

Developing Practical Guidelines for Sense of Place using Visual Simulations: A Case
Study at Pier 21

by

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~ AUTHORS DECLARATION ~

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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~ ABSTRACT ~

Sense of place is important because it enhances the user experience in a setting, promotes well maintained public places and encourages public participation in planning. In addition, sense of place has recently been recognized for its significance in ecosystem and resource management. Unfortunately, due to lack of a clear definition and disorganization in the literature, the significance of sense of place has not translated well from theory to practice. This research narrows the gap between theory and practice in place-making by distilling common place-making principles from the literature to develop a set of clear, practical guidelines for place-making. Using Pier 21 in Halifax, Nova Scotia, these principles (and the techniques that fulfill them) were incorporated into twenty ‘what-if’ visual simulations. Using a multi-sort technique, combined with open-ended interviews, these simulations were used to evoke participant responses to the principles and techniques distilled from the literature. Generally, it was found that sense of place is enhanced with the addition of these principles/techniques, but five unexpected ‘key findings’ were also discovered – there is a hierarchy amongst the principles; there is a hierarchy amongst the techniques; significant techniques are lacking in the literature; the principles/techniques need not be exhausted; and, with familiarity, mystery becomes meaning. Practically, it is demonstrated that the guidelines developed through this research are capable of providing solutions to issues recognized in current Canadian design guidelines. Academically, this research presents an initial exploratory study in bridging the gap between theory and practice in place-making. A number of opportunities are recognized to further test the principles/techniques distilled in this research.

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~ CHAPTER ONE - INTRODUCTION ~

1.1 CONTEXT

Sense of place is an elusive concept. As defined by Steele, sense of place is “the pattern of reactions that a setting stimulates for a person. These reactions are a product of both the features of the setting and aspects the person brings to it (1981: 12).” While this seems straightforward, Tuan discusses a similar relationship between humans and their settings as topophilia or “the affective bond between people and place or setting. [Topophilia is] diffuse as concept, vivid and concrete as personal experience (1974: 4).” Similarly, Norberg-Schulz explores the *genius loci* or “[the] living ecological relationship between an observer and an environment, a person and a place (1980: 66).” Despite a difference in nomenclature, a review of this seminal literature confirms these authors to be discussing the mutually dependent relationship between conations, cognitions, and affect in place perception. They also suggest a loose hierarchy, with human needs and motivations (conations) being responsible for the way in which we gather and organize information about a setting (cognitions), which in turn leads to some form of emotional response (affect).

Beyond these seminal works, sense of place is more confusing. While Tuan (1974), Norberg-Schulz (1980), and Steele (1981) had distinct terminology to describe a similar phenomenon, subsequent literature has made little effort to further clarify these seminal works. Instead, subsequent literature has adopted Steele’s terminology to describe the relationship between humans and the environment, with every author providing a unique definition:

Sense of place refers to the connections people have with the land, their perceptions of the relationships between themselves and a place, and is a concept that encompasses symbolic and emotional aspects (Eisenhauer, Krannich, and Blahna, 2000: 422).

Sense of place [is] the meanings and attachments to a setting held by an individual or group (Stedman, 2002: 561).

Sense of place ... describ[es] the atmosphere to a place, the quality of its environment and possibly its attraction by causing a certain indefinable sense of well being that makes people wanting to return to that place (Billig, 2005: 118).

Sense of place can be conceived as a multidimensional construct representing beliefs, emotions, and behavioral commitments concerning a particular geographic setting (Jorgensen and Stedman, 2006: 316).

In addition, subsequent literature discusses the conative, cognitive and affective properties separately to increase the measurability of sense of place. This deconstruction has led to additional terminology, such as place dependence, place identity and place attachment, which are no more consistently defined than sense of place itself. Stokols and Shumaker (1981) and Rivlin (1987) recognize the conative or behavioral dimension as place dependence, which is subsumed by, and dependent upon the quality of place or the ability of a place to fulfill goals compared to other similar places (Stokols and Shumaker, 1981). The cognitive dimension of place, as described by Proshansky, Ittelson, and Rivlin (1970), Rivlin (1987), and Low, is place identity or “a cluster of positively and negatively balanced cognitions of physical settings (1992: 74).” Place attachment, or the affective dimension of place, as discussed by Low and Altman (1992), Rubenstein and Parmelee (1992), Giuliani and Feldman (1993) and Fuhrer, Kaiser, and Hartig (1993) is “the symbolic relationship formed by people giving culturally shared emotional/affective meanings to a particular space or piece of land (Low, 1992: 165).”

Like sense of place itself, each of these constructs receive a different definition depending on the author discussing them. With such confusion accompanying the deconstruction of sense of place into its component parts, the relationship between these dimensions has been eroded and the meaning of sense of place as a whole has been lost. Still, despite the lack of a common definition illustrating the interaction between conations, cognitions and affect, the literature notes how important it is for urban designers to understand sense of place. In the simplest sense, it is noted that settings with a strong sense of place (*topophilia/genius loci*) enhance the experience of the user:

The attractiveness to human beings of the sheltered cove by the sea is not difficult to understand. To begin with ... the recessions of beach and valley denote security ... the open horizon to the water incites adventure ... water and sand receives the human body that normally enjoys contact only with the air and the ground ... (Tuan, 1974: 115).

In the small town many of the secondary streets have steps, and the broken surface relief creates an exceptionally varied richness of urban spaces, which offer ever new perspectives and bits of panoramic views (Norberg-Schulz, 1980: 92).

Besides being threatening or uplifting, a mysterious setting can serve simply as an energizer ... they can provide rich experiences that break up the regular rhythm of our lives and provide changes of pace (Steele, 1981: 81).

In addition, Eisenhauer et al. recognize the value of sense of place in ecosystem management, advocating that “such connections with places can be a source of heightened levels of concern about management practices (2000: 421).” Stokols and Shumaker (1981) and Eisenhauer et al. (2000) believe that sense of place promotes well-maintained public places. Jorgensen and Stedman (2006) recognize the value of sense of place in resource management, and Yuen (2005) believes it encourages public participation in planning. Furthermore, the significance of sense of place is recognized in

the official plans of many Canadian cities. In Halifax, the *Regional Municipal Planning Strategy* (2006) notes:

Culture is about the past, the present, and the future. It is about creative expression and lifelong learning, and it is about community identity and a sense of place. HRM's aim is to reinforce cultural assets as functional components of HRM's urban and rural environments and to foster their continued contribution to the character, diversity, civic pride and economic development of the region (p. 115).

In the *Official Plan of the City of Waterloo*, an objective is, “to create a sense of place and a clear perceptual identity (2004: 265).” The more recent *Plan It! Waterloo: Final Objectives Report*, which recommends amendments to the official plan, “require[s] urban design that incorporates context by, amongst other things, defining neighbourhood and community character, identity and sense of place (2007: 10).” Finally, an objective of the *City of Victoria Official Community Plan*, is “to foster social interaction and community development to create a sense of place and neighbourliness, and a sense of belonging (1995: 3.1).” Where sense of place is absent, a setting suffers from placelessness, or “the weakening of distinct and diverse experiences and identities of places (Relph, 1976: 6),” and generates “a feeling of dis-ease, of being out of place, that can be very discomfoting (Steele, 1981: 205).”

Unfortunately, despite realizing the significance of sense of place in theory, there exists a substantial gap between theory and practice in sense of place research. The inability of the seminal authors to produce a common definition of sense of place, and for subsequent authors to consistently define the individual constructs, has impeded practical applications (Stedman, 2002; Jorgensen and Stedman, 2006). Jorgensen and Stedman observe that “the disorganization that has characterized much of the sense of place literature has been a barrier to its effective integration with ongoing concerns (2006:

316).” Therefore, the significance of this research is twofold. Practically, this research aims to bridge the gap between theory and practice in place-making, distilling a comprehensive definition from the literature, and producing a set of concise guidelines for practical application. Academically, this research poses some interesting questions for subsequent researchers, and provides a solid foundation from which to build future studies.

1.2 RESEARCH QUESTIONS

To address the gap in the literature exemplified above, this research begins by asking:

- Can a comprehensive definition of sense of place be distilled from the literature?

With sense of place defined, the research intends to provide a set of concise guidelines that can direct place-makers. To do this, three additional questions must be answered:

- What common place-making and design principles can be derived from the broader literature regarding sense of place?
- Does the introduction of these principles to an existing site enhance the sense of place?
- How can they be applied by practitioners, bridging the gap between theory and practice?

Resolving these research questions will provide the foundation necessary for this research to develop practical guidelines to bridge the gap between theory and practice in place-making.

1.3 THESIS ORGANIZATION

Chapter two provides a ‘passive’ review of the literature in order to determine a comprehensive definition of sense of place. By comparing the seminal authors (Tuan, 1974; Norberg-Schulz, 1980; Steele, 1981) and subsequent literature (Stokols and Shumaker, 1981; Altman and Zube, 1989; Altman and Low, 1992; Stedman, 2002, 2003; and Jorgensen and Stedman, 2006), sense of place is defined as *the interactive relationship between people and their environments, rooted in behavioural commitments developed over a lifetime, which determines how we perceive our settings, and therefore, our emotional response to that setting.*

Chapter three addresses the second research question by outlining the process required for empirical testing. First, the research methods are provided in detail, including the procedure for creating and presenting a defensible simulation, as well as the method of data analysis.

Chapter four compliments the review of the literature provided in chapter two, but with a more ‘active’ agenda. Here, a further review of the relevant literature answers the second research question, and distils a foundation of six place-making principles. In addition, a number of design techniques are drawn from the literature that are capable of satisfying these principles.

Chapter five provides a brief description of the case site to develop a context for the findings of this research. Pier 21 was selected for this research because it is one of Canada’s most important heritage structures, but the stark, barren property that surrounds it does not reflect the significance of the facilities within. Because of this contrast, the property surrounding Pier 21 presents a blank slate on which the principles/techniques of

place-making can be applied. This chapter includes a description of the physical location of Pier 21 on the Halifax Harbor, the historical significance of Pier 21 as an immigration port, and the current role of Pier 21 as an immigration museum and National Heritage Site.

Chapter six also addresses the second research question, presenting the findings of the empirical data. This research confirms that the distilled principles generally enhance sense of place, but adds five important ‘key findings’:

- *Finding # 1: There is a Hierarchy of Place-making Principles;*
- *Finding # 2: There is a Hierarchy of Place-making Techniques;*
- *Finding # 3: Place-making Techniques are Simplified in the Literature;*
- *Finding # 4: Place-making Principles/Techniques Need Not be Exhausted;
and,*
- *Finding # 5: Mystery is Dependent on the Familiarity of the User.*

Finally, in chapter seven the significance of this study is considered, including both the practical and research implications. For practical implications, the findings of this research are compared to three mid-size Canadian cities. It is exemplified that the reviewed design guidelines are not concise, one-dimensional and missing many of the principles/techniques derived from this research. Academically, this research provides a foundation for similar studies hoping to enhance the practicality of place-making, but has also raised a number of interesting questions and hypothesis that lend themselves to future research.

~ CHAPTER TWO – LITERATURE REVIEW ~

2.1 INTRODUCTION

Sense of place is a concept that lacks cohesion in the literature, ensuring research to this point has been predominantly academic with little practical application. While the purpose of this study is to explore this theory-practice divide, a concept as unclear as sense of place first requires clarification, as well as an inclusive definition that will carry throughout the research. Therefore, this chapter (2.2) outlines the evolution of sense of place, considering the seminal foundation provided by Tuan (1974), Norberg-Schulz (1980) and Steele (1981), as well as the contribution of subsequent literature, with the goal of distilling a comprehensive definition of sense of place.

2.2 DEFINING SENSE OF PLACE

Before examining the seminal works on sense of place, a distinction must be made between the literature *on* sense of place, and sense of place *in* the literature. There is a vast amount of literary works (fiction, poetry, folklore, etc...) that provide rich descriptions of people and their connections to a setting. As an example, Ondaatje (1997) focuses on the experience of an immigrant worker, carefully describing the protagonist's connections to the farm he grew up on, the neighbourhood he relocates to in Toronto, and a bridge he helps construct as part of the waterworks in the early half of the century. Kingsolver (2001) provides an equally compelling description of the connections between a recent widow and the farmland willed to her by her husband. However, to ensure a feasible scope, this review is limited to the literature *on* sense of place but acknowledges the significance of sense of place *in* the literature, both historical and contemporary, as it informs, and is referred to by, many of the authors in this review.

Beeler (1996) provides a more thorough examination of how contemporary literature aids in understanding the associations between people and their settings.

To distill a definition from the literature *on* sense of place, the following section examines the seminal foundation laid by Tuan (1974), Norberg-Schulz (1980), and Steele (1981). This involves identifying the similarities/discrepancies in their work, as well as their contributions to sense of place research. The work of subsequent authors (Stokols and Shumaker, 1981; Altman and Zube, 1989; Altman and Low, 1992; Stedman, 2002, 2003; Jorgensen and Stedman, 2006, etc...) is also reviewed, noting a shift from simply observing physical places. Instead, recent studies deconstruct sense of place into component parts in an attempt to enhance understanding and measurability. As a result, sense of place literature has become disorganized and confusing, hindering practical application. This evolution is illustrated in Figure 2.1:

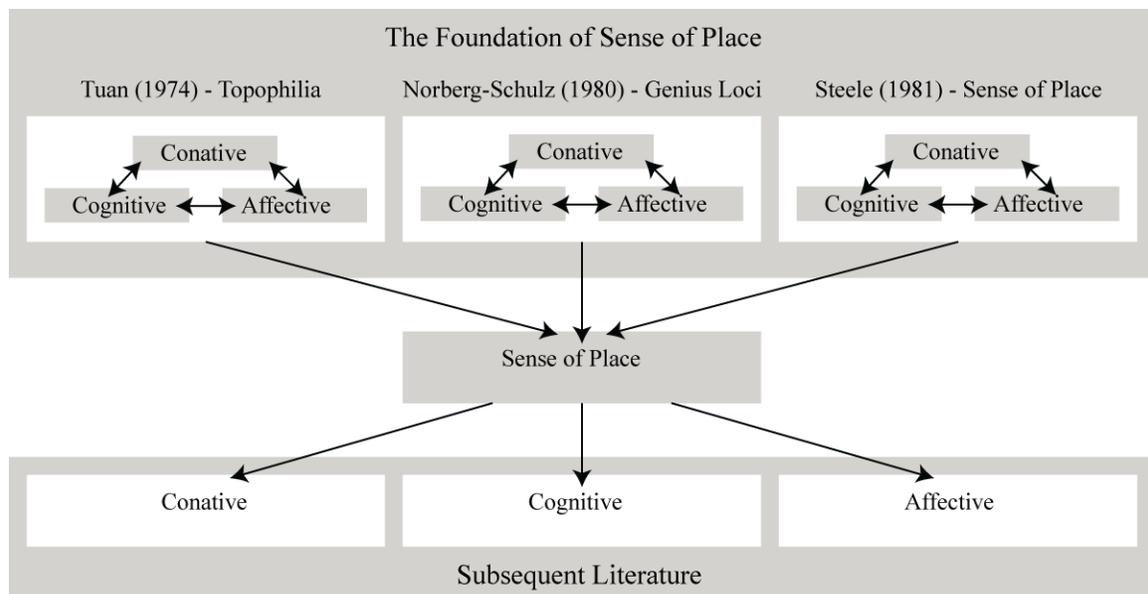


Figure 2.1: The Evolution of Sense of Place

2.2.1 Sense of Place: The Seminal Literature

The literature relevant to sense of place presents an inspirational foundation exhibiting potential for application in design. As the first scholars to devote entire texts to the relationship between people and their settings, Tuan (1974), Norberg-Schulz (1980), and Steele (1981) present a detailed account of such relationships, rooted in the observation of settings, designs, spaces and places. The following section considers the works of each author, compares their contributions to the field, and proposes a working definition of sense of place based on their findings. In discussing each author, it becomes obvious they inspired, and were inspired by other important authors, namely Lynch (1960), Proshansky et al. (1970), and Relph (1976).

2.2.1.1 Tuan (1974) and Topophilia

Over thirty-five years ago, as one of the earliest authors to discuss the relationship between people and their environment, Tuan describes topophilia as “the affective bond between people and place or setting (1974: 4).” However, before discussing the varying stages of affect (aesthetic appreciation, physical contact, familiarity and attachment, etc...), he introduces some necessary precursors of self-understanding – perception, attitude, value and world-view. Without this self-understanding, Tuan believes “we cannot hope for enduring solutions to environmental problems, which are fundamentally human problems. And human problems, whether they be economic, political, or social, hinge on the psychological pole of motivation (1974: 1).”

Throughout his work, Tuan (1974) suggests the bond between people and their environment is rooted in symbolism, and manifested through meanings and order. In traditional cities, this was cosmic symbolism, or the representation of heaven and earth,

the seasons, and the cardinal directions. He adds that the traditional city “[was] a symbol of the center; it is sacred and ordered space walled off from the profane world (1974: 226).” As an example of this, Tuan (1974) notes the Round City of Baghdad. Here, circular walls surrounded the city, anchored by the great palace in the center, and intersected by gates at each of the four cardinal points. In more modern cities, cosmic symbolism is replaced by the representation of the achievements of man. Nowhere is this more obvious than Washington, D.C., characterized by five grand fountains, and three impressive monuments - representing Washington himself, a Naval Itinerary Column, and a historic Column to anchor measurements of all distances throughout the continent.

Furthermore, in agreement with Proshansky et al. (1970), Tuan (1974) notes that awareness of a place is dependent on the individual, as a succession of cultural perceptions form the attitudes we bring to a setting. Later, phenomenologists such as Relph (1976) concur that the characteristics of an individual – body, weight, eyesight – as well as their motivations, affect perceptions of place. For example, the Kalahari Desert is “not only barren but devoid of landmarks, except for the baobab trees and even those grow far apart; some areas have none (Tuan, 1974: 78).” Still, these places were not featureless and empty to the Bushmen, as their motivations required knowing every bush and stone to ensure survival.

In addition to the natural environment, Tuan (1974) posits that the built environment is of equal importance in defining the character of a setting. The Manhattan skyline, for example, is such a symbol of New York, that it is instantly recognizable. The St. Louis Arch, Boston Commons, and Brooklyn Bridge are also noted for their aesthetic dominance, but also because they symbolize a gateway to the West, a sacred portion of

the community, and the transition from one place to another, respectively. Likewise, he notes how enclosed cities, both European and Asian, created a sense of mystery, encouraging those on the outside to imagine the delight within.

Once again concurring with the previous work of Proshansky et al. (1970), Tuan (1974) recognizes the special character of a setting that fulfills many needs. While Proshansky et al. (1970) use the library as an example, which allows for reading, eating, interacting, etc... Tuan (1974) discusses local markets, where visitors can shop, but also socialize and be entertained.

These expectations that we have of our settings, as well as our individual perception and responses to the characteristics discussed above - meanings, order, mystery, enclosure, interaction - are referred to by Tuan as topophilia, or “the affective bond between people and place or setting (1974: 4).”

2.2.1.2 Norberg-Schulz (1980) and Genius Loci

Shortly after Tuan (1974) introduces topophilia, Norberg-Schulz describes place as a “totality made up of concrete things having material substance, shape, texture and colour [which] determine[s] an ‘environmental character’ (1980: 7).” As children we discover these places and develop expectations that determine our future place experiences. Here, “human identity presupposes the identity of place (1980: 22).” Norberg-Schulz (1980) believes our expectations are a precursor to identification and orientation, which are the “primary aspects of man’s being-in-the-world ... Identification is the basis for man’s sense of belonging, [while] orientation ... enables him to be that [free wanderer], which is part of his nature (1980: 22).”

In dissecting some of the most widely recognized settings in the world, Norberg-Schulz (1980) considers what contributes to their unique 'environmental character.' For example, the author attributes the character of Prague mostly to its physical properties. In Prague, gates, courtyards and staircases create a continuous inside. Individual homes are embedded with historical significance and in stark contrast with the steep mountains behind them. And, the streets are characterized by a distinction between the grid system of the Old Town and the radial pattern of New Town streets, as well as narrow, meandering secondary streets (Norberg-Schulz, 1980). These characteristics define Prague, striking a balance between fear/mystery and enclosure/protection.

Similarly, the streets of Rome are given almost sole responsibility for the character of the city. Without sidewalks and stairs obstructing the streets, the homes are unified, promoting continuity and comforting enclosure characterized by colors, smells and a bustling atmosphere. While these characteristics are the paths, nodes, corridors, districts and landmarks, discussed previously by Lynch (1960), Norberg-Schulz (1980) contributes wonderfully illustrated examples.

In Khartoum, Norberg-Schulz (1980) exemplifies a naturally strong place. Here, it is the vastness of the desert, the unhurried flow of the Nile River, the extensive sky, and the scorching sun which combine to create a powerful place. Most importantly, Norberg-Schulz (1980) adds that the town has a significant natural location, at the union of the two Nile Rivers, allowing life to exist in the scorching desert.

In all of the settings described, Norberg-Schulz (1980) recognizes important existential components, namely the relationship between east/west, north/south, ground/sky, and the meanings associated with a place. As an example, in Prague, the

genius loci is characterized by the interaction between heavily rooted building bases, and immense vertical towers where “the mysteries of the earth find their counterpart in heavenly aspirations (Norberg-Schulz, 1980: 81).”

Using more local examples, that of Chicago and Boston, Norberg-Schulz (1980) suggests that the identity of a place is setting specific, and that while Chicago could absorb large architectural features, this would surely sever the sense of place found in Boston. On an even smaller scale, Norberg-Schulz (1980) notes the importance of functionality, labeling homes as a place of protection, while an office is defined by practicality.

All of these special characteristics – geographic location, meanings, order, mystery, enclosure – combine to form what Norberg-Schulz (1980) refers to as the *genius loci* of a place. While Norberg-Schulz (1980) provides a detailed discussion, it is Relph before him who explicitly defines *genius loci* as “a living ecological relationship between an observer and an environment, a person and a place (1976: 66).”

2.2.1.3 Steele (1981) and Sense of Place

Like Tuan (1974) and Norberg-Schulz (1980), Steele (1981) recognizes that special places depend on the eyes, ears, intentions, and moods of the persons who are experiencing it, and are not simply a result of their physical attributes. His sense of place is “the pattern of reactions that a setting stimulates for a person [that are] a product of both features of the setting and aspects the person brings to it (Steele, 1981: 12).” Using New York’s Fifth Avenue as an example, Steele (1981) notes visitors may be overwhelmed by building scale, heavy traffic, shops, and prices, while a local might be more intrigued by how window displays have been altered to reflect the season. Steele’s

(1981) sense of place is “used as both an *object* of people’s interest, concern, influence, attention, alteration, and enjoyment, and as a *cause* of people’s feelings, moods, responses, constraints, achievements, survival and pleasure ... [it is] an experience created by the setting combined with what a person brings to it (1981: 9).”

To characterize sense of place, Steele (1981) describes both features of the natural, and the built environment. In San Francisco, it is the natural contrast between the steep hills, and the flat bay surrounding them that creates a distinct geographical setting. In New York City, Tokyo and Rome, Steele (1981) credits the sheer scale of the built infrastructure, in contrast to the surroundings, for creating a unique environment. Alternatively, highly legible settings, or settings whose individual parts can be recognized and organized into a coherent pattern (Lynch, 1960: 2-3) are credited with a strong sense of place. Ethnic enclaves, such as New York’s Little Italy, are examples. Still in all these settings, the exchanges between users can not be discredited. Steele says San Francisco’s Ghirardelli Square is a special place because people relax and socialize there, and these “unplanned ‘natural festivals’ are prime ingredients in the spirit of place of any good city (1981: 67).”

At the smallest scale, like Norberg-Schulz (1980), Steele (1981) considers human relationships with the individual home. More specifically, he notes personal rooms, labeling them ‘Mom’s kitchen’ and ‘Dad’s workshop.’ These places are defined by feelings of security from the surrounding environment, personal identity, and social contact. In addition, Steele suggests that these settings facilitate personal growth through interaction, noting that, “the freedom to tinker with [a setting] is essential to its value as

an aid to growth, as it allows the person to test out or express the changes in themselves, and then help to stimulate the next set of changes (1981: 90).”

Steele (1981) also introduces the term spirit of place, which recognizes places that evoke the same meanings for many people, regardless of their individual motivations, such as the Grand Canyon, the Florida Everglades and the Seine River in Paris. The strong sense of mystery and enclosure in Prague and Rome, as discussed by Norberg-Schulz (1980), might also be defined as a spirit of place.

The interaction between individual motivations and the characteristics outlined above – interactions, security of personal spaces, mystery and enclosure – is labeled by Steele (1981) as the sense of place, or “the pattern of reactions that a setting stimulates for a person [that are] a product of both features of the setting and aspects the person brings to it (1981: 12).” In places that are experienced similarly by many people, the term spirit of place can be adopted.

2.2.1.4 Comparing the Seminal Authors

Initially, there appears to be a sharp contrast between the writings of Norberg-Schulz (1980) and that of Tuan (1974) and Steele (1981). Tuan (1974) and Steele (1981) use small-scale, easily relatable settings to illustrate the significance of *conations*, or the motivations and expectations that we have developed over time, in shaping *cognitions*, or the way we process information to make sense of our surroundings. The expectations of social exchange and entertainment at a farmer’s market (Tuan, 1974) and security inside the home (Steele, 1981) are examples used. On the other hand, after acknowledging this human element in his first chapter, Norberg-Schulz (1980) rarely mentions the inhabitants of his settings again, instead humanizing the environment, as if the unique

character would exist regardless of human perception. However, a closer look suggests two levels of a similar concept. Topophilia (Tuan, 1974) and sense of place (Steele, 1981) exemplify a personal, idiosyncratic relationship between people and their environment, while *genius loci* (Norberg-Schulz, 1980) is more closely related to Steele's (1981) spirit of place in that settings such as Rome, Prague and Khartoum are so potent that they evoke a similar universal response.

Furthermore, all three authors recognize the value of the physical environment, both man-made and natural, for evoking *affective* responses, or stirring emotions and feelings. Tuan (1974) focuses on physical symbolism, Norberg-Schulz (1980) discusses the built environment, and Steele (1981) pays particular attention to significant geographical settings. Still, their paths are not limited as Tuan (1974) also discusses significant geographic features (i.e. islands), Norberg-Schulz (1981) notes the importance of symbolic design, and Steele (1981) focuses a great deal on the role of the built environment in creating a sense of place.

