot of employees. Photograph 2.22 (c) and 2.22 (d) show the different types of living environments.

Figure 2.22 The photographed street. Graphical representation of (a) Chinatown in Philadelphia (b) the street of Philadelphia (c) the street of Washington DC (d) the street of George Town

A metonymy is the powerful conveyors and works of the association between two concepts. When people use metonymy, they do not typically wish to transfer qualities from one referent to another. Spirn (1998) wrote "for many people the Berlin Wall came to represent as Iron Curtain was an actual metal drape drawn across the landscape of Europe, casting a long, dark shadow" (p.227). Disneyland's fairy castle is used as a metonymy for Fantasyland. The "Main Street" in the United States is a common street name, but it is used as a metonymy for a rhetorical representation of small businesses.

To sum up, metonymy is a means by which an entity stands for another, or an entity is viewed as another. It works by presenting a targeted set of meanings and uses them to suggest a similarity between items, actions, or events in two domains.

2.4.4 The Organization of Signs

To identify the composition of units is another mission of semiotic theory. Therefore, a group or set of units might also be useful to distinguish and organize between two further kinds of signs, paradigmatic and syntagmatic (Rose, 2007). Saussure indicated two ways in which units are organized into codes. This organization between paradigmatic units and syntagmatic units is called the "associative relations" (Chandler, 1995)

On one hand, a paradigm is a set of units from which the one to be used is chosen. This means the paradigmatic units gain their meaning from a contrast with all other possible units (Rose, 2007, p.84). On the other hand, a syntagm is the message into which the chosen units are combined. In Rose's (2007) definition, syntagmatic units gain their meaning from the units that surround them, or come before or after them in sequence in the built environment (p.84). As illustrated in figure 2.23, these two signs of dimensions are often presented as "axes", where the horizontal axis is the syntagmatic and the vertical axis is the paradigmatic.

PARADIGMATIC
replacement
choice

Glass door	+	Slider	+	Straight Square Columns
Recessed Panel door	+	Double Hung	+	Tuscan Columns
Raised Panel Door	+	Single Hung	+	Ionic Columns
Doors	+	Windows	+	Columns

SYNTAGMATIC
combination
order / sequential
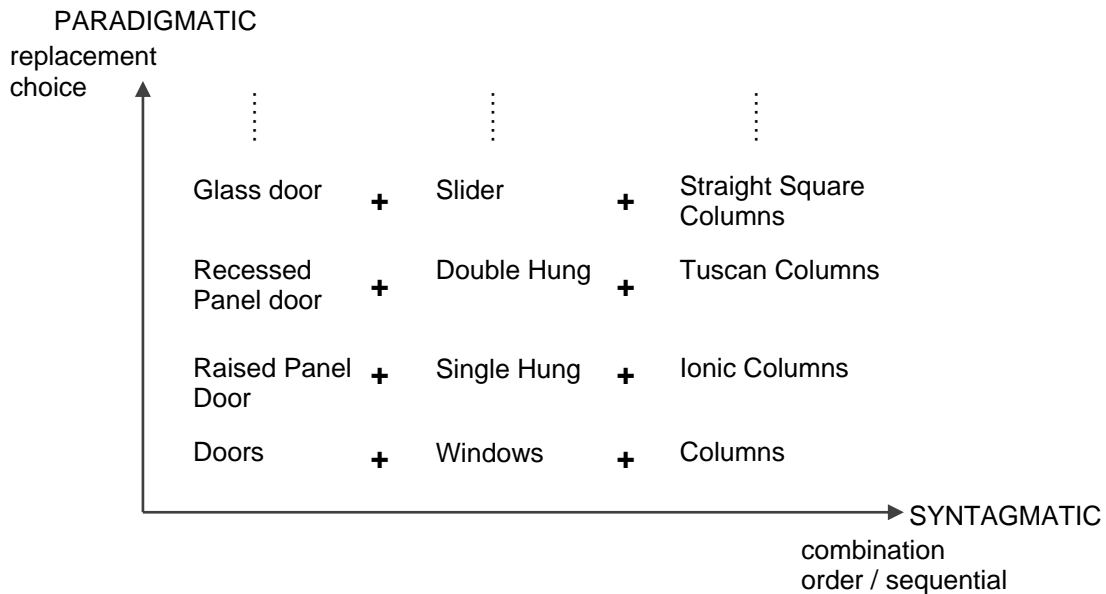
Figure 2.23 The example between paradigmatic signs and syntagmatic signs in an architect designing a house. A paradigm is a set of units from which the one to be used is chose; a syntagm is the message into which the chosen units are combined.

2.4.4.1 Paradigm

A paradigm is a set from which a choice is made, and only one unit from that set is be chosen (Rose, 2007). Leymore indicated "paradigmatic relations are those which belong to the same set by virtue of a function they share ... A sign enters into paradigmatic relations with all the signs which can also occur in the same context but not at the same time" (as cited by Chandler, 1995, p.55). The set of forms for road signs is an example. The shapes of road signs can be square, round, triangular, and polygon. In this example, one form of road sign of the paradigm set is structurally replaceable with another (Krampen et al., 1987).

Therefore, the paradigm approach looks at 1) the sequential components, and 2) the identification of the various paradigms (Danesi, 2007; Leeds-Hurwitz, 1993). For example (see Fig. 2.23), the set of doors includes a raised panel door, a recessed panel door, a prep for a glass door, a contemporary door, and so on. Another example is water features. The designers

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can provide rock formations, the water wall, the pot water feature, contemporary features, mosaic water features, top/spout/fountain water features, spillways, and so on. Besides, there are two basic characteristics of a paradigm introduced by Fiske (1990, p57):

1. The units in a paradigm must have something in common.

2. Each unit must be clearly distinguished from all the others in the paradigm.

Paradigmatic systems involve comparing and contrasting each of the signifiers present in the built environment with absent signifiers which in similar circumstances might have been chosen, and then takes into consideration the significance of the choices made (Danesi, 2002). In other words, paradigmatic analysis seeks to identify the various paradigms which underlie the manifest concepts of the built environment, and looks at sets of signs and how they come to stand for something else.

2.4.4.2 Syntagm

When a unit has been chosen from a paradigm, it is normally combined with other units (Fiske, 1990). This combination is called a syntagm. The syntagm approach looks at 1) the sequential or spatial arrangement of the elements that influence meaning, and 2) the relation between the study areas and context (Krampen et al., 1987). Syntagmatic system of the built environment involves studying the structure of units and the relationships between their parts (Chandler, 1995). In other words, syntagmatic analysis is defined as a coherent sequence of signs of the built environment. For example (see Fig. 2.23), an architect designing a house makes a syntagm of the style of doors, windows, columns and so on.

The paradigms and syntagms provide a structural context within which signs make sense and they are the structural forms through which signs are organized into codes because the paradigm can operate on the level of the units. The syntagm is an orderly combination of interacting units which forms a meaningful whole within the built environment.

2.5 Urban Design

Urban design is the "part of city planning which deals with physical form of the city" (Krieger, 2009, p.114), and it involves the arrangement and design of building groups, streets, public spaces, transportation systems, and services (Stephen, 1998). Besides, urban design describes the process of designing and shaping regions, cities, towns, and villages. It also provides a character to groups of buildings, whole neighborhoods, districts, and cities (Catanese et al., 1988). Therefore, urban design is a framework that sets out to shape the spatial or physical environment (Sommer, 2009).

In addition, urban design encompasses place-making and the creation of a setting that imparts a sense of place to an area (Krieger et al., 2009). Carmona et al. (2003) defined urban design as the making of place for people. This definition asserted that the urban design is for and about people and the significance of place. This advocacy is also achieved by establishing identifiable neighborhoods, unique architecture, aesthetically pleasing public places and vistas, and recognizable landmarks and focal points (Stephen, 1998; Morris, 1998). In other words, urban design is primarily concerned with the quality of the public domain and the making of meaningful places for people to enjoy and use (Inam, 1999). Therefore, urban design practice areas range in scale from small public spaces or streets to neighborhoods, city-wide systems, or whole regions.

Moreover, urban design pursues a more humanistic perspective on planning because urban design investigates the human experience that "the built environment evokes across private properties or in the public realm" (Sternberg, 2000, p.34). This is to say, urban design is a bridge connecting people, places, nature, and the built fabric. Also, as Krieger (2009) stated, urban design can "promote the vitality, livability, and physical character of cities" (p.113). Therefore, urban design is not the shapers of cities, but seeks and/or protects regional context, history, culture, and the qualities and values of community.

2.6 New Urbanism

New urbanism is the most signification urban design movement since the rise of the automobile in the mid-20th century (Krieger et al., 2009). New urbanism began in the United States in the early 1980s. In 1993, the Congress for the New Urbanism (CNU) was established by a conference of one hundred and seventy architects and planners. They began to perceive that their built suburbs directly affected existing cities and regions. They realized that "the only a coordinated approach to regional planning, town planning, and architecture could redress the recent deterioration of the built environment" (Dutton et al., 2000, p.15). Structures in neighborhoods can also become long-lasting and better-performing (CNU.org., 1997-2011a). Therefore, the primary purpose of the CNU is to promote and disseminate information about new urbanism, as follows:

> We advocate the restructuring of public policy and development practices to support the following principles: neighborhoods should be diverse in use and population; communities should be designed for the pedestrian and transit as well as the car; cities and towns should be shaped by physically defined and universally accessible public spaces and community institutions; urban places should be framed by architecture and landscape design that celebrate local history, climate, ecology, and building practice. (Congress for the New Urbanism 2004, p.95)

The principle of new urbanism is to make areas more livable by creating an urban experience for neighborhood populations (Seymoar et al., 2005). Therefore, new urbanism promotes the creation and/or restoration of diverse, walkable, mixed-use, and dense communities (Steuteville et.al, 2003; 2009). Although some people against more density in cities, new urbanists believe that this can keep people out of their cars and allow the preservation of more open space.

New urbanism has the potential for significant environmental benefits. The idea of high density not only preserves the un-developed greenbelt open space, but also provides a walkable environment. As Hall (2002) and Katz (1994) claimed, neighborhoods can have available recreation, shopping, and other essential daily services within easy walking distance

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connected to good-quality transit systems which can replace conventional automobile-oriented areas.

Additionally, the grid street is a typical street layout in new urbanism projects. As Kennedy (2012) noted, the grid street can easily interconnect people, blocks, or neighborhoods, so this street system can easily be extended for miles in every direction. On the other hand, Charles Waldheim argued that although the street grids provide walkable streets and streetscape, it may have the potential to destroy ecological features (Steuteville, 2011). However, Dutton (2000) asserted that the main reason for the depredation of ecological features is not caused by grid systems. As illustrated in 2.24, both concepts provide the same amount of residential, commercial, and industrial space. The only difference is the housing densities and mixed usages. The concept shown on the left is low-density; the concept shown on the right is high density. The 400 acres open space on the left side was over ten times the amount on the right side. In addition, the stream and greenbelt area was greatly increased in the right concept. Therefore, balancing development and conservation throughout the community has become a very important issue for new urbanism.
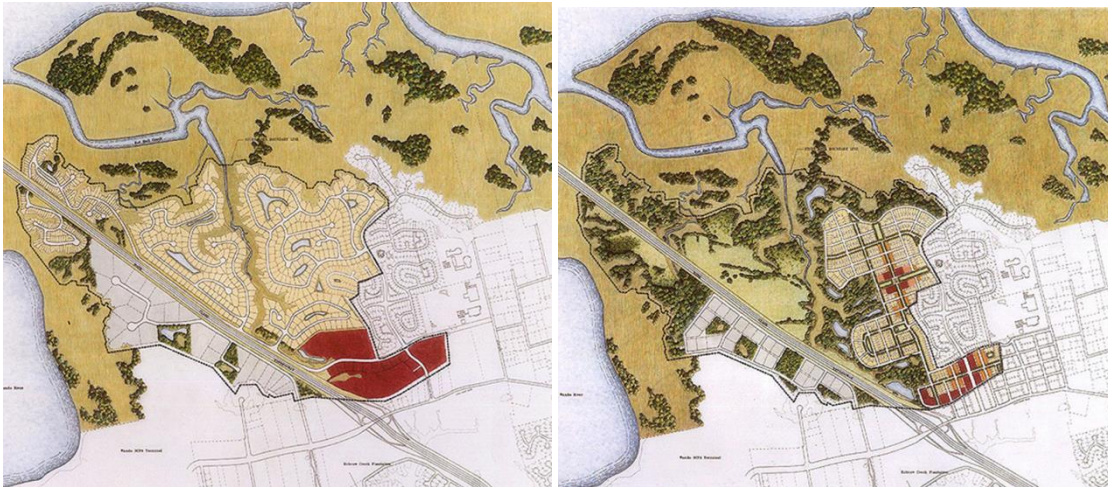
Figure 2.24 Two concept of Belle Hall, in Mt. Pleasant, South Carolina (by Dover Kohl and Partners, 1995). Graphical representation of (a) low-density with organic street layout (b) high-density with grid street system

In addition, new urbanism seeks to foster place identity, sense of community, and environmental sustainability. However, according to Michael Sorkin (1998) who wrote in the Metropolis magazine, "New Urbanism reproduces many of the worst aspects of the Modernism it seeks to replace … [it] promotes another style of universality that is similarly over-reliant on visual cues to produce social effects." Thus, CNU has produced a charter of principles, and those principles can be achieved in many different ways including:

> [M]etropolitan regions that are composed of well-structured cities, towns, and neighborhoods with identifiable centres [centers] and edges; compact development that preserves farmland and environmentally sensitive areas; infill development to revitalize city centres [centers]; interconnected streets, friendly to pedestrians and cyclists, often in modified grid or web-like patterns; mixed land uses rather than single-use pods; discreet placement of garages and parking spaces to avoid auto-dominated landscapes; transit-oriented development (TOD); well-designed and sited civic buildings and public gathering places; the use of building and street and building typologies to create coherent urban form; high-quality parks and conservation lands used to de.ne and connect neighborhoods and districts; and architectural design that shows respect for local history and regional character (Ellis, 2002, p.2).