Finally, the works of Tuan (1974), Norberg-Schulz (1980) and Steele (1981) produce two very significant commonalities. First, the authors indirectly introduce the key principles of sense of place examined in detail in chapter four. In all their works, the value of order/continuity, mystery, enclosure, slowing time, meanings and a multi-sensory environment is recognized. Secondly, while the seminal literature identifies that special places depend on the conative, cognitive and affective responses discussed above, it is also suggested that there is an interactive relationship between all three. And though interactive, a general hierarchy is even suggested with human needs and motivations (conations) being responsible for the way in which we gather and organize information

about a setting (cognitions) which in turn leads to some form of emotional response (affect). From this contribution of Tuan (1974), Norberg-Schulz (1980) and Steele (1981), a preliminary definition of sense of place can be developed. It is *the relationship between people and their environments, rooted in individual conations developed over a lifetime, which determines how we cognitively evaluate our settings, and therefore, our affective ties to that setting.*

2.2.2 The Conflicts of Subsequent Literature

While not explicitly realized by the authors themselves, the work of Tuan (1974), Norberg-Schulz (1980) and Steele (1981) inspired many researchers, and led to a succession of empirical studies. However, in attempting to analyze and measure the findings of Tuan (1974), Norberg-Schulz (1980) and Steele (1981), sense of place has been deconstructed into its component parts – namely the conative, cognitive and affective dimensions. This deconstruction attempts to enhance the understanding of sense of place, while complimenting the foundation laid by Tuan (1974), Norberg-Schulz (1980) and Steele (1981). As an example, where Tuan (1974), Norberg-Schulz (1980) and Steele (1981) recognized human interaction with the environment is based on individual motivations, research by Mazumdar and Mazumdar (1993), Hidalgo and Hernandez (2001), and Shamai and Ilatov (2005) have further studied the influence of race, sex, and class, respectively. Unfortunately, this subsequent literature is confusing and disorganized. For example, Steele's (1981) term 'sense of place' has seemingly been adopted as the preferred terminology to describe the conative, cognitive and affective relationship between humans and their settings, yet a common definition has still not been agreed upon:

Sense of place refers to the connections people have with the land, their perceptions of the relationships between themselves and a place, and is a concept that encompasses symbolic and emotional aspects (Eisenhauer et al., 2000: 422).

Sense of place [is] the meanings and attachments to a setting held by an individual or group (Stedman, 2002: 561).

Sense of place ... describ[es] the atmosphere to a place, the quality of its environment and possibly its attraction by causing a certain indefinable sense of well being that makes people wanting to return to that place (Billig, 2005: 118).

Sense of place can be conceived as a multidimensional construct representing beliefs, emotions, and behavioral commitments concerning a particular geographic setting (Jorgensen and Stedman, 2006: 316).

Furthermore, in deconstructing sense of place into conative, cognitive and affective dimensions to enhance measurability, a number of closely related terms have emerged – most commonly place dependence, place identity and place attachment. Like sense of place itself, these constructs receive no agreed upon definition in the literature. Stokols and Shumaker suggest that place dependence is “an occupant’s perceived strength of association between him- or her-self and specific places (1981: 457),” and is subsumed by, and dependent upon the quality of place or the ability of a place to fulfill goals compared to other similar places (Stokols and Shumaker, 1981). Place identity is defined by Low as “a cluster of positively and negatively balanced cognitions of physical settings (1992: 74).” And, place attachment is “the symbolic relationship formed by people giving culturally shared emotional/affective meanings to a particular space or piece of land (1992: 165).” Still, additional authors offer unique definitions of place dependence (Rivlin, 1987), place identity (Proshansky et al., 1983; Rivlin, 1987) and place attachment (Rubenstein and Parmelee, 1992; Giuliani and Feldman, 1993; and Fuhrer et al., 1993).

Worse than lacking a common definition, the literature following Tuan (1974), Norberg-Schulz (1980) and Steele (1981) has lost sight of the mutually interactive relationship between conations, cognitions and affect. Therefore, the meaning of sense of place as a whole has been lost. This disorganization and inconsistency in the literature has greatly hindered those attempting to advance practical applications (Hidalgo and Hernandez, 2001; Stedman, 2002; Jorgensen and Stedman, 2006). To remedy this, a practical, common definition of sense of place must be distilled that highlights the individual components of sense of place, but also their interactive relationship.

2.2.3 A Definition of Sense of Place

As a preliminary definition, based on the observations of Tuan (1974), Norberg-Schulz (1980) and Steele (1981), it was suggested (2.2.1) that sense of place is *the relationship between people and their environments, rooted in individual conations developed over a lifetime, which determines how we cognitively evaluate our settings, and therefore, our affective ties to that setting*. However, in considering these constructs individually, efforts by subsequent authors have produced a number of more straightforward, and practical, definitions. Jorgensen and Stedman provide a simple, practically adaptable, definition of sense of place. Their sense of place is “*a multidimensional construct representing beliefs, emotions and behavioral commitments concerning a particular geographic setting* (2006: 316).”

While the above definition recognizes the core dimensions of sense of place, it does not explicitly recognize their interactive relationship. As a more practical combination of the two definitions, sense of place is *the interactive relationship between people and their environments, rooted in behavioral commitments developed over a*

lifetime, which determines how we perceive our settings, and therefore, our emotional response to that setting. While Tuan (1974) and Norberg-Schulz (1980) use *topophilia* and *genius loci* respectively, Steele's (1980) nomenclature most clearly exemplifies this relationship. Therefore, the remainder of this research adopts the term sense of place, with the understanding that this includes the cognitive, conative and affective ties between humans and their settings.

2.3 CONCLUSION

The seminal works on *genius loci*, sense of place, and *topophilia* suggested that sense of place is the hierarchical (but also interacting) relationship between the motivations we carry with us, how we make sense of our environment, and the emotional responses evoked in a setting. In attempting to make sense of place easier to understand and measure, subsequent literature discusses these three facets separately, rarely recognizing their interconnections, and in essence, dissolving the meaning of the term. A number of additional terminologies introduced, such as place identity, place attachment and place dependence, have lead to confusion in the literature, and greatly hindered practical applications.

To clarify sense of place before empirically testing it, this research concludes that sense of place is *the relationship between people and their environments, rooted in behavioral commitments developed over a lifetime, which determines how we perceive our settings, and therefore, our emotional response to that setting.*

~ CHAPTER THREE - METHODS ~

3.1 INTRODUCTION

To resolve the third research objective (*does the introduction of these principles to an existing site enhance the sense of place?*), a visual simulation was used to create ‘what if’ scenarios, representing design changes to the Pier 21 case study site. These simulations incorporated six fundamental principles of place-making (derived in chapter four). Using semi-structured interviews, the perceptions of participants were evaluated to determine if and how the principles (and design techniques that satisfy them) enhance sense of place in a setting. This chapter is presented in six sections. The first section (3.2) defines the context of the research within the paradigms of landscape perception. The next section (3.3) outlines the preparation of a simulation and justifies the use of visual simulations in environmental preference studies. This section also discusses how a defensible methodology was established in the creation of the simulations by following practical guidelines introduced in the literature. Section 3.4 outlines how the simulations were combined with the pile sort technique to evoke cognitive and affective responses from the participants. Section 3.5 focuses on data analysis, explaining the coding used, the method of transcription, and how the data was analyzed using content analysis. The final section (3.6) explains the quality checks used in this research, focusing on internal validity, reliability and generalizability.

3.2 RESEARCH PARADIGMS IN LANDSCAPE ASSESSMENT

As demonstrated in chapter two, a significant amount of social science research is dedicated to sense of place. After clarifying the concept of sense of place, this research (chapter four) distills six foundational principles of sense of place. Until this point, no

research has attempted to distill a set of principles that are common across the broader sense of place literature in an effort to bridge the gap between theory and practice. Therefore, the research at hand warrants a naturalistic, exploratory approach. Exploratory research in the social sciences is defined by Stebbins as “a broad ranging, purposive, systematic, prearranged undertaking designed to maximize the discovery of generalizations leading to description and understanding of an area of social or psychological life (2001: 3).” This approach will allow the researcher to test assumptions and develop hypotheses about sense of place and its determinants.

This research is also situated within the field of environmental perception. In *Landscape Perception: Research, Application and Theory*, after completing an extensive review of the environmental perception literature, Zube, Sell and Taylor (1982: 7) further situate the works within four paradigms – the expert paradigm, the psychophysical paradigm, the cognitive paradigm, and the experiential paradigm. In the expert paradigm, landscape quality is evaluated by highly skilled experts. Trained in art and design, resource management or ecology, it is assumed that intelligent landscape planning and design practices have inherent aesthetic effects (1982: 8). The psychophysical paradigm on the other hand aims “to develop models that provide accurate and reliable predictions of person’s perceptions of landscape quality based on objective measures of the physical features of the landscape (Daniel and Vining, 1983: 58).” It is assumed that landscape properties are a stimulant that produces a behavioral or evaluative response in observers, and this research aims to understand the process that occurs when these landscapes are perceived (Zube et al., 1982). Because the research at hand seeks to uncover the meanings associated with places, the process and extent to which an environment

produces responses is not relevant to the objectives of this study. The final two paradigms discussed by Zube et al. (1982), as well as phenomenology, are more closely related to this research and therefore require more in-depth consideration.

3.2.1 The Cognitive Paradigm

The cognitive paradigm involves the search for human meaning associated with entire landscapes, or landscape properties. These meanings are based on past experiences, future expectations and socio-cultural conditioning (Zube et al., 1982). Cognitive research is common in landscape perception research, such as the study at hand, because it seeks to “[provide] insight into the understanding of the process that occurs when landscape is perceived (Zube et al., 1982: 15).” According to Deadman and Gimblett:

Cognitive assessment models are extremely important in improving landscape assessment and recreation behaviour models, as well as providing a framework for intelligent agent design because they evaluate landscape quality using an explicit theoretical structure describing underlying cognitive processes influencing human perception, preference for landscape and perceived opportunities to engage in recreation activities (1994: 124).

However, it is this strong theoretical base that separates cognitive research from the paradigms that follow. Because cognitive research aims to identify, during the thought process, the predispositions or interventions that result in valued landscapes (Zube et al., 1982), it is beyond the objectives of this research. At the exploratory stage, this research is not yet concerned with *why* people prefer different landscapes, but is instead looking to simply identify *what* landscapes people prefer. Therefore, experiential research or phenomenology is more suitable as a dominant research paradigm.

3.2.2 The Experiential Paradigm

The final paradigm devised by Zube et al. (1982) is the experiential paradigm. This approach considers the value of the landscape to shape, and be shaped by the interactions of humans on a situational basis. Zube et al., suggest that “the experiential paradigm views both landscape and humans as mutually-interacting entities, landscape values developing over time in association with the individuals or groups (e.g. national, socio-economic, sex) in the interacting system (1982: 19).” Fritz Steele’s *Sense of Place* (1981: 4) provides a good example. When discussing the different experiences of pedestrians on New York’s Fifth Avenue, Steele notes that “experience of place ... can never really be described as simply a function of its physical attributes; we must also take into account the eyes, ears, intensions, and moods of the persons who are experiencing it.” Furthermore, there is a common thread of awareness of the landscape’s relationship to self or group identity (Steele, 1981: 9; Zube et al.: 19). In short, the experiential paradigm can be considered an analysis of public behavior (Bishop, Ye, Karadaglis, 2001: 115), or the conscious and direct experiences we have of the world around us (Relph, 1976: 4).

3.2.3 Phenomenology

Phenomenology is very similar to the experiential paradigm discussed by Zube et al. (1989), and in some cases (Bishop et al., 2001), no distinction is made between the two. Defined as “active participants in the landscape whose feeling for the landscape could be judged by their behavior in it and their reported motivations (2001: 115),” phenomenology includes artistic expressions of the landscape, the way cultures, communities and individuals develop their landscapes, observation of behavior, and the

use of detailed personal interviews (2001: 115). Norberg-Schulz (1980: 8), describing the phenomenon of place, adds that phenomenology is a 'return to things,' contrary to abstract theories. Phenomenology encompasses people, animals, flowers, trees, forests, etc... but also more abstract phenomena such as meanings (1980: 6).

3.2.4 Selecting A Paradigm

While experiential research and phenomenology are similar, Relph exemplifies an important difference between the two. He asserts that phenomenological studies explicitly deal with immersion of participants, emphasizing that "scientific geography can be understood as a response to our existential involvement in the world, [but] it is nevertheless far removed from the livid world in attempting to make man, space and nature objects of inquiry (1976: 6)." Thus, as this research utilizes photographs as surrogates for real place experiences, it falls outside of phenomenology. Instead, this research is predominantly grounded in the experiential paradigm and occasionally overlaps with elements of the cognitive paradigm (but never to the point of trying to determine psychologically why one participant prefers a different landscape than the next).

Having placed this research within the experiential paradigm, it is recognized that there are those opposed to the use of surrogates to represent real place experiences. However, the experiential literature (Scott and Canter, 1997; Meitner, 2004; Rohrmann and Bishop, 2002, etc...) provides a defensible foundation for the use of photographs to elicit perceptions of place. For visual simulations, the credibility of such a surrogate remains entirely dependent on its representational validity, and will therefore require great scrutiny to ensure its defensibility.

3.3 PREPARATION OF A VISUAL SIMULATION

While Scott and Canter (1997), Rohrman and Bishop (2002) and Meitner (2004) provide a solid foundation for the use of visual simulations in place perception research, a detailed description of the process involved in creating such a simulation enhances the foundation laid by the authors above. This section describes the process by first justifying the use of visual simulations (3.3.1) and then outlines the procedure to ensure the design process follows a defensible methodology (3.3.2).

3.3.1 Justifying the Use of Visual Simulations

While there are those who are opposed to the use of surrogates to represent real place experiences, the following section provides a justification for this method. First the effectiveness of visual simulation for eliciting preferences is considered, followed by a description of the ‘what-if’ scenarios often used in place perception research. Next, whether photographs are a valid surrogate for real place experiences is discussed, noting the requirements of a good simulation.

3.3.1.1 Using Visual Simulation to Elicit Preferences

To satisfy the third objective of this research, and determine if specific design interventions to an existing site will enhance sense of place, this research relied on the use of visual simulations. Sheppard defines a visual simulation as “a picture that illustrate[s] or simulate[s] the appearance of a proposed design or construction project (1989: 3).” This includes sketches, perspective drawings, photomontages, scale models, and any other simulation media which shows a view in perspective, from a particular viewpoint, as we would experience the actual environment (1989: 4). With the increasing interest of public participation in the planning process, this visual communication has

become a tool to engage the public, as well as inform them (Appleton and Lovett, 2005: 323). Al-Kodmany believes these visual simulations are “the key to effective public participation because it is the only common language to which all participants – technical and non-technical – can relate (1999: 38).” Meitner adds that “the use of surrogate stimuli is necessary and has been a preferred and cost-effective method to assess human perceptions and evaluations of natural environments (2004: 4).” It is justified by the alternative expense of taking large numbers of people to directly experience a site (Meitner, 2001: 62). While having a simulation of existing characteristics is supportive, a vast amount of literature in environmental perception utilizes ‘what if’ scenarios (B. Tress & G. Tress, 2003; Rodieck and Fried, 2005; Lewis & Sheppard, 2006).

3.3.1.2 *‘What If’ Scenarios*

A ‘what if’ visualization presents an image of an environment in which the participants are generally familiar, but demonstrates what a future development might look like (Lewis & Sheppard, 2006: 293). This is ideal for the research at hand because it “allows the development of several alternative future landscapes while being aware of the uncertainties (B. Tress and G. Tress, 2003: 163).” Therefore, with relative ease the existing environment can be manipulated, producing various images based on the sense of place principles derived in chapter four of this research.

When using ‘what if’ scenarios, it is important to ensure that the simulations are not simply idealized, but exhibit changes that could happen in reality. As all simulations require assumptions on the part of the preparer, this recognition of reality allows any assumptions to be rooted in reason, coherence and consistency (B. Tress and G. Tress,

2003: 163) and therefore defensible. Still, there is a recognized concern of whether photographs are valid surrogates for real place experiences.

3.3.1.3 Are Photographs a Valid Surrogate for Real Place Experiences?

The validity of using photographs as a surrogate for real place experiences has been well documented (Scott and Canter, 1997; Lange 2001; Bishop and Rohrmann, 2003; Meitner, 2004; Nicholson-Cole, 2005). However, to apply this conclusion to visual simulations there are a number of additional factors which must be discussed, including response equivalence, abstraction, sufficient levels of realism, and proper perception of visual media.

Response Equivalence

When considering the use of photographs to represent real environments, Stewart, Middleton, Downton, and Ely posit that “if photographs are representative, then the relations among the elements of a sample of photographs will reproduce the relations among the corresponding elements of the environment (1985: 284).” As an example, Kellomaki and Savolainen measured the scenic value of tree stands using field visits and photographs and concluded that “[they] could be ranked according to their scenic value on the basis of photographs without any field experience (1984: 100).” Similarly, Stewart et al. (1985) studied the relation between actual field and photographic judgements of visual air quality. Using three different methods of evaluation, including analysis of individuals (as opposed to groups), multiple judgements, and the examination of relations among systematic components of variation in judgements, a strong correlation was noted between the judgements of photographs and actual field studies.

When using visual simulations, this correlation between images and actual experience is referred to as response equivalence, or “the amount and direction of bias in people’s responses to simulations by comparing their reactions to the real project with reactions to the simulation (Sheppard, 1989: 140).” A number of studies have expanded on the findings of Stewart et al. (1985), and Kellomaki and Savolainen (1984), and found computer simulations to be valid surrogates for actual place experience. As an example, Oh (1994) compared the judgment of four simulation methods to the actual place and found that the most realistic image processing simulations were most similar to the actual experience, and the greater the detail, the more confident respondents were that they were viewing actual landscapes. Similar results were found by Daniel and Meitner (2001), comparing simulations at four different levels of abstraction, who found that simulations intending to act as surrogates for actual place experience would be valid, but only if high levels of realism were achieved.

Based on the abovementioned studies, a large body of research has compiled (Scott and Canter, 1997; Bishop et al., 2001; Appleton and Lovett, 2005; Dockerty, Lovett, Appleton, Bone, and Sunnenberg, 2006, etc...) that uses simulations as surrogates for actual settings. However, Bishop and Rohrman (2003: 263) warn that researchers should never expect complete response equivalence, as the richness and complexity of reality are impossible to match. Still, the greater the similarity, the more trust we can put in simulations as a tool (2003: 263) and though visual simulations can not generate the exact response to the actual landscape, they provide valid outcomes for most aspects of environmental perception and are especially valuable when field visits are impractical, or in the case of ‘what-if’ scenarios, not possible.

Abstraction

Another important consideration for the validity of photographs as a surrogate for real place experience is abstraction. Ervin describes the level of abstraction as “the filter by which information is selected, discard[ed], [and] highlighted in representation (2001: 60).” Therefore, Lange concludes that “a simulation ... is always a more or less abstracted version of the complex reality (2001: 165).” Abstraction at moderate levels is acceptable, and important, as it can allow visualization technology to be used by the moderately experienced (Sheppard, 1989: 112). For example, simulations lacking full color and detail, but including tonal detail and all major landscape elements are as valid as precise simulations (1989: 84). Beyond an appropriate level however, there is a limit to using abstraction as a basis for evaluating preference. The missing information in highly abstract simulations can lead to personal assumptions on behalf of the viewer, which in turn leads to misunderstanding (B. Tress and G. Tress, 200: 162).

Realism

Closely related to response equivalence and levels of abstraction, is the degree of realism, or how closely a simulation resembles the actual setting. Broadly, studies (Bishop, 2002; Appleton and Lovett, 2003; Meitner and Sheppard, 2005) find that the more realistic an image is, the more effective it is as a surrogate. However, Ervin goes one step further to distinguish between simulations that ‘look like’ and simulations that ‘act like,’ the actual setting. He concludes that the former is sufficient for some inferential and rhetorical purposes, but for many other purposes, the latter, showing a full range of environmental dynamics, is required (2001: 61). For the research at hand, and to satisfy the second objective (*does the introduction of these principles to an existing site*

enhance the sense of place?), Rohrmann and Bishop note that “an environmental simulation [is] considered valid [if] it ... evoke[s] a similar set of responses as would a direct experience of the same environment. This should encompass both the cognitive and affective facets of response (2002: 321).” Therefore, provided they are capable of evoking both cognitive and affective responses, simulations that ‘look like’ the setting they represent should be sufficient.

While a number of studies (Oh, 1994; Daniel and Meitner, 2001) have demonstrated that simulations are capable of evoking responses similar to those of the actual setting, research by Rohrmann and Bishop (2002) has made further valuable comparisons. First, using simulations that included audio recordings of everyday sounds, Rohrmann and Bishop (2002) were able to make direct comparisons between ‘looks like’ and ‘acts like.’ While it was found that familiar sounds helped enhance realism, the research concludes that simulations remain a valid representation to most participants, providing the ‘looks like’ features (shadows, lighting, weather, etc...) are realistic. In a second study, Bishop and Rohrmann compare similar research to the actual setting and conclude that, “the simulations are producing affective response measures that do not always match the absolute affective pattern induced by reality. However, relative responses seem to be generally reliable and the value of presenting environments via computer graphics ... is supported (2003: 276).”

For efficiency, numerous studies have attempted to define an acceptable level of realism, or to what extent a simulation needs to ‘look like’ the actual setting. In their research, Appleton and Lovett clarify the need for a sufficient level of realism, suggesting it is a “vital part of the efficient production of effective landscape visualizations (2003:

118).” Perkins determines a “good enough” visualization as one that “has a high degree of perceived realism, conveys maximum quality, contains enough data, yet is efficient in terms of equipment costs, storage and management (1992: 266).” When additional improvements in quality no longer reflect improvements in response equivalency, we can be sure the visual simulation is sufficient (1992: 266).

Equally as important as finding a sufficient level of realism is being careful to avoid too much realism, or encouraging the ‘wow effect.’ This is blind acceptance of a simulation because it looks pretty. With the ‘wow effect’ a simulation becomes a form of entertainment that is often counterproductive because the viewer is so distracted by the simulation that they forget the actual issue, or form a biased impression that will transfer to the project (Sheppard, 1989; Appleton and Lovett, 2005; Tress and Tress, 2003). However, Tress and Tress (2003) are confident that when the stakeholder has sufficient knowledge of the designated area, any visualization inaccuracies or manipulation attempts will be recognized.

Perceiving a Picture vs. Perceiving the Place

Finally, in considering whether simulations can be a valid surrogate for real place experiences, it is essential to consider how the image is being perceived. For example, Scott and Canter (1997) use a technique known as multiple sorting (discussed in section 3.4.1) to distinguish between perception of a photograph and perception of the place. After sorting a group of photographs, the subjects were asked to imagine they were *in* the place photographed, and re-sort the images. The second time, people used their own knowledge of the area and inferences were made regarding people, places and non-visual elements that were not actually present in the image. Likewise, while eliciting preference

for outdoor enhancements at a retirement facility, Rodieck and Fried instructed participants to consider the images as a representation of a facility they might reside in to “encourage responses on what it would be like to be actively engaged *in* and *with* the landscape, rather than merely a passive viewer of the landscape (2005: 191).” Again, responses such as “doesn’t make you feel closed-in,” suggests participants were able to place themselves in the setting. Similar results are found by Daniel and Meitner, testing the validity of visual simulations, when observers are instructed to not “attend to the graphic qualities of the images presented, but that they should use the image to get an idea of what the forest area represented is like (2001: 67).”

3.3.1.4 What Constitutes a ‘Good’ Simulation?

While visual simulations can be highly realistic, and valuable to public interest groups, their quality is often questioned (Orland, 1992: 257). In a number of his works, Sheppard (1989; 2001; 2006) stresses the evaluation of a ‘good’ simulation. Simply put, a ‘good’ simulation is defensible because it is (1) understandable, (2) convincing, and (3) unbiased.

Understandable

A simulation is understandable “if users can gain sufficient meaningful information from it without ambiguity, confusion, or difficulties in recognition. Conversely, simulations can be hard to understand if they are unclear, chaotic, or incomplete, or if they contain obvious errors (Sheppard, 1989: 52).” A visually clear simulation is ‘unambiguously expressed, is presented without loss of detail, contrast or sharpness, and is free of distracting or contrasting elements (1989: 96).’ If unclear, a simulation can lead to misinterpretation. This is common when a preparer does not

consider their audience, and presents unsuitable information (i.e. complex maps) that is not easily understood by lay people (1989: 52). Also related to understanding is interest in the visualization. A successful simulation should be capable of engaging and maintaining the attention of the audience (Sheppard, 2001: 194), as well as involving them in the task-at-hand (Sheppard, 1989: 98). An unengaged audience presents the risk of missing important information, and relying on initial impressions (1989: 99).

Credibility

The second criterion of a good simulation is that it is convincing, or credible. A simulation is convincing “if the people who are interpreting it believe that the real scene would look like or be like that which is simulated, or that the information contained in the simulation is correct (Sheppard, 1989: 54).” On the contrary, when simulations are thought to be misleading, regardless of whether they actually are, distrust can occur (1989: 55). Legitimacy and transparency are important in the credibility of a simulation. Legitimacy assumes that the visual simulation is defensible against attacks on its credibility because the level of accuracy and representativeness is easily demonstrated, and presented along with the simulation (Sheppard 1989: 100; 2001: 194). This also includes any pertinent non-visual information (Appleton and Lovett, 2005: 329). This demonstration of accuracy, or “the extent to which errors become self evident under ordinary visual inspection, and the extent to which a viewer can retrace the steps followed in preparing the visualization (Sheppard, 2001: 190)” is known as transparency. Where a project is sufficiently transparent, attention devoted to arguing over the validity of the simulation can be averted to more important aspects of the project (Sheppard, 1989: 100).

Unbiased

Finally, a simulation is unbiased when it evokes response equivalence. This requires a simulation that is both representative, and accurate. A proper representation ensures that all the typical views and conditions of the landscape are shown (Sheppard, 2001: 194). A typical view to be represented is “one which gives a view that is distinctly different from other important views and in reality would be seen by significant numbers of people on a regular basis (Sheppard, 1989: 65).” This includes a worst-case scenario, or views in conditions that drastically influence the setting (1989: 76). Furthermore, Lange (2001: 171) asserts the importance of including all elements of the back, middle and foreground while Sheppard (1989: 67, 73, 76) notes that a proper field-of-view including all elements seen in reality that form the context of the project, no less than 45 degrees, should be represented.

An accurate visualization shows a view that is “not significantly different in appearance from the real view when seen from the same viewpoint (Sheppard, 1989: 76).” Even a small inaccuracy in the exiting part of the image can cast doubt on the entire simulation (Appleton and Lovett, 2005: 331). Sheppard (1989) distinguishes between inaccuracies in subject matter, and inaccuracies in image elements. Inaccurate subject matter makes images appear more attractive than accurate (Orland, Vining, and Ebreo, 1992: 306) including the omission of clutter, and surrounding context in the field-of-view, as well as showing objects in improper numbers or location or including vegetation that will not appear in the constructed project (Sheppard, 1989: 88). Inaccurate image elements include inconsistencies in color, tone, shape, scale, detail, etc... as well as abstraction and distortion (1989: 88).

While visual simulations will always be influenced by sources out of the hands of the preparer, adhering to the advice above (summarized in Figure 3.1) should ensure that simulations meet the essential objectives of being understandable, convincing and unbiased, insuring the preparer in the event that the project is altered from the original simulation (Sheppard, 1989: 100).

<i>A simulation is...</i>	<i>When it is...</i>	<i>Which means...</i>
Understandable	Visually clear	It is presented without loss of detail, contrast or sharpness, and is free of distracting or contrasting elements.
	Interesting	It is capable of engaging and maintaining the attention of the audience, as well as involving them in the task-at-hand.
Credible	Legitimate	It is defensible against attacks on its credibility because the level of accuracy and representativeness is easily demonstrated, and presented along with the simulation.
	Transparent	Accuracy is demonstrated by the extent to which errors become self evident under ordinary visual inspection and the extent to which a viewer can retrace the steps followed in preparing the visualization.
Unbiased	Representative	All the typical views and conditions of the landscape are represented.
	Accurate	It is not significantly different in appearance from the real view when seen from the same viewpoint.
	Response equivalent	The reaction of the observer is similar to that which would be obtained with views of the real scene.

Figure 3.1: The Requirements of a 'Good' Simulation (Sheppard, 1989)

3.3.2 Developing a Defensible Methodology

As Sheppard's (1989) text is the seminal work in the field of visual simulation, it is his guidelines, with support from other environmental perception literature, which was

followed in this research to ensure the defensibility of the simulations. The process for developing a defensible methodology requires the simulation preparer to define the purpose of the simulation, scope, and method of simulation, as well as the most effective method of presentation.

3.3.2.1 Purpose of the Simulation

The first step proposed by Sheppard (1989: 108) is to define the purpose of the simulation, which should also reinforce the appropriateness of using a simulation. Ervin (2001: 58) concurs, and adds that defining the purpose of the simulation helps decide the amount of detail that should be included. As a reminder, the third objective of this research (*does the introduction of these principles to an existing site enhance the sense of place?*) warrants the use of ‘what-if’ scenarios, and therefore, visual simulations.

3.3.2.2 The Scope of the Simulation

The second step in creating a defensible simulation is to define the scope of the simulation, or what is necessary to represent. This includes the presentation audience, selection of the viewpoints that will be represented, and the number of images required. Sheppard (1989) also recommends a description of the case-study site when defining the scope of the simulation, which is reserved for chapter five.

Audience

Even as a hypothetical exploration, the participants who observe the simulations are of great importance. It is the reaction of the audience that determines response equivalence, the bedrock of simulation credibility. Determining what level of exposure to and understanding the audience has with simulations (Sheppard, 1989: 109) we are

able to create a level of understanding that is sufficient and does not result in discussions based on incorrect information (Sheppard, 1989: 52).

Within the environmental perception literature, there are a number of methods utilized for selecting participants depending on the nature of the project. While attempting to define a sufficient level of realism for environmental perception, where familiarity with the site is not required, Appleton and Lovett use departmental email, personal recruitment and leaflets to recruit a group of students from the University of East Anglia. Such participants ensure access to, and familiarity with the required technology (2002: 121).

The following examples are more selective in choosing participants. While testing perception of outdoor access at retirement homes around Houston, Rodieck and Fried (2005) employ participants from thirty-four facilities in the area, providing they are physically able to access the outdoors. These participants were requested weeks in advance, and reminded again on the morning of. Lewis and Sheppard are equally selective when researching forest management amongst indigenous communities. Focusing on the Cheam tribe of British Columbia, their important selection criteria includes knowledge of traditional culture, role in the community and communicative ability (2006: 298).

For the scope of this research, the latter path was followed, being slightly selective in participant involvement. As mentioned previously, the experiential approach to environmental perception research includes “active participants in the landscape whose feeling for the landscape could be judged by their behavior in it and their reported

motivations (Bishop et al., 2001: 115).” Therefore, it is these participants who are familiar with Pier 21 that were considered for this study.

As suggested by Walliman (2005), the empirical testing in this research consisted of thirty participants, or the minimal number to ensure an in-depth exploration. These thirty participants included a mix of male and female, with the largest proportions being between the ages of 21-25 and 51-55. The complete age/sex breakdown of these participants is as follows:

Age	Male	Female
21-25	3	6
26-30	1	2
31-35	3	1
36-40		2
51-55	2	4
56-60	2	1
71-75	1	1
76-80		1
Total	12	18

Figure 3.2: Participant Breakdown by Age

Of these thirty participants, the majority (19) were interviewed on-site at Pier 21, but interviews were also held outside of Halifax (3), and in Toronto (8). This variety of locations helps to ensure the findings of this research are valid, reliable and can be generalized (refer to Section 3.6).

More specifically, it was hypothesized that the level of familiarity would have an affect on the results of this research and was therefore considered at two levels. Sixteen of these participants possessed a direct, in-depth familiarity with Pier 21, such as the employees or volunteers. The remaining fourteen participants had a more passing or superficial familiarity, such as visitors or those who have never visited but are familiar with pier 21. A detailed breakdown of these participants is as follows:

	Male		Female	
	Intimate Familiarity	Indirect Familiarity	Intimate Familiarity	Indirect Familiarity
Employees	3		7	
Volunteers	1		5	
Visited		3		2
Never Visited		5		4
Total	4	8	12	6
	12		18	

Figure 3.3: Participant Breakdown by Familiarity

To secure the involvement of those most familiar with Pier 21, clearance was received from Carrie-Ann Smith, Manager of the Pier 21 Society Research Department, to conduct interviews inside Pier 21, with full access to employees/volunteers who were willing to participate. This also presented the opportunity to invite those less familiar participants who were just visiting the museum for the day to participate in the study. Choosing a sample of participants that are highly familiar with Pier 21 ensured the level of accuracy and representativeness of this work generated a credible simulation, as any inaccuracies or attempts at manipulation would be quickly recognized by those who frequent the setting (B. Tress and G. Tress, 2003: 74).

Viewpoints

Determining viewpoints during the scope of the research is important because, referring back to the previous section (3.3.1.4), viewpoint selection ensures simulations are legitimate and defensible. Simulating viewpoints that are representative of typical views, and not significantly inaccurate in relation to the actual view, ensures simulations are free of bias. Furthermore, if this representativeness and accuracy is easily demonstrated, it is safe to assume simulations are credible. Sheppard (1989: 109) distinguishes between two steps of determining viewpoints; identifying views that are representative of important views experienced by the public, and identifying the important project characteristics, or extreme situations, that need to be represented.

As discussed above, the criteria for a fully representative project include simulations that:

- present unique views that in reality would be seen on a regular basis by many people (1989: 65),
- represent the worst-case scenario, or all conditions that drastically influence the project (1989: 76),
- are complete in showing all elements of the back, middle, and foreground, to increase the depth and immersion (Lange 2001: 171; Rodieck and Fried, 2005: 190), and,
- present a realistic field-of-view, which includes all elements seen in reality that form the context of the project (Sheppard, 1989: 67, 73, 76).

Scott and Canter (1997) note that simulators often select viewpoints which they *think* will elicit responses from the observers, which is sure to result in biased responses. Therefore to accomplish the above criteria, it is essential in one way or another, to have the participants select viewpoints for you. In fact, while distinguishing between the perception of a photo and the perception of the place represented in the photo, Scott and Canter (1997) have the participants photograph the setting themselves to ensure familiarity with the sites chosen. A similar method is used by J. Collier and M. Collier (1985), when photographing an Otavalo Indian weaver. When accused of portraying the craftsman as a poor weaver with an initial set of photos, Collier suggested the weaver tell him which shots would fully represent his craft for the second set. The results were much more satisfying. Another similar option, used by Lewis and Sheppard (2006) with the Cheam, is to identify the viewpoints with the assistance of valued stakeholders.

Like the researchers above, and to follow the experiential framework, the viewpoints selected came from those who frequent the site. However, instead of soliciting important viewpoints from those directly involved in the interviews (visiting participants were unknown until the day of the interviews, so this method would have been impossible to be inclusive), the setting was observed on three different occasions to recognize the views that might be seen most frequently by the general population who use the setting. These views are shown in Figures 3.3-3.6 below:



Figure 3.4: Viewpoint # 1 - Toward Pier 21 Approaching from the Waterfront of Downtown Halifax



Figure 3.5: Viewpoint # 2 - Looking Toward Pier 21 Approaching from the Parking Lot



Figure 3.6: Viewpoint # 3 - Looking Toward Pier 21 Approaching from the Parking Lot or Entrance



Figure 3.7: Viewpoint # 4 - A Context View from Above the Parking Lot

Specifically, once viewpoints are chosen, Meitner, Sheppard, Cavens, Gandy, Picard, Harshaw and Harrison (2005: 198) define three forms of visualization output, including those that: (1) focus on a strategic overview, (2) communicate spatial patterns, and (3) attempt to convey sense of place. It is the third product of static visualizations that pertains to this research. These simulations generally select viewpoints from eye level, position the subject matter close and at human scale, and limit perspective distortion, all in an attempt to represent a broader range of sensory information (2005: 198).

Number of Required Simulations

With these viewpoints defined, the final step in determining the scope of this project was to establish how many simulations are needed to fulfill the research objectives, while ensuring understandability, credibility and lack of bias. To fulfill these objectives, it was essential to consider all the important viewpoints, scenarios, and 'extreme' or worst-case scenarios which may influence the development. While the four

viewpoints chosen should provide a valid representation of the setting, it was essential in this research to represent a number of scenarios, using different sense of place principles and techniques (chapter four), to ensure that perceptions were consistent and not based on one simulation which may have been presented or interpreted improperly. Also, as these simulations aimed to answer the question, “*does the introduction of these principles to an existing site enhance the sense of place?*” it was essential to include a representation of the current condition to provide a baseline comparison. This current condition, if unchanged, was also included as the worst case scenario for the setting. Finally, the Halifax waterfront is bustling with activity during the peak summer months, so it was important to ensure this was represented, including the addition of vehicles, buses, and a variety of pedestrian traffic.

In total, twenty simulations (four viewpoints with five simulations each) were sufficient to present a defensible representation of the ‘enhancements’ proposed in this research. To ensure that twenty images were not too exhaustive, pre-tests were done with four participants. Some images were considered similar, and information was often repeated where principles and techniques showed up in multiple images. However, the participants remained interested the whole time, enjoyed sharing their opinions, and it was found that repetition was encouraged because it allowed more opportunities for elaboration that may have otherwise been missed.

3.3.2.3 The Method of Simulation

The third step in creating a defensible simulation was to determine how the simulations would be produced. This included the type of simulation, the level of

abstraction that would serve the purpose of the project, as well as choosing and preparing the appropriate medium for simulation.

Type of Simulation

Categorizing the type of simulation that will be produced, Sheppard (1989: 110) distinguishes between generic and specific simulations. A generic simulation is based on project assumptions, while a specific simulation is based on an actual project design. For the purpose of this research, a combination of generic and specific simulation was employed. In presenting the existing conditions at Pier 21, the exact location, dimensions and materials of the setting were essential factors in evaluating response equivalence, and therefore, a specific simulation was required. However, alterations made to the existing conditions represented “what-if” scenarios created by the researcher to evoke responses, with no intention of implementation. Therefore, as no detailed project designs exist for these alterations, only generic simulations were possible.

Abstraction

Especially in a specific simulation, the level of abstraction is very important and must be finalized before a simulation medium is chosen (Sheppard, 1989: 110). As a reminder, abstraction is the amount of information that is illustrated in a simulation and beyond moderate levels can cause assumptions and misunderstandings (Ervin, 2001; B. Tress and G. Tress, 2003). Nonetheless, Sheppard (1989: 112) insists an appropriate level of abstraction is important, as it allows visualization technology to be accessible to those with only moderate experience.

The researcher’s familiarity with simulation technology merited the use of moderate abstraction to avoid inaccuracies and questions of credibility. A moderate level

of abstraction is defined by Sheppard (1989: 11) as a simplification of some elements, such as full color, texture, and details of edges and forms. Providing the level of distortion, including scale, shape, position, and color, remain fully representative, the output should remain highly credible, and therefore defensible (1989: 112).

Simulation Medium

Finally, with the type of simulation, and the amount of abstraction selected, the most important step in producing a simulation was choosing the appropriate medium. In Sheppard's (1989) guidelines the methods of simulation recommended for moderate levels of abstraction are simple drawings, computer-generated line drawings, three-dimensional study models and photomontage. For this research, simple drawings are ineffective as they often omit much of the clutter, making settings more attractive (and therefore less accurate and representative) than they actually are (Orland et al., 1992: 306). Likewise, drawings generated on a computer may not be feasible if only a few views are required (Sheppard, 1989: 117). Physical models are hard to include detailed site context in typical views, allow little flexibility once completed (1989: 117), and are very difficult to transport and store.

Alternatively, in representing real place experiences, the most obvious simulation medium is photomontage, which produces the most realistic outcome. Sheppard (1989: 117) notes that for inexperienced users producing moderately abstract simulations, photomontage of specific viewpoints can save a significant amount of time when compared to rendering an entire landscape. In fact, once an image library is created, it is quite cheap and straightforward to illustrate changes in the landscape (Dockerty et al.: 114). Though easier than rendering entire landscapes at the time of Sheppard's (1989)

publication, photomontage requires users to learn advanced computer design programs, such as Visual Nature Studio and World Construction Set, that are impractical for the scope of this research. Also, it was noted above that it is not necessary to simulate photorealistic scenarios and that the output should remain credible and defensible providing the level of distortion, including scale, shape, position, and color, remain fully representative.

As the researcher lacks experience with the ‘moderately abstract simulation’ media discussed by Sheppard (1989), more detailed ‘precise simulations’ would seemingly be discouraged. However, as predicted by Sheppard (1989: 121) himself, advances in computer technology since his seminal text are intuitive enough that some precise simulation mediums have become very convenient for the inexperienced user. As an example, with a little practice and patience, SketchUp by Google allows moderately qualified users to create accurate, detailed and colored three-dimensional computer models that were previously only accessible to more experienced preparers. With a basic understanding of components, importing base files and scaling, it is now more practical to render entire landscapes in SketchUp than to produce a set of photomontages. And unlike photomontage, three-dimensional models allow the user to alter viewpoints if necessary and eliminate any guesswork required for scale, position and shape (Ervin, 2001; Sheppard, 1989). Even with moderate levels of abstraction, these models include all the advantages outlined in section 3.3.1.4 (understandability, credibility and unbiased), without the disadvantages of traditional hand-built models (price, mobility and storage).

To create a three-dimensional model of Pier 21 in SketchUp, a site plan of the area was first used to properly situate all the buildings on site, and at correct scale, and to

outline the Halifax Harbor. Next a collection of building blueprints for sheds 20, 21, and 22, as well as the annex and other Port Authority buildings were provided by the Pier 21 Research Department and the Halifax Port Authority. These plans were used to determine the heights of the buildings as well as the style and position of basic outside design features (windows, doors, monuments, etc...). With a basic skeleton of the model complete, site-visits and digital photographs were used to recreate the smaller details (materials, vegetation, signage, etc...). For common design elements (vegetation, vehicles, pedestrians, street signs, etc...), time was often saved by downloading and importing pre-built models from the online SketchUp warehouse. In the case where these models did not match existing conditions (street lamps, train, flag pole, train tracks, etc...) they were altered to a varying degree by the researcher to ensure accuracy.

Once the existing condition was modeled, it was altered to create four distinct ‘what if’ scenarios. To ensure the place-making principles were represented in a variety of ways, three simulations were loosely organized by the physical, social, and psychological principles described in chapter four. For example, the scenario showing psychological principles has an open water fountain, encouraging interaction. On the other hand, the water feature in the social scenario was enclosed to evoke similar feelings without allowing for interaction. Again, this division is loose and these principles overlap on a number of occasions. Also, to remain within the objectives of this study, and the scope of this research, this categorization is not used for further analysis (though there is potential for future research). The final scenario made no attempt to isolate principles and included a mix of physical, social and psychological principles (all of these simulation can be seen in Appendix 2).

Regarding the techniques distilled in chapter four, efforts were taken to ensure they were inclusively represented across the simulations. However, to ensure simulations did not become too cluttered, many features were used to represent multiple techniques. For example, the inclusion of historic looking lampposts in the image was intended to accentuate the importance of significant paths and junctions, but also as an incorporation of the previous landscape (Appendix 3 shows how each technique was incorporated). The one exception, which was purposely excluded from the simulations, was using environmental effects (shadows, etc...) to highlight significant features. Due to the significant time and training required to manipulate shadows in a simulation, this was avoided in favor of the preset shadows offered by SketchUp.

To finalize the models, and add environmental accuracy, SketchUp has the ability to choose the location of the model, and adjust the axis to orient it in the proper direction, ensuring that shadows are correct when enabled. Also, basic photomontage was applied, using an actual image of the area, to add the sky and ocean background in the models. Once the models were complete, four two-dimensional images were exported from each of the five scenarios to represent the twenty viewpoints discussed in section 3.3.2.2.

Naturally, the drawbacks of three-dimensional modeling must also be noted, though for the scope of this project, they were not a factor. In similar studies (Lange, 2001; Appleton and Lovett, 2003; Dockerty et al., 2006) utilizing CAD models and programs such as Visual Nature Studio, difficulties are reported in the design of vegetation. Adding trees and shrubs to a three-dimensional model is a trade-off between photorealistic two-dimensional models, or polygonal, repetitive looking trees and shrubs. This is due to the high overhead in time, software cost, and training required in

reproducing the complex geography of vegetation (Appleton and Lovett, 2003), as well as the difficulties in rendering full detail vegetation (Dockerty et al., 2006). In the simulations of this research, a lapse in quality was often noted by participants, as the ‘natural’ shapes were formed by a number of polygonal triangle surfaces. However, no participants suggested that it influenced the amount of meaning they attributed to the site.

A further drawback of SketchUp, and other three-dimensional modeling software, is that it does not fully reflect the dynamic elements of a landscape. However, while Dockerty et al. (2006) relied on a flat color to represent water in their research, the materials available in SketchUp are able to simulate the transparent qualities and ripple effects of water. Still, like Dockerty et al. (2006) the reflective properties of water were not easily reproduced, and in the end, SketchUp still produces only static images which do not capture the dynamic properties of the setting. Fortunately the majority of participants were still able to imagine the sound of the splashing fountains, the comforting shade offered by the large trees, and the exhaust from passing vehicles.

3.3.2.4 Presentation Method

Simulation Placement

To represent the most realistic surrogate for actual experience of a place, simulations should be large, and presented at a viewing distance and angle that simulates the real field-of-view as accurately as possible (Sheppard, 1989: 128). Conveniently, when exporting two-dimensional images, SketchUp offers an eye-level viewpoint (based on a selected height), that represents a typical field-of-view. To determine the distance the images should be viewed from, depending on the size of your simulation, Sheppard (1989) recommends using the following formula:

$$\text{Correct Viewing Distance} = (\frac{1}{2} \text{ Simulation Width}) / \text{Tangent} (\frac{1}{2} \text{ Field-of-View})$$

Using a minimum field-of-view of 45 degrees (advocated in section 3.3.1.4), and tabloid size images, the formula suggest proper viewing distance should be about 21 inches – similar to the distance between participants and the tables they were sorting on.

$$\begin{aligned} \text{Correct Viewing Distance} &= (\frac{1}{2} \text{ Simulation Width}) / \text{Tangent } (\frac{1}{2} \text{ Field-of-View}) \\ \text{Correct Viewing Distance} &= (17/2) / \text{Tan } (22.5) \\ \text{Correct Viewing Distance} &= 8.5 / .41 \\ \text{Correct Viewing Distance} &= 20.73 \text{ inches} \end{aligned}$$

The placement of the simulations was important. Allowing the different images to be compared side-by-side is the easiest way to highlight and visually measure the changes that are being proposed (Sheppard, 1989: 129; J. Collier and M. Collier, 1985: 196; Appleton and Lovett, 2005: 332). On-site participants received the images while sitting at a central table, with an extra table on each side of them, to encourage them to spread the images out, and allow for side-by-side comparisons. Interviews done off-site were completed where space permitted similar comparisons. This also allowed the observer to develop a quick estimation of the aesthetic effects of the proposal, and increases and maintains interest in the project (Meitner et al., 2005: 202).

Auxiliary Information

Lastly, the literature suggests some non-visual information that should be provided with the simulations. This includes context images showing the viewpoints in one image. Also, simulators should provide a description of viewpoint selection, assumptions made, unavoidable inaccuracies, and unrepresented viewing conditions that will have an effect on the site. Finally, a summary should be included that outlines how the simulation was prepared, including an explanation of how accuracy can be assured (Sheppard, 1989; B. Tress and G. Tress, 2003; Appleton and Lovett, 2005).

While the value of this information is recognized, pre-tests demonstrated that the reading required of participants before partaking in the interviews (introduction letter, consent form, sorting instructions) was exhausting. Instead, this research attempts to include the information above without requiring further reading from participants. For example, a view from above each scenario was included in the images that were sorted, allowing participants to view the entire context, and also locate the important viewpoints represented. In addition, completing over 50% of the interviews with participants who are intimately familiar with Pier 21 ensured that the accuracy of the simulations, and the assumptions made, would be self-evident (B. Tress and G. Tress, 2003)

3.4 THE INTERVIEW PROCEDURE

The following section describes in detail the interview procedure followed during the data collection period of this research. It begins (3.4.1) by describing an interview technique, made popular in psychological research, known as the sorting task. Also, it was suggested in chapter two that sense of place is a broad term encompassing the cognitive, affective and conative connections between people and their environments. Therefore, this section defends the use of the term meaningful during the interview process as a synonym that includes all these constructs.

3.4.1 Interviews – The Sorting Task

As a method of data collection, this research utilized pile sorting techniques similar to those commonly used in the psychology literature (Groat, 1981; Groat, 1982; Wilson and Canter, 1990; Scott and Canter, 1997; Wilson and Mackenzie, 2000). The above studies employ the multiple-sort technique, which allows participants to sort multiple times based on self-determined categories. Rosenberg and Kim note the

efficiency of this technique and the advantage of not requiring preconceived categories, “leaving the respondent’s judgments uncontaminated by an investigator’s preconceptions (1975: 490).”

As this study aimed to evaluate the meanings associated with the simulated conditions, participants were given three broad categories (most, moderate and least) based on meaningfulness and requested to sort twenty simulations. To ensure the interview instructions were as straightforward as possible for the participants, the abstract term sense of place was replaced by the more well-known term meaningful.

Throughout the relevant literature, the term *meaningful* is often used synonymously with sense of place (Norberg-Schulz, 1980; Stokols and Shumaker, 1981; Stedman, 2002; Stedman, 2003). For example, Norberg-Schulz suggests that “the meanings which are gathered by a place constitute its *genius loci* (1980: 170),” while Stedman notes that, “meanings put the ‘sense’ in sense of place (2002: 577).”

Meaningful is also used to exemplify the cognitive, affective, and conative properties of sense of place (Carr, 1970; Norberg-Schulz, 1980; Steele, 1981; Stokols and Shumaker, 1981; Stedman, 2002; Stedman, 2003). Norberg-Schulz captures the cognitive component when he notes that, “the man-made environment where he lives is not a mere practical tool or the result of arbitrary happenings, it has structure and embodies meanings. These meanings and structures are reflections of man’s understandings of the natural environment and his existential situation in general (1980: 50).” Likewise, in discussing the affective properties of sense of place, Steele adds that “different elements in the setting take on particular meanings, usually because of previous events or feelings that become associated with that element ... these layers of meaning

are one of the reasons people often find it hard to leave a setting that has become their micro-world (1981: 116).” Finally, showing the functional, or conative properties of sense of place, Stokols and Shumaker recognize that, “only in those cases in which people have intervened in these natural environments and have implemented design changes that foster, for instance, hiking, exploring, or wandering [e.g. natural park trails] will clear-cut, functional meanings become associated with the place (1981: 449).”

Including three sorting categories (most, moderate, and least) ensured the interview stayed on course, but in no way suggested what constitutes a meaningful setting, allowing participants to rank each image according to their own criteria. An additional open-sort done for four pre-tests produced no new information as all four of the respondents compiled images, that when combined, represented their ‘best-case scenario’ based on the information given in the first sort. Therefore, this research adopts a simple single-sort technique.

Participants, on-site and off, were interviewed individually. They were first introduced to the research through a formal letter of intent, and required to complete and sign a brief consent form to allow the use of their information, but also to establish their familiarity with the study site. After an opportunity to ask questions about the study, participants were presented with formal written instructions asking them to sort twenty simulated images (outlined in section 3.3.2.2 and shown in Appendix 2) of the Pier 21 area into the most, moderate and least meaningful. Similar to studies done by Scott and Canter (1997), Daniel and Mietner (2001), and Rodieck and Fried (2005), and discussed in section 3.3.1.3, participants were instructed not to comment on the images, but to “imagine that you are in these settings. Imagine the sights, smells, sounds, feelings, etc...

that you would experience if you were in these places.” The majority of respondents adapted well to these instructions, often referring to sounds, smells and feelings, and using their knowledge of the area to comment on features outside of the images, similar to the participants in Canter’s (1997) research. In addition, participants were ensured that there was no ‘right’ answer, and each pile could have any number of images.

While they were presented to the participant in a random order, each of the twenty images were numbered in the top corner, and their placement was recorded. After, and during the sort, participants were encouraged to discuss the reasoning behind their distinctions in an attempt to distill the cognitive, affective and conative responses to the simulations. While the researcher strived to let participant response guide the questioning process, semi-structured and predetermined prompts were used to keep responses on course, including *why is this place meaningful?*, *how does it make you feel?*, and *what would you do here?* Interview time ranged from forty minutes to well over an hour, with an average time of forty-five minutes. At the end of the interviews, to ensure the simulation medium did not impede the process, participants were told that, “*these images are obviously computer generated,*” and asked if that, “*in any way affected the amount of meaning that you attributed to the place?*”

3.5 DATA ANALYSIS

3.5.1 Transcription Method

Though the majority of participants did not begin discussing their reasoning until they had finished sorting the simulated images, the sorting instructions did encourage them to share any information as they sorted, so care was taken to ensure the tape recorder was turned on as soon as participants began sorting. The interviews were

transcribed at the earliest opportunity which involved playing back the recorded interview and recording it in its entirety. Where necessary, sections of interviews were replayed numerous times to ensure that responses were properly, and completely recorded.

3.5.2 Content Analysis

By nature, qualitative research involves a deep exchange between researcher and respondents in which the goal is to understand the views and intentions of the research subjects. Mostyn (1985: 120) argues that this data is not suited to quantitative analysis because quantitative analysis is not sensitive enough to describe both the content, as well as the intuitions of the research subjects. Therefore, this research employs qualitative content analysis. Mostyn justifies the use of content analysis in qualitative research, branding it the “diagnostic tool” to use when trying to gain understanding of a large amount of open-ended data. She notes that the purpose of content analysis is “to identify specific characteristics of communications systematically and objectively in order to convert the raw material into scientific data (1985: 117).” Babbie (2001) adds that content analysis is well suited to university studies, as it is economical in both time and money and requires no research staff or special equipment. Therefore, to evaluate the data collected from the interviews, this research employs content analysis.

The alternative to content analysis, and the traditional method of analysis in qualitative research, Miles and Huberman describe *narrative text* as “extremely weak and cumbersome (1984: 79),” because data is “sequential rather than simultaneous (1984: 179).” In other words, this method of compiling and scanning written field-notes presents data in an unordered fashion that is both time consuming, and impractical. As an

alternative, Miles and Huberman (1984) advocate using *displays* in content analysis, which present this data in an organized and efficient manner.

When choosing the display format, it must always be driven by the research questions (Miles and Huberman, 1984), which is, “*does the introduction of these place-making principles to an existing site enhance the sense of place?*” By the nature of this question, it is essential to be able to efficiently refer to each of the place-making principles derived in the next chapter, as well as the relevant data that was elicited during the interview process. Since the semi-structured interview format encouraged participants to freely discuss the simulated images, the data received followed no pattern and was in no way organized by the distilled principles. Therefore, information was transcribed, and important passages were highlighted and coded. These important passages were then extracted from the transcripts and placed, using Microsoft Excel, into a conceptually clustered matrix (Miles and Huberman, 1989).