Moreover, one CNU advocate noted that neighborhoods should convey the local history, climate, ecology, and culture (Polyzoides, 2000). Therefore, new urbanism projects can create

personal value and offer a unique character to community residents, workers, and visitors. Many new urbanism projects are designed to bring positive social interaction into a community (Steuteville et al., 2003; 2009; Katz, 1994). Designers have begun to incorporate a living function to a meaningful environment (Inam, 1999). Hence, the architecture and landscape designers must consider local climate, topography, history, and building practices (CNU, 1997-2011b). Also, the preservation and restoration of historic buildings, districts, and landscapes should affirm the continuity and evolution of urban society.

The CNU claims the physical characteristics can create a sense of community and promote social interaction in the neighborhood (Duany et al., 2000). Some argue that new urbanism projects create a lot of smaller houses and/or apartments that are closer to the street, sidewalks increase, and garages are moved to the rear of the house (Dewolf, 2002). However, these ideas allow people in the neighborhood to chat and say hello while strolling down the sidewalk. Solomon (2000) and Langdon (1994) highlighted those effects that encourage residents to get to know each other and develop a feeling of belonging to a community through new urbanism projects. Bartz (2006) stated, "Social interaction is seen as the bridge or genesis of building a 'sense of community'" (p.14). Additionally, Zaff and Devlin (1998) claimed, "Without these neighbor interactions a sense of community cannot exist" (p.383).

A sense of community helps to establish an identity for neighborhoods (Stephen, 1998; Morris, 1998). This concept denotes that a community has an independent being or "spirit" that gives life and character to its residents. A sense of community is a concept signifying that designers and/or people give meaning and a unique identity to space by relating it to the built environment (Norberg-Schulz, 1979). Also, most people believe living in a good neighborhood is more important than living in a good house. Accordingly, the designer shifts from uninspired design into increased parks, amenities, and community spaces because the open spaces in the neighborhood attract people and enhance social interaction and build social ties (Talen, 1999;

Kuo et al., 1998). This idea provides an opportunity to preserve natural resources, such as trees and hedgerows, so that sites would look like they emerged in a natural setting.

In brief, new urbanism is not only city or suburb development, but also the way people conceive of a community from the viewpoints of regional diversity, scale, and public space (Calthorpe, 2004; Barnett, 2000).

2.7 Perceptions

Perception is a procedure by which people detect, recognize, and interpret information from the built environment and develop through physical and social networks. Schacter (2011) indicated that perception is the organization, identification, and interpretation of sensory information in order to fabricate a mental representation that transforms a sign from the environment into encoded the sign. Mell (2010) also described that, "perception is an activity that enables people to experience the world" (p.66). In other words, each person perceives the built environment differently because perception is not passively received from the environment; it can occur by learning from experience, culture, education, socialization, and specific environments and places. Therefore, as Rodaway (1994) stated, landscape perceptions are the interpretation of the built environment around humans, and of "spatial relationships and the identification of distinctive places to recognize our situation in a world and to have a sense of a world" (p.13). Perception is important in the development of interpretations of a place by an individual because it can help people to recognize and construct an area based on an understanding of the built environment context, form, and function (Mell, 2010). Besides, perceptions also help people easily adapt to the new environment.

Rodaway (1994) pointed out that perception is a culmination of meaning, presence, and sensation developed through a process of interpretations and negotiations. The author stated that presence and sensation are linked to the attribution of meaning to stimuli, which can subsequently be understood or perceived. Another researcher, Coeterier (1995), described perceptions as a mental construct that provides, "our brain with a coherent and meaningful

picture of the outside world and … gives each object its place in an organized whole" (p.28). In other words, perception is understood based on the interpretive meaning of the individual parts.

Rapoport (1990) pointed out that the human mind is capable of quickly recognizing a landscape or an environment because "the human mind works by trying to impose meaning on the world through the use of cognitive taxonomies, categories, and schemata, and that built forms, like other aspects of material culture, are a physical expression of these schemata and domains" (p.15). For example, when seeing a building with the shape of a cross, a dome, an octagon, a large vaulted space, or a spire, one can quickly decode the meaning "church building", assuming this description fits the schemata they have of a church building. Accordingly, perception should be seen as being influenced by the experience of stimuli.

On one hand, Durkheim claimed that every personal sensation is linked to his/her interpretation of the built environment from the wider world (Ingold, 1996). On the other hand, Valentine (2001) also argued that perception is linked to events and places and the influences of people's life experience. She believed that human experience is directly linked to specific times and spaces in a person's life. The author stated that, "these spaces are subsequently linked to societal or personal perceptions of similar locations, which support a process of reinforced meaning" (Mell, 2010, p.68). Additionally, David Harvey (2006) wrote how the people live affect their perceptions, as following:

> [T]he space and times of representation that envelop and surround us as we go about our daily lives likewise affect both our direct experiences and the way we interpret and understand representations (pp.131-132).

Harvey (2006) asserted that the physical landscape and human beings can affect each other because they are a symbiotic relationship. Moreover, Kaplan and Kaplan (1989) noted that commoditization also affects personal interactions with the landscape and may consequently affect perception. These researches indicated that before understanding human perceptions, we should comprehend the function and composition of a landscape first in the built environment. Additionally, the physical structure and function of a landscape are essential

elements in the meanings attributed to a place (Kaplan and Kaplan, 1989). Accordingly, understanding the physical elements or social interpretations and meanings from the basis of people perceptions is necessary because they affect our interpretations of the places that surround us.

2.8 Chapter Summary

Chapter two reviewed the literature and research regarding urban design, the design intentions as non-verbal communication, new urbanism, meaning in places, the measurement of meaning, and perception. Also briefly reviewed were the design intentions in the urban areas, and how they create meanings in a place. The literature review detailed the development of semiotic theories for a conceptual framework, as well as terms useful across a range of design practices for the study of transference of the intention meaning. Finally, this chapter includes a brief explanation of human perceptions toward urban landscape. With those backgrounds, the next chapter addresses the framework and methods to extract the designer's intentions and user's perceptions in Addison Circle and Austin Ranch.

CHAPTER 3

RESEARCH METHODS

3.1 Introduction

This study began with the hypothesis that designers can manipulate design elements so as to conceal or instill their intentions to contemporary society in designed space. Design is a means of communication and the conduit for transmitting a message between designers and users of their built work (Fiske, 1990). Therefore, those design elements that the designer instills the intended into are the bridge connecting designers and users. Moreover, those elements can define and symbolize a place in the neighborhood. Consequently, this research examines the designer intentions and user perceptions in determined study areas in order to understand that people construct meanings from the interpretation of design elements.

This chapter concentrates on the framework and methods used to examine and extract the intricate relationship between the designer's intentions and the district user's perceptions of Addison Circle and Austin Ranch. This research utilized methodologies for analyzing the respondents in the selected projects through the qualitative method with in-depth interviews and the grounded theory approach.

The sections of this chapter include brief descriptions of the selected projects, maps, and photos, context maps with primary data collection points, interview questions, details of the study design, as well as the data collection and analysis approaches, and a summary of the methodology for this research.

3.2 The Study Locations

This study explores designer's intentions and user's perceptions through new urbanism projects. A selection was made from a list of new urbanism projects form The Vision North Texas provided by North Central Texas Council of Government (NCTCOG). The Dallas-Fort Worth metropolitan area in Texas was selected for the study because it developed largely during the modern era of architecture and design and has enjoyed many years of economic prosperity. Consequently, the region has many examples of new urbanism projects designed by highly regarded practitioners in the fields of landscape architecture, architecture, and urban planning.

The first step was to make a list of new urbanism projects in the North Texas area. Then, the researcher filtered those projects using the following criteria:

1. The project should be open to the public.
2. The project should have a town center and a mixed-use development with ground-floor retail usage, as well as human-scale and context-sensitive design.
3. The project should be built from 1990 to 2012.
4. The project should be designed by different teams in order to examine and prove the designer intentions by the two groups.
5. The project should be a new development in a very culturally dissipated area because this research explores the current conditions, not the past.

After considering these issues, the researcher discussed the potential projects with her committee. The final two new urbanism projects selected were Addison Circle and Austin Ranch. These two projects have been selected for this study because they provide illustrative examples of the newer cities in the United States that have used and continue to use contemporary techniques to accommodate their population's changing needs.

Their similarities lie in their being heavily visited and highly likely to be visited in the future. These determined study areas provide urban housing for those who want to live in an

urban environment, but also enjoy a great location, safe environment, shopping, events, and restaurants. Moreover, the designers of the two projects provided an urban setting that offer urban experiences, pocket parks and community swimming in those suburban projects. They also promote a live-work environment, reduction of vehicle trips, and improvement of air quality (NCTCOG, 2012a; NCTCOG, 2012b). Both of them have a similar vertical building style and project type, a mixed-use center, but with a variety of different contexts and characteristics. The following sections explain in detail the project selections, as well as the research design.
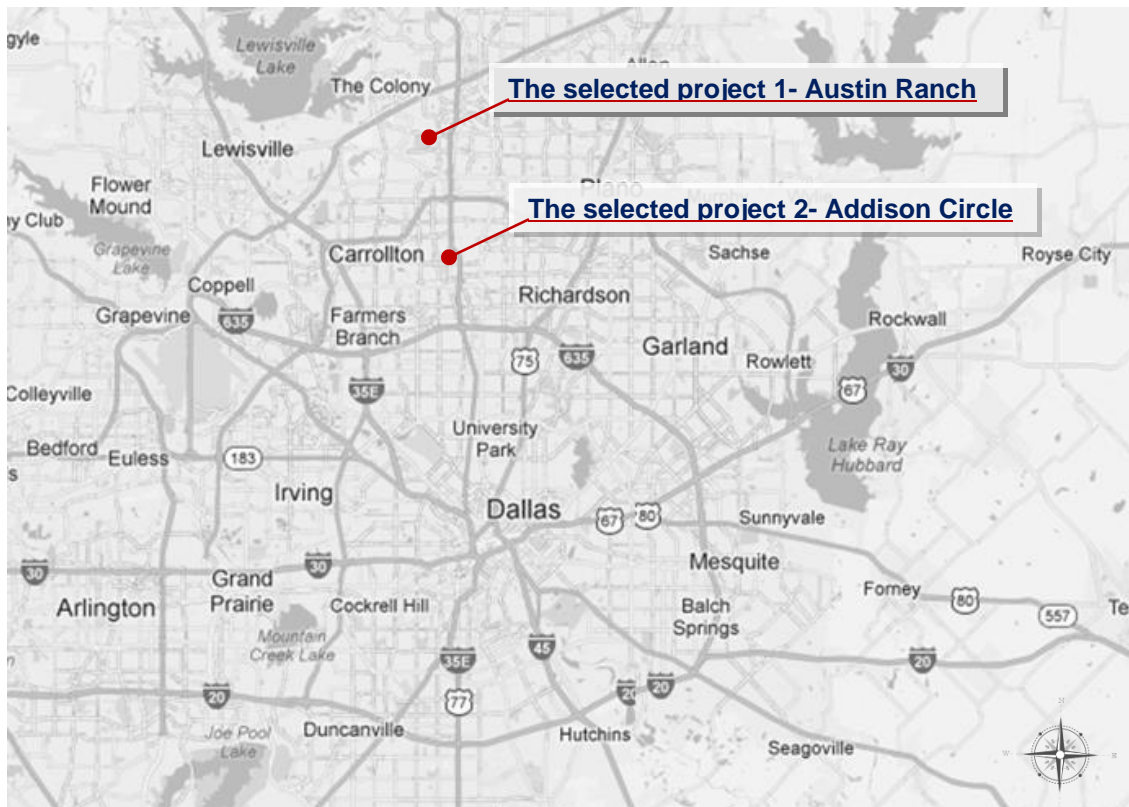
Source: Google Map 2012

Figure 3.1 The region map of two determined projects

3.2.1 Addison Circle, Addison, Texas

Source: Google Map 2012   Source: City of Addison 2012

(a)   (b)

Figure 3.2 The Addison Circle maps. Graphical representation of (a) the location map (b) the master plan of Addison Circle

The first project is located in the Town of Addison, north of Interstate highway 635 (IH-635) on the Dallas North Tollway. Addison Circle is a high-density, mixed-use development that created an identity for the suburban area (NCTCOG, 2012a). The project is approximately 124 acres (Ozdil et al., 2011) that was to be "used to be the festival grounds for Addison's Oktoberfest, before construction started in 1996" (NCTCOG, 2012c). The last phase was completed in 2009 (Ozdil et al., 2011). The neighborhood is now in an 18 acre park on the southern edge of Addison Circle. The core of the development, phase 1 to 3, includes several high-rise buildings with apartments, office space, and ground floor retail space, surrounding a small park that first opened in 1999 (City of Addison, 2012).