This matrix was based on the information distilled from the literature, but expanded to allow the outside data typical in exploratory research, and responsible for the five unexpected findings of this research (6.2-6.6). This matrix allowed the researcher to have all the information relevant to the research question, as well as the participant code, and simulation information (image number, rating) in a clear, organized and efficient display. An example of this matrix can be seen in Figure 3.8 below:

		Participant	Image	Rating	Quotes	
AFFECTIVE NEEDS	SOCIAL	MEANING AND IDENTITY				
		Strong Natural Landscapes				
		Fragments of the Previous Landscape				
		Focal Point				
		Local/historical Materials				
		Employ Local and/or National Symbols				
		Access more difficult				
		Symbolic Significance of Colors				
		Significant Historical Features being passed by				
		<i>Highly recognizable Sense Stimulants</i>				
		<i>Vegetation that is Native</i>				
		<i>Emotional Significance of Colors</i>				
		<i>Symbolize/represent aspects of the settings history and character</i>				
		<i>Include green spaces to make people feel welcome</i>				
		<i>Incorporate friendly materials where possible</i>				
		<i>Essential Natural Elements</i>				
<i>Use Gates to Define an Area</i>						

Figure 3.8: Content Analysis Matrix

Inputting the data into such a matrix was a time consuming process, but once finished, discovering patterns was simple and a scan down or across the display produced a series of information. As an example, if the significance of meanings is being considered, a scan down the matrix suggests a variety of techniques capable of fulfilling this principle. This includes the techniques derived from the literature, but also allowed the flexibility to include techniques discussed in the interviews that are not covered in chapter four (shown in italics). Likewise, the number of participants who provided a significant response to each of the techniques is also shown, suggesting which techniques are most potent in fulfilling each principle. A scroll across the matrix shows all the

information relevant to the simulation, allowing us to quickly see which simulation is being referred to.

3.6 QUALITY CHECKS

Miles and Huberman note that qualitative researchers often work alone, without explicit guidelines, to produce non-statistical, and often erroneous findings. Still, these studies are grounded in the real world, have real consequence's on people's lives, and it is therefore not sufficient to say that "well-carried-out tactics will make for good conclusions (1984: 277)." Instead, it is important to be able to confirm the findings of this research. The following section considers some practical standards that will help verify the findings of this research, including the often overlapping notions of internal validity (3.6.1), reliability (3.6.2), and generalizability (3.6.3).

3.6.1 Internal (In)Validity

As Babbie notes, internal invalidity is "the possibility that the conclusions drawn from experimental results may not accurately reflect what has gone on in the experiment itself (2001: 226)." Following guidelines provided by Miles and Huberman (1984), this research ensures internal validity by checking for representativeness and research effects, utilizing triangulation, making contrasts and comparisons, and soliciting feedback from respondents.

3.6.1.1 Representativeness

To ensure representativeness, Miles and Huberman (1984) advocate the importance of outliers and contrasting examples. Considering outliers, or exceptions to the findings, enhances the representativeness of the research, but often strengthens important findings. In this research, there were instances where the empirical research

differed significantly from the literature. The importance of mystery, and the addition of numerous place-making techniques are all examples of such instances. Devoting proper consideration to these outliers not only enhanced the representativeness of the study, but also the findings themselves. Mystery was confirmed as an important principle when considered further, but unique in that it is not universal like the remaining principles. Also, consideration of design techniques mentioned in the interviews, but not the literature, reinforced the importance of many of the principles derived in the following chapter.

Babbie (2001) adds that exploratory research often hints at answers, but fails to completely satisfy the questions of the research. This happens when your study is not representative, or when the participants are not typical of the relevant population. At the suggestion of Miles and Huberman (1984) this research assumed the participant sample was non-representative, and made a conscious effort to correct this. One option was to look purposely for contrasting and extreme case participants. In this research, participants were purposely selected to ensure a representative mix which included those with an in-depth knowledge of Pier 21, and those who were familiar with Pier 21, but lacked this in-depth knowledge.

3.6.1.2 Checking for Researcher Effects

To safeguard against bias created by researcher effects, Miles and Huberman (1984) recommend being as unobtrusive as possible, ensuring the intentions of your research are made clear, and doing some interviews off-site to reduce the threat quotient. To ensure the intentions of this research were clearly and consistently conveyed to participants, each was presented with a standard letter of intension before partaking in the

interview process. This letter clearly stated the goals of the research, as well as the role of the participant. In addition, while the majority of interviews were completed on-site, some were completed in the home of the respondent to eliminate the threat quotient potentially present in an interview scenario.

Miles and Huberman also advocate against *elite bias*, or “overweighting data from articulate, well-informed, usually high status informants and under representing data from intractable, less-articulate, lower status ones (1984: 230).” To avoid this, it is recommended that researchers include participants not directly involved in the study. In addition to including respondents with no intimate knowledge of Pier 21, this research employed off-site participants from other parts of Nova Scotia, and as far away as Toronto and Waterloo, Ontario.

3.6.1.3 Triangulation

A property of qualitative research is that there is often no external factor to measure findings against, so an internal method is required. A method suggested by Patton (1980), and Miles and Huberman (1984) is triangulation, or receiving multiple instances of a finding from different sources. In this research, triangulation was applied as early as the literature review. When distilling the principles of place-making, only those represented by three or more different authors were considered. In analyzing the data, only findings that were indicated by three or more different participants were considered further. While this represented most of the findings covered in chapter six, an added benefit of triangulation is that it forced the researcher to consider and discuss findings that did not appear important, but were nonetheless mentioned by at least three people. This is exemplified in section 6.2 when the empirical data does not validate the

significance of enclosure. Considering the responses of three participants who noticed the gates, suggests that they effectively created a sense of enclosure, allowing the researcher to hypothesize that enclosure was considered less important on a hierarchy of place-making principle because the examples displayed in the simulated images were not as obvious as the other principles.

3.6.1.4 Making contrasts and comparisons

Another method of ensuring internal validity is to make comparisons between participants who are known to differ in some important aspect (Miles and Huberman, 1984). This technique was most obviously employed in this research when discussing the relevance of mystery. As empirical testing suggested mystery was less important than suggested in the literature, the researcher looked to familiarity for an answer. Comparing respondents who were intimately familiar with Pier 21 to those who were less knowledgeable, it was discovered that mystery, as a place-making principle, is more valuable in a setting dominated by less familiar users.

3.6.1.5 Getting feedback from informants

Finally, Miles and Huberman (1984) note the importance of receiving feedback from informants using member checks. In this research, five participants were selected and received two opportunities to provide feedback. First, after transcription, participants were shown the data to ensure that the interview was transcribed in its entirety and that data was consistent with their responses. Next, as Miles and Huberman (1984) suggest, using displays to help participants develop an overview of the research, the member check participants were shown their contribution to the content analysis matrix (section 3.5.2). This was an essential step as data was inserted into the matrix based on the

interpretation of the researcher. Member checking ensured that data was interpreted as the participant intended. As an example, the researcher interpreted the “you” in the following examples as a natural pattern of speech that actually means “me.” Using member checking, participants confirmed that when using “you,” they were referring to themselves:

The train is killing me. When I see the difference between having the fountains here, and then having [the shrubs] here, it doesn’t evoke the same feeling at all. The fountain **you** get the sight of it, the sound of it, and the way it makes **you** feel. That makes **you** feel comfortable and welcome (F27U).

They’re [pictures of] the immigrants. The old pictures. They just, historical-wise, they give **you** an idea of what the people coming through the doors would have looked like ... I’m intrigued by the old pictures ... it almost makes **you** think about what it was like when they stepped out the doors ... brings **you** back into time (F54F).

I like the information things ... it’s nice to have a directory if **you** want to find something specific (M24U).

3.6.2 Reliability

Reliability is another important consideration in verifying the findings of this research. Reliability is “a matter of whether a particular technique, applied repeatedly to the same object, yields the same results each time (Babbie, 2001: 140).” Stebbins (2001) indicates that reliability, as well as validity, is required in all social science research, including exploratory. In single-observer studies, such as this research, the subjectivity of the researcher will always generate questions of reliability. Specifically, Stebbins (2001) recognizes three problems that affect reliability in exploratory research:

- Reactive effects of the observer’s presence or activities on the phenomenon being observed;

- Distorting effects of selective perception and interpretation on the observer's part; and,
- Limitations on the observer's ability to witness all relevant aspects of the phenomena in question.

However, Miles and Huberman (1994), Babbie (2001), and Stebbins (2001) provide a number of recommendations to enhance reliability. For example, Babbie (2001) argues that content analysis, which is used to analyze the data in this research (section 3.5.2), inherently strengthens reliability because of the concreteness of the materials studied. More beneficial however, Miles and Huberman (1994) propose a number of questions that should be considered to help ensure a reliable study:

- *Are the research questions clear, and are the features of the study design congruent with them? And, are basic paradigms and analytic constructs clearly specified?*

In addition to the first paragraph of this study, the research questions are often restated throughout this research. More importantly, the questions are clear, and directly related to the broader objective of creating a set of practical guidelines to bridge the gap between theory and practice in place-making. Also, from choosing an exploratory approach because similar research has not been complete, to following an experiential paradigm to validate the use of visual simulation, the researcher is confident that the study design appropriately reflects these research questions. In addition, careful consideration was made to ensure the research does not stray from the specified paradigms.

- *Is the researcher's role and status within the site explicitly described?*

On numerous occasions, the researcher's position within the Pier 21 site has been explicitly defined. In selecting appropriate and representative viewpoints, the researcher remained an outsider, simply observed, and allowed the users of the site to determine the proper viewpoints. The role of the researcher was also clearly described in the interview process, from how access to the participants was obtained, to involvement/role in the interview process itself.

- *Do findings show meaningful parallelisms across data sources (informants, context, times)?*

Meaningful parallels can be found across a variety of data sources in this research. An initial example concerns the selection of viewpoints. To ensure the most representative viewpoints were being simulated, the researcher observed the Pier 21 site on three different occasions, which all produced similar findings regarding the most representative views. Still, the most meaningful parallelisms are in regards to the principles/techniques of place-making. Across various literary sources, a number of common principles were distilled (chapter four). Once incorporated into a simulation and observed by participants, chapter six finds many parallels regarding the value of the principles (as well as the techniques). A final example from the interviews showed parallel responses to principles/techniques in different contexts – namely familiarity (with mystery being the exception).

- *Do multiple observers' accounts converge, in instances, settings, or times when they might be expected to?*

As illustrated above, many parallels can be identified between participant responses. As an additional example, the principle of meaning can be considered.

Throughout the literature, it was suggested that meaning was the most important principle of place-making. This was verified through empirical testing, in which 100% of observers agreed that meanings are the most effective principle of place-making.

- *Were data quality checks made?*

As demonstrated in section 3.6 of this research, a variety of quality checks were performed to ensure validity, reliability, and an appropriate level of generalization. Some of the methods used included consideration of outliers, checking for researcher effects, triangulation during data collection and analysis, making appropriate contrasts and comparisons, and receiving feedback from informants.

- *Were any forms of peer or colleague review in place?*

Examples of peer/colleague review are also found throughout this research. As noted in section 3.3.2.4, pre-interviews were additionally undertaken with a group of peers, which had the significant result of reducing the interview procedures from double to single-sort as it was determined that a second sort produced no new information. In addition, this research underwent scrutiny from the researcher's faculty advisor throughout the study period.

Stebbins (2001) offers further guidance to enhance the reliability of qualitative research. He writes of qualitative research as a process, comprised of a set of field studies that are connected to each other like a chain, with the results producing an accumulation of grounded or inductively generated theory. This process is known as concatenation, and Stebbins (2001) adds that successful persuasion of subsequent studies, by a variety of researchers, is the simplest way to demonstrate reliability. And while a sufficient amount of reliability was demonstrated above using the considerations of Miles and Huberman

(1994), Stebbins (2001) implies that this is not as significant in the beginning, exploratory phase of a research chain, and is instead more appropriate toward the end, where confirmation is required.

3.6.3 Generalizability

Traditionally, exploratory research has often been avoided in the social sciences because it requires a significant effort on behalf of the researcher and, more often than not, produces minimal results. The concern is that exploratory research fails to produce conclusive results, and findings are therefore always hypothetical (Stebbins, 2001). Still, to verify the findings of this research, consideration needs to be given to generalizability, or “the extent to which whatever relationships are uncovered in a particular situation can be expected to hold true for every situation (Patton, 1980: 279).”

Recognizing the similarities between qualitative research and cultural anthropology, Schofield notes that the cultural anthropologist examines the rich variety of human behavior, and “for researchers doing work of this sort, the goal is to describe a specific group in fine detail and to explain the patterns that exist, certainly not to discover general laws of human behavior (1993: 201).” Likewise, after reviewing many studies on generalizability, Schofield notes a consensus among her colleagues that it is not a useful objective in qualitative research:

The goal is not to produce a standardized set of results that any other careful researcher in the same situation or studying the same issues would have produced. Rather it is to produce a coherent and illuminating description of and perspective on a situation that is based on and consistent with detailed study of that situation (1993: 203)

Schofield’s (1993) conclusion mirrors earlier findings by Cronbach, who believed that “the goal of our work ... is not to amass generalizations atop which a theoretical tower

can someday be erected ... [but instead] to pin down the contemporary facts (1975: 126).” While not the traditional method of generalization employed by quantitative researchers, Miles and Huberman describe this process as analytic generality and posit that “the most useful generalizations from qualitative research studies are analytic, not ‘sample-to-population’ (1994: 28).”

In light of the findings above, Stebbins warns that, “social science explorers must be both modest and candid in their claims about what a given exploratory study can and cannot accomplish in the way of generalizability (2001: 41).” He, as well as Schofield (1993), even provides a few recommendations to enhance generalizability in qualitative research. First, Stebbins (2001: 40-41) advises the use of a highly representative sample to reduce inconclusiveness and enhance tentative generalizability. As described in section 3.3.2.2, great effort was made to ensure the sample used in this research, though small (in comparison to quantitative research), was highly representative.

Next, Schofield (1993) and the authors she reviews, conclude that thick descriptions of the setting are integral to expose similarities and differences between the situations being studied, and determine the extent to which the findings of this study can provide a working hypothesis for future research. This description of Pier 21 is provided in chapter five. The historic context of Pier 21 is outlined, but more importantly for future studies, the chapter describes the geographic location of Pier 21, as well as the current role of the setting as a National Historic Site and immigration museum.

Finally, Schofield distinguishes between studying *what is* (the typical, common or ordinary), *what may be* (sites likely to become more common over time), and in the case of this research, *what could be*, or selecting “situations that we know or expect to be ideal

or exceptional on some a priori basis and studying them to see what is actually going on there (1993: 221).” From the findings of the literature review, it was expected that the scenarios produced in the simulations would represent ‘exceptional’ circumstances. Schofield (1993) notes that the most valuable technique in studying *what could be*, is to be open to having your expectations about the phenomena disconfirmed. As the findings of this research (chapter six) demonstrate, the expectations developed from reviewing the relevant literature were dispelled on many occasions.

3.7 CONCLUSION

Though not without debate, visual simulations have been generally accepted as a valid replacement for real life place experiences, especially considering the unfeasibility of transporting large groups of citizens to a design site. When used in studies of environmental perception, the literature shows that simulations increase interest and participation amongst the participants. However, to properly evoke the reaction that would be associated with the real experience, or the place equivalence, a simulation must be understandable, credible and unbiased. Using Pier 21 as a case-study (chapter five), it was believed that carefully following the guidelines laid out in the literature, frequently visiting the site to ensure the compilation of sufficient information, and meeting with a research advisor for pre-evaluations produced a set of visual simulations which are defensible as a ‘good’ simulation.

~ CHAPTER FOUR – DISTILLING THE PRINCIPLES/TECHNIQUES OF PLACE-MAKING ~

4.1 INTRODUCTION (PRINCIPLES/TECHNIQUES)

In chapter two, an initial review of the literature exemplified an increasing state of confusion as sense of place evolves, resulting in a disconnection between theory and practice. To alleviate this confusion, a comprehensive definition of sense of place was created and the remainder of this research focuses on bridging the gap between theory and practice in place-making. To accomplish this, a more ‘active’ review of the literature is essential to satisfy the second objective of this research (*what common place-making and design principles can be derived from the broader literature regarding sense of place?*). Distilling these principles and techniques is the first step in creating practical guidelines for place-makers. Following the layout suggested by the definition produced in chapter two (illustrated in Figure 4.1), the following section expands on the principles introduced in the seminal literature, and solidified by subsequent authors. In addition, specific design techniques are included that place-makers can use to fulfill each principle (and summarized in appendix 1). These techniques are often contradictory, sometimes repeated, more specific for certain principles, and in no way absolute. Their value will be tested in this research.

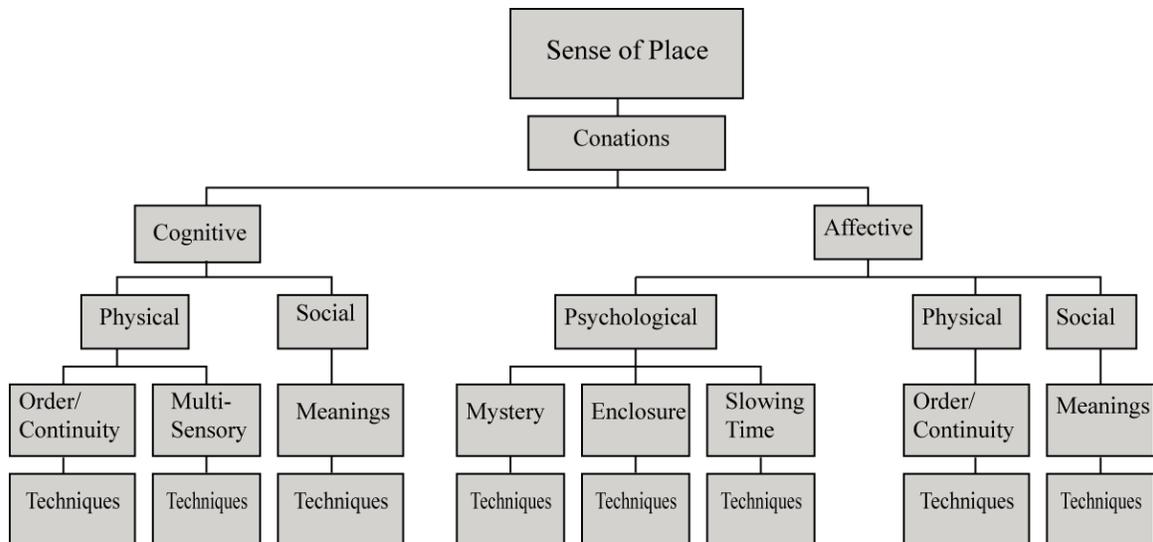


Figure 4.1: The Structure of Sense of Place

4.1.1 Conations - Our Motivations and Expectations

Before considering the cognitive and affective principles of place-making, it is necessary to outline the importance of our conations, or the subjective motivations and expectations that determine our cognitive perceptions and affective responses. Specifically, an important aspect of sense of place is the ability of a place to satisfy the expectations and motivations of a user, in comparison with other similar places (Stokols and Shumaker, 1981; Jorgensen and Stedman, 2006). In fact, Lynch and Rodwin assert that “the principle concern of the physical planner is to understand the physical environment and to help shape it to serve the community’s purposes (1970: 84).”

Throughout the literature, it is suggested that the motivations and expectations of users can be physical, social and/or psychological. As an example of a physically functional place, or a place providing the material needs for enjoyment (or survival in extreme cases), Norberg-Schulz (1980) recognizes Khartoum, in Sudan. Here the sense of place is defined by a strong natural location, namely the meeting of the two Nile Rivers, but the river also permits settlement, functioning as the ‘life-giver’ in the

scorching, arid desert. A socially functional setting, or a setting that fosters meanings and memories, is noted by Tuan. At the public market, he notices that “people [come] not only to buy but to meet friends and gossip; students [argue] philosophy and politics ... visitors and clients were entertained by prestidigitators and illusionists ... as well as by storytellers, actors, and acrobats (1974: 177).” Finally, a psychologically functional place, or a place that encourages users to engage with it, is Devil’s Tower in South Dakota, as exemplified by Steele (1981). Here, a striking geographic oddity forms from the ground, evoking a strong sense of mystery and contemplation regarding its creation. Relph (1976) believes that the ability of such settings to facilitate human needs reinforces the significance of the setting, as well as the bond with the people who use it.

While physical, social, and psychological places are important individually, spaces that satisfy a single function might discourage exploration if they are believed to be all the same (Kaplan et al., 1998: 11). Thus, the most successful places are capable of fulfilling multiple needs. Norberg-Schulz summarizes appropriately, warning that “a place that is only suited for one particular purpose would soon become useless (1980: 18).”

4.1.2 Cognitions – The Evaluation of a Setting

Based on the purposes and motivations that we have developed over our lifetime (conations), individuals process information to make sense of their surroundings. For example, we have ‘learned’ that being lost is terrifying and therefore respond apprehensively to settings that appear disorganized (Kaplan et al., 1998). Appropriately, the first place-making principle distilled from the literature is order/continuity - a cognitive principle which is responsible for creating a physically functional place.

4.1.2.1 Place-making Principle # 1: Order and Continuity

Norberg-Schulz (1980: 19) believes that in order to identify with a place, man must be able to orient himself. As if agreeing, Lynch expresses the benefits of ‘legibility,’ or “the ease with which [a settings] parts can be recognized and can be organized into a coherent pattern (1960: 2-3).” A highly legible environment allows us to move freely and quickly, furnishes the raw material for memories and group communication, provides a sense of emotional security, and heightens the depth and intensity of the experience of place (1960: 4-5). Kaplan et al. (1998: 49) add that well ordered environments relinquish the initial fear of disorientation and encourage further exploration. In such places, if “the environment is visibly organized and sharply identified, then the citizen can inform it with [their] own meanings and connections. Then it will become a true place, remarkable and unmistakable (Lynch, 1960: 92).”

Closely related to environmental order is continuity. When discussing the strong sense of place in Prague, Norberg-Schulz claims that the continuity is “as if a powerful will has demanded the cooperation of ever new generations to create a unique work of urban art (1980: 109).” In Rome, he credits this continuity to a lack of stairways and sidewalks along the streets, which encourages interaction, and therefore, sense of place (1980: 142). Steele agrees that “in terms of spirit of place, the least effective are those where new parts have been created with no concern for how they will relate to the existing ones (1981: 188).” True at the time of publishing, and sadly more relevant now, Relph warns that the new trend is rapidly moving towards ‘placelessness,’ characterized by “a meaningless pattern of buildings (1976: 117).”

- *Technique: Ensure Small Doses of Confusion in an Organized Whole*

While confusion in small doses can enhance the pedestrian experience, creating a sense of mystery and inspiring exploration, an overall sense of order is essential (Lynch, 1960). Carr describes this as the conflicting desire for novelty and comprehension. He says we “call on one hand for sufficient order in the environment to facilitate comprehension and on the other for sufficient complexity and change to stimulate curiosity and exploration (1970: 522).” Stefanovic exemplifies this in Cavtat, part of the Republic of Dubrovnik, directly linking order with significant meanings, claiming that “Cavtat sustains a symbolic connectedness to [Dubrovnik] ... [and] that the strong emotional power of place within the town itself, is not attained at the expense of a broader context of settlements (1998: 34).” A similar relationship is noted by Norberg-Schulz regarding the Nile, which combines the three towns of Khartoum, and “create[s] a meaningful complexity within the totality (1980: 125).”

- *Technique: Divide Large Areas into Smaller Sections*

To enhance order, Kaplan et al. (1998: 52) recommend the division of large areas into smaller sections to add order to a previously large open space, and make wayfinding more efficient. The district – a big city divided into smaller sections – is a large scale example provided by Lynch (1960), but similar techniques are pertinent to settings smaller in scale. At this scale, when the goal is to separate areas within a specific site, a variation in materials and textures can suggest enclosure, or create distinct ‘urban rooms’ (Kaplan et al., 1998: 73).

- *Technique: Include Maps to Provide Context and Facilitate Easy Orientation*

Perhaps the most obvious method of organizing a physical environment is a map. Parr (1970: 14) suggests that, to avoid the tension possibly caused by visual obstructions, maps and landmarks can be used to create a relaxing and reassuring feeling. Steele (1981: 47) agrees that maps are often important because they put places in context, allowing people to study them as a puzzle and gain understanding of how the place is organized. When using maps to enhance order, it is important to assure that they are both easy to read, easy to locate (Kaplan et al., 1998: 50) and Lynch (1960: 11) warns that the place-maker relying on maps must also consider the repercussions if they are lost, and design accordingly.

- *Technique: Anchor the Setting with a Strong Symbolic Focal Point*

Using Cavtat as an example once again, Stefanovic notes that the St. Nikola and St. Vlaho churches on each end of the town center, provide an anchor from which the settlement extends. This enhances the order by creating a strong focal point that is “highly legible, and helps to provide a sense of orientation and a strong sense of place from the moment one approaches (1998: 34).”

- *Technique: Separate Primary Paths from Secondary Paths*

Even without the measures discussed above, Lynch (1960) ensures us that properly designed paths can be utilized to enhance order. Along such paths and public places, color and materials are able to help build coherence making orientation simpler for many users. For example, Kaplan et al. (1998: 55) mention the use of colors, as well as distinctive textures, to separate primary paths from secondary paths, allowing the visitor to become familiar with the basic structure of the place more quickly. Likewise,

Lynch (1960: 51) suggests that similar facades, or the use of similarly textured material, can greatly enhance the identification of paths.

- *Technique: Create Paths with a Clear Beginning and End*

In addition to separating primary and secondary paths, Lynch (1960: 54) says that paths with a clear beginning and end help to orient those that travel them, ensure continuity within the city, and create a strong sense of place.

- *Technique: Incorporate Fragments of the Previous Landscape*

While the above techniques focused on enhancing the order in our settings, Steele speaks of ‘connected growth’ to ensure our settings promote continuity. He emphasizes that “the most effective [places] are those created by connected growth, evolving over time, with the new parts being carefully related to the existing ones (1981: 188).” As an example, he cites Brattle Street in Cambridge, Massachusetts, where buildings have been slowly modified, and the key qualities preserved, to create a special setting.

- *Technique: Use Complimentary Materials*

As a final technique to create continuity, Kaplan et al. (1998) note that the material selected is an important aspect within related physical objects. When designing, choosing materials which are complimentary to the location does not detract from the setting, and therefore is relaxing to the user. An example is the use of a fallen log as a rustic bench along a wilderness trail (Kaplan et al., 1998: 75), or stone steps in traditional, natural settings, such as Cavtat (Stefanovic, 1998).

4.1.3 Affections – The Response to a Setting

As stated previously, individuals cognitively process information to make sense of their surroundings based on their conations, or the information and impressions that have

been developed over a lifetime. This results in an affective response, or the stirring of feelings and emotions. For example, we ‘know’ that erecting the monuments at Stonehenge requires sophisticated modern technology, and are therefore intrigued by the mystery of their construction prior to the invention of such technologies (Steele, 1981). The next place-making principles distilled from the literature – mystery, enclosure and slowing time - are affective principles responsible for creating a psychologically functional place.

4.1.3.1 Place-making Principle # 2: Mystery

When discussing the important psychological aspects of successful places, the notion of mystery is frequently mentioned throughout the literature. Defined by Nasar as “the anticipation of additional information through advancing into the scene (1989: 45),” preference is shown for mysterious places. Stefanovic gives perhaps the highest praise to the importance of mystery, insisting that “much of what can be said to sustain the sense of place comes from that which is left unsaid (1998: 38),” and that “[she] would submit that one of the most essential elements in the creation of a sense of place consists in the retention of mystery within the settlement (1998: 37).” Carr (1970: 529) adds that full exposure of an environment does not guarantee exploration, and we should therefore seek the right level of complexity.

Introducing the term spirit of mystery, Steele (1981: 73) believes mysterious settings are capable of stimulation, triggering fantasies, and creating feelings of threat, and will encourage similar responses of surprise and wonder as well as fear and uneasiness among many people. Such places are sure to create a strong sense of place

(1981: 73). As if warning the authors above, Lynch (1960: 6) repeats that this confusion must be small regions in an overall visible framework to avoid anxiety.