In addition, a dynamic public open space area of Addison Circle, which is located in the town center, links the residential area with the commercial district. The southwestern edge of the roundabout accesses a 4-acre open space, an area that houses year-round community,

regional, and nationally recognized events. To the east, an esplanade lines the main-street commercial district. Bosque Park, as an additional community gathering space defined by low stonewalls, serves as a more intimate space where residents can gather and relax (NCTCOG, 2004). The 'Blueprint', a large, visually appealing sculpture in the central roundabout, serves as a traffic calming measure and as the proverbial hub of the streetscape (The City of The Colony, 2009, p.6-29).

3.2.2 Austin Ranch, Addison, Texas
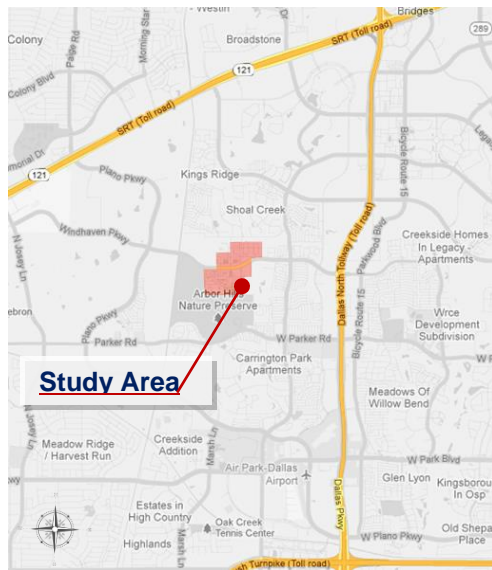
Source: Google Map 2012

(a)

Source: Austin Ranch 2012

(b)

Figure 3.3 The Austin Ranch maps. Graphical representation of (a) the location map (b) the master plan of Austin Ranch

Austin Ranch is located in the City of The Colony. The neighborhood was a ranch (green-field) site that was made into a 300-acres development (Austin Ranch, 2012) and has six phases that were built from 1998 to 2012 (NCTCOG, 2012). Each phase is one neighborhood in the community of Austin Ranch and has its own distinct look and feel. The designers tried to avoid a maze of apartments that look the same (Austin Ranch, 2012). The designers provided a mixed-use neighborhood and incorporated residential, retail, and office spaces that focused

around a town center at the heart of the development (NCTCOG, 2009). The area is a series of pedestrian-scale neighborhoods designed to blend in with the natural environs and the existing community (Calthorpe Associates, 2002). The plan complements the rich visual landscape by varying block patterns and building types while using local materials and Texas 'Hill Country' architecture to provide a coherent feel. Additionally, the natural features of the site have been preserved and augmented by active recreation facilities distributed throughout the site (Billingsley Company, 2012).

3.3 Research Design

This research has three primary procedures as illustrated in figure 3.4, including a literature review, data collection methods, and data analysis using grounded theory. The following few sections describe in detail how the researcher gathered and analyzed the data.

HYPOTHESIS

Background Study

Substantive Topic

Initial Research Questions

AIMS AND QUESTIONS

LITERATURE REVIEW

See "Literature Review" on page 13

Research Structure and Method

See "Research Methods" on page 60

DATA COLLECTION METHODS

See "Research Methods" on page 61

Data Collection

Data Storage

DATA PREPARATIONS

Open Coding / Memo Writing

Questions Revision

INITIAL ANALYSIS

GROUNDED THEORY

See "Analysis and Finding" on page 69

Refine Indexing System

Theoretical Writing

Models

CORE ANALYSIS

OUTCOMES

CONCLUSION

Source: Pidgeon and Henwood, 2004, p631

Figure 3.4 The procedures of research

<center>3.4 Data Collection Methods</center>

The data collection method for this study utilized the qualitative method with in-depth interviews. Although the research's theoretical framework comes from both qualitative and quantitative methods, this study chiefly utilizes the qualitative method because the data are descriptive and based on the perceptions of the interviewees. These perceptions are stated in their own words, and are used to uncover perceptual differences and similarities within the set of questions (Taylor and Bogdan, 1998).

In-depth interviews were conducted in order to develop a detailed understanding of the respondents' experiences and perspectives. Interviews are also used to link theory to existing research and methodologies. In this study, in-depth interviews of two selected groups were done to compare their perceptions of what comprises a meaningful urban landscape. In addition, interview questions were developed to collect data from participant responses based on their knowledge and experience in the determined study areas. Institutional Review Boards (IRB) approval for the protection of human subjects at The University of Texas at Arlington was obtained and informed consent forms were shown and explained to respondents (See Appendix B).

3.4.1 Interview Protocol

The research was conducted on two groups, including the designers and the district residents. The method of qualitative in-depth interviews, consisting of open-ended questions, was employed for this study as it was directed toward learning about events and activities that cannot be observed directly (Taylor and Bogdan, 1998).

The first group was composed of landscape architects, architects, and urban planners. Those designers were responsible for design decisions on the selected projects. In this group, after identifying the designers responsible for the projects with the help of committees and gathering their contact information, each person was contacted by e-mail or phone to obtain

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their agreement to participate and schedule an appointment for this research. The residents were the second group selected randomly from an open public space in the study area.

All informants from each group were asked the same set of questions designed for that group. As with in-depth interviewing, the interview participants shared "their lives, experiences, perceptions, or situations as expressed in their own words" (Taylor and Bogdan, 1998, p.88). This method is aimed at revealing the designer's intentions and the user's perceptions that the participants found in the study areas, as well as their reactions.

The interviews were digitally recorded by the researcher for further analysis. All digital record files were sent by e-mail, via www.yousendit.com, to the audio transcript service of cabbagetreesolutions.com. The transcripts were sent back to the researcher via e-mail as Microsoft Office Word documents. The researcher used the transcripts of the conversations in a systematic way for coding the words which served as the source.

To protect their anonymity, respondents were given an alphabetic code. Landscape architects, architects, and urban planners were coded as "D" and district residents as "U". Moreover, the digital audio files were used to make detailed notes by the primary researcher. Names or other identifiable information was omitted from the interview notes unless they are in were reference to an author or other public figure. The record files were destroyed after the completion of the study.

3.4.2 Interview Questions

The in-depth, open-ended interview questions were formulated to test the intentions and the perceptions related to the determined new urbanism projects. The purposes of the interview questions were to evaluate the depth of the participants' connection to the study areas and to disclose the areas' intricate meaning. The researcher asked two sections of questions during the interviews to gain the respondents' insights into selected projects.

The first section of the questionnaire was designed to understand the interviewee's profile. The subsequent section was a link between the transference of meanings from the

designers to the built environment and the perceived intentions from the users. These questions served as a guide for the interviewer to address certain topics for in-depth study. Respondents were encouraged to discuss topics and issues that they deemed important, even if the topic was not covered in the interview script.

Before each interview, the researcher wrote down and recorded notes for each of the respondents as follows:

1. The selected project name

2. Interview location (spot area)

3. Start time

4. Finish time

5. Gender

The following are the interview questions which probe for more details and specific descriptions of the respondents' perspectives.

Group 1 --- The design team was composed of landscape architects, architects, and urban planners, who were responsible for design decisions in the determined projects.

1. What do you consider to be the defining characteristics of Addison Circle/Austin Ranch?

2. Besides the function, what are the intentions of your design in Addison Circle/Austin Ranch?

   2.1 According to the previous question: Which design intention is the most important?

   2.2 Why is it important for you?

3. How does the design express your intentions in Addison Circle/Austin Ranch?

   3.1 What kind of design elements did you use to reflect your design intentions in Addison Circle/Austin Ranch?

3.2 According to the previous question: Which one do you believe best transferred your design intentions to your built work?

3.3 Are there special elements incorporated in the design that you hope are meaningful to the users?

Group 2 --- The district residents were selected randomly from a public open space in each study area. The first section of questions addresses the profile of each interviewee because it can help the researcher classify the data from respondents.

1. Do you live here?

   a) If working,

      a.1 How far is your place of work from here?

      a.2 How long have you worked there?

   b) If a resident,

      b.1 How far is your residence from here?

      b.2 How long have you lived there?

   c) If a visitor,

      c.1 Where do you live?

      c.2 What brings you here?

      c.3 How often do you visit here?

2. How old are you?

      a) under 18   b) 19-30   c) 31-40   d) 41-50   e) over 50

The next set of questions is designed to deal with district users' perspectives of the selected project as following:

1. What do you think are the most recognizable characteristics of Addison Circle/Austin Ranch?

2. What are the significant design elements in Addison Circle/Austin Ranch?

2.1 In response to the previous question: Which design element do you believe

is the most significant in Addison Circle/Austin Ranch?

3. Does something about this place speak to you in a meaningful way?

3.1 Why?

These questions were designed to engage the respondents in conversation leading to a richer base of design philosophy information and thinking.

3.5 Research Participants

The participants for this research were selected based on these two groups that included designers practicing and designing in the Dallas-Fort Worth metropolitan area and from district users. In total, thirty-four respondents were interviewed during the course of the research.

Table 3.1 The number of respondents from the two groups

	Designer (D)	Users (U)
Addison Circle	2 (D1, D5) (2 male)	15 (U1 - U15) (12 male+3 female)
Austin Ranch	4 (5) (D1 - D4, D6) (3 male+1 female)	13 (U16 – U28) (8 male+5 female)

According to Taylor and Bogdan (1998), "it is difficult to determine how many people to interview in a qualitative study"; however, the researcher should have an idea that he/she has reached the right number of interviews when "interview[s] with additional people yielded no genuinely new insight" (p.83). For Addison Circle, it was determined after four respondents that the data had begun to repeat itself. On the other hand, after the third respondent, the data started to reiterate responses from Austin Ranch. The size of the sample was determined toward the end of the research and not at the beginning.

In this research, after fifteen interviews in Addison Ranch and thirteen interviews in Austin Ranch, new data did not provide additional insights, and interviews were suspended. This approach matches the criteria set forth by Taylor and Bogdan (1998).

3.6 Data Analysis Procedure

The data analysis was the next procedure in this research. After the interviews, the researcher collected the data and recorded conversations. The researcher then made the transcripts and used them for coding the words which served as the source. In qualitative research, coding entails developing and refining interpretations of the data. What are initially general insights, vague ideas, and thoughts are refined, expanded, or discarded during this process (Taylor and Bogdan, 1998, pp.150–153). The fundamental coding rule "in qualitative analysis is to make the codes fit the data and not vice-versa" (Taylor and Bogdan, 1998, p.152).

This research uses the basis of the grounded theory approach defined by Taylor and Bogdan (1998) as a "method for discovering theories, concepts, hypotheses, and propositions directly from data, rather than from a priori assumptions, other research or existing theoretical frameworks" (p.137). Moreover, Charmaz (2002) also identified several features of grounded theory as follows: (p.677)

1. creation of analytic codes and categories developed from data and not by pre-existing concept;

2. discovery of basic social processes in the data;

3. inductive construction of abstract categories;

4. theoretical sampling to refine categories; and,

5. the integration of categories into a theoretical framework.

The researcher in this study attempted to identify categories, themes, ideas, views, roles, and so on, within the spoken language or text itself. The researcher also tried to reveal or interpret the hidden motivations behind a text from the designers and the users. The emphasis of grounded theory is to understand people on their own terms through description and theory.

Therefore, the researcher combined grounded theory using the strategy of the constant comparative method in which, based on Taylor and Bogdan (1998) who stated that "the researcher simultaneously codes and analyzes data in order to develop concepts" (p.137).

As illustrated in figure 3.5, a derivative of the grounded theory approach best suits this research as follows: 1) collect data; 2) identify themes based on the data; 3) review and compare interviews and secondary data collectively; and 4) define themes that fit the data.

Source: Taylor & Bogdan 1998, p138
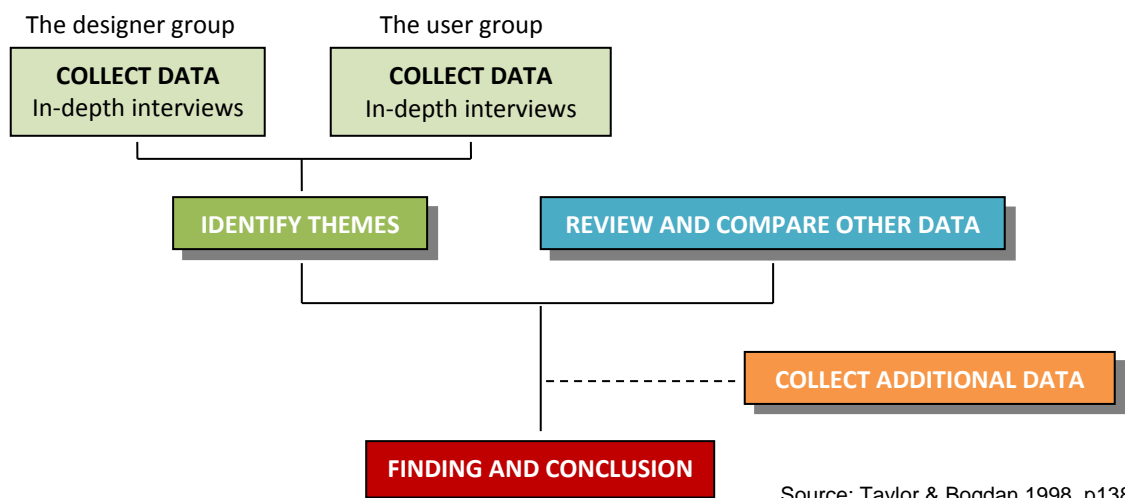
Figure 3.5 Data analysis procedure diagram

Another study conducted by Barney Glaser, Anselm Strauss and Juliet Corbin defined "grounded theory as theory derived from data that has been systematically collected and analyzed using an iterative process of considering and comparing earlier literature, its data and the emerging theory" (Makela and Turcan, 2004, p.3). Therefore, after the researcher read and reread the data looking for emerging themes or patterns derived from "conversation topics, vocabulary, activities, meanings and proverbs" (Taylor and Bogdan, 1998, p.143); the researcher combined and compared them with each other in order to develop and generate concepts including identifying the meaning of design elements, the levels of meaning in the built

environment, metonyms, and metaphors. Further elaboration of the analysis can be found in the following chapter.

3.7 Limitations

This research is restricted by certain conditions beyond the researcher's control. The data gathered in this study is limited to the two study areas and users who live in the selected projects. The results of the study are therefore, limited to and reflective of the qualities of those areas.

The focus of the research is colored by the nature of the qualitative approach taken. The interview questions are purposefully open-ended to permit new data and theory to emerge. Questions focusing specifically on identifying the meaning of design elements, context of the selected areas, metonyms, and metaphors from generators are not asked since the theory that led to those arose from the interview. This factor may restrict the subject to being bound by weaknesses in seeing or understanding abstractly because "you cannot assume what people will say and do in all situations" (Taylor and Bogdan, 1998).

The results of this research may be limited by the relatively small sample size. It is possible that the attitudes of the individuals who chose not to participate in the interview, or who are not selected by the researcher, differ significantly from those of the participating subjects.

Other limitations of the study are time and resources. The amount of time for an appropriate observation may be inadequate and the lack of yearly seasonal periods in which to observe and interview people could change the outcome. Days selected for interviews were different, so weather conditions, such as temperature, wind, and sunshine, may have affected the sample quality.

The next limitation of this research is the researcher, who is an international student with an imperfect grasp of both the English language and the cultural norms of North Texas, and may have potentially mis-communicated or misunderstood the intention of interview responses.

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3.8 Chapter Summary

This research is concerned with both the designer's intentions and the user's perceptions. Accordingly, the research utilized qualitative methods with in-depth interviews for data collection and analysis according to Taylor and Bogdan's grounded theory approach (1998). These methods were applied to this study to extract the intricate meaningful environment. Additionally, it helps to understand the transference of meaning from both the designers and the users. Furthermore, the data collection was obtained through the use of the questionnaires by interviewing the designers and users in order to develop a detailed understanding of the respondents' experiences and perspectives. After that, the data in this research were used to analyze the different responses from two groups. The next chapter provides data findings based on the procedures described in this chapter.

CHAPTER 4

ANALYSIS AND FINDINGS

4.1 Introduction

In-depth interviews were conducted with two groups, designers and users, to ascertain their intended perception and perceived intentions about the built environment within the determined study areas. The designer group was comprised of experienced landscape architects, architects, and planners of Addison Circle and Austin Ranch in North Texas. These individuals were selected because they made design decisions and had direct responsibility in the determined projects. The user group was comprised of local residents randomly selected from public spaces in the study areas. Between the two groups, thirty-four individuals expressed interest in participating. Among the informants, six were designers, and twenty-eight were residents.

Data from the interviews were transcribed and analyzed according to Taylor and Bogdan's (1998) grounded theory approach. The data were analyzed using the constant comparison method to explore the differences and similarities between the designer group and user group.

The findings of this research are addressed at two levels to filter the insights gained from the fieldwork. The beginning level demonstrates support for recurring themes that represent conditions and attitudes found consistently among respondents. After themes began to emerge, selective coding was used to develop a core concept and supporting themes. The second level identifies and evaluates the discrepancies between the designers and users of the selected projects.

4.2 Interview Analysis

This study concerns both the designer's perspectives and the user's perspectives for the selected projects and consequently was obtained through similar questionnaires given to the two groups. After the interviews, the recorded audio was transcribed to be the data. The data were analyzed and reviewed by the researcher. The data analysis began with the respondents' answers under each specific interview question. A chart was created to compare the intended perceptions and perceived intentions of the two groups in this research. Later, the researcher analyzed the responses for recurring themes among the respondent's opinions. Therefore, this section provides an overview of the respondents' profiles and perceptions according to each interview question.

4.2.1 Interview Location and Time-frame

The interviews for the user group were conducted from 5-7 p.m., Monday through Friday for both study areas. This time-frame was selected because the study areas are active with a large numbers of residents. At Addison Circle, respondents were sought in the roundabout, Bosque Park, the liner park and the esplanade, as illustrated in figure 4.1. At Austin Ranch, the respondents were selected from Dry Creek Lodge, Plaza de La Luna, The Verandah, Plaza del Sol, Scholar's Park, and Infinity Pool, as illustrated in figure 4.2. The designers scheduled an appointment during their office hours, and the researcher interviewed those designers at their offices.

The Esplanade

Bosque Park

Liner Park

The Roundabout

Map Source: City of Addison 2012

Figure 4.1 The interview sites for Addison Circle

Figure 4.2 The interview sites for and Austin Ranch

4.2.2 Respondent Profiles

Thirty-four individual respondents expressed interest in participating in this study. Among the informants, six were designers and twenty-eight were residents. The codes for designers are range from D1 to D6; the codes for the user group range from U1 to U28 (See Appendix A).

Table 4.1 The Designer Profiles

Respondents	Involving project		Responsibility
	Addison Circle	Austin Ranch	
D1	■	■	Addison Circle: Urban designer and landscape architect
			Austin Ranch: Landscape architect on specific projects
D2		■	Architect for phase one, two, and six
D3	■	■	Addison Circle: Landscape architect on specific projects
			Austin Ranch: Landscape architect, planting design, construction documents on specific projects
D4		■	Landscape architect
D5	■		Consultant
D6		■	Architect for phase four and five

The above table 4.1 shows the researcher interviewed six designers; two designers involved in both Addison Circle and Austin Ranch, one involved in Addison Circle, and three involved with Austin Ranch. Of the designer group, D1 had multiple roles at Addison Circle, including urban designer and landscape architect. He was also involved in Austin Ranch, and his role was landscape architect on that specific project. D3 reported his work was as a landscape architect and planting designer on specific projects in Addison Circle and Austin Ranch. D5 is a landscape architect who worked as a consultant for planning division in Addison

Circle. D2 and D6 are architects at Austin Ranch. One architect designed phases one, two, and six. Another one worked on phases four and five. D4 worked as a landscape architect in Austin Ranch.

Years of experience and leadership characterize the designer group as a whole. The average amount of experience is twenty-three years. Their primary practice areas include such specialty markets as Transit Oriented Development (TOD), high-density urban infill communities, mixed-use, sustainable development, and so on. They also seek to create memorable environments for people that are rich in diversity, unique to the place, and sustainable over time. All of them have a similar goal of creating experiences that result in artistic expressions of place that contribute to a greater quality of life and inspiration for all who visit.

Of the user group, 72 percent were male and 28 percent were female (see Table 4.2). The following table and figures show the basic analysis of the twenty-eight users' profile information.

Table 4.2 The Twenty-eight User Profiles

Gender	Male	20	72%
	Female	8	28%
Age	19-30	17	61%
	31-40	6	21%
	41-50	3	11%
	Over 50	2	7%
Length of Residence	Less than one year	3	11%
	One year	6	21 %
	13 to 24 months	6	21 %
	25 to 36 months	3	11%
	Over three years	10	36%

Table 4.3 The Correlation between Age and Length of Residence

	19-30	31-40	41-50	Over 50
■ Less than one year	7.14%	3.57%	0	0
■ One year	14.29%	0	3.57%	3.57%
■ 13 to 24 months	25.00%	0	3.57%	0
■ 25 to 36 months	7.14%	3.57%	0	0
■ Over three years	7.14%	14.29%	3.57%	3.57%
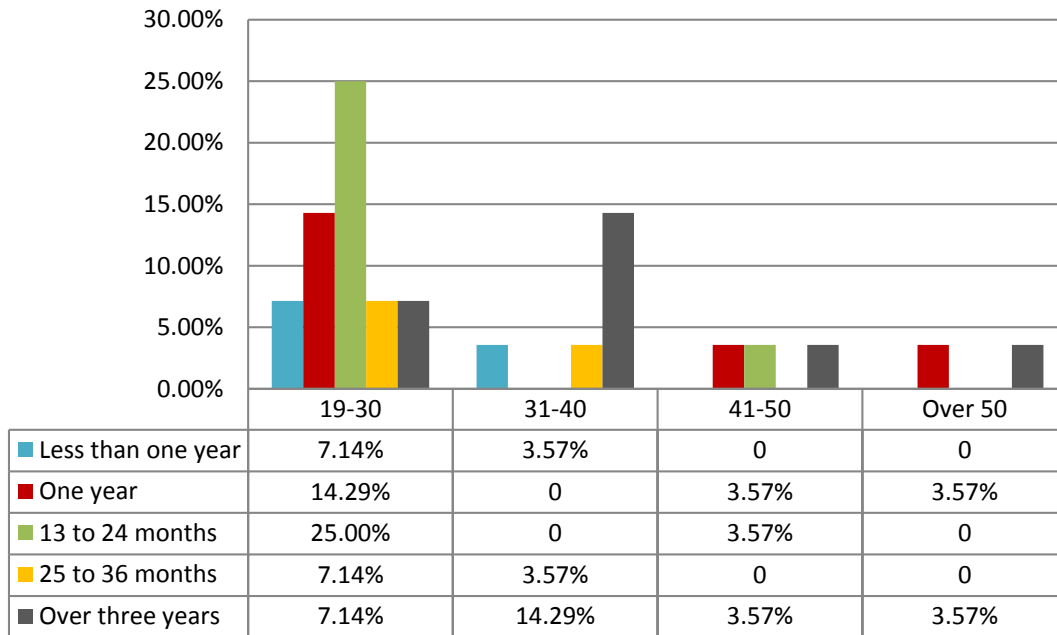
4.2.3 In-depth Interviews

This section provides an overview of the respondents' perceptions as revealed by the interview questions. Each interviewee was asked to respond to three similar major open-ended questions (see chapter 3, page 65-67, for in-depth interview questions). The questions were asked to a total of thirty-four respondents. Addison Circle and Austin Ranch were each represented by seventeen of the respondents. The desired outcome of these questions was to address the primary research objectives of this study and achieved this by the understanding each respondent's perspective. Therefore, each interviewee stated their responses in their own words according to their own experiences. The responses from the interviewees are addressed for each question in the following section.

4.2.3.1 Interview Question 1--- Characteristics

The first open–ended question: *What are the recognizable characteristics of -----?* (for users group); *What do you consider to be defining characteristics of----- ?* (for designers group), is analyzed in table format as Table 4.4.