- *Technique: Provide Vistas to Encourage Exploration*

Kaplan et al. (1998: 100) suggest that the importance of vistas lies in creating a sense of mystery, and the encouragement of exploration. They say that “by seeing more of the surrounding area at once, one can understand the landscape more easily ... [the vista] permits the viewer to imagine wandering in the space ... (1998: 105).” For example, In Cavtat, the spiritual center of the town is a Mausoleum that rests atop a lengthy uphill climb. Upon reaching the top, the viewer is rewarded with a “panoramic treasure-view of sky, water and sun (Stefanovic, 1998: 34).” This reward is vital as a vista is uninteresting without distinction from the surrounding area as well as an important point of focus (Kaplan et al., 1998: 103).

- *Technique: Partially Mask Important Views to Encourage Exploration*

While Kaplan et al. suggest above that a vista “permits the viewer to imagine wandering in the space,” they add that it also, “encourages a mental exploration of areas hidden from view (1998: 105).” Tuan concurs, mentioning that along the seashore, adventure is provoked by the vastness of the open sea (1974: 115). We can also consider the mist which covers the backdrop of cities such as Prague. Here, Norberg-Schulz claims that “what is hidden seems even more real than what is directly perceived (1980: 83).” While such natural examples are not easily manufactured, Kaplan et al. (1998) recommend using gates, carefully placed vegetation, or curving pathways, to allow only a partial view of what lays ahead.

- *Technique: Hint at Important Features Being Passed by Along a Pathway*

Lynch suggests our experience of place can be heightened when the path we are traveling offers us hints of what is being passed by, such as partially exposed subway lines, when the path itself represents the flow of the city form, or when the destination is subtly exposed, enhancing the anxiety of reaching the end of the path (1960: 98).” For example, by simply including elements of the destination within the path, such as a cobblestone accented path leading to a cobblestone building, we can hint at what the traveler can expect (Lynch, 1960: 103).

- *Technique: Incorporate Fragments of the Previous Landscape*

In addition to hinting at important features being passed by along a pathway, we can incorporate fragments of the previous landscape throughout the setting. By very subtly revealing only small traces of the history of a site, we can generate a great feeling of mystery (Steele, 1981). For example, Steele (1981) notes the mystery evoked when wandering the remnants of abandon tin mines in Yorkshire’s Swaledale.

- *Technique: Provide Experiences in Sequences that Build on One Another*

Like hinting, carefully arranged physical objects can be used by designers to generate a strong sense of mystery. For example, Steele notes that “settings that provide sequences of experiences that build on one another can create a sense of mystery, and are more likely to produce high-quality place experiences (1981: 184, 143).” An example is the Kaleidoscope in Crown Center mall in Kansas City where children move through a series of exciting, multi-sensory spaces, into a central activity area, before leaving through a dark, calming space.

- *Technique: Use Odd Combinations of Features that do not Initially Relate*

Seemingly opposite of the above technique, Steele (1981: 75) advocates that mystery can also be created by arranging physical objects in odd configurations to encourage users to ponder their relation. A common example would be the monuments that characterize Stonehenge, near Wiltshire, England.

- *Technique: Use Environmental Effects to Highlight Significant Features*

Finally, the designer of special places can utilize light, both natural and artificial, to create a sense of mystery. By taking advantage of the exchange between light and shadow, erecting trees or other features which shadow most of an area, we can allow light to penetrate through only in selected areas of importance (Kaplan et al., 1998: 44).

4.1.3.2 Place-making Principle # 3: Enclosure and Prospect/Refuge

In psychologically functional places, the importance of enclosure is mentioned throughout the literature. Tuan (1974: 28) reasons that enclosure, signifying the security of the womb, provides the perceived safety to enjoy a place. Similarly, Relph (1976: 142) considers enclosure, or ‘insidedness’ the essence of sense of place as it symbolizes home, where many people feel safe and secure. The boundary providing this enclosure is not where something stops, but where something important begins (Norberg-Schulz, 1980: 13). By its very definition, the outside/inside relationship that defines a concrete space implies a degree of enclosure (1980: 12). Simply stated, “the distinctive quality of any man-made place is enclosure, and its character and spatial properties are determined by how it is enclosed (1980: 58).”

Closely related to enclosure is Appleton’s theory of prospect-refuge, which stresses the evolutionary advantage, and human preference for places which offer views

outside, but remain shielded from the world (Riley, 1992: 14). Kaplan et al. (1998: 119) concur that places that are separated from their surroundings provide protective reassurance, allowing us to see beyond while retaining the privacy of being hidden safely within. While discussing the refuge provided by enclosure, Norberg-Schulz (1980: 10) notes the need for prospect suggesting that all ‘insides’ require openings in which to gather information.

- *Technique: Take Advantage of Strong Natural Landscapes*

Though designing a geographically distinct setting is unfeasible, we should locate our places, whenever possible, to take advantage of existing environmental features. An example is natural enclosure. Norberg-Schulz, (1980: 13) suggesting that all enclosure is provided by some form of boundary, encourages the use of natural boundaries, such as land, horizon and sky but when considering Prague, he extends this boundary to include vegetation as well (1980: 84). He believes the landscape is capable of forming a natural inside (1980: 48). Tuan uses the island to exemplify natural enclosure, saying that when on an island, you are “quarantined by the sea from the ills of the continent (1974: 118).” This can be seen at the Hiroshima Peace Memorial Park in Japan, where the island location provides a peaceful area for reflection, without disruption from the surrounding city.

- *Technique: Provide Shelter Above and Behind to Create Enclosure*

Where enclosure is not provided naturally, it can be manufactured through providing shelter above and behind. While this can be accomplished using a variety of features, the literature focuses on the value of nature. For example, the use of trees to provide a canopy overhead in small urban parks requires minimal effort yet only further

enhances the feeling of an urban oasis by blocking out the view of the surrounding city (Kaplan et al., 1998: 72, 119).

- *Technique: Use Entrances to Clearly Define Areas*

Perhaps the simplest and most obvious choice for a designer looking to create a feeling of enclosure is the inclusion of an entrance gate. Closely related to the notion of ‘insidedness,’ Steele suggests that “spirit of place is very clearly created by entrance gate[s] and [a] visible name, so that there is no doubt about the boundary between inside and outside (1981: 57).”

- *Technique: Anchor the Setting with a Strong Symbolic Focal Point*

To this point, the techniques discussed have involved the notion of providing a buffer between people and their surroundings. However, Norberg-Schulz notes that a sense of enclosure is also greatly enhanced by spatial arrangement with a strong center. He believes that “it is the center, which more than anything else constitutes the inside. The character of the inside is hardly told, but anyhow present (1980: 9).” Brill (1992) is in agreement, noting that it is enclosure that is responsible for the lack of sense of place in American cities when compared to their European counterparts. In European cities, the facades of buildings are a back-drop to the important space within – a notion foreign to the American architect (Brill, 1992: 16).

4.1.3.3 Place-making Principle # 4: Slowing Time – Interactivity and Reflection

Norberg-Schulz exhibits the importance of time, stating that “time... is the dimension of constancy and change, and makes space and character parts of a living reality, which at any moment is given as a particular place (1980: 32).” In the literature,

it is stressed that successful places are capable of slowing time both physically and mentally.

Describing the ability of a setting to physical slow time, or create interactivity, Tuan suggests that, “what people in advanced societies lack ... is the gentle, unselfconscious involvement with the physical world that prevailed in the past when the tempo of life was slower (1974: 96).” Often today, people are content to experience nature far removed, behind a camera lens, or from the comfort of their own car. When a setting encourages interactivity, places “become a retreat, a form of refuge from the hectic daily schedule of appointments, faxing, car pools, and deadlines (Rubinstein and Parmelee, 1992: 149).”

Essential to interactivity and discussed thoroughly in the environmental psychology literature is the necessity to control your environment. Control is defined as “the ability of an individual or group to gain access to, utilize, influence, gain ownership over, and attach meaning to a public place (Francis, 1989: 159).” Carr notes that increasing the “manipulability of city form to the actions of small groups and individuals ... may be one of the most effective means for increasing the personal meaning and value of the environment (1970: 530).” The direct participation in design, building or management of public places has been proven to increase satisfaction (Francis, 1989: 157). Furthermore, Steele (1981: 4) says that ‘place people,’ or people who experience place more fully, prefer being able to ‘tinker’ with their environment. Cooper Marcus (1992: 88) agrees, claiming that being able to manipulate or mold a space, allows us to reflect who we are and therefore increases attachment to place.

So strong is this need for manipulation, that Francis (1989: 157) says when we lose the ability to control our environment, which is often the case in overcrowded places, stress, social withdrawal and other serious consequences can result. Brown and Perkins add, “if people fail to make the changes in their environment that provide support for their desired identities and goals, then attachment can erode (1992: 282).”

Successful places are also capable of mentally slowing time, or encouraging users to reflect on a past time in the landscape. Riley mentions that “the actual age of a landscape, the meaning attributed to it over time, a sense of time itself (often a slower pace than that of Anglo-Saxon culture), all interact to produce landscape attachments (1992: 21).”

- *Technique: Divide Larger Areas into Smaller Sections*

As discussed previously, the most successful places are those that fulfill multiple functions required by the users. Designing for this, large areas are more special when divided into smaller sections allowing choice, the opportunity to experience a variety of settings, and increasing the potential for interaction (Carr, 1970; Steele, 1981). Kaplan et al. recommend distinguishing smaller areas by similar plant materials, texture changes and physical borders, such as the addition of tree groves, to “make the difference between a coherent, intriguing, legible setting and one that is not worth the stop (1998: 40).”

- *Technique: Include Multiple/Irregular Paths to Allow Choice and Interaction*

While the functional value of a path is obvious, Tuan (1974) and Steele (1981) encourages the inclusion of multiple paths to allow choice, as traveling backwards can be considered a defeat. Norberg-Schulz adds that the destination of a path is capable of physically slowing time, or encouraging interaction, asserting that “the path is ... a

fundamental existential symbol which concretizes the dimension of time. Sometimes the path leads to a meaningful goal, where movement is arrested and time becomes permanence (1980: 55).” As an example of multiple paths creating choice of travel, we can look to Norberg-Schulz (1980) and Prague, where the houses are entered from narrow, twisting alleys, from multiple sides, and allow locals to move through parts of the city without using major streets.

- *Technique: Include Features that can be Touched and Manipulated*

The literature predominately focuses on the ability of nature to encourage interaction. For example, water encourages interaction with the simple ability to splash and play in it. However, in Khartoum, manipulation of nature has even greater value. Here, the settlement is closed off from the scorching heat of the surrounding desert, and inside the walls the settlers have replaced it with the cooling characteristics of water and vegetation (Norberg-Schulz, 1980: 130). This ability to manipulate your environment is especially important when designing for children. White (1970: 381) believes that play areas for children should incorporate all aspects of nature, utilizing small sandpits, water pools to splash in, grassy mounds, and small trees.

- *Technique: Incorporate Fragments of the Previous Landscape*

Finally, Steele (1981: 189) says incorporating fragments of the previous landscape in a new setting encourages reflection and ties the place to a specific time, location and function. This is further illustrated by Stefanovic, describing a reflection of history and time in Cavtat. Here, physical reminders of the past, such as stoned pathways eroded from years of human travel, and impressive mausoleums, combine with “the rhythm of the sea, of the daily work patterns centered around the cycle of the sun – the opening of

the market at sunrise; the closing of the shops in the noonday sun – [and] bear witness to a non-linear vision of time (Stefanovic, 1998: 34).”

4.1.4 Cognitions and Affections – Evaluation of and Response to a Setting

The first four place-making principles discussed are labeled as either cognitive or affective. Order/continuity is a cognitive principle, lending to a physically functional place. Mystery, enclosure and slowing time, the foundation of a psychologically functional place, are all affective principles. The two remaining principles are both cognitive, and affective - able to help us make sense of our environment, while also stirring an emotional response. For example, Steele (1981) notes how smells help organize a city, distinguishing between the gamey smells of a market area and the fragrances of a public garden. Tuan (1974) adds that smells can trigger a nostalgic emotional response, noting that a whiff of a haystack is capable of evoking memories of childhood experiences. This multi-sensory design is a component of a physically functional setting, while the meanings evoked create a socially functional place.

4.1.4.1 Place-making Principle # 5: A Multi-sensory Experience

In addition to satisfying the previous four principles, the place-maker must also recognize the importance of stimulating multiple senses. In his very definition of place, Norberg-Schulz illustrates that place is not merely an aesthetic experience, but should be the pleasure of all five senses. He says that place is a “totality made up of concrete things having material substance, shape, texture and colour (1980: 6).” Chawla agrees, noting that we remember a place as “an unforgettable living presence in itself, exciting all five senses and inspiring exuberance, calm, or awe (1992: 74).” Shamai, building on some of the earlier phenomenological literature, suggests that place is enjoyed through “actual”

experience. He exemplifies the cognitive value of sense stimulants, noting that “through all the senses the meanings of images, ideas, and symbols are being confirmed, so creating a total experience of the milieu (1991: 348).” Mazumdar, Mazumdar, Docuyan, and McLaughlin (2000: 326) on the other hand, note both the cognitive and affective value of sense stimulation in Little Saigon. Here, the distinct Vietnamese aesthetic qualities, the sounds of Vietnamese music and language, and the smells of Vietnamese food allow us to make sense of the environment, but also evokes powerful meanings and memories. These places where the physical setting “trigger[s] off memories and fantasies will be more likely to provide rich place experiences (Steele, 1981: 184).”

- *Technique: Take Advantage of Strong Natural Landscapes*

Where possible, settings should be located to take advantage of strong natural sense stimulants. As an example, Norberg-Schulz (1980: 164) explains how the Roman sunlight, neither strong nor shimmering, reflects off the tufa just enough to provide the feeling of warmth that characterizes the sense of place.

- *Technique: Include a Variation of Walking Surfaces*

In addition to unique and natural smells, sounds, textures and colors have the ability to enhance the sense of place. This is identified by Tuan (1974: 115), explaining that the sense of place felt at the beach is partially due to the special texture of the sand, and how it gives way under the pressure of your feet. In Cavtat, Stefanovic (1998: 34) demonstrates how textures are able to evoke meanings and memories, explaining that the feeling of the original stone walkways underfoot serve as a reminder of the history of the site.

- *Technique: Include Unique Smells, but Preserve Natural Odors*

Like sunlight, the literature suggests that smells, either natural or artificial, are capable of enhancing sense of place. For example, Tuan notes that unique smells have the ability to recall “vivid, emotionally-charged memories of past events and scenes (1974: 10).” For example, Steele (1981) notes that diesel exhaust fumes are often a reminder of the transit filled streets of London. He suggests that “our sense of smell appears to be the most powerful trigger for unconscious memories: they can be recalled more quickly and powerfully by smells, with less thought and organization in the mind, than by any other signals (1981: 126).” He advises that contrary to contemporary design ideas, we should allow natural smells to remain whenever possible instead of “try[ing] to cover up ‘unseemly’ odors and mask the richness of the setting’s history under some bland or over-sweet fake atmosphere (1981: 127).”

- *Technique: Position Objects to Take Advantage of their Sensory properties*

Where possible, objects should be positioned to maximize the effectiveness of their sensory properties. For example, Tuan (1974: 10) reminds us that objects with distinct scents should be placed at nose-level. This is demonstrated by children, who often experience stronger reactions to smell because they are lower to the ground, where many smells (flowers, grass, dirt, etc...) originate.

4.1.4.2 Place-making Principle # 6: Meanings

Finally, in creating a socially functional place, it is essential to recognize the cognitive and affective value of meanings. Stokols and Shumaker define meanings as “a set of collectively held images that evolve as the result of direct or indirect interaction with a particular place (1981: 447),” and Carr notes that “meaning[s] arise] when we fill

out the skeleton of culturally acquired concepts with the flesh and blood of significance derived from direct experience (1970: 526).” Eisenhauer et al. reinforce that “the process of transforming spaces into places is influenced by one’s culture, as the shared meanings that form cultures provide the frameworks for constructing a sense of place (2000, 422).” These meanings are the ‘sense’ in sense of place (Stedman, 2002: 577) or the ‘glue’ binding individuals and groups to a particular place (Carr, 1970: 446).” Norberg-Schulz agrees, maintaining that “meaning is the fundamental human need,” and “when the environment is meaningful man feels ‘at home’ (1980: 23, 50).”

On the first page of *Image of the City*, Kevin Lynch declares that “every citizen has had long associations with some part of [their] city, and [their] image is soaked in memories and meanings (1960: 1).” By definition, Stedman also puts the role of meanings at the forefront of place-making, suggesting that sense of place is “a collection of symbolic meanings, attachment and satisfaction with a spatial setting held by an individual or group (2002: 563).” As exemplified by Relph (1976: 3), these meanings are responsible for the actions of man, and therefore, the character of the place. Once more, Norberg-Schulz (1980: 164) commends the Roman sense of place, proclaiming that meanings gather here like no other place on earth.

In a strongly conflicting commentary on the work of Ouf (2001), Jiven and Larkham agree with the authors above, adding that the physical characteristics of a place have received too much credit in the creation of sense of place, and it is actually “the people-individuals and society- that integrate these features, through their value systems, to form a sense of place (2003: 78).” Stedman has the same opinion of the unequal credit given to the built form, arguing that “physical features do not produce sense of place

directly, but influence the symbolic meanings of the landscape, which are in turn associated with evaluations such as attachment (2003: 674).”

- *Technique: Divide Larger Areas into Smaller Sections*

In addition to enhancing order/continuity and slowing time, Lynch (1960: 104) suggests that dividing larger areas into smaller sections creates a much more vivid image, and therefore increases the meanings associated with the area.

- *Technique: Clearly Distinguish Between Pedestrian and Vehicular Spaces*

Similar to dividing larger areas, the literature also notes the potential to create meaning through clearly distinguishing between pedestrian and vehicle spaces. As an example, Ouf (2001: 78) notes that in the Gold Market of Dubai City, connecting side streets were converted to pedestrian only streets to symbolize the human mastery over the city, and characterize traditional Muslim cities. Similarly, in Cavtat, the car is of secondary importance, and combined with the human scale of the buildings, symbolizes a balance between human settlement and nature (Stefanovic, 1998).

- *Technique: Accentuate the Importance of Significant Paths and Junctions*

While the literature stresses the importance of including historic symbols in the landscape, the reviewed authors offer further guidance. Lynch (1960) maintains that we should strive for continuity along these most important pathways. Their importance should be accentuated by special textures, lighting, features etc... Additionally, Lynch (1960: 81) recommends locating significant landmarks at the intersection of important paths, because this position also enhances the significance of the landmark.

- *Technique: Provide Experiences in Sequences that Build on One Another*

Providing experiences in sequences that build on one another provides a story, evokes strong memories and meanings, and further enhances the significance of pathways. Using Prague as an example, Norberg-Schulz (1981: 86) notes that as we walk along the path from the old city wall to the Old Town Square, we are taught the history of the city.

- *Technique: Carefully Consider the Emotional Significance of Colors*

Additionally, in creating a socially functional place, we must consider how colors can stir strong memories and meanings. Combined with shape and arrangement, Lynch believes “color ... facilitates the making of vividly identified, powerfully structured, highly useful mental images of the environment (1960: 9).” Steele (1981: 128) exemplifies this with a personal example, relating how he was ‘transported’ to one of his favorite places in the back country of the Colorado Rockies simply by the memories stirred by the green of a mound of grass in New York’s Central Park.

- *Technique: Take Advantage of Strong Natural Settings*

This is exemplified in Prague, where the rolling countryside, broken up by wild rocks, hot springs, profound valleys, and dense forests, represents the value of the natural elements (Norberg-Schulz, 1980: 98). Steele (1981: 57) adds that such geographic distinctiveness is one of the most visible traits of sense of place and especially when in stark contrast to their environment, such as a mountain range bordering a barren desert, they greatly enhance our awareness of place (1981: 54). By taking advantage of such unique places we encourage the formation of individual and group attachments (Carr,

1970: 530), and if significant enough, we can evoke the same response in a large number of people creating a rich spirit of place (Steele, 1981: 9).

- *Technique: Incorporate Fragments of the Previous Landscape*

Ouf (2001: 75), considering the need for sense of place in restorative urban design, says that designers benefit by attaching heritage meaning to restoration projects because it makes them recognizable to the general public. While this is often achieved through restoration efforts, it does not have to be direct restoration. More practical, Steele (1981) says incorporating fragments of the previous landscape in a new setting ties the place to a specific time, location and function. By maintaining interesting features, such as unique pathways, or structural properties, the general atmosphere will persist (Norberg-Schulz, 1980: 180). For example, Steele (1981) suggests the use of vacant trolley or railway lines to guide pedestrian traffic through a site (1981: 158). Tuan (1974: 94) suggests that regardless of how aesthetically pleasing a location is, it is this recall of history that will keep the user attracted.

- *Technique: Anchor the Setting with a Strong Symbolic Focal Point*

While recognizing the history of a site is essential, capitalizing on this to create a symbolic focal point is really conducive to sense of place. In discussing the importance of urban conservation efforts, Ouf stresses how small urban centers, or nuclei, are capable of “anchor[ing] a strong essence of heritage ... so that it becomes understandable and imageable to the general public (2001: 75).” By nature, such focal points are highly imageable objects, likely to promote strong meanings for many observers (Lynch, 1960: 9). Low (1992: 167) believes that the symbol, which can be a market place, plaza, monument, etc..., recalls the experience buried within and reminds us of its cultural and

social implications. Tuan adds that “to enhance loyalty, history is made visible by monuments in the landscape (1974: 99),” and if such a landmark successfully evokes these memories, “we can be sure that the place or environment has become the carrier of emotionally charged events or perceived as a symbol (1974: 93).”

- *Technique: Use Local and/or Historic Materials to Reference the Past Setting*

There is also potential in design to promote symbolism through choice of material. An example can be found once again in the Gold Market of Dubai City. Here, special material is used to create a trussed wooden roof that symbolizes the traditional covered bazaar of Islam (Ouf, 2001: 78). The same can be seen in Little Saigon, where materials local to Vietnam are utilized to create architecturally distinct Asian features which “communicate its Asian heritage, reaffirming ethnic identity, expressing nostalgia for places left behind and ‘engraving’ on the new landscape memories from the past (Mazumdar et al., 2000: 323).”

- *Technique: Employ Local and/or National Symbols for Immediate Familiarity*

A simple technique to increase meaning in a setting, advocated by Shamai and Ilatov (2005: 468), is the inclusion of local and/or national symbols. Frequent use of these symbols will quickly achieve attraction to a place and enhance the sense of place. This is most obviously exemplified in the inclusion of country flags in a setting, but also the large statue of Washington, the Brooklyn Bridge and the Boston Commons discussed previously.

- *Technique: Make Access More Difficult in Significant Areas*

A potentially controversial but effective way to evoke meaning in a setting is through restricting access. With a large focus on universal design today, suggesting that

we design places which are difficult to access is almost offensive. However, physical barriers are not necessary as places that are simply hard to reach by conventional means evoke a great feeling of accomplishment and special meaning. For example, Norberg-Schulz (1981: 114) speaks of Khartoum. Here, the strong sense of place is partially due to the lack of access. Without a single road to join it to surrounding cities, visitors must travel through the open desert, magnifying the importance of the destination.

- *Technique: Carefully Consider the Symbolic Significance of Colors*

Considered more universally, we can recognize the strong meanings attached to colors across many cultures. For a broad example, the association of white with positive and black with negative. Capitalizing on this, Kaplan et al. (1998: 72) recommend the use of dark colors in the back ground, with lighter colors in the fore ground, suggesting that this will make a small space feel much larger. Tuan (1974: 24) expands on this, recommending red, orange and yellow colors because they are ‘advancing’ colors that promote warmth and ‘reach out.’

4.2 Conclusion

Using this definition, it is noted that our motivations and expectations (conations) of a place can be physical, social or psychological, and based on these dimensions, a foundation of place-making principles was distilled from the literature. These principles, as discussed in this section are cognitive (order and continuity), affective (mystery, enclosure, and slowing time), or a combination of both (a multi-sensory experience and meanings). In addition, a number of techniques were distilled from the literature to satisfy these principles (Appendix 1).

~ CHAPTER FIVE – CASE STUDY CONTEXT: PIER 21 ~

5.1 INTRODUCTION

To develop a context for the findings of this research (chapter six), the following chapter provides a brief description of Pier 21. The chapter begins by outlining the city of Halifax, before narrowing in on the Halifax Waterfront, and Pier 21. Next, the significance of Pier 21 as a historical immigration shed is noted. Finally, the current role of Pier 21 as a National Heritage Site is explored.

5.2 HALIFAX, NOVA SCOTIA, CANADA

5.2.1 The City of Halifax

The capital city of Nova Scotia, this small (7.2 by 3.2 km) peninsula is located in the Halifax Harbor - an inlet of the Atlantic Ocean. First settled in 1749 by Edward Cornwallis, the strategic location of the harbor city rivaled Louisburg, the French settlement in Cape Breton. As one of the most heavily fortified military bases outside of Europe, Halifax served as a British army and navy base until 1906 when operations were taken over by the Canadian government.



Figure 5.1: The City of Halifax

Taking further advantage of such a strong location, Halifax was the largest and most important naval base during World War I and II (<http://britannica.com/EBchecked/topic/252521/Halifax>). Though Halifax remained unscathed during expeditions against Louisburg in 1758, the American Colonies in the American Revolution, the United States in the War of 1812, and both World Wars, a fluke accident in 1917 severely damaged the city. When a French munitions ship collided with a Belgian relief ship in the Halifax Harbor, the resulting explosion completely destroyed the northern end of the city, killed



Figure 5.2: The Halifax Harbor (with a cruise ship in at Pier 21

includes four universities and numerous post-secondary schools, various historic churches, and a collection of restored 19th century buildings, located on the waterfront, known as the Historical Properties (<http://britannica.com/EBchecked/topic/>

nearly 2000 residents and injured about one-fifth of the population (<http://www.encyclopedia.com/doc/1E1-HalifCan.html>). Fortunately, the city was rebuilt, and today, this large ice-free Harbor is one of the busiest in Canada, exporting agricultural products, fish and lumber, and ensuring Halifax remains the commercial and industrial capital of Nova Scotia.

In addition, Halifax is also the cultural capital of the Maritime Provinces, boasting a large number of educational, historic, and religious institutions. This

252521/Halifax). Halifax also boasts a number of National Historic Sites, including the Halifax Citadel, Fort McNab, Prince of Whales Tower, George’s Island, York Redoubt, and Pier 21.

5.2.2 The Halifax Waterfront



Figure 5.3: Visitors enjoying the Halifax Waterfront



Figure 5.4: The Halifax International Busker Festival

Spanning 3.8 km (from Casino Nova Scotia to Pier 21), the boardwalk along the waterfront is the heart of the City of Halifax. Year-round, visitors can stroll along the waterfront and observe the daily harbor traffic, including tour-boats, the Halifax-Dartmouth Ferry, and shipping traffic. The Maritime Museum of the Atlantic, Bishop’s Landing (a mixed-use development with a variety of unique shops at ground level), and the Historic Properties are just some of the unique destinations along the way. In the summer months, with the arrival of the cruise ship traffic, the waterfront is especially lively and plays host to numerous festivals and activities. Fireworks light up the sky on Canada

Day and Natal Day, and for the past 22 years, the Halifax International Busker Festival has been the highlight of the tourist season (<http://www.buskers.ca/>).

5.2.3 Pier 21 – National Historic Site and Immigration Museum



Figure 5.5: The Pier 21 National Immigration Museum (as it stands today)

The southernmost tip of the boardwalk is highlighted by Gateway Park, a development of the Halifax Port Authority that serves as a link between the aforementioned boardwalk and the cruise ship moorings known as the Seawall

(<http://visitors.halifax.ca/historic-halifax.shtml>). From here, the remainder of the waterfront, along Marginal Road, is dominated by Piers 21 and 22. While the Pier 21



Figure 5.6: The Pier 22 Cruise Pavilion

National Historic Site includes the entire Pier 21 shed, as well as the Annex building, and the pedway that joins them, Canada's Immigration Museum (the building highlighted in

many of the simulations) only occupies a section of the southeast end of the pier. Likewise, the adjoining northwest section of Pier 22 is known as the Pavilion, where cruise ship passengers are welcomed to Halifax.

5.3 HISTORIC PIER 21

Prior to the Halifax Explosion in 1917, the deep-water-terminal at Pier 2 was the arrival point for new immigrants to Canada. However, after being severely damaged in the blast, subsequently restored, but unable to handle the heavy immigration traffic of the 1920's, a new facility was built – Pier 21 ([https://www.pier21.ca/research/research-](https://www.pier21.ca/research/research-materials/the-first-seventy-five-years/)

[materials/the-first-seventy-five-years/](https://www.pier21.ca/research/research-materials/the-first-seventy-five-years/)).

This facility was comprised of a combination of buildings, including the Annex, linked by ramps and a pedway to the railway station from which an estimated 95% of new Canadian citizens would disperse across the country, forever enhancing the social structure of our nation

([http://www.pier21.ca/wp-](http://www.pier21.ca/wp-content/uploads/files/research_trains.pdf)

[content/uploads/files/research_trains.pdf](http://www.pier21.ca/wp-content/uploads/files/research_trains.pdf)).

Between 1928 and 1971 (most notable after Canada entered into World War II in 1939), Pier 21 was the ‘front



Figure 5.7: New Canadians Arriving at Pier 21

door’ for those immigrating to Canada. During these years, over 1.5 million people passed through Pier 21, and settled across the country. This included immigrants, as well

as war brides and their children, refugees, and military troops. In addition, nearly half a million Canadians departed from Pier 21 to serve overseas during the Second World War (<https://www.pier21.ca/research/research-materials/the-first-seventy-five-years/>).

Fittingly, Pier 21 is often referred to as Canada's Ellis Island. Like Ellis Island, Pier 21 undoubtedly shared responsibility for, and is forever linked to the multicultural identity of Canada (http://www.cbc.ca/sevenwonders/wonder_pier_21.html). During the 1950's and '60's, air travel became the preferred method of immigration into Canada, which forced Pier 21 to cease operations in 1971 - 43 years after it opened (<https://www.pier21.ca/research/research-materials/the-first-seventy-five-years/>).

5.4 PRESENT DAY PIER 21

In 1980 J.P. LeBlanc, a veteran of World War II and alumnus of Pier 21, created the Pier 21 Society with the mandate of “transform[ing] the shed into a facility of international importance, acknowledging the significance of immigration to the building



Figure 5.8: The Historic Train Donated to Pier 21 (with the pedway in the background)

of Canada and our country's role in the Second World War. Nineteen years later, under the presidency of Ruth M. Goldbloom, Pier 21 was reopened on Canada Day as the Pier 21 National Historic Site to celebrate the multiculturalism of Canada, and its role in its creation

(<https://www.pier21.ca/research/research-materials/the-first-seventy-five-years/>). Aside from minor renovations, Pier 21 mirrors the Pier during its days of operation, complete

with the pedway through which people took their first steps as a confirmed Canadian citizen. Another significant addition, serving as a reminder of the journey across Canada, is a 1937 railway car donated by the Canadian National Railway. This railway car sits just north of the museum entrance, under the pedway, where several sets of rails traditionally ran alongside the immigration shed (http://www.pier21.ca/wp-content/uploads/files/research_trains.pdf).

As Canada's last surviving ocean immigration shed, Pier 21 draws visitors from around the world. In addition to being a National Historic Site and Immigration Museum, Pier 21 also successfully hosts over three-hundred events annually (<http://www.pier21.ca/?rentalspace>). While a number of full time staff is required, there are also a significant number of dedicated volunteers, some whose family and friends immigrated through Pier 21, those who came through themselves, and others who simply love the historical significance of the Pier. Together, these people ensure each visitor gets the most out of their Pier 21 experience, and are the reason Pier 21 remains an award-winning experience, and was recently voted one of CBC's Seven Wonders of Canada (http://www.cbc.ca/sevenwonders/wonder_pier_21.html). The historical, cultural, and emotional significance of Pier 21 is demonstrated by those who nominated it:

I nominate Halifax's Pier 21 for one of Canada's wonders. We are a country of immigrants and this gateway into Canada for hundreds of thousands of immigrants and their progeny started the process that would shape us all as Canadians. After 55 years in this wonderful country, there is still nothing that grabs my soul, my imagination, puffs out my chest and yes, even brings a little tear of joy to my eyes, than walking through Pier 21's doors onto the sacred ground that made it possible for me to become a Canadian. Thank you, thank you, Canada and thank you CBC for this wonderful opportunity (Franz Dembeck).

As a first generation Canadian, I would have to nominate Pier 21 in Halifax as one of Canada's Seven Wonders. I have heard many stories from people including my parents, who travelled to Canada from Italy, and I have been moved by their experiences and what their reactions were to Canada when they first arrived. I cannot image what it must have been like for them to leave their homes and to travel such great distances, hoping for a better life and future (Rema Celio).

Pier 21 is a symbol of Canadian policy of multiculturalism and encouraging of immigration. It represents the hopes with which so many people came to Canada in hope of a better life. Pier 21 is a wonder as Canada succeeded in solving a paradox: unite a diversity of people of different ethnic origins and make them feel at home (Marilena Dracea-Chelsoi).

Ironically, as the only pier in the Halifax Harbor that can accommodate a large cruise ship, Pier 21 remains the first point of contact for many visitors to Canada – but herein lays the problem. For a setting that is so rich in history, and features a structure that embodies this so effectively, the outside property surrounding Pier 21 appears desolate by contrast. This has not gone unnoticed by the City of Halifax, the Port Authority and the Pier 21 Society, and great strides have been made here in recent years, including developments such as the Garrison Brewing Company, the Mary E. Black Gallery in the Nova Scotia Centre for Craft and Design, and the relocation of the Nova Scotia College of Art and Design. However, these improvements end abruptly before the entrance to the immigration museum and the Pier 22 Pavilion. Instead, arrivals face a barren, unwelcoming parking lot, overshadowed vehicles and the clutter of the shipping



Figure 5.9: The Queen Mary 2 Docked at Pier 21

appears desolate by contrast. This has not gone unnoticed by the City of Halifax, the Port Authority and the Pier 21 Society, and great strides have been made here in recent years, including developments such as the Garrison Brewing Company, the Mary E. Black Gallery in the Nova Scotia Centre for Craft and Design, and the relocation of the Nova Scotia College of Art and Design. However, these improvements end abruptly before the entrance to the immigration museum and the Pier 22 Pavilion. Instead, arrivals face a barren, unwelcoming parking lot, overshadowed vehicles and the clutter of the shipping

facilities surrounding it. This underwhelming setting is described by participants of this research when observing simulations of the existing setting:

This one's okay, you know. It has a little bit of green so that is what makes it okay ... it's pretty stark. It's not welcoming. It is not a place I would go to or stop. It is a place I would walk through to get to my car (M57FE).

It is just lifeless. Nothing is happening in this area until we get through the doors. Which is what it feels like even today ... it's a nice soft front, but it doesn't say anything, doesn't enhance it ... it doesn't lead you there (M56UV).

This is not far off what it is right now. It's kind of like ... this I think is very close to what it is right now, as far as I can tell. Interesting! I see this as like the very basic and there's so much here that ... like potential for change here, but, like in this [place], the proportion of car space to human space is heavily weighted on the car space (F24FE).

Fortunately the summer months produce significant traffic at Pier 21, including cruise ship arrivals, tour buses, rickshaw drivers, etc... but with such stark surroundings, visitors understandably spend little time in the city discovering this historic property. Instead, vacationers exit the Pier 22 Pavilion, venture through Gateway Park, and explore the remainder of the waterfront or historic downtown Halifax. In the winter months, without the cruise ships, the desolate surroundings are emphasized by a lack of people, save for the occasional businessman or NSCAD student.

The alarming lack of consideration for external design (demonstrated in Figures 5.10-5.13) is responsible for the inclusion of Pier 21 in this research. As mentioned above, the objectives of this research are to distill the principles of sense of place, and introduce them to a setting where they are absent. In its current state, Pier 21 provides a blank slate on which the principles of place-making can be introduced. Though this is the case for many places in Halifax, and most North American cities, sites with such

significant meaning deserve immediate attention. As the next few years promise that “Pier 21 will evolve to encompass the broader story of nation-building, sharing the story and contributions of all immigrants to Canada (<http://visitors.halifax.ca/historic-halifax.shtml>),” it is essential that the surrounding property follow suit.



Figure 5.10: Looking Across the Pedestrian Unfriendly ‘Roundabout’ from the Pier 22 Pavilion



Figure 5.11: The Large, Barren Parking Lot that Utilizes Most of the Space Outside Pier 21



Figure 5.12: The View Leading Cruise Ship Visitors to the Rest of the Halifax Waterfront



Figure 5.13: The Property Surrounding the Entrance to the Pier 21 Immigration Museum

~ CHAPTER SIX – FINDINGS ~

6.1 INTRODUCTION

To review, the objectives of this research aim to bridge the gap between theory and practice in place-making by determining:

- What common place-making and design principles can be derived from the broader literature regarding sense of place?
- Does the introduction of these principles to an existing site enhance the sense of place?
- How can they be applied by practitioners, bridging the gap between theory and practice?

The first research question was covered extensively in chapter four and revealed six essential principles of place-making. To satisfy these principles, and answer the second research question, a number of design techniques were also distilled. Finally, to answer the third research question, thirty participants were interviewed using visually simulated ‘what if’ scenarios and their preferences recorded. In this chapter, analysis of these interviews is used to empirically test the literature and enhances existing research with five unexpected ‘key findings.’ This chapter will discuss each of these findings individually (6.2 – 6.6).

6.2 FINDING # 1: A HIERARCHY OF PLACE-MAKING PRINCIPLES

This research examines, “*what common place-making and design principles can be derived from the broader literature regarding sense of place?*” We recall from chapter four that order/continuity, mystery, enclosure, slowing time, meanings and a multi-sensory experience provide the foundation of sense of place. With the exception of

an unexpected response to mystery (discussed in section 6.6) empirical testing reinforces the importance of these principles but suggests a clear hierarchy amongst them:

Meaning	100%
Slowing Time	87%
Mystery	57%
Order/Continuity	50%
Multi-Sensory	47%
Enclosure	47%

Figure 6.1: Percentage of Participants giving Significant Responses

Analysis of the interview transcripts implies that meaning and slowing time are the most effective principles of place-making among the participants of this research. While the literature does not offer a hierarchy of principles, chapter four noted that many authors (Norberg-Schulz, 1980; Stokols and Shumaker, 1981; Stedman, 2002) agree that meaning is the most significant principle of place-making. The findings of this research concur, with 100% of participants providing at least one significant response to meaning in the simulations. A significant response is not simply a statement, but also an explanation, as in the examples throughout this research. These responses ranged from the meanings associated with national symbols, to those evoked from a strong symbolic focal point, to the meanings attached to old fashioned lamp posts or fragments of the previous setting. For example:

I guess [this place needs] symbols. Symbols that are ... everything in here signifies something, but they are pretty generic to any kind of public space and so they ... in the other ones with flags in them which indicate a place, nationality or patriotism ... there is more meaning (F24FE).

This [café] space is directly underneath the first steps (the pedway) that somebody would take as a confirmed Canadian citizen. Pier 21 was not just this building. It was also the Annex, the train tracks ... and this puts people right in the center of that historical space ... the views, the pedway, the Annex building, the view to the rail station were still very consistent with what existed during the years of operation. You can sit here in the midst of that and enjoy the same historical surrounding (M31FE2).

The period ... it does elevate the meaning of the space ... there is pride in that [double stem post] ... it's the period which brings the age of the frontage ... it's the elegance and pride that comes with being a double post (M56UV).

After meaning, 87% of participants felt the ability of a place to slow time was most meaningful. Participants responded to slowing time as both physical interactivity (offering places to stop, or enticing them to stop), as well as mental reflection (transporting them to a past time in the setting). For interactivity, settings divided to offer pedestrian spaces, from large parks, to single benches along pathways, were highly favored:

The park is great. Again, it is a nice place to gather. You feel welcome. There is tables and chairs. That's welcoming and it draws people to the site ... [it] would draw me because it is inviting me to relax and be social (M56UV).

If I was visiting this site then I would want to spend some time in this [park] maybe writing postcards if I was on holiday, or looking at literature from the museum, or immigration records from the research department. It's very attractive. I would want to linger there. I would probably smoke cigarettes and drink coffee if that was allowed in that area (F37FE).

I like the bench. The opportunity to sit and stay a while after you come out of the museum ... it's a very emotional spot and I really think you need a spot to just reflect when you finish ... if you really do the tour proper, and visit the research center, and all the things you're invited to do, you need a moment to reflect when you come out (F53FE).

Participants also responded to places that were able to mentally slow time, and encourage reflection on a previous time in history by incorporating fragments of the previous landscape:

[The lampposts are] just historic ... I think it's really important to keep the historic aspect of it even though on both sides of us we have modern (F53FE).

They're [pictures of] the immigrants. The old pictures. They just, historical-wise, they give you an idea of what the people coming through the doors would have looked like ... I'm intrigued by the old pictures ... it almost makes you think about what it was like when they stepped out the doors ... brings you back into time (F54F).

[The café area] reminds me of a European city ... of an older ... maybe that's what it would have looked like when Pier 21 was open (F21FE).

Located third on the hierarchy, but with a surprisingly low response, is mystery. A significant sense of mystery was generated by the train car that was donated to Pier 21, but some of the unique features added in the simulations also generated a sense of mystery. The central water fountains are an example:

I look at [the propeller fountain] and I feel curious. I've never seen a thing like that before, what does that mean? ... This is [the propeller fountain] up close and it is really appealing to my curiosity. I want to take a closer look. I'm being drawn to it. That would draw me to the center (M57FE).

[The cross fountain] is a curiosity. I'm sure I would stop and look at it ... because it is something I haven't seen before. It's stuck out in the middle of the asphalt and demands your attention (F60FV).

Just that it is something abstract that you don't see normally. I don't even know what it really is, but it just kind of brings your attention to it because you're curious – you don't know what it is. It's kind of like you would gravitate to it (M25U).

In the literature (Lynch, 1960; Tuan, 1974; Steele, 1981; Kaplan et al., 1998; Stefanovic, 1998) mystery is credited in place-making almost as highly as meaning and slowing time. However, this research implies that mystery (57%) is significantly less

effective at enhancing sense of place than meaning (100%) and slowing time (87%), and therefore may not be as important as the literature implies. Instead, and discussed further in section 6.6, this research suggests that mystery is unique from the other place-making principles because it is dependent upon the familiarity of the user.

Order/continuity is logical in the fourth position on the hierarchy. In the literature (Lynch, 1960; Carr, 1970; Norberg-Schulz, 1980), order/continuity is not noted for creating meaningful places, but is instead recognized as an essential precursor before meaning can be attached to a setting. For example, Lynch notes that if “the environment is visibly organized and sharply identified, then the citizen can inform it with [their] own meanings and connections. Then it will become a true place, remarkable and unmistakable (1960: 92).” In this research, participants who noticed the boardwalk in the simulations often commented on how it is either historically continuous, or continuous with the remainder of the Halifax Waterfront, and how it therefore enhances the meaningfulness of the setting. For example:

It’s that wood again. I mean, if it’s a pier, technically [the boardwalk] should be wood, right? Because piers are typically built of wood. It kind of adds to the novelty of it being Pier 21 (M24U).

I like the boardwalk, and I think that it is important to keep the boardwalk ... because that is the boardwalk ... the gateway to the rest of downtown (F24FE2).

[With the boardwalk], there really is that sense of continuity and contact to the waterfront (M31FE2).

Participants also noted that signage/information, in the form of pie-signs and information boards, are valuable features in organizing the environment because they allow you to discover their significance on your own:

I like information [signs], and I like to know what is going on... if there is anything special going on, or anything special about what I am looking at ... because if it's written you would be able to process it on your own time as opposed to someone telling you when you come in (F23FV).

[this information board] makes you feel a bit more welcome. A little more self-reliant so you don't have to go ask someone where you are ... it is nice to find out on your own (F21FE).

Finally, the principles at the bottom of the hierarchy are a multi-sensory experience and enclosure. While the importance of stimulating all five senses is stressed in the literature, it is not given as much focus as the other principles discussed above. Analysis of the data reinforces this, with only 47% of participants expressing that stirring the senses, using water features and natural elements, enhances their experience in a setting:

Again, the water would sound good, and look good, and convey that sense of movement here which is especially interesting here because that is where the railroad tracks used to run between the buildings. So yeah, I love it (F37FE)!

I love [the centerpiece] ... I just love it. It's everything that I love. It's the water. When you are sitting here you get the sound of the water, but it is also something that you want to look at here, with the map, you would want to go in and look at it or take a picture (F27U).

Flowers make you feel good ... I just love the look of them ... the smell ... they make you feel good ... it adds to the ambiance of the place (F72FV).

While sense stimulation is not discussed in the literature as strongly as the other place-making principles, 47% of participants showing a positive response confirms it is still a valuable principle. In fact, Steele (1981) says that our senses are the easiest way to recall the meanings and memories mentioned above as the most effective principles of place-making. Considering this, it could be suggested that stimulating the senses belongs higher on a hierarchy of place-making principles. The logical argument relates to the

difficulty of perceiving a multi-sensory experience from an image. While some research (Bishop and Karadaglis, 2001; Rohrman and Bishop, 2002) goes the extra step to present sensory information with their simulations, this research was unable to (time and training constraints) and it could be argued that participants are missing the opportunity to respond to such information. However, during the interviews, participants were encouraged to respond as if they were actually in the places, using all five senses. This was successful and, as suggested by Steele (1981), most respondents were capable of relating their senses to memories and meanings that were both historical and personal:

Again, the water would sound good, and look good, and convey that sense of movement here, which is especially interesting here because this is where the railroad tracks used to run between the buildings (F37FE).

I love the sound of running water and growing up some of my most formative years were living not far from a river ... so moving water is appealing ... you're talking to a salt water kid (M31FE2).

I like the fountain in this one. I'm a water person. I love the water. I find it very peaceful ... relax[ing] ... reminds me of a nice summer day. If I ever get stressed out, I just go down by the water ... that's what that reminds me of (F24FE2).

An additional consideration is that response to sense stimulation is very affective, or dependent on how a setting makes you feel. During the interviews, it was consistently found that affective responses were more difficult to elicit using visual simulations. In fact, a question as straightforward as, "how does _____ make you feel?" did not always result in an affective response:

Me: "How does this greenery make you feel?"
(M24U): "It's nice to see. It's nice to see that people are willing to put greenery up when they cut it down to put a building up."

Me: “How do these trees make you feel?”

(F23FV): “I like trees. I like how they are used here. What’s in this space now, gravel? It’s not being used in any pretty way, so trees would be good here.”

Me: “How would you feel if you were in this place?”

(F60FV): “I don’t like the concrete bench ... it doesn’t look like something you would sit on. Looks more like a garbage receptacle or something.”

Despite these difficulties, this research was able to frequently elicit affective responses and those who appreciated the importance of stirring the senses, were able to provide at least one significant response (affective or otherwise – see examples above). Therefore, the researcher is confident that participants were capable of responding to sensory information in the images, and were logically responding that sense stimulation is an important principle, but not as significant as those higher on the hierarchy. Future research adopting more effective methods of eliciting affective responses (i.e. immersion) might uncover slight discrepancies in regards to the value of stirring multiple senses. However, this should have a similar impact on the other principles, and is therefore unlikely to change the position of a multi-sensory experience on the hierarchy.

Contrary to a multi-sensory experience, enclosure *is* highly stressed in the literature but remains at the bottom of the hierarchy with only 47% of participants finding enclosure meaningful in a place. The buffering potential of natural features is an example:

I like this [park] better because you would probably get a better use of shade ... I feel like it would be a more serene place if you’re completely enclosed by trees instead of a line [of trees] down the middle (F23FVS).

The idea of being enclosed and being able to sit by the trees you can just get a better sense of being able to relax and enjoy yourself (F25FE).

This [place] emphasizes the fact that trees offer shade and protection from the sun, so there is the sheltering quality in amongst the parking lot (F24FE).

While not stressed as often as some of the other principles, the literature (Tuan, 1974; Relph, 1976; Norberg-Schulz, 1981; Riley, 1992) refers to the importance of enclosure much more frequently than sense stimulation so the low position of this principle on the hierarchy is unanticipated. Similar to sense stimulation, response to enclosure can be very affective and therefore difficult to perceive in an image. While cognitive responses to enclosure were distilled (see examples above), it was more difficult to evoke the affective reactions associated with this. Again, it is logical to argue that the difficulty in perceiving enclosure, or eliciting affective responses from an image excluded respondents who may have felt this enclosure if experiencing the actual place. Still, this requires further research as some participants were able to provide responses that were affective, and related to enclosure:

[These trees make me feel] very comfortable ... I think they offer a bit of privacy so they give you that extra bit of comfort (F21FE).

The trees, which is something that I would want to gravitate to, which makes it a place that I would want to sit, but they are not providing shelter ... I do not feel sheltered in this space, I feel exposed because the way the seating is placed right against the parking stalls (F25U).

[This place is meaningful because of] the space created by the trees. The gathering space, welcoming place. There is enough trees there that you feel protected but it is open enough that you don't feel surrounded (M57FE).

Another potential explanation for the low position of enclosure on this hierarchy of place-making principles might come from a lack of options. Whereas the majority of principles were captured in numerous design elements, enclosure went mostly unnoticed save for the tree canopy in the parks exemplified above. There were however other

design features simulated with the intension of evoking a feeling of enclosure, namely the gates at each entrance, the tree canopy above the café area, and the passageway through Pier 22, but they went mostly unmentioned. In images where the gates appeared, they were on the outskirts, and easy to miss in such a busy simulation. Likewise, though the café area was as favored as the parks as a place of interactivity, participants never responded to the tree canopy overhead here like they did in the parks. Still, the participants who did notice the gates recognized their value in creating a sense of enclosure, or similarly, an entrance to the place:

[The gates] create more of an entrance feel ... I think to cut off our section and make it more defined where our actual area is, I think that's really important (F25FE).

The gate adds a nice touch. It kinda frames it ... I like that you have the gate on both sides so it kind of encloses you (F27U).

[The gate is] like an entranceway, and we consider ourselves to be the gateway to Canada ... I think they are very symbolic (F72FV).

Because the participants who noticed the gates responded to the enclosure they created, the researcher is confident that future research utilizing more effective methods to elicit affective responses (if participants could actually feel a sense of enclosure), or if simulations were presented with more obvious examples of enclosure, the position of enclosure on the hierarchy would more closely reflect the literature.

6.2.1 Aesthetics as a Place-making Principle

A final consideration must be made for aesthetics. While the literature discusses the meanings associated with symbolic focal points (Lynch, 1960; Tuan, 1974; Ouf, 2001; Low, 1992), or the relaxing effects of trees and water (Norberg-Schulz, 1980; Steele, 1981), 70% of participants said these grand centerpieces, or natural features were

meaningful because they are simply pleasing to the eye. This suggests that ensuring places are aesthetically attractive is almost as significant as ensuring places offer pedestrians the opportunity for interaction and reflection. As an example we can consider the distinct materials found in the park, the boardwalk along the waterfront, or the country flags hanging from the lamp posts along the main roadway:

[The inlay in the park] makes it a little more prim and proper. A little more squared away. I like that. I like the fact that there are different textures and patterns in there, or different colors of stone ... [it] makes it more appealing to look at (M24U).

...the wood softens the look ... makes it more inviting to walk on ... better than concrete ... it's just a softer surface ... a warmer surface ... warm to look at (F60FV).

You've made the effort to go from black and white banners to things (flags) that are more colourful and distinctive. I take it that is meant to be read as more interpretive, more responsive to the space. I like that. Plus they are pretty colors (M31FE2).

While the literature does not discuss a direct correlation between sense of place and aesthetics, there are many studies (Smardon, 1988; Gobster, 1995; Oguz, 2000; Ozguner and Kendle, 2006; Matsuoka and Kaplan, 2008) that demonstrate a preference for aesthetically pleasing settings. These studies may suggest aesthetics belongs on a hierarchy of place-making principles, but require further consideration. While the examples above are exceptions, the majority of participants with a strong response to aesthetics referred to vegetation:

... and this [boulevard] for example, it's so stark compared to the other boulevard ... doing it as a boulevard with a couple lines of trees and café chairs and so on is relatively inexpensive and so much more attractive than the concrete (M31FE2).

It's nice to see greenery and trees. It's not all concrete ... yeah! Colorful ... all different types of colors ... flowers ... places that I like to see have flowers, shrubs, trees, and grass ... nice landscaped types of things is what I like (M25U2).

[Greenery is] natural, it's colorful, it's green ... it's a living thing and it's very pretty to look at. And [it] has a softness that these [images] don't have. Just the irregular shapes (F60FV).

While the findings of this research imply that aesthetics is a valuable addition to a hierarchy of place-making principles, Nohl (2001) and Matsuoka and Kaplan (2008) elaborate, suggesting that aesthetics is not a principle in itself, but is a prerequisite of the existing principles. For Matsuoka and Kaplan (2008) aesthetics is simply a conation (human motivation) in that scenic beauty, cleanliness, etc... are basic human needs and expectations. Nohl (2001) on the other hand does not see aesthetics as a principle of place-making or as a basic human motivation, but instead as a cognitive process involving the extraction of information from the landscape for emotional benefits. Fittingly, Nohl (2001) warns that our current landscapes are “anaesthetic” or simplified to the point that we are insensitive to any perceptual stimulation, and can no longer attach aesthetic feelings, or receive stories from the setting. Defining four aesthetic categories from which a person can extract this information, Nohl (2001) suggests that aesthetics is an essential precursor to many of the aforementioned place-making principles:

- The Beautiful – At this level, meaning is easily attached because the landscape is aesthetically organized, similar to the place-making principle of order/continuity;
- The Sublime – By its natural properties, the landscape is aesthetically unordered, and fragmented, requires cognition to understand it, and entices you to get involved. This is similar to the place-making principle of slowing time (interactivity);

- The Interesting – At this level, a multiplicity of land use processes create aesthetic chaos, and confusion, though the overall order is known to insiders, similar to the place-making principle of mystery;
- The Plain – At this level, landscapes lack the aesthetic qualities above, are therefore aesthetically unattractive, and could be described as placeless (Relph, 1976).

The literature above is important in considering the relationship between aesthetics and the place-making principles derived in this research. Matsuoka and Kaplan (2008) note that aesthetically pleasing settings are a basic human expectation. Nohl (2001) believes that aesthetics is a cognitive prerequisite to the important principles of place-making. However, to verify the significance of aesthetics in place-making (even if it is not a principle), it is necessary to establish a connection empirically between aesthetics, and at least one of the cognitive, affective, or conative properties of sense of place. Participant responses suggest such a connection exists in the beauty offered by a setting, and how it makes you feel welcome, as well as the meaning of having living organisms in a place:

The trees, and the green around attracts me to this place because I always feel, I'm always closer to green space. And flowers planted around. Beautiful! It's nice to be in such places (F36FE).