Table 4.4 The First Open–ended Question

The Respondents	Characteristics
Designer Group	▪ walkable and friendly environment ▪ a residential neighborhood ▪ organized community--- the grid system ▪ a diversity of choices and a unique style--- avoid monotony ▪ young village ▪ civic space (outdoor living)--- parks and courtyards
User Group	▪ walkable and friendly neighborhood ▪ a residential neighborhood--- convenience ▪ organized community--- area layout ▪ a diversity choices and a unique style ▪ young atmosphere--- young professional ▪ a variety of outdoor spaces--- parks, courtyards, pools and parking lots landscape ▪ natural preservation--- Austin Ranch ▪ events--- Addison Circle ▪ blue statue (Blueprint)--- Addison Circle

This question addresses an icon, index, name, and metonymy from the semiotic viewpoints. According to all interviewees' responses (see Table 4.4), they consistently indicated that the characteristics of the selected projects include a walkable and friendly environment, a residential neighborhood, an organized community, a diversity of choices and unique style, a young village (young atmosphere), a dog-friendly environment, and a variety of outdoor spaces. Among those characteristics, only the user group mentioned natural preservation, events, and statuary. The next parts explain those characteristics from both groups.

1. The residential neighborhood with a walkable and friendly environment

Both groups considered the study areas as small towns because the neighborhoods provide an urban experience and setting to people. Therefore, a residential neighborhood with a walkable and friendly environment is the major characteristic of these areas for them. When the designers defined the characteristics for the projects they were involved in, a residential neighborhood with a walkable and friendly environment was the first answer they gave. As D1 and D4 highlighted, the vision of the whole project was a walkable neighborhood with many outdoor amenities that felt friendly and safe and was a place people wanted to live. Accordingly, they decided to make each block in the neighborhood around 400 to 500 feet because it was a walkable distance.

Around ninety-five percent to ninety-nine percent of users can perceive this characteristic. As reported by U11 and U20, the respective neighborhoods have sidewalks throughout, and all of the sidewalks are connected. Therefore, when they run through the neighborhood, they do not really have a lot of traffic interrupting their workouts. Another respondent, U22, pointed out that, "it is very convenient because everything you need is here … you can lay back and hang out … you know, within walking distance, the community has great pools and great amenities." He also emphasized that the neighborhood somewhat encapsulates everything together. For example, Austin Ranch incorporates the natural environment (woods, forest, and trails) and man-made environment (pools, gyms, parks, restaurants, and nightlife).

2. The organized community

The organized community is another overt characteristic recognized by both groups. In other words, both groups saw that there was a method to the organization of the neighborhoods. As U22 stated, "the neighborhood seems planned and controlled." Also, D4 highlighted that, "the design intent was to do a walkable community… with very organized spaces and very intimate kind of rich spaces throughout the whole thing." As was previously stated, when designers started to organize a new neighborhood, they focused on more than one issue such

as street hierarchy and space order. A neighborhood is not a geographical boundary or a group of homes, but rather a group of people and families who live within close proximity to each other. Those issues can help people easily adapt to and navigate an unfamiliar or new environment. These points of view are also reflected by the user groups. The respondents from the user group believe that their neighborhoods are efficient in their arrangement of functions and spaces, even though the two developments are dissimilar in size.

Moreover, the organization can also be displayed by hierarchies. As D1, D5, and D6 stated, the street hierarchy lays out road and pedestrian networks. They also asserted that street hierarchy is the key component in an environmentally friendly lifestyle because it can alleviate traffic. As a result, the neighborhood becomes safer and orderly. For example, according to D5, Addison Circle has three levels of streets including the boulevard, secondary streets, and mews streets, as illustrated in figure 4.3. The boulevard is the primary street with broader sidewalks, benches for sitting, trees, and retail stores. The secondary streets usually run from east to west with parallel street parking, sidewalks, trees, and benches. The mews streets, are smaller streets, have trees, but no curbs.

The designers use this hierarchy to create a street spaces, streetscape and pedestrian realm in order to provide various experiences for people. For example, as D2 and D3 pointed out, in Austin Ranch, some of the alleys become pedestrian vistas and connect two varied outdoor spaces. In addition, according to D5 and D2, the street hierarchy can help to define the buildings. As D2 stated, "we have a street hierarchy in the planning and the buildings, the way they relate to the street, varies depending on … the design of the street." D5 explained, "we're trying to create the pedestrian network, we're designing the streets … using those streets to define buildings and create green spaces."

The users did not directly mention this point. However, they can perceive that some streets are different from each other, such as scales and streetscapes. As U1 said, "in case of Addison Circle, people have a lot of space here where they can do festival, but still traffic moves

pretty smoothly. U13 mentioned that "Quorum Dr. is very different than Goodman Ave. Quorum Dr. has a lot of benches, trash cans, and trees are maturing. It has a wide space for people to walk or wait a bus, unlike Goodman Ave."

(a)

(b)

(c)

(d)

Figure 4.3 The street hierarchy in Addison Circle. Graphical representation of (a) the boulevard (Quorum Dr.), (b) secondary street (Marcus Ave.), and (c) (d) mews street (Witt Pl and Mildred Pl)

3. Young atmosphere with various choices (pools) and a unique architecture style

The selected communities provide a young atmosphere, various entertainment choices, and a unique design style. As respondent U19 stated, one of the reasons he moved to Austin

Ranch was because of the young atmosphere. As reported by U8, "The reason why I like living here are because we do have so many different things you can do … [and then] there is a lot of different restaurants and stuff; you can never get tired of it." Additionally, U12 stated, "There are four or five pools in the ten buildings, and you have a choice as the party pool, lazy pool, and the blue pool."

Aside from the outdoor facilities, the various choices for residents also include building styles. According to U22, the design of the buildings is visually appealing. U28 said that unlike traditional apartments, the neighborhoods provide much variation in building scale and style, such as a modern style or a Texas style. The designers, D2, D5, and D6, used change in style to avoid monotony. As D6 emphasized that the neighborhood "doesn't feel, like, monotonous, like the same thing over and over again."

4. Outdoor spaces: parks, courtyards, and parking lots landscape

Some respondents mentioned that parks, courtyards and/or parking landscapes can be an important characteristic for the study areas. When asked about recognizable characteristics, U1 responded, "Obviously the parks because they are nice areas with a lot of trees." Also U2 pointed out that, "if you're a resident, you can come out and walk with your dog, or if you're a worker in one of the buildings, you can come out and just enjoy your lunch outside."

In Austin Ranch, there is a unique landscape in the parking lots. As D1 and U18 noted, the landscape of parking lots definitely draws people's attention. According to D1, "we try to create little green spaces within the parking [so] you have a little sense of not being at a parking lot when you're in this space" Therefore, when people are in the parking lots, they feel like they are in a plaza, not a parking lot. This detail has been noticed by those in the user group, as stated by U25,

> "I mean obviously a place has to have a parking lot for people to park their cars, so anything that they can do to kind of make it a little more easy on the eyes and a little different than just a big piece of concrete for people to park their cars … that's one thing that I like about living here"

Photo Source: Google Earth, 2012
(a)   (b)

Figure 4.4 The example of parking lot landscape, Plaza de La Luna, Austin Ranch. Graphical
representation of (a) the aerial view and (b) the perspective

Figure 4.5 The perspective view of parking lot landscape, Plaza de La Luna, Austin Ranch.

(a)   (b)

(c)

Figure 4.6 The example of parking lot landscape, Cabana Pool, Austin Ranch. Graphical representation of (a) the aerial view, (b), and (c) the perspective view

5. Others: natural preservation, events, and statuary

The users often mentioned natural preservation, events, and Addison Circle's blue statue in their responses although the designers did not mention these points during their interviews.

Specifically, in Addison Circle, events become a memorable characteristic for most people. As U3, U7, and U12 stated, Addison Circle has dozens of events each year. They also mentioned that these events include major events, such as July 4th and Oktoberfest, and minor events, such as Sporthalle and the summer music festival. U15 said that "Everybody knows this place [Addison Circle] because of the festivals." Some users also mentioned not only the events but also the parks, such as the Liner Park and Bosque Park. U12 stated that "I usually hand out with my friend in this park [Bosque Park]. We love it … the fountain like a turtle shell. There are so many squirrels so sometime we are called the [Bosque Pak to] Squirrel Park.

Moreover, the blue statue (Blueprint) is an identity marker for Addison Circle. As U11 emphasized, "It's one of the things that I show, like, my friends and family when they visit … it [Blueprint] is associated with Addison Circle."

(a)   (b)

Figure 4.7 Addison Circle's blue statue. Graphical representation of (a) the summer time and (b) the winter time

4.2.3.2 Interview Question 2--- Meaning and Design Elements

The next question asked the respondents to describe significant meanings and design elements. For the designer group: *Besides the function, what are the intentions of your design in ---?* For the users group: *What are the significant design elements in ---?*

This question addresses an icon, index, symbol, and metaphor from the semiotic viewpoints. Once again the key words were extracted from the face-to-face interview responses and are presented in Table 4.5.

Table 4.5 The Second Open–ended Question

Respondents Group	Meaning and Design Elements
Designers Group	▪ breakdown what a multi-family apartment project looks like ▪ intimate street and spaces --- street hierarchy --- walkable --- pools (family pool, single pool…) --- parking lot as courtyards, plazas, packet parks ▪ outdoor living--- social activities an iconic spaces (landmarks) --- gyms --- pools (family pool, single pool…) --- courtyards --- streetscape --- tower elements (very significant towers) --- positive tower element ▪ Variety and diversity- --- different architecture style for different phases --- building appearance, building type (style), building scale --- color, material --- street hierarchy --- color, material ▪ private space---semi private (semi public)---public space --- help to define spaces --- social activities --- help to give a little bit of privacy to the units that are along the streets ▪ urban setting --- living, work, play ▪ visual interest --- nature preserve --- natural expression of the trees and drainage --- parking lot landscape (Plaza de La Luna, Plaza de Sol, Scholar's Park)

Table 4.5 – Continued

Respondents Group	Expressed Meaning and Design Elements

Designers Group	--- special pavers
	--- sitting around
	--- no curbs
	--- create a view down--- from the street to this location
	--- pedestrian vistas
	
	▪social interactions spaces--- community spaces
	    --- courtyards
	    --- pools
	    --- streetscape
	    --- civic uses/civic spaces (events area)
	
	▪artistic landscape
	    --- unique character--- parking lots--- courtyards
	                 (Plaza de La Luna, Plaza de Sol, Scholar's Park)
	    --- special views
	    --- living in a unique place
	    --- mutually value for designers, residents, client
	
	▪the experience
	    --- artificial environment to natural environment experience
	    --- outdoor space to indoor space to outdoor space
	       (Dry Creek Lodge—main gym building---The Pools at Dry
	       Creek Lodge---bridge---deck)
	
	▪ unique
	    --- brick pavement--- rich,
	                  --- color
	                  --- texture
	    --- pool
	    --- parking landscapes
	    --- carriage way
	    --- entire development looks into a park (every building fronts
	                       central park)
	    --- punctuation point (Blueprint, The Pools at Dry Creek Lodge)

Users Group	▪ park-feel
	    --- trees
	    --- benches
	    --- nice
	    --- clean
	    --- street tree layout
	    --- well-maintained
	    --- natural trail
	    --- natural preserve
	
	▪ accessible and friendly area (laid back and relaxing)
	    --- lunch outside
	    --- walkable
	    --- parks

Table 4.5 – Continued

Respondents Group	Expressed Meaning and Design Elements

Users Group	--- courtyards
	--- parking landscape
	--- furniture
	--- fountains
	--- trees
	--- convenient area--- restaurants and parks
	--- balance of traffic and people
	
	▪ amenity environment (safety and comfortable)
	--- clean
	--- parks
	--- courtyard
	--- sidewalks
	--- well-maintained
	--- convenient area--- restaurants and parks
	                      --- work, living, and play
	--- balance of traffic and people
	
	▪ social area (social activities)
	--- sidewalk
	--- parks
	--- courtyards
	--- pools
	--- events
	--- restaurants stores, and bars
	--- young people
	
	▪ Variety and diversity-
	--- different architecture style
	--- building appearance, building type (style), building scale
	--- color, material
	--- color, material
	--- bars, restaurants, yoga, gyms, drycleaner
	
	▪ unique
	--- brick pavement--- rustic feel
	                      --- old vintage style area
	--- pools (party pool, lazy pool, blue pool)
	--- parking landscapes
	--- focal points (Blueprint)
	--- courtyards
	--- art work (deer, big chair, Blueprint)
	
	▪ private space---semi private (semi-public)---public space
	
	▪ encapsulates
	--- setting facility
	--- urban experience
	--- urban modern
	--- woods, recreation, nature, bar, nightlife, living

According to above Table 4.5, the users' responses to this question varied because they came from various backgrounds and had various perceptions. The respondents indicated that the designers integrated the outdoor environment in the neighborhood to some degree. Approximately four-fifths of users replied that the neighborhood has many amenities and is a friendly community. As U26 said, "It is peaceful [because] there is a lot of nature around, so you have things to relax and think about." U15 reported that, "It is an easily walkable area with lots of restaurants, so you can walk to the restaurants or shops."