The green spaces just feel really welcoming so it kind of draws your eye and it just feels like the environment has been thought of and I find it more attractive (M31FV).

It's natural, it's colorful. It's green ... it's a living thing, and it's very pretty to look at. And has a softness that these don't have. Just the irregular shapes (F60FV).

Finally, it is necessary to consider whether participants were responding to the aesthetic beauty of the included natural elements, or simply responding to nature in

general. Ozguner and Kendle (2006) discuss this difference between people's aesthetic preference for beautiful, in-season vegetation, and the untidy, naturalistic urban landscapes that dominate most of the year. To strengthen the evidence found in this study, future research needs to present participants with simulations representing this naturalistic, less beautiful vegetation, to see if the findings are consistent. If respondents still feel the vegetation is welcoming, or that there is meaning in the living feature, then it can be concluded that aesthetic beauty is not significant in place-making. Instead, as Nohl (2001) suggests, the value of aesthetics may lie in aesthetically fragmented or aesthetically mysterious places as opposed to places that were simply beautiful. Future research should examine this in greater detail. Similarly, as the majority of responses in this study, as well as the works of Nohl (2001) and Matsuoka and Kaplan (2008), were related to vegetation, future research should consider omitting vegetation entirely to determine how other features affect aesthetics.

6.3 FINDING # 2: A HIERARCHY OF PLACE-MAKING TECHNIQUES

Through a review of the relevant literature, this research examined “*how can [the principles of place-making] be applied by practitioners, bridging the gap between theory and practice?*” Referring back to chapter four, techniques are defined as a set of design tools that can be utilized by urban designers to fulfill the principles of place-making. Through empirical testing, many of the techniques distilled from the literature were shown to be unsuccessful at evoking significant responses. However, the effectiveness of some techniques in fulfilling the principles of place-making was clear. Further analysis suggests that, like the principles of place-making, there is a hierarchy amongst the successful design techniques distilled in chapter four.

If we consider the table below, which outlines overall participant response to the design techniques (those techniques that received greater than three responses), we see the obvious beginnings of a hierarchy.

<i>Divide Large Areas into Smaller Sections</i>	77%
<i>Incorporate Fragments of the Previous Landscape</i>	63%
<i>Use Odd Combinations of Features that do not Initially Relate</i>	37%
<i>Include Maps/Signage to Provide Context and Facilitate Easy Orientation</i>	37%
<i>Employ Local and/or National Symbols for Immediate Familiarity</i>	33%
<i>Carefully Consider the Emotional Significance of Colors</i>	27%
<i>Provide Shelter Above and Behind to Create Enclosure</i>	23%
<i>Anchor the Setting with a Strong Symbolic Focal Point</i>	20%
<i>Include a Variation of Walking Surfaces</i>	17%
<i>Include Multiple/Irregular Paths to Allow Choice and Interaction</i>	17%
<i>Use Local and/or Historic Materials to Reference the Past Setting</i>	17%
<i>Carefully Consider the Symbolic Significance of Colors</i>	10%
<i>Clearly Distinguish Between Vehicle and Pedestrian Space</i>	10%

Figure 6.2: Participant Response - Successful Techniques

As an example, 77% of respondents noted that a larger area is more meaningful to them if it is divided into smaller sections. This technique was noted most significantly in relation to slowing time, and allowing participants to explore and interact with the setting:

I really like these (the pictures) ... it draws the eye in ... I don't know what this (pedway) is, but it looks kind of interesting. There's the flags all around ... it makes you want to get in there. You want to go and see what's down here, and you want to go here, and look at the fountain, and even this little gate ... I would want to go look and see what the pictures were and who took them or painted them ... (F27U).

I would go and see that train. I would want to see inside the train ... it looks like something you couldn't possibly see all in one day with all those attractions ... you see the water fountains cool, the train's there, and now all these flags. It makes it look like it is going to be a days event (M25U2).

It looks like you could just roam for some distance and see a lot of different ... I would roam and see everything ... I would head for the train first ... it's part of the history ... is that one of the trains from the time (F54F)?

Though not as effective as dividing large areas, 33% of participants mentioned that employing local/national symbols enhanced the meaningfulness of a place by creating immediate familiarity and enhancing personal meaning. For example, we can consider the use of flags in the setting, or the use of local vegetation:

It gives a multicultural aspect to it to make it more inviting. Like if I was to see a Greek flag, it might make it a little more meaningful to me. A little more accepting. Like this is a place where my people hang out (M25U).

This is very meaningful to me, but it's personal because I see my native flag (F50+FV).

[It would be meaningful] to see a huge maple tree in front of Pier 21 someday, just a Canadian symbol ... I think seasonally, we could do poppies, or tulips for Holland ... sections for each country ... (F53FE).

As a final example, 20% of participants noted that places were meaningful when anchored by a strong, symbolic focal point:

Again a focal point, whether they be our nation builder photos or wonderful pictures of Pier 21, but something that draws the people [in the tunnel] ... it would be a great introduction depending on what you had there (F53FE).

Yeah, [Images showing "Pier 21" are more meaningful because] Pier 21 is the reason that people come and [the museum] is the most attractive part of this shed because it is brick and it is elevated above the rest of them a little, and that big Pier 21 sign ... that's the focal point of the neighborhood (F37FE).

[This centerpiece is meaningless because] nothing is connected to the history of the space. I would see this round about as the place that kind of holds this meaning, and what you gather from that, you take to the other spaces ... since it is in front of the building, it is the focus when you drive into this space, or you walk into this space, aside from the front of the museum, this is the first thing you see (F25U).

While the above table provides a starting point for determining the value of place-making design principles, a breakdown by individual principles produces a more practical hierarchy:

Meaning	30/30 = 100%
<i>Incorporate Fragments of the Previous Landscape</i>	60%
<i>Employ Local and/or National Symbols for Immediate Familiarity</i>	33%
<i>Carefully Consider the Emotional Significance of Colors</i>	27%
<i>Anchor the Setting with a Strong Symbolic Focal Point</i>	13%
<i>Use Local and/or Historic Materials to Reference the Past Setting</i>	13%
<i>Carefully Consider the Symbolic Significance of Colors</i>	10%

Slowing Time	26/30 = 87%
<i>Divide Large Areas into Smaller Sections</i>	88%
<i>Incorporate Fragments of the Previous Landscape</i>	38%
<i>Include Multiple/Irregular Paths to Allow Choice and Interaction</i>	19%
<i>Use Local and/or Historic Materials to Reference the Past Setting</i>	12%

Mystery	17/30 = 57%
<i>Use Odd Combinations of Features that do not Initially Relate</i>	65%

Order/Continuity	15/30 = 50%
<i>Include Maps/Signage to Provide Context and Facilitate Easy Orientation</i>	80%

Enclosure	14/30 = 47%
<i>Provide Shelter Above and Behind to Create Enclosure</i>	50%
<i>Use Entrances to Clearly Define Areas</i>	14%
<i>Anchor the Setting with a Strong Symbolic Focal Point</i>	7%

Multi-Sensory	14/30 = 47%
<i>Include a Variation of Walking Surfaces</i>	36%

Figure 6.3: Technique Hierarchy: Participant Response by Principle

As not every technique is capable of fulfilling each principle, the findings above suggest that a further hierarchy exists within the principles of place-making. As an example, for an urban designer looking to enhance the meaning in a setting, 60% of respondents recognize that incorporating fragments of the previous landscape is the most

effective design technique. Likewise, the designer looking to slow time, and have users relax and enjoy a setting, would be wise to rely on dividing larger areas into smaller sections.

6.3.1 Toward a Complete Hierarchy of Place-making Techniques

The above tables suggest that dividing larger areas and incorporating fragments of the previous landscape are the most effective design technique available to the urban designer. However, two considerations must be made before accepting this hierarchy. First, there are a number of techniques distilled from the literature that evoked responses from less than three (10%) participants. These techniques must be given further consideration. Secondly, the influence of the existing train on the most significant techniques requires discussion.

It is easiest to imply that the techniques that evoked responses from less than three participants are simply invaluable in practical place-making. However, these techniques form two distinct groups. There are those that evoked responses from one or two participants, and those that were entirely unmentioned. For the techniques that evoked one or two responses it is appropriate to conclude that they were noticed, but in this research were shown to be unsuccessful:

<i>Capitalize on the Unique Qualities</i>	7%
<i>Hint at Significant Historical Features being Passed By</i>	7%
<i>Include Features that can be Touched and Manipulated</i>	7%
<i>Use Complimentary Materials</i>	7%
<i>Use Entrances to Clearly Define Areas</i>	7%
<i>Create Paths with a Clear Beginning and End</i>	3%
<i>Provide Experiences in Sequences that Build on One Another</i>	3%
<i>Separate Primary Paths from Secondary Paths</i>	3%

Figure 6.4: Unsuccessful Techniques

As an example, in many of the images the train track had been extended in order to hint at, and remind people that a train used to pass through this place. This extension was noted by a number of participants:

The added train tracks here ... just maybe a tripping obstacle for an old person (M24U).

There are lots of things that are meaningful about this photo but I was not drawn to it as ideal because of the train track that was going through it. I wasn't sure if it was in use, but it seems like a barrier. (F24FE).

The train has tracks, but I believe they are just to sit on ... (M53U)

However, only two participants recognized the historical significance of the train tracks, and that they were hinting at what was previously in the landscape:

I do like how the train has been expanded ... because of the history ... Again, it's how it was ... It's just like that is where the train tracks were. I like that continuation of history (F24FE2).

The nice thing would be is that it tells people that the tracks went down there. Most people now because they can't see tracks don't picture that this was full of tracks ... I kinda think this idea of having it here and then extending it a little bit beyond the car which could then give the impression better that it goes extended further down ... (M72FV)

Likewise, entrance gates were included in a number of the images with the intention of generating a feeling of enclosure. These gates were recognized by some participants:

On cruise ship days, there are commissionaires there ... I think [gates are] more welcoming than a suited man. It's a welcoming concept when it is open (F28FE)

I don't like the gates. Again, who are we trying to keep in or out? I think gates imply we can close the doors. Isn't Pier 21 about having open doors (F24FE)?

There seems to be a gate her which look nice (I point out the gate). I like that, that's interesting ... it cuts off access to cars ... but this would make it difficult to get a cab (M31FE).

However, only two participants recognized the value of gates in creating enclosure around an area:

I like that you have the gate on both sides so it kind of encloses you (F27U).

[Gates create] more of an entrance feel. Before I used to work at Pier 20 and I would say go to Pier 21 ... now if we had something like a gateway here, we could just say walk right through the gateway ... I think to cut off our section and make it more defined where our actual area is, I think that's really important (F25FE).

Contrary to the above examples, a number of the techniques distilled from the literature were entirely unmentioned by participants and can therefore not necessarily be labeled as unsuccessful. Instead, the effectiveness of these techniques is inconclusive and requires further research.

<i>Accentuate the Importance of Significant Paths and Junctions</i>
<i>Ensure Small Doses of Confusion in an Organized Whole</i>
<i>Include Unique Smells, but Preserve Natural Odours</i>
<i>Make Access More Difficult in Significant Areas</i>
<i>Position Objects to Take Advantage of their Sensory properties</i>
<i>Take Advantage of Strong Natural Landscapes</i>
<i>Use Environmental Effects to Highlight Significant Features</i>
<i>Partially Mask Important Views to Encourage Exploration</i>
<i>Provide Vistas to Encourage Exploration</i>

Figure 6.5: Unrecognized and Inconclusive Techniques

For the most part, attempts were made to include each of these techniques in the simulations (save for *use environmental effects...*, see 3.3.2.3 - *simulation medium*). For example, flower planters, historic lamp posts, flags and archival images were implemented to accentuate important pathways. The planters were positioned higher than normal to take advantage of the sensory properties of flowers. Also, a passageway was provided through Pier 22 to afford vistas of the Halifax Harbor, but also to initially hint at this view and encourage further exploration. While the value of these features was recognized in relation to other techniques (i.e. historic lamp posts as a fragment of the

previous landscape), these specific techniques may be too difficult to perceive in a simulation. From personal experience however, it is hypothesized that with further research, some of the techniques will garner a place on a hierarchy of techniques. For example, if the researcher was visiting this setting and saw a passageway through Pier 22, partially masking the view to the harbor, it would generate a great deal of mystery and encourage exploration.

In addition, before a complete hierarchy of techniques can be distilled, the role of the existing train at Pier 21 requires consideration. Of the four scenarios presented, to avoid bias and repeated reactions to the same features, the design techniques were displayed in a variety of forms, and loosely arranged by physical, social and psychological principles. However, the existing train at Pier 21 was visible in almost all of the simulations, and evoked reactions relating to many of the highest rated techniques – dividing large areas, incorporating fragments of the previous landscape, and using odd combinations of features that do not initially relate. As an example, the odd combination of a train where there is no railway tracks or train station generated a great deal of mystery for many participants:

Trains aren't something you see everyday, but that seems almost out of place there. There is really nothing to go around it ... but if it is sitting there and it is open, you want to look (M25U).

It is kind of odd to see a train just randomly placed on a boardwalk, so for me that would rouse some curiosity as to what is down there (F21FE).

There's the train ... I think it's just for show ... that would attract me ... because a train? What's that doing here (M54FV)?

However, as noted previously, participants showed similar reactions to the mystery created by the propeller centerpiece, reinforcing the importance unique features without the existing train or pedway:

Um yeah, it's a curiosity. I'm sure I would stop and look at [the sculpture] ... Because it is something I haven't seen before. It's stuck out in the middle of the asphalt and demands your attention (F60FV).

I look at [the propeller fountain] and I feel curious. I've never seen a thing like that before, what does that mean? ... This is [the propeller fountain] up close and it is really appealing to my curiosity. I want to take a closer look. I'm being drawn to it. That would draw me to the center (M57FE).

Just that it is something abstract that you don't see normally. I don't even know what it really is, but it just kind of brings your attention to it because you're curious – you don't know what it is. It's kind of like you would gravitate to it (M25U).

Because mystery was recognized in features added by the simulation preparer, and not just the frequent appearance of the existing train, it is hypothesized that if future research eliminated existing high preference and repeating elements, the position of these techniques will remain equally as important. While an overall hierarchy is ideal, to be truly comprehensive this research requires the results of this future research, and other subsequent studies outlined in this section.

6.3.2 Specific Unsuccessful Techniques

Finally, in addition to the techniques discussed above, there were a small number of techniques that were shown to be successful, but unable to evoke responses in regards to all the principles they are given credit for satisfying in the literature:

MEANING AND IDENTITY
Dividing Large Areas
Distinguish between human and vehicle spaces
Sense Stimulants
MYSTERY
Fragments of the previous landscape
ORDER AND CONTINUITY
Divide Large Areas
Focal Point
Fragments of the previous landscape
ENCLOSURE
Focal Point

Figure 6.6: Successful Techniques (and the Principles they can not Satisfy)

For example, the literature suggests that incorporating fragments of the previous landscape is a valuable technique for creating meaning, slowing time and instilling a sense of mystery. Again, a number of the simulations in this research added an extension of the train track under the historic railcar to create mystery and evoke curiosity as to why the train track would extend so far if the train is stationary (in actuality, it represents where the track historically passed through). While meanings and slowing time were both enhanced by incorporating fragments of the previous landscape, this attempt at mystery with the train tracks was lost on many participants. However, as a fragment of the previous landscape, the train itself was capable of evoking a great deal of mystery and therefore the value of this technique in creating mystery should be revisited in future research:

That thing ... like I know why it's there, but in the context of pictures like that, it seems so out of context, because that does feel like someone's work place, so why the heck is there a train thing up there. That kind of creates curiosity ... I don't know if it is positive or negative curiosity, but it is kind of a bazaar context (M31FV).

I would go to this (train) assuming that it is part of the museum, to see what is in it ... it looks like it is part of the museum, looks like there should be something in there to look at. There doesn't appear to be any tracks getting it there (M53U).

[The train is meaningful because] it's just not something you see anywhere's else. It is interesting to see a train where you don't see any train tracks (M25U).

Like this example, each of these techniques should be reconsidered in future research to determine whether the technique is ineffective at satisfying the principle, or just ineffective in the way in which it was presented in these simulations.

6.4: FINDING # 3: PLACE-MAKING TECHNIQUES ARE LACKING IN THE LITERATURE

The techniques distilled from the literature have seen little empirical testing and a significant number were shown to be unsuccessful in this research. However, the data also shows that many of the distilled techniques *are* capable of enhancing sense of place. In addition, this research demonstrates that the literature lacks thorough design techniques as a significant number of additional techniques (some very valuable in satisfying the principles of place-making) have been distilled from the empirical research:

<i>Symbolize Aspects of the Settings History/Character</i>	77%
<i>Create Gathering Places near Nature to Encourage Restoration</i>	57%
<i>Provide Seating Along Paths and in people Places</i>	57%
<i>Arrange Objects as a Preview of the Main Attraction</i>	50%
<i>Include Water Features to Stir the Senses</i>	40%
<i>Include Unique Features that make People Stop</i>	33%
<i>Incorporate Nature to Symbolize Life</i>	33%
<i>Use Natural Features as a Buffer</i>	33%
<i>Include Unique Features that are not Instantly Recognizable</i>	30%
<i>Use Signage to Distinguish Important Areas</i>	27%
<i>Include Local Artwork</i>	23%
<i>Provide Opportunities for Informal Seating</i>	20%
<i>Clearly Distinguish Between Vehicle and Pedestrian Space</i>	10%

Figure 6.7: Additional Techniques Distilled from the Empirical Research

As an example, symbolizing aspects of the settings history/character is the most effective of these additional techniques. While Tuan (1974) and Norberg-Schulz (1980) talk

extensively about the importance of symbolism, neither simplify it to a practical design technique. Empirical research shows that symbolizing aspects of the settings history/character enhanced the meaningfulness for 77% of participants, positioning it alongside dividing large areas as the most effective technique of place-making. For example, including carefully designed centerpieces was successful in representing Pier 21 as an immigration hub of Canada:

The fact that [the cross] is so blatantly obviously international with the map style and what not, but you also have the little echoes of the past history so it is kind of, I think, hinting at the fact that this was such a major entry point for immigration and what not (M31FV).

[the fountain's] meaning to the Pier is quite obvious ... Also it is nice that since you can't see the water (harbour), that you bring the water in. It's a very important reason why that place is here. So even if I couldn't read "Pier 21," I would know that it had something to do with ships and water, which is good (F25U).

Obviously [the cross is meaningful] because the whole purpose of Pier 21 is to show all the countries that people came from. And so, to show a map of the world is very relevant ... maybe it could even have some details of immigration on it ... dots or flags ... something to show all the countries (F72FV).

Another example, including unique features or features that can not be seen elsewhere, was shown to be a valuable place-making technique. 33% of respondents noted that including unique features would slow time and draw them to a setting, while 30% noted that these features would create mystery, and encourage them to explore, if they were not instantly recognizable. Again, the propeller sculpture provides an example:

[The propeller fountain's] uniqueness I think. The fact that you would probably never see that anywhere. It is something to look at and take a picture of ... it's a pinnacle of what could possibly be seen inside. Looking at it would make me want to go inside (M25U2).

I look at that [propeller fountain] and I feel curious. I've never seen anything like that before. What does that mean? Does it depict the million people that came by sea right here? So that would draw me because I'm curious (M57FE).

[The propeller sculpture] just kind of brings your attention to it because you're curious – you don't know what it is ... I would gravitate towards it because I don't know what it is ... I would go up to it for a closer look to find out what it actually is doing (M25U).

To exemplify a less effective technique, the inclusion of artwork in a setting increased the meaningfulness of the place by slowing time and encouraging users to interact with the artwork, but also encouraging reflection on what the work represents:

I really like these [pictures]. It draws the eye in ... I would want to go look and see what the pictures were and who took them or painted them (F27U).

I would just linger longer outside to look at pictures, to look at the panels on the island, look at the interpretation on the traffic island or the fountain(F37FE).

[These pictures make me feel] sad. I mean you had war brides ... a lot of sadness, and a lot of happiness 'cause you had the war personnel passing through ... mixed emotions ... you would certainly be thinking back to when it happened and what it was like then (F54F).

There's an opportunity for a reflective element to a display like that. To walk through the shed and explore it in the context of the artwork too ... it's really inviting (M31FE2).

The addition of these techniques drawn from the empirical testing brings this research closer to developing a comprehensive hierarchy of place-making techniques. If we consider Figure 6.8 below, we see that the techniques mentioned above, and others drawn from the empirical research (**bold**), are as significant in satisfying the principles of place-making as those techniques drawn from the literature:

<i>Divide Large Areas into Smaller Sections</i>	77%
<i>Symbolize Aspects of the Settings History/Character</i>	77%
<i>Incorporate Fragments of the Previous Landscape</i>	63%
<i>Create Gathering Places near Nature to Encourage Restoration</i>	57%
<i>Provide Seating Along Paths and in people Places</i>	57%
<i>Arrange Objects as a Preview of the Main Attraction</i>	50%
<i>Include Water Features to Stir the Senses</i>	40%
<i>Include Maps/Signage to Provide Context and Facilitate Easy Orientation</i>	37%
<i>Use Odd Combinations of Features that do not Initially Relate</i>	37%
<i>Employ Local and/or National Symbols for Immediate Familiarity</i>	33%
<i>Include Unique Features that make People Stop</i>	33%
<i>Incorporate Nature to Symbolize Life</i>	33%
<i>Use Natural Features as a Buffer</i>	33%
<i>Include Unique Features that are not Instantly Recognizable</i>	30%
<i>Carefully Consider the Emotional Significance of Colors</i>	27%
<i>Use Signage to Distinguish Important Areas</i>	27%
<i>Include Local Artwork</i>	23%
<i>Provide Shelter Above and Behind to Create Enclosure</i>	23%
<i>Anchor the Setting with a Strong Symbolic Focal Point</i>	20%
<i>Provide Opportunities for Informal Seating</i>	20%
<i>Include a Variation of Walking Surfaces</i>	17%
<i>Include Multiple/Irregular Paths to Allow Choice and Interaction</i>	17%
<i>Use Local and/or Historic Materials to Reference the Past Setting</i>	17%
<i>Include Natural Features to Stir the Senses</i>	13%
<i>Carefully Consider the Symbolic Significance of Colors</i>	10%
<i>Clearly Distinguish Between Vehicle and Pedestrian Space</i>	10%

Figure 6.8: A Comprehensive Hierarchy of Techniques

In addition, these extra techniques enhance the findings of section 6.3, while simultaneously reinforcing the importance of the place-making principles, by increasing the number of options available to satisfy them. For example, in chapter four it was concluded that the designer wishing to enhance the meaning in a setting should incorporate fragments of the previous landscape. While this is still a valuable technique, participant response suggests it would be even wiser to symbolize aspects of the settings history/character. Likewise, the interview data notes that urban designers looking to create a multi-sensory experience would be benefited most by the inclusion of a water feature in the setting. This makes sense as Moore suggests “water in all its forms is a

popular, universal play material because it can be manipulated in so many ways (splashed, poured, used to float objects) and mixed with sand, dirt and vegetation (1989: 113).”

Considering the key findings of this chapter, and refining the findings of chapter four, the principles and techniques available to urban designers are summarized (in order of effectiveness), below. The position of these techniques within the complete structure of sense of place is demonstrated in Appendix 4:

- **Place-making Principle # 1: Meanings**

- *Technique # 1: Symbolize Aspects of the Settings History/Character*
- *Technique # 2: Incorporate Fragments of the Previous Landscape*
- *Technique # 3: Arrange Objects as a Preview of the Main Attraction*
- *Technique # 4: Employ Local and/or National Symbols for Immediate Familiarity*
- *Technique # 5: Incorporate Nature to Symbolize Life*
- *Technique # 6: Use Signage to Distinguish Important Areas*
- *Technique # 7: Carefully Consider the Emotional Significance of Colors*
- *Technique # 8: Anchor the Setting with a Strong Symbolic Focal Point*
- *Technique # 9: Include Local Artwork*
- *Technique # 10: Use Local and/or Historic Materials to Reference the Past Setting*
- *Technique # 11: Carefully Consider the Symbolic Significance of Colors*

- **Place-making Principle # 2: Slowing Time – Interactivity and Reflection**

- *Technique # 1: Divide Large Areas into Smaller Sections*
- *Technique # 2: Create Gathering Places near Nature to Encourage Restoration*

- *Technique # 3: Provide Seating Along Paths and in people Places*
- *Technique # 4: Incorporate Fragments of the Previous Landscape*
- *Technique # 5: Include Unique Features that make People Stop*
- *Technique # 6: Include Signage to Educate about the Setting*
- *Technique # 7: Provide Opportunities for Informal Seating*
- *Technique # 8: Include Multiple/Irregular Paths to Allow Choice and Interaction*
- *Technique # 9: Include Local Artwork*
- *Technique # 10: Use Local and/or Historic Materials to Reference the Past Setting*
- **Place-making Principle # 3: Mystery**
 - *Technique # 1: Use Odd Combinations of Features that do not Initially Relate*
 - *Technique # 2: Include Unique Features that are not Instantly Recognizable*
- **Place-making Principle # 4: Order and Continuity**
 - *Technique # 1: Include Maps and Signage to Provide Context and Facilitate Easy Orientation*
- **Place-making Principle # 5: Enclosure and Prospect/Refuge**
 - *Technique # 2: Use Natural Features as a Buffer*
 - *Technique # 3: Provide Shelter Above and Behind to Create Enclosure*
- **Place-making Principle # 6: A Multi-sensory Experience**
 - *Technique # 1: Include Water Features to Stir the Senses*
 - *Technique # 2: Include a Variation of Walking Surfaces*
 - *Technique # 3: Include Natural Features to Stir the Senses*

6.5 FINDING # 4: PLACE-MAKING PRINCIPLES/TECHNIQUES NEED NOT BE EXHAUSTED

Through a review of the relevant literature, it was examined if “*the introduction of these [place-making] principles to an existing site enhances the sense of place?*” The findings of this research suggest that, in all but one case, participants found the places to be more meaningful with the adoption of any of the techniques/principles mentioned thus far. Initial consideration of the data suggests that sense of place is enhanced as the principles and techniques of place-making are introduced. However, it is essential to note the findings advocate that preference for place does not increase proportionately with the addition of design principles/techniques and therefore it is not necessary to exhaust the principles/techniques distilled in this research.

If we compare images representing similar viewpoints, we see with only one exception (image # 10, discussed in 6.5.1), two general patterns exist. First, the most preferred images generally utilize a higher number of principles. Second, it is important to note that the correlation between place-making principles and meaningfulness is not proportional:

		Image #	Most Preferred by	Principles Added
Viewpoint 1	Current	1	0	0
	Physical	5	1	1
	Combined	17	5	4
	Social	9	10	4
	Psychological	13	13	5
Viewpoint 2	Current	2	0	0
	Psychological	14	1	3
	Social	10	6	1
	Physical	6	13	3
	Combined	18	17	5

Viewpoint 3	Current	3	1	0
	Psychological	15	1	1
	Social	11	3	3
	Combined	19	5	5
	Physical	7	10	4

Viewpoint 4	Current	4	3	0
	Social	12	8	4
	Physical	8	9	4
	Psychological	16	16	6
	Combined	20	18	6

Figure 6.9: Principles Added versus Preference

We can consider viewpoint 1 as an example, though the remaining viewpoints yield similar results. If we look at image # 1, representing existing conditions, we see that zero participants found it most meaningful, while image # 5 adds one principle and becomes most meaningful to a single participant. This means the addition of a principle resulted in one participant finding viewpoint 4 the most meaningful. Between the remaining images (5/17, 17/9, and 9/13) we see the addition of three, zero, and one principle(s), and images ranked more meaningful by four, five, and three participants respectively. These findings are summarized in Figure 5.10 below:

Between Images		There are/is ____ Additional Technique(s)	Resulting in ____ More People Ranking it Most Meaningful
1	5	1	1
5	17	3	4
17	9	0	5
9	13	1	3

Figure 6.10: Additional Principles versus Most Meaningful Ranking - Viewpoint # 1

As exemplified above, the correlation between number of principles and meaningfulness is not proportional. In one case the meaningfulness of a place increases significantly with the addition of a single principle (images # 9 and 13), while adding three principles creates a similar response in another instance. In some cases (images #

17 and 9), there is a large preference increase without the addition of any principles. This example suggests that urban designers are not required to exhaust all of these principles in order to create successful places.