Some design intentions and elements were recognized by both groups; some were recognized only by only one group. Of the significant design elements by two groups, some courtyards and swimming pools, such as the Sawyer pool, the pools at Dry Creek Lodge, the Verandah pool, and the Infinity pool were contributed to their being sleeted as significant design elements. As U17 noted that "the Infinity pool with the waterfalls over there with the hot pot is a good spot for family. If you like to hand out or socialize with other people, you can go to another pool [The pools at Dry Creek Lodge]." U12 said that "The pools are awesome … there's four or five pools in the neighborhood and you have a choice, I mean, this is known as party pool, lazy pool, and blue pool … So each pool has a different purpose for people to use." D6 pointed out that swimming pool is an intensely used a place for people to hang out. Therefore, it seems the users can easily obtain meaning from basic features in the landscape such as swimming pools.

Both groups discussed the swimming pools and outside amenities are the focal points and the attractive places in the neighborhoods. Nevertheless, the users could not describe deeper designer's intentions through the design works. The Verandah pool is an example. The designer (D4) used the green tiles to provide a colorful wall into the pool and the landscape at the same time. His intention is to provide a Mexican or Spanish flavor. He used the high color and very classical swimming pool that is kind of the Alhambra. It appears that the user group perceived the intentions of the designers, but not in detail.

Moreover, the users recognized the landscape is another significant design. D3 pointed out that, "we are trying to give an opportunity to experience something in the landscape that is unique through the choice of plants." This question revealed that some features are viewed as significant elements not only for their distinctive physical characteristics, but also for their significant symbolic meaning. Ninety percent of respondents in Addison Circle mentioned that the blue circle (Blueprint) is a big landmark and an icon with the significant symbolic meaning in Addison Circle even though none of the designers mentioned it as a significant element.

> If you look up it [Blueprint], it's actually the blueprints of the city of Addison, like, there's, you know, railroad tracks and water lines and everything like that. That's why that particular sculpture is called the Blueprints of Addison Circle (U8).

The different might be caused by respondents' experiences. U23 pointed out that the benches are the significant elements with special design intentions because "I have a lot of memories with this bench." She believed that the designer put the bench everywhere to encourage people stay and hang out on the streets.

Without being provided with the designer's intentions, the users tend to select the significant elements based on familiarity with a feature's characteristics. The parks and natural preservation were identified by user groups. Some users also pointed out facilities (gyms) and trails attracted their attention.

4.2.3.3 Interview Question 3

The last question was mainly for the user group: *Does something about this place speak to you in a meaningful way?* This question is connected with an index from the semiotic viewpoints. The respondents' answers included working location, events or social activities, memories of their hometown or childhood, and others. Of the user group, roughly three-fifths of the respondents answered with working location and home space spoke to them in a meaningful way. As U3 highlighted, location was most important to him: "If I didn't work five minutes away, I might not live here." He also mentioned that if he worked in Frisco, he would likely live in Frisco. On the other hand, as reported by U21, the selected area reminds her of

living in her own house because she feels relaxed when she stays in the community. Also, U11 stated, "There are a lot of different people with different backgrounds, but it's always really comfortable … I feel I am at my own house. U25 described that "It [Austin Ranch] has come to feel like home … it is very comfortable and relaxing." Therefore, most respondents reported that being close to their working location or the feeling of home was most meaningful to them.

Moreover, one-quarter of interviewees responded that the place evoked their memories of their childhood and hometown. U2 described how her community always reminds her of where she is from, Georgetown in Washington, D.C. This is because the brick mixed-use buildings and young atmosphere makes her feel like she is in a college town. As U24 pointed out, "I love being around trees … because it reminds me of home." She also reported that the selected neighborhood reminds her of where she grew up in Mississippi. U5 said he grew up in Brooklyn, New York, and that the study area reminds him a little of downtown Brooklyn because he thinks that Addison Circle seems like an upscale place.

Of these twenty-eight respondents, two respondents gave very different answers. One respondent (U8) said his perception is colored by his experience working for the company that constructed Addison Circle. According to him, "I worked in the accounting department, and I paid for every brick and nail … the place can remind me I would still be with them." Even though he has been laid off by the company, living in this area reminds him of his previous employment. Another respondent, U1, said the peaceful environment was significant to him:

> "Well, I'm sitting on a bench right now at lunch, and I do this every day, so just being able to come out here and a nice peaceful quiet area without a whole lot of things going on around me …. So I can get a little bit of space, breathing space from work and people around me, but still, you know, not go too far to get that."

He mentioned that the neighborhood has many nice places with a lot of trees. He said that when he sits on the bench, he feels like he is in a park or some natural area.

4.3 Themes from the Data

The findings from the analysis of the interviews were used to identify issues relevant to the questions posed earlier in the research. Therefore, the key words and phrases address the themes that emerged as a result of interviews. The themes include an urban village, a variety of choice, a sense of safety, and the spatial sequence. An urban village is a metonymical expression. A variety of choice connects an icon, an index, and a name. A sense of safety becomes a symbol base on semiotic viewpoints. The spatial sequence addresses an icon, an index, and a name.

An urban village is a mental picture created for users by designers by utilizing a variety of choices, a sense of safety, and the spatial sequence. This sequence allows designers to convey a message in a way that users (readers) can easily understand.

Those themes influenced the way people perceived the environment as a combination of setting, landscape, and community of place. Also, themes can be considered as creating a rich variety in experienced and places; and further, people can define and identify themselves with the neighborhood. Additionally, those themes (see Table 4.6) are important because they are summarized and compared for trends relative to the main research objective, the exploration of the transference of meaning from designer to users through their built work.

Table 4.6 Themes from Interviews

Urban Village	Variety	Sense of Safety	Spatial Sequence

■ Town feel
■ Neighborhood feel
■ Community feel
■ Variety of options
■ Gathering spaces
■ Arts
■ Activated public spaces
■ Pedestrian network
■ Streetscape
  (street tree lined)
■ Outdoor lifestyle
■ Mixed-used
■ Social activities
■ Multi-modal network
■ Experience
■ Urban setting
■ Spatial layout
■ Sense of places
■ Organization
■ Encapsulated functions and
  experience
■ Events
■ Young atmosphere
	■ Mixed-used
	■ Architecture
	  (building types, building scale,
	  building appearance)
	■ Material
	■ Gathering spaces
	■ Outdoor lifestyle
	  (parks, pools, gyms, run, walking,
	  jog,)
	■ Social activities
	■ Landscape
	  (parking lots, courtyard, parks,
	  streetscape)
	■ Visual interest
	■ Multi-modal network
	  (street hierarchy, space layout)
	■ Experience
	■ Civil spaces
	■ Tradition and modern
	■ Interaction
	■ Events
	■ Encapsulated functions and
	  experience
		■ A community
		■ Organization
		■ Clean
		■ Walkable distances
		■ Pedestrian network (sidewalk)
		■ Young atmosphere
		■Intimate streets and spaces
		■ Spatial sequence
		■ Events and activities
		■ Amenities
		■ Accessibility
		■ Friendly
		■ well-maintained
		■ Home feel
		■ Convenient
			■ Street hierarchy
			■ Spatial layout
			■ Experience
			■ Visual landscape
			■ Outdoor lifestyle
			■ Private space --- semi private ---
			  public space
			■ Private space --- semi public ---
			  public space
			■ Pedestrian vistas
			■ Conscious space

4.3.1 The Urban Village = Metonymy

An urban Village is a metonymical expression, and it is an overt theme in this study. Respondents placed a high value on having *a small town feel* in an urban village because it combines live, work, and play. An "urban village" is a small geographic area (usually one square mile or less) of multi-use development with a multi-modal circulation network (mass-transit and pedestrian network). Moreover, parks, businesses, entertainment venues, homes, and stores are all within comfortable walking distance in the community. An urban village is a type of property management that focuses on long-term value through place-oriented design and detail-oriented operations (Aldous, 1992). Consequently, it provides an opportunity for social interaction, such as meeting people, publicly programmed activities or events, and strolling (Tait, 2003).

In addition, an urban village provides an outdoor lifestyle for residents. Both neighborhoods are easily walkable with mixed-use zoning, a town center, and civil spaces. A pedestrian network connects to all courtyard spaces, street spaces, parks, and outdoor amenities. All of the places encourage contact, incorporate all walks of life, offer visual interest, supply a sense of safety, and provide a variety of options. In other words, those kinds of places strongly encourage participation by the residents and provide an opportunity for them to meet each other. These types of spaces are within walking distance, including nice public spaces to relax in and meet people.

Moreover, an urban village creates a perceptible space for people. For example, in Austin Ranch, the landscape on the center of the parking lot turns the parking lots into more perceptible spaces. The parking lots are not ordinary unappealing places, but become something more pleasant to be in. Those perceptible spaces also help increase leasing rates on all the buildings that surround them because the parking lots functions as a large courtyard or plaza space.

For the urban village to embody a high-quality lifestyle and sense of community, physical elements must exist to promote comfort and stimuli, such as streetscapes for visual interest, sidewalk benches for resting, parks and courtyards for gathering areas, and events

4.3.2 Variety of Choice = Icon, index, and Name

In order to create an urban village, the designers provide a variety of choice for the residents. A variety of choices was a commonly stated attribute by respondents in both study areas. These characteristic include many options of places to stroll, sit or walk a dog, drink beer or coffee, or eat out. All options are within a compact walking distance from their living place. There are also a variety of outdoor or indoor amenities, such as various types of pools, apartments or town houses or mixed-used buildings, and architecture with Texas-style or modern style. For example, the architectural style of Austin Ranch provides a variety of building types, building scales, finish, and color. The designers and owners want people to feel each phase is a community that has been built up incrementally over time.

(a)   (b)

Figure 4.8 The various building styles, color, and finish in Austin Ranch. Graphical representation of (a) a Texas style with four stories and (b) a modern style with two or three stories

(a)   (b)

Figure 4.9 The various courtyards in Addison Circle. Graphical representation of (a) The Dalton's courtyard and (b) Westside Tower's courtyard

(a)   (b)

Figure 4.10 The various swimming pools in Austin Ranch. Graphical representation of (a) Boulders Park's swimming pool and (b) The Verandah's swimming pool

A variety of choices actually creates various living opportunities for residents. When people live in the community, they do not have to spend time in crowds or have to interact with other people. They can choose to walk down a quiet nature trail. If they do not want to pass other people on a sidewalk, they can walk another direction. Therefore, there is enough variety to help people not feel like life in the community is monotonous.

Additionally, a person who in urban housing is able to look down on the street view from their homes is an important consideration in the design of the communities. Therefore, the

designers provided a variety of visual interests and landscapes for residents. As D4 described, "it would be really nice to just make the whole parking lot a courtyard and something that you would actually want to live facing." This also provides visual interest with special pavement and trees that make it feel like a plaza in Europe rather than a big parking lot.

Because of the variety of choices, those amenities become nodes, landmarks, icons, or a brand for the neighborhood. For example, consider the swimming pools in Austin Ranch. There are a number of very significant swimming pools throughout the community that become social gathering spaces for residents. As U4 highlighted, "there are three different types of water; you can either relax, swim, or socialize ..." Also, amenities become an image associated with the neighborhood in people's minds. Overall, the variety of options in the neighborhood helps to keep the interest of residents, and lesser the chance that people will get tired of living in their community.

4.3.3 Sense of Safety = Symbol

Having a walkable neighborhood enhances safety and provides a positive response to the environment in these neighborhoods. A sense of safety can reduce anxiety and provide a comfort level when adapting to a new living environment. Therefore, feeling safe and secure becomes a necessity of living in contemporary society. According to four-fifths of the users who responded, these communities provide a unique sense of safety. The research observed that the two study neighborhoods have outdoor amenities, buildings, sidewalks, and parking lots that contribute to this sense of safety. All of the elements correspond closely to symbol of semiotic viewpoints. For example, the sidewalks in the neighborhoods have lighted crosswalks. As has been mentioned, a symbol connects with its object by convention, agreement, or rule. The code of ordinance for both study areas require that the residential areas, one streetlight shall be planted at least every seventy foot along a public right-of-way. This is to say, a streetlight and seventy foot are not similar, but are connected by a rule (law).

(a)

(b)   (c)

Figure 4.11 The sidewalk of the selected projects. Graphical representation of (a) the sidewalk in Addison Circle and (b) and (c) the sidewalk in Austin Ranch

In addition, the design of sidewalks, signs, lightings, and appropriate sequences reduce the anxiety caused by the dangers of a public environment, strangers, and automobile accidents.

For example, in Addison Circle, the designer created a half-base landing to solve the safety problem of some residences on the ground floor. The idea is to raise the ground level for the building, so that, when people walk on the street, they cannot directly see into the houses. This way, a resident still has privacy and a view because he/she is higher than the street level. As D5 described,

> "[The idea] is [to] give you privacy in that room so you can keep the blinds open, you can keep the curtains open, and you can close it if you want to, but what you see is just a ceiling way back in there and it gives you privacy."
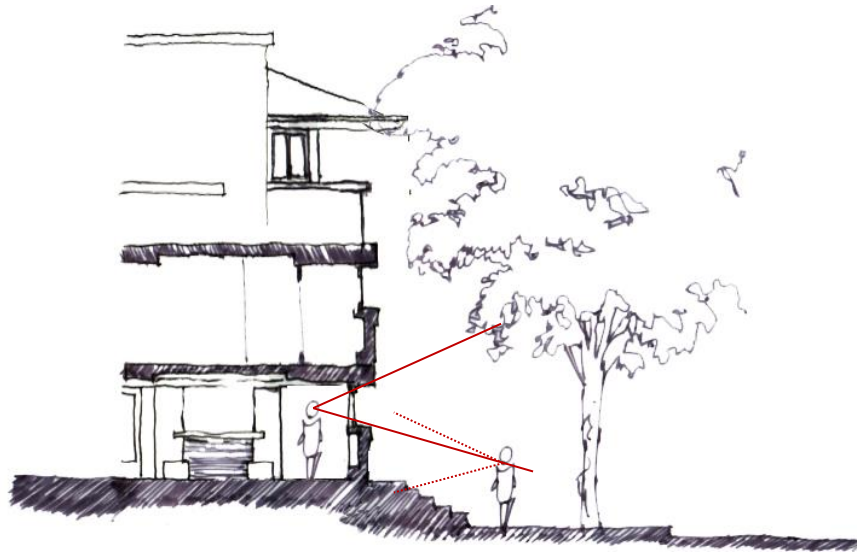
Figure 4.12 The example of a half-base landing. Graphical representation of diagrammatic apartment section showing sight lines toward and from the living room

Therefore, the first floor residential fenestration can be open and have a view of the street from inside the building. In people's view of their living environment, a sense of safety becomes a major factor in the quality of life. As urban areas grow, the need for physical environments where people are able to without fear becomes the primary consideration in choosing a living environment.

4.3.4 Spatial Sequence = Icon, Index, and Name

Spatial sequence can help people to visually organize, to define a path, and to provide an experience. It also can be manipulated to create an emotional or/and aesthetic appeal. In other words, landscape can be experienced as a spatial sequence that explores the relationship between spaces. Spatial sequence can move from inside to outside; go from above to below, walk through gates; or change point of view as well as standing on the roof for an aerial view. Therefore, the spatial continuum should allow for a smooth and logical changing set of experiences moving through the spaces. For example, in Austin Ranch, people can cross the bridge and go through a building and then there is a bridge that goes to a deck that located in the woods, as illustrated in figure 4.13 and figure 4.14. This whole path creates an experience that is significant to the identity of Austin Ranch. Therefore, the sequence of movement (from outside to inside or from one space to another) can greatly enhance the experience of the spaces themselves.
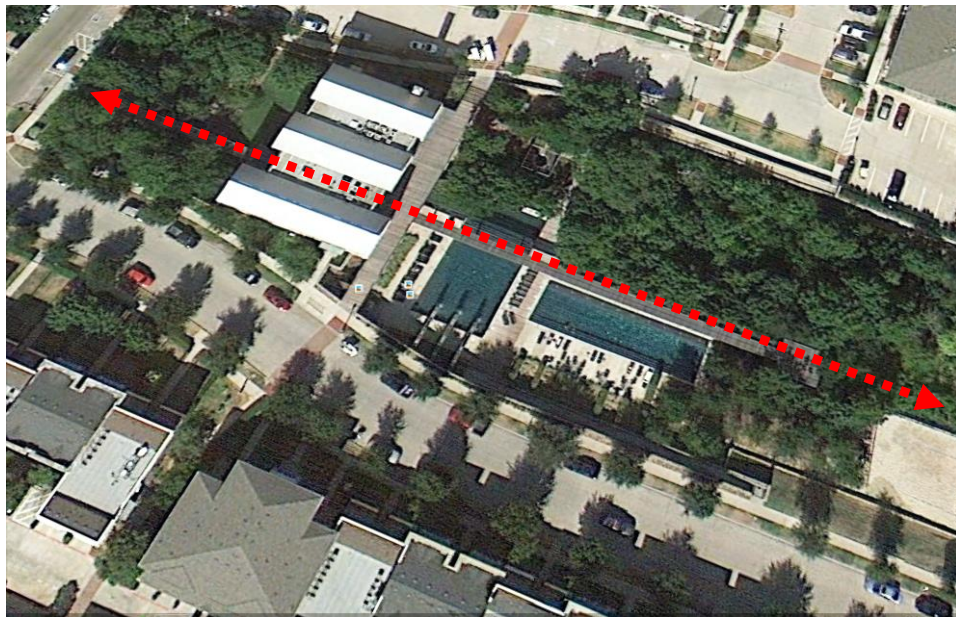
Photo Source: Google Earth, 2012

Figure 4.13 The aerial view of Dry Creek Lodge in Austin Ranch. Graphical representation of an experience that people can cross the bridge and go through a building and then there is a bridge that goes to a deck that is up in the woods,

(a)

(b)   (c)

Figure 4.14 Dry Creek Lodge in Austin Ranch. Graphical representation of (a) the aerial view, (b) look toward the building from the deck, and (c) look toward the deck

Moreover, pedestrian movement has the potential to relate to other elements and define new spaces and patterns. One example is the pedestrian vistas in Austin Ranch. As reported by D2 and D3, the designers created some pedestrian vistas between different phases. The illustration 4.15 shows, how people can look down from Shadow Mews to Lake Connell through the pedestrian corridor. The spatial sequence can be used to create more interesting landscapes as people interact with the built landscape.

(a)   (b)

(c)   (d)

Figure 4.15 The pedestrian vistas in Austin Ranch. Graphical representation of (a) Lake Connell, (b) and (c) pedestrian corridor of Shadow Mews, and (d) the Georg Sherwood sculpture "Flock of birds"

<u>4.4 Chapter Summary</u>

This chapter presented the analysis and findings from in-depth interviews with designers and users regarding the designer's intentions. Thirty-four individual interviews were conducted in this research. Among the respondents, six were designers and twenty-eight were residents. Recordings from respondent interviews were transcribed (as data) and analyzed using the grounded theory approach. Data were reviewed multiple times to find emerging themes or patterns from the conversations (Taylor and Bogdan, 1998, p. 143).

The findings between the designer and the user group indicate that designers were able to provide more details about their design intentions than users perceived. The results of this research reveal that users were more inclined to use experiences to describe recognizable characteristics. For instance, some furniture (benches and trash cans) and stores (bars and restaurants) were indicated as having significant meaning because they were used often or because people have special memories associated with them. Additionally, those stores become the third places for people. The results also verify that users' perceptions are affected by their familiarity with a place or a space. Even though both groups see the same product, the users were only able to provide general descriptions. This discrepancy also reveals that users most often easily perceive overt intentions, not the details of design work. The following chapter summarizes the findings and analysis which originated from the open-ended, in-depth interviews, and reports on how those findings apply to the research questions. Chapter five also includes a discussion about the relevance of the study to landscape architecture and suggestions for future research.

CHAPTER 5

CONCLUSION

5.1 Introduction

The purpose of this thesis is to understand methodologies for transference of meaning by applying existing theories to new urbanism projects. Throughout, a number of questions have been explored examining the designer intentions and the user perceptions. This study was primarily informed by qualitative methods to perform the analysis, specifically the in-depth interviews. The research addresses the designer's intentions in the built environment and how those intentions are perceived by local users. Two new urbanism projects in North Texas were selected for this study because they provided an illustrative example of the newer cities in the United States that have used and continue to use contemporary techniques to accommodate their population's changing needs. The designers (landscape architects, architects, and urban planners) would seem to be the catalysts that promote meaningful environment and social interaction. As Garreau (1991) articulated, people seek out places that have value and provide a higher quality of life and environment. This thesis concludes by summarizing the research findings, providing a discussion of the implications that the findings have for the profession of landscape architecture, and making recommendations for future study.

<u>5.2 Summary and Findings</u>

The literature review and in-depth interview questions were designed to answer the research questions based on the objectives of this research. The themes that were generated from the analysis address the five questions as follows:

5.2.1 Research Objective / Question One

Question one asks whether intended meanings can be transferred from designers to users through their built work. This is the primary objective of this research. By the various methods used in this study, it is concluded that the intended meanings are transferred to roughly two-thirds to three-fourths of the respondents in this research.

Most users interviewed perceived the stated designers' intentions for the landscape. In general, they believe the designers were trying to create a space that made residents feel like they are involved in a community. Moreover, they also can perceive that designers tried to provide different senses of place to a neighborhood. For example, the parking landscapes, such as Plaza de La Luna, Plaza de Sol, Scholar's Park, and so on in Austin Ranch, make the spaces more attractive. The designers created a distinct look for parking lots by designing them as plazas or pocket parks. These spaces are parking lots, but people do not feel as though they are in a parking lot when they use this space. Therefore, the parking landscape certainly draws people's attention because those parking lots are unique and unusual.

Four-fifths of designers assert that the user can be aware of their intent without completely understanding their design intentions. In other words, designers created things that they were aware of which help users to navigate the entire neighborhood. While people recognize the development as a whole, they may not understand every specific element. The designers are trying to convey their intentions to people in the neighborhood because they believe that they have to create a distinctive feel and make this feeling pervade the area. As a result, every aspect of the study areas seems to truly revolve around their ideas of spatial and structural interplay.

5.2.2 Research Objective / Question Two

Question two pertains to the design intentions that the selected designers intended to convey. From the interview analysis, four major intentions of designers were found. There include an urban village, a variety of choices, a sense of safety, and the spatial sequences. The results indicate that those intentions create a tangible sequence to the neighborhood, as illustrated in figure 5.1. This sequence begins simply and slowly increases in complexity. Also, it is a step-by-step sequence. Therefore, each main concept in the illustration represents a step that one would follow in the actual design process. The existence of a primary intention must be established prior to describing the items in it.

Figure 5.1 A tangible sequence for design intentions

In both communities, an intangible spatial sequence arranges information according to how things fit together in the physical space; i.e., where one thing exists in relation to another. An urban village is a mental picture created for users by designers by utilizing a variety of choices, a sense of safety, and the spatial sequence. This sequence allows designers to convey a message in a way that users (readers) can easily understand.

This sequence has various parts distinguished by physical or intangible properties. Also, the spatial continuum depends on the functions of the space. This process, which involves

many specific steps, can be simplified by highlighting the most fundamental steps as in figure 5.1, which helps the user understand and remember its key parts.

The sequence requires a logical order to things, not only in relation to the story but also for describing the setting where the events take place. However, without proper sequencing, users (readers) might become lost or unsure of how certain events are playing out.

In short, the tangible sequences in a setting increase the understanding of the users. This requires the designers to lay out the information in a format that allows the users to decode it. The tangible sequences resemble a map, so the spatial continuum becomes obvious. It lays a framework for the designer to follow to ensure the elements and functions are incorporated into the space or neighborhood.

5.2.3 Research Objective / Question Three

Question three involves how the designers instill these meanings in their work. As has been mentioned, the intentions of design can be interpreted as a series of messages through which the designers are trying to communicate to the users. In this study, the results of the data reveal that the designers infuse their intentions in the neighborhoods into two levels according to semiotic viewpoints. The first level is denotative meaning that corresponds closely to Rapport's lower-level meaning. This level of meaning is the daily living function because people's activities and the built environments are primarily linked by this level of meaning. Therefore, the designers should first understand basic human needs and potential needs and provide opportunities for the full expression of these. This level of meaning is important in all settings and must be present if the environment is to function practically for people.

The next level is connotation which extends from the denotative meaning. This level of meaning corresponds closely to Rapport's middle-level meaning. This level conveys messages about identity and status by the designers. The designers in this study instilled four major intentions in their work, including an urban village, variety, a sense of safety, and the spatial sequence. They incorporated those intentions with functionality into their built work. In other

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words, the designers started to organize and arrange their design between the living functions and the objectives for the neighborhoods. For example, the buildings tend to be simpler and less articulated by design, in order to not draw as much attention to the structure itself but rather focus the attention on the streetscape.

In addition, the designers sometimes use metaphor or metonymy to express their intentions at this level of meaning. Metaphorical expression and/or metonymical expression provide(s) the opportunity to transcend basic design and emphasize the actual scenery through the design work. These expressions are also linked to the sense of place and to the sense of human identities. The benefits of using those expressions can enable fresh ways of thinking about landscape.

An example is Scholar's Park in Austin Ranch. The designers could have created a common parking lot with concrete pavement, bollards, and painted lines that define spaces. However, they chose to design an appealing parking lot that look like a plazas as opposed to an open parking lot. Scholar's Park uses an abstraction of a prairie element (gilgae) to create a rolling environment that made for people to lie out or sit on the hills and grasses. Also, it has two small balcony interspersions that create the feeling of overlooking a small canyon. Meanwhile, the designer used tapered descending water runnels to create white noise and activate the space. Although this space is in a parking lot, the unique nature of the design gives it a nature feel. In this case, the designer accomplished this by carefully placing the hills and balconies, carefully selecting materials, and incorporating with the parking lot. In addition, the hills are intended to represent prairies, and the water is intended to represent life-forces.

(a)

(b)

(c)

Figure 5.2 Scholar's Park in Austin Ranch. Graphical representation of (a) aerial view, (b) the hill land, and (c) the tapered descending water runnels

Figure 5.3 Scholar's Park in Austin Ranch. Graphical representation of back view with two balconies and the statuary

Furthermore, the results of data indicate the *urban village* is a metonymy for both neighborhoods. As has been mentioned, metonymy is a concept that is not called by its own name, but by the name of something intimately associated with that concept. Both study areas are not in an urban area. The designers tried to build urban functions and create urban experience into a suburban area. A village is a word aligned with a neighborhood or community. Therefore, the urban village is a concept that represents an urban community.

It is hard to tell whether metaphor or metonymy is more important or common in these projects because the metaphorical or metonymical expression is a way to communicate to users a deeper level of understanding in the built landscape. Most projects are not generated from one specific metaphor, but rather by the intent to create spatial interplay. The result of the findings reveals that the designer usually uses the interplay of space and structure and provides wide variety of sense of place.

The last level of meaning, high-level meaning, emphasizes and builds on the middle-level meanings, according to Rapport's classification. However, the researcher asserts that high-level meaning is a deeper connotative meaning. It can be a catalyst that promotes the value and/or be an influential factor to another designer's work, people's habitat, environment, or so on. In this research, the deeper connotative meanings from the built landscape relate to people's experience in the place or/and evoked their memories, such as their hometown, childhood memories, and events.

5.2.4 Research Objective / Question Four

Question four asked what perceptions of the designers' intentions users hold in the selected projects. According to the analysis of interviews, the users perceived three of four major intentions, including an urban village, a variety of choices, and a sense of safety. However, the researcher discovered that the users were only able to provide general descriptions of the same intentions. When asked to describe further, the users could not offer more information or details. This may be as a result of their experience or familiarity with a place or a space. Another reason may be they could not fully understand the questions. For example, when the researcher asked what the significant design elements were, they may have been able to understand the *significant objects,* but not the *significant design elements.* The reason is because the design element is a special term in the designer's field. Therefore, users answered the question by providing a guess.

In fact, according to Rapport's three levels of meaning to communicate in the built environment, users from each selected neighborhood perceived the intended meanings on two levels including lower-level meaning (the denotative meaning) and middle–level meaning (the connotative meaning). These two levels of meaning are easy to instill through the built-landscape and can be perceived quite easily.

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5.2.5 Research Objective / Question Five

Question five addresses the commonalities and discrepancies between the designers' intentions and the users' perceptions. According to the findings, an urban village, variety, a sense of safety, and spatial sequence are four major intentions from both the designers and the users. The results indicate that the users perceived the design intentions through the built environment. However, the user could only provide general information about each of them. In addition, the users were more inclined to use familiarity and experiences to answer the questions. For example, even though most people in Austin Ranch identified that the pools are significant design elements, U24 did not think the same way. He never uses the pool, unlike the parking landscapes. Additionally, they responded with some characteristics and design elements that were not recognized as such by designers. These responses are usually associated with special memories. This discrepancy also reveals that users usually perceive overt intentions, not necessarily the details of design work because users may pay attention to exterior features and visibility.

The data in chapter four reveal that the significant design elements are linked directly to human need. Some users like to sit outside on the benches, so the benches on the streets are meaningful for them. The data also reveal that users may not perceive the spatial sequence. The researcher believes that human behaviors are a factor that influences the users' perceptions. For example, U20 typically walks the same direction from her apartment to the main gym everyday. Thus, she may not pay much attention to other places. This behavior prevents her from discovering other interesting parking landscapes or pedestrian vistas. Although auditory, tactile, olfactory, and other sensory cues may be involved, human behavior tends to be perceived visually, as by views of physical features.

5.3 Importance of the Findings

As stated in the literature review of this research, the research indicates two findings. The first is that there is an opportunity for landscape architects to make explicit meanings within the built landscape. The next point is that the new urbanism projects can carry through most design meanings, or the intended perspective, from designers to their built-work.

According to the interviews, the users were more focused on their desires and living functions since they would like to have a comfortable and relaxing place that makes them feel more at home. On the other hand, they can perceive lower-level meanings and middle-level meanings from their surroundings. Lower-level and middle-level meanings can readily be transferred to the built environment, and users can easily perceive them depending on their familiarity and experiences with the places. For example, users can easily obtain meaning from basic features in the landscape such as water.

Although residents give less consideration to relating to the landscape at a deeper (high) level meaning, they can still enjoy the area without the awareness of its deeper meaning. However, this research indicates that there is a connection between high-level meaning and maximizing living functions. People do not know *exactly* what the designers were doing or their intentions. However, when people are in the space, they can feel that there is something going on. Accordingly, the researcher asserts that the design intentions have a positive effect on the user without them specifically understanding them.

Additionally, when respondents described the transferred meaning, they were not discussing the objects or the design elements. They usually described the spaces or the places where they can sense that something is going on. The users tend to use experience and familiarity to describe the designer's intentions that they perceived. This is very different than the researcher's expectation. Those meaningful spaces sometimes come from people's experiences or memories. Metaphorically speaking, the space corresponds closely to a word,

and the elements from the space are the letters; together these create a vocabulary through which the designer communicates.

Moreover, from the face-to-face interviews, all of the respondents, including the designers and the users, expressed their positive attitudes toward Addison Circle and Austin Ranch. This finding demonstrated that the designers could have a positive impact on the users. Nonetheless, there was no negative perspective expressed about either study area. Therefore, this research cannot make suggestions for adjusting any of shortcomings to the designers or other design actors in the development process.

5.4 Relevance to the Landscape Architecture Profession

In order to successfully transmit a design message, designers must know how the designed environment reflects ideal images. This can contribute to the success of design decisions made by those experts.

The researcher asserts that the search for various levels of meaning in the built landscape should be a goal of the practice. Landscape architects are uniquely positioned to create spaces that allow users to interact with the man-made environment or nature through their designed work. Also, they allow these users to search and find new connections within themselves. Therefore, landscape architects can provide a rich, meaningful living environment when they better understand the users' desires and infuse various levels of meaning into their built work. Before instilling design intentions, designers should understand basic human needs and potential desires and provide opportunities for the full expression of those with their design intentions.

Furthermore, designers have an opportunity to provide a hierarchy of intentions in order to create a rich design. Simultaneously, it can revive the users' senses and stir their subconscious to help create psychological connections among the individual, the community, and the environment.

5.5 Suggestions for Future Research

The findings revealed several implications for further study. First, this research indicates that designers provide functional realities and also imbue their intended perceptions into new urbanism projects. In order to confirm the research results, future researchers should examine more new urbanism projects from the designer's and the district user's perspectives. They can further uncover the discrepancies and/or similarities between each project and between the designer's and the user's perception of the design.

Accordingly, future research can also consider several expanded questions, as follows:

1. How precisely does the transmitted message convey the designers' intentions?

2. What and why are the discrepancies in the construction of meaning between the designers and the users?

3. How accurately can the symbols of meaning be transmitted?

4. What is the position of the designer and the user in this transference of meaning?

5. What are the merits of the designers' intentions in their built work?

6. Referring to Rapport's levels of meaning, what are they and how are they communicated into the built landscape?

7. How do the designed intentions (intended perceptions) influence people's behavior?

Those questions would further link the ideas of the designers and the users, as well as ideas encompassing the deeper levels of meaning that can be realized from the built landscape. Additionally, there is another opportunity for application of semiotics to other project types.

Although the results of the in-depth interview questions provided more significant findings to the research of this field, the semantic differentials (SD) scale may also be valuable in studies of meaning in the built landscape. The SD scale is another tool used to collect data in experimental semantics to measure an important component of meaning, the emotional tone or connotation. Also, the SD scale may provide a strong evidence for the universality of evaluation, potency, and activity as affective features of meaning. Therefore, it may be another opportunity

to combine or compare the results of the SD scale and the open-ended questions, if the intended meaning is ultimately transferred from designer to user, and to what degree the transference occurs.

Additionally, this study only focuses on designers and residents in the determined study areas. Other users may have different perceptions of the same built landscape. Therefore, research using other users, such as workers or visitors may reveal significant findings. The intensity of users' familiarity with their places may affect their perceptions of the built landscape and should be studied as well.

Another future research topic emerged from the gender of interviewees. During the onsite interviews, mostly males were willing to participate. When the researcher requested that female residents participate in this study, they indicated that they were not interested. For this reason, in this research, males constituted 62 percent of the total data pool (28). Furthermore, the researcher discovered that when users were asked whether something about this place speaks to them in a meaningful way, most of the male respondents answered with their working location. In contrast, all female interviewees responded that the area reminds them of living in their own house. Therefore, the gender biases of respondents would be another study area for the perceived levels of meaning.

5.6 Chapter Summary

The results of this research verify that experiences affect the intended perceptions and the perceived intentions. Additionally, this research provides an understanding of how people construct meaning between the designer and the user. It also offers a way to understand how designers expressed their intentions through the built work. Therefore, a designer is uniquely positioned to sustain and master the transference of the intended meanings in the built environment.

APPENDIX A

THE PROFILES OF USER

The Profiles of Users

Respondents		Gender		Age	Length of Residence
		Male	Female		
Addison Circle	U1	■		19-30	Over three years
	U2		■	41-50	13 to 24 months
	U3	■		41-50	Over three years
	U4	■		Over 50	Over three years
	U5	■		19-30	13 to 24 months
	U6	■		19-30	13 to 24 months
	U7		■	19-30	25 to 36 months
	U8	■		31-40	Over three years
	U9		■	19-30	Over three years
	U10	■		19-30	One year
	U11	■		19-30	13 to 24 months
	U12	■		31-40	Over three years
	U13	■		19-30	13 to 24 months
	U14	■		19-30	13 to 24 months
	U15	■		31-40	Over three years
Austin Ranch	U16	■		19-30	13 to 24 months
	U17	■		31-40	Over three years
	U18		■	19-30	25 to 36 months
	U19	■		19-30	13 to 24 months
	U20	■		19-30	One year
	U21		■	41-50	One year
	U22	■		31-40	Less than one year

	U23		■	Over 50	One year
	U24		■	31-40	25 to 36 months
	U25	■		19-30	Less than one year
	U26	■		19-30	Less than one year
	U27		■	19-30	One year
	U28	■		19-30	One year

APPENDIX B

IRB APPROVAL LETTER

Institutional Review Board
Notification of Exemption

September 14, 2012

Chia-Yin Wu
Dr. David d Hopman
School of Architecture
Box 19108

Protocol Number: 2012-0840

Protocol Title: Semiotics and New Urbanism in North Texas: Comparing Designer
Intention and User Perception

Type of Review: **Exemption Determination**

The UT Arlington Institutional Review Board (IRB) Chair, or designee, has reviewed the
above referenced study and found that it qualified for exemption under the federal guidelines
for the protection of human subjects as referenced at Title 45 Part 46.101(b)(2). You are
therefore authorized to begin the research as of September 14, 2012.

Pursuant to Title 45 CFR 46.103(b)(4)(iii), investigators are required to, "promptly report to
the IRB _**any**_ proposed changes in the research activity, and to ensure that such changes in
approved research, during the period for which IRB approval has already been given, are **not
initiated without prior IRB review and approval** except when necessary to eliminate
apparent immediate hazards to the subject."   Please be advised that as the principal
investigator, you are required to report local adverse (unanticipated) events to the Office of
Research Administration; Regulatory Services within 24 hours of the occurrence or upon
acknowledgement of the occurrence.

All investigators and key personnel identified in the protocol must have documented Human
Subject Protection (HSP) Training on file with this office. Completion certificates are valid
for 2 years from completion date.

The UT Arlington Office of Research Administration; Regulatory Services appreciates your
continuing commitment to the protection of human subjects in research. Should you have
questions, or need to report completion of study procedures, please contact Robin Dickey at
817-272-9329 or robind@uta.edu. You may also contact Regulatory Services at 817-272-
3723 or regulatoryservices@uta.edu.

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BIOGRAPHICAL INFORMATION

Chia-Yin Wu was born in Taipei City, Taiwan. She has lived in the big of cities as well as suburban areas. She completed her associate bachelor degree from the College of Planning and Design, Department of Architectural Engineering at China University of Technology in 2004. After graduation, she immediately began working toward her bachelor degree from the College of Design, Department of Architecture at National Taiwan University of Science and Technology (NTUST). After Miss Wu graduated from NTUST, she has worked as an architect for two years. In the same time period, she has been with involved many building designs. After two years' working experience in architecture design practice, Chia-Yin joined the Landscape Architecture program, School of Architecture, at the University of Texas at Arlington. During her studies, Chia-yin was involved with Dalton Land Design as a landscape architecture student intern.