The techniques of place-making show similar results, with some additional exceptions (images # 7, 8, 9, 13, discussed in 6.5.1):

		Image #	Most Preferred by	Techniques Added
Viewpoint 1	Current	1	0	0
	Physical	5	1	1
	Combined	17	5	20
	Social	9	10	19
	Psychological	13	13	18
Viewpoint 2	Current	2	0	0
	Psychological	14	1	2
	Social	10	6	5
	Physical	6	13	12
	Combined	18	17	13
Viewpoint 3	Current	3	1	0
	Psychological	15	1	2
	Social	11	3	8
	Combined	19	5	14
	Physical	7	10	7
Viewpoint 4	Current	4	3	0
	Social	12	8	18
	Physical	8	9	16
	Psychological	16	16	23
	Combined	20	18	37

Figure 6.11: Techniques Added versus Preference

If we again consider viewpoint 1, we see that image # 1, the existing condition, was most meaningful to zero participants. On the other hand, the single technique added in image # 5 resulted in one participant finding image # 5 most meaningful. Comparisons

between the remaining images (12/8, 8/16, 16/20) show the number of techniques differing by nineteen, (minus) one, and (minus) one. We therefore see images ranked more meaningful by four, five, and three participants, respectively:

Between Images		There are/is ____ Additional Techniques	Resulting in ____ More People Ranking it Most Meaningful
1	5	1	1
5	17	19	4
17	9	(-) 1	5
9	13	(-) 1	3

Figure 6.12: Additional Techniques versus Most Meaningful Ranking - Viewpoint # 1

Again, Figure 5.12 demonstrates that the correlation between number of techniques and meaningfulness is not proportional. The meaningfulness of a place can increase slightly with the addition of nineteen techniques (images # 5 and 17) or see an even greater increase between two images with a difference of only one technique (images # 17 and 9). Both these examples suggest that urban designers are not required to exhaust all of these principles/techniques in order to create successful places.

However, the findings do suggest, and additional research could verify, that there is a potential threshold for the number of principles/techniques that should be used. Considering all viewpoints, it is noted that in relation to additional principles/techniques, participant meaningfulness jumped in increments of 1,4,5, and 3 (viewpoint 1), 1,5,7, and 4 (viewpoint 2), 0,2,2, and 5 (viewpoint 3) and 5,1,7, and 2 (viewpoint 4) from the first to the fifth image. This generally demonstrates (with the exceptions in 6.5.1) a steady increase in meaningfulness as the number of principles/techniques increase. However, though the meaningfulness of the images is still increasing overall (see Figure 6.14 below), the amount that it increases by decreases for three out of four viewpoints (1, 2 and 4) between the fourth and fifth images:

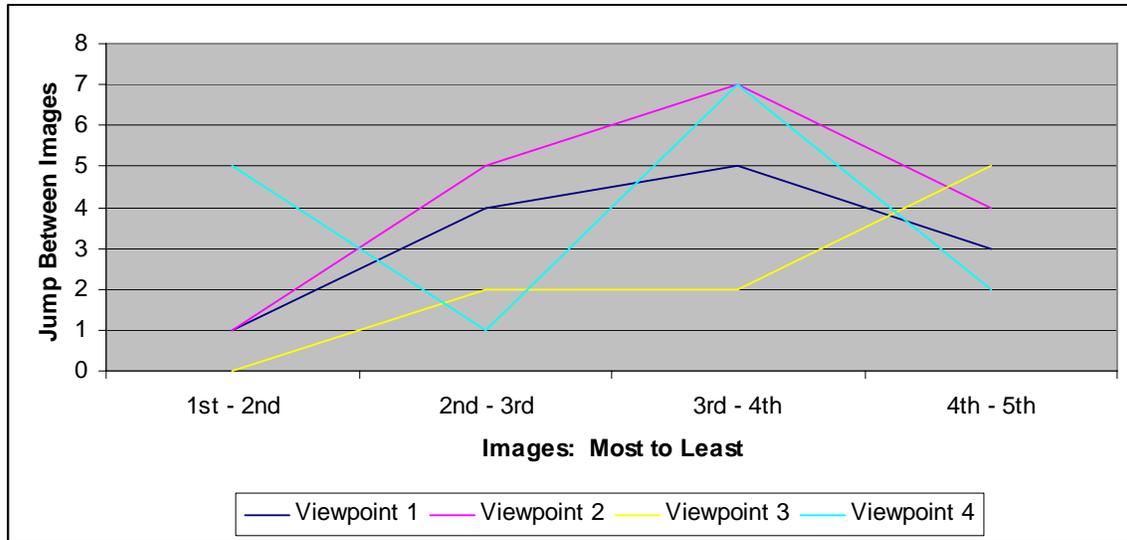


Figure 6.13: Increase in Meaningfulness Between Images (decreasing between 4th and 5th)

For the principles of place-making, which are limited to a small number, this research finds that all six principles can be used simultaneously. Though the impact of adding additional principles becomes less obvious, there is no risk that it could result in diminishing returns. For the techniques of place-making, the findings of this research are not as clear, suggesting returns began to decrease after 12, 18 and between 23-37 techniques, depending on the viewpoint represented. It might be safe to assume that around 20 techniques, designers should exercise caution. Another possibility that merits further research is that beyond a threshold, the principles/techniques of place-making may begin to produce negative returns. However, further research is required to satisfy the notion of a threshold as no participants in this study specified that the places were too ‘busy.’ Oppositely, only in the least preferred images (1, 2, 3, and 5) did respondents note that a lack of the place-making techniques is why the place was *less* meaningful to them:

Basically I picked [these images] because there was no appeal whatsoever and nothing that I found meaningful about them. [Image 1] is really drab. It's just two concrete circle slabs, and some shrubs ... [it needs] something to look at ... maybe a bench to sit down, a tree to sit under (M24U).

[Image 3] is very dark ... There is nothing whatsoever here. It's just a road with a building ... it's missing the benches, the flags, and everything that lets you know where you are and what you are supposed to do there ... there is no purpose (F27U).

[Image 3 is] not an inviting place ... it's not really pleasing to the eye in that way ... no flowers, grass, places to sit outside that are comfortable ... seats with backs ... comfortable benches (F51F).

Additional research should expand on these concepts by considering the principles/techniques in greater detail, which includes an overall threshold, but also determining the effects of individual principles and techniques on this threshold. Broadly, it is hypothesized that a threshold exists, and beyond this threshold, places will become oversaturated and begin to evoke negative responses.

6.5.1 Five Exceptions to the Rule – Images 7, 8, 9, 10, and 13

Though not proportionately, this research finds that until an undetermined threshold is reached, sense of place generally increases as the principles/techniques of place-making are introduced in a setting. There were however five exceptions to this rule. Regarding the principles of place-making, image # 10 used fewer principles than the images ranked before it. The findings were similar for images # 7, 8, 9, and 13 regarding the techniques of place-making.

Because all the images used during this research are static shots of a three-dimensional model, the viewpoints represented often (but unintentionally) appear to highlight certain features. In these images, a large, colorful tree dominates the viewpoint (image # 7), an overhead shot makes the green of the grass more noticeable (image # 8), a

bright centerpiece attracts the eye (image # 9), a bright yellow school bus distracts from an otherwise stark setting (image # 10), or a café seating area dominates the image (image # 13). However, similar comparisons can be made for all twenty images, and participants did an excellent job of looking past this, and imagining the place in reality. Considering those who selected images # 7, 8, 9, 10 and 13 as most meaningful, none of the participants credited their choice to how dominant a single feature may have appeared. Instead, responses focused on how dividing large areas and incorporating fragments of the previous landscape can slow time, the multi-sensory appeal of water features, and the symbolic meaning of native flags, similar to the responses quoted throughout this chapter:

[In image 7] there are lots of areas for people to be. If this is something that you are trying to draw people to this building, you have to have places for people to be ... you've got your boardwalk ... and this one shows there is room for people to be ... anytime I have been any place where there's boardwalk, you just seem to stroll (M53U).

[Image 8] ... looks like you could just roam for some distance and see a lot of different ... I would roam and see everything. I would head for the train first, it's part of the history (F54F).

I love [image 9] ... I just love [the centerpiece]. It's everything that I love. It's the water, when you are sitting here you get the sound of the water, but it is also something that you want to look at here, with the map, you would want to go in and look at it or take a picture (F27U).

The flags [in image 10]. I think we should have a representation of all different countries as much as possible ... Again, y'know, that's the whole essence of this Pier here ... that's what the whole meaning is ... this is the representing of the gateway to Canada, a defining point of our multicultural country and if we don't represent the different countries, it's kind of a shame (F25FE).

This shows the sorting procedure was uninfluenced by dominant features in the images, but does not clarify these four images as exceptions. In fact, the empirical data

implies that these images are not actually exceptions, but are ranked above other images because of unappealing features in the images that precede them. If we compare image # 7 and image # 19, we see that image # 19 should be much more preferred. While both these images incorporate meaning, slowing time, order/continuity and a multi-sensory experience, image # 19 adds a sense of mystery as well, which is the third highest ranking principle of place-making. Also, image # 19 satisfies these principles using higher valued techniques, such as symbolizing aspects of the settings history/character (abstract flags) and incorporating fragments of the previous landscape (antique lamp posts). However, image # 19 also includes large, unattractive concrete benches, which proved very unappealing for many respondents:

In this one, I like that there is an interpretive panel. And I like that there is a bench, but it is very severe. It's not like the wooden-slatted old fashioned benches in the other picture ... I like the simple, wooden benches. I think because the building is so severe ... anything to warm it up on the exterior is good (F37FE).

A concrete bench ... that's nice ... the bench is a good place to have a rest ... it looks like the seat is wooden so that would be more pleasing to sit on than concrete ... I like the other benches better ... [concrete] is cold and unfeeling. Doesn't have any personality. It's not rugged and rustic enough (F51F).

[This image] looks pretty much exactly the way it does. I didn't like the bench. It looked very cold It doesn't look like you actually want someone to sit down here and enjoy themselves ... it is just slabs of concrete ... [I would prefer] a big square of wood [that] everyone can sit around it and talk around it ... (F21FE).

Likewise, image # 17 uses four principles of place-making, including the three most significant ones – meaning, slowing time and mystery. As well, seven out of the top ten techniques are included which ensures, on paper, that image # 17 will be meaningful. However, image # 17 was less preferred than both image # 9 and 13, which include fewer

techniques. An explanation is that the highly symbolic flags of the immigrating countries, and the historically meaningful lamp posts are overshadowed by a large, abstract, fountain centerpiece. While some participants appreciated such a centerpiece, there were many who were opposed to the abstract representation:

Too much steel I guess. Grey, asphalt ... I think it needs to say something and I don't think a propeller says anything. I know there were probably propellers on all the ships that came in ... but I think there needs to be a statement here and a propeller doesn't do it for me. I love the colored flags, and the little bit of greenery and the planters ... I like something there, but that is not it... I really like the flags and the old fashioned lamp posts (F53FE).

I hate that. Number 17, the centerpiece is gross. It's all about boat parts! Is that what it is about? I don't appreciate that at all. The flags are meaningful, and the same with the water here, but not with that in it (F27U).

Abstract ... Abstract doesn't do anything for me ... someone probably got paid hundreds of thousands of dollars to make that and all they did was take a welder and a bunch of scrap ... The water thing is nice. Water always makes you feel good to be around. Just the abstract throws it out (M53U).

Similar results can be found concerning the remainder of the 'exceptions' - images # 8 and 10. Image # 8 should be ranked lower than image # 12 as it features two techniques less, but image # 12 features a barren, gravel boulevard. Image # 10 is ranked above image # 14 though it uses two principles less because image # 14 is mostly the stark existing built form. The examples above lead the researcher to hypothesize that one strongly disliked feature is capable of making an entire place less preferred, and therefore, place-makers must still carefully consider the appeal of a design and not blindly depend on the principles/technique distilled in this literature. If future research verifies this hypothesis, this is further proof that place-makers should not attempt to exhaust all the principle/techniques of place-making as using too many

principles/techniques runs the risk of including an element such as those mentioned above.

6.6 FINDING # 5: WITH FAMILIARITY, MYSTERY BECOMES MEANING

Through a review of the relevant literature, it was examined if “*the introduction of these [place-making] principles to an existing site enhances the sense of place?*” While this has been confirmed, the above section adds that designers need not include all the principles/techniques. This section outlines another important caveat for the designer employing these principles – the success of mystery is dependent on familiarity, and as a person becomes familiar with a setting, mystery potentially changes to meanings.

Section 6.2 noted a hierarchy among the principles of place-making. These findings essentially validated these principles as discussed in the literature. However, with only 57% of participants saying mystery enhanced the meaningfulness of the setting for them (refer to 6.2 for examples), the response seemed underwhelming when compared to the literature. Consideration of familiarity uncovers a possible explanation for this inconsistency. Of the thirty participants who viewed and sorted the simulations, sixteen were employed or volunteering at Pier 21, and therefore possessed an intimate knowledge of the setting. If the remaining fourteen participants are considered, those who know of Pier 21 but lack such intimate knowledge, some interesting findings are revealed:

Meaning	13/14 = 93%
Slowing Time	13/14 = 93%
Mystery	10/14 = 71%
Multi-Sensory	7/14 = 50%
Enclosure	6/14 = 43%
Order/Continuity	6/14 = 43%

Figure 6.14: Response to Principles - Less Familiar Participants

First, considering the responses of participants who are less familiar with Pier 21 reinforces the findings of section 6.2. The principles that evoked the most significant response from those with no intimate experience of a place – meaning and slowing time - are clearly the most potent principles of place-making. In addition, the findings of a familiarity study suggest that while the principles of place-making are generally universal, the importance of mystery depends on the user’s familiarity with the setting. Though mystery still remains below meaning and slowing time on the hierarchy of principles, when you consider those less familiar with the setting, a much higher percentage (71%, compared to 57% previously) of respondents felt that a sense of mystery enhanced the meaningfulness of the place. These findings suggest that the urban designer wishing to create a sense of place using mystery must carefully consider who their audience is.

Also, the findings of the interviews propose an interesting hypothesis - as people become familiar with a setting, their sense of mystery shifts to meaning. For example, if we consider how different users view an existing feature, such as the antique train car at Pier 21, we see the responses of participants who are intimately familiar and those who are less familiar with the setting. Those intimately familiar with the site recognized the important historical meanings associated with the train:

I love walking around the train car ... it’s a wonderful landmark ... it’s consistent with the trains that were here historically, and it’s unique. There are not a lot of areas downtown where you can walk around a heritage rail car that’s attached to a little piece of the physical heritage that’s associated with the built heritage of the area (M31FE2).

Because almost everybody that came through got on a train, and it’s a rail car from 1936, so it tells the story and it helps people with the sense of place because it looks so different [here now] (F37FE).

What's meaningful about the train is that the train is particularly significant in Canada's history because it's what signified ... the building of the railway across Canada is what unified Canada as a country (F24FE).

On the contrary, those interviewees who lacked intimate familiarity with Pier 21 were intrigued by the mystery of the unique feature:

... I don't know anything about Pier 21, but it looks like a non-functional train ... it looks a little older than normal ... and it's right in the front entrance as well ... it looks good there and adds to the mystique of the area (M25U2).

It is kind of odd to see a train just randomly placed on a boardwalk, so for me that would rouse some curiosity as to what is down here (F21FE).

Trains aren't something you see everyday, but that seems almost out of place there. There is really nothing to go around it ... but if it is sitting there and it is open, you want to look (M25U).

Because this research employs simulated "what-if" scenarios, even the participants who knew the setting well were unfamiliar with the new design features, so outside of the existing train car, there were a limited number of features that could be used to further test this theory. However, should this hypothesis prove true with future research, the position of mystery on the hierarchy of place-making principles would surely need to be reconsidered.

6.7 CONCLUSION

A review of the relevant literature distilled a number of important principles in creating a sense of place, as well as the specific design techniques that fulfill each one. The data collected from empirically testing these enhanced the principles/techniques with five important "key findings," which are summarized in Figure 6.15:

1	<i>There is a hierarchy of placemaking principles</i> with meaning and slowing time as the most effective. In addition, while testing suggests aesthetics as a principle, additional research locates it above the principles, as a conative and/or cognitive function.
2	<i>There is a hierarchy of placemaking techniques</i> with dividing large areas and incorporating fragments of the previous landscape as the most effective overall. However, a further hierarchy exists when discussing each principle individually.
3	<i>Placemaking techniques are lacking in the literature</i> as empirical testing uncovers a number of additional techniques. These techniques provide more options in satisfying the principles of placemaking, therefore reinforcing the importance of each principle.
4	<i>Placemaking principles/techniques need not be exhausted</i> as preference for place does not increase proportionately with the addition of principles/techniques. As this threshold is reached, additional principles/techniques produce zero or negative returns.
5	<i>With familiarity mystery becomes meaning.</i> Participants who lack an intimate knowledge of Pier 21 show the value of mystery depends on familiarity with the setting. As users become more familiar with a setting, this mystery gives way to meaning.

Figure 6.15: Five Unexpected 'Key Findings'

~ CHAPTER SEVEN – IMPLICATIONS AND CONCLUSIONS ~

7.1 INTRODUCTION

The final objective of this research is *how can the principles of place-making be applied by practitioners, bridging the gap between theory and practice?* This chapter aims to answer this objective by comparing the findings of this research to the current design guidelines of three mid-size Canadian cities. To begin (7.2.1), the guidelines derived from this research are synthesized in a concise format that can be used by practicing urban designers. Next (7.2.2), three issues are demonstrated in the design guidelines of three midsize Canadian cities (Halifax, Waterloo, and Victoria). The findings of this research are used to suggest potential solutions to these issues. Finally, while this research has explored the practicality of place-making theory in detail, some questions have been raised that are outside of the scope of this thesis. Therefore, directions are suggested for future research (7.3).

7.2 PRACTICAL IMPLICATIONS

To further narrow the divide between theory and practice, and fulfill the third objective of this research (*how can the principles of place-making be applied by practitioners, bridging the gap between theory and practice?*), it is essential to condense the findings of this research in a format that forgoes the academic jargon, making it functional in practical application. Such guidelines are presented in the following section (7.2.1) and applied to offer potential solutions to three issues recognized in the current design guidelines of three mid-size Canadian cities (7.2.2).

7.2.1 Concise Guidelines for Practical Place-making

The following illustration (Figure 7.1) is an example of what the findings of this research (for a single principle), might look like as a set of concise guidelines:

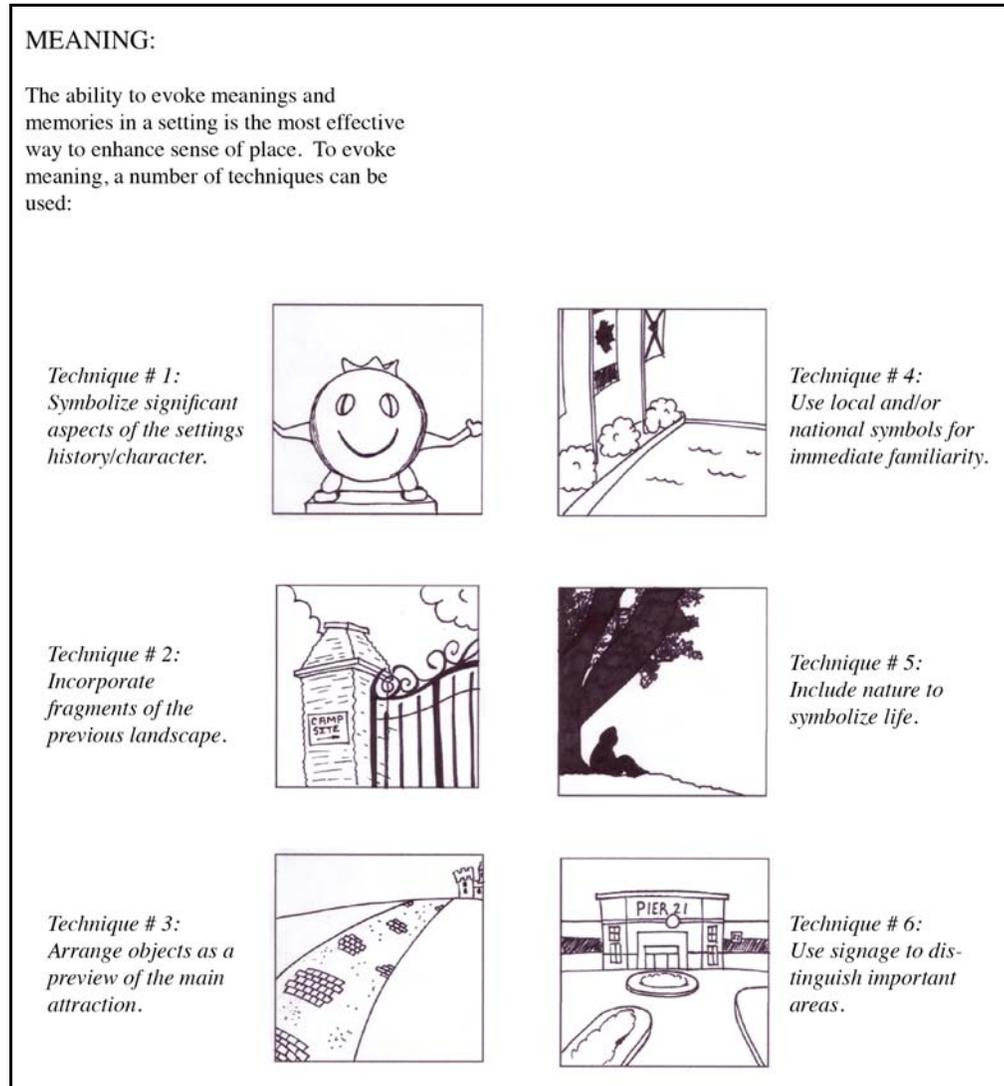


Figure 7.1: The Guidelines of this Research Presented in a Concise Format

As succinctly as possible, these guidelines demonstrate the fundamental principles of place-making, and explain why they are important. To show how these principles can be achieved each one is followed by the techniques that can be used to satisfy it. Again, to be as practical as possible, long explanations are replaced by illustrations that exemplify what each technique could look like when built. In addition, the principles and

techniques are presented in order of effectiveness to clearly highlight the hierarchies discussed in this research. Naturally, for the most successfully places, place-makers should aim to satisfy the most effective principle possible, using the most effective technique possible (though this may not always be possible).

The intention of the above illustration is not to provide exact design solutions, but to guide place-makers in the proper direction and count on their creativity to bring spaces to life. To verify the practical implications of this research, the next step is to review the existing design guidelines of some Canadian cities to determine if they could be more effective in guiding place-making. Where issues are present, the guidelines above will be used to provide solutions, demonstrating the practical potential of this research.

7.2.2 A Review of Three Mid-Size Canadian Cities

If we consider the policies of three mid-size Canadian cities at the broad, regional level, we can see that the importance of sense of place is recognized. In Halifax, the *Regional Municipal Planning Strategy* notes that:

Culture is about the past, the present, and the future. It is about creative expression and lifelong learning, and it is about community identity and a sense of place. HRM's aim is to reinforce cultural assets as functional components of HRM's urban and rural environments and to foster their continued contribution to the character, diversity, civic pride and economic development of the region (2006: 114).

The document continues, suggesting that this objective can be accomplished through a combination of social and economic programs, as well as urban design. Likewise, the *Plan It! Waterloo: Final Objectives Report*, which advocates amendments for the *Official Plan of the City of Waterloo*, recommends that Waterloo,

“require[s] urban design that incorporates context by:

- Reflecting the local heritage context by connecting new development and redevelopment with the natural, cultural and built heritage of the City of Waterloo;
- Incorporating natural elements into built form and spaces;
- Defining neighbourhood and community character, identity and sense of place (2004: 10).”

Finally, an objective of the *City of Victoria Official Community Plan*, is “to foster social interaction and community development to create a sense of place and neighbourliness, and a sense of belonging (1995: 3.1).” And while not explicitly using the term sense of place, when the *City of Victoria Official Community Plan* deals with individual development permit areas (*Old Town and Chinatown, 700 Block Yates, etc...*) they advocate for:

Protecting, conserving and enhancing the heritage character established by the presence of sites, buildings and structures which are of architectural and historical significance (1995: DPA 1, DPA 9)

While the official plans above recognize the significance of sense of place, when urban design guidelines are considered from Halifax, Waterloo and Victoria, there are three issues that make implementation difficult:

- While Official Plans stress the importance of sense of place, implementation policy only hints at this, lacking concise guidelines;
- Implementation policy mostly considers aesthetics or the physical dimension of sense of place at the expense of the social and psychological dimensions; and,
- A number of effective principles/techniques are absent from the design guidelines of the reviewed cities.

The remainder of this section considers each of these issues in detail, and demonstrates potential solutions based on the guidelines distilled from this research.

7.2.2.1 Problem # 1: While Official Plans stress the importance of sense of place, design guidelines only hint at this, lacking concise guidelines

When building a new piece of furniture, instructions would not be efficient if they described the history of the product, the cost of production, proper positioning, etc... and scattered the construction directions throughout. Instead, builders want a set of brief, step-by-step instructions. The latter is what is meant when this research refers to concise guidelines. Unfortunately, because current design guidelines must deal with more than sense of place, including universal design, sustainability, economics, etc... they are presented like the former which is not very conducive to place-making.

As an example, the *Halifax Streetscape Design Guidelines and Plans* (2004) is a 268 page document providing design guidelines for the Capital District (Downtown Halifax and Dartmouth). In great detail, this document presents recommendations regarding sidewalks, transit facilities, street trees and planters, lighting, street furniture and public art, before considering individual streets in greater detail. The issue though, is that guidelines for sense of place are never provided collectively, in a brief, concise format. Instead, they are sprinkled throughout the document under the relevant headings. Street trees provide a worthy example. Like this research, the *Halifax Streetscape Design Guidelines and Plans* (2004) recognize the value of street trees as a physical and psychological buffer:

Street trees, while often taken for granted and undervalued, deliver many benefits to pedestrians, residents and visitors, the environment, and businesses. From a pedestrian perspective, trees can ... provide a physical and psychological buffer between the sidewalk and traffic ... [and] provide shade from the sun and protection from wind and rain (2004: 5-2).

Another recommendation that coincides with the techniques derived in chapter four is that street furniture should “match existing features where possible and be appropriate or designed or selected to suit the character of the sub-district community (2004: 7-2).” As a final example from Halifax, banners are noted for their ability to “add color and interest, to mark a street or a portion of a street as special, and to promote events or shopping/entertainment opportunities (2004: 7-18).”

While the examples above are closely related to the techniques derived in this research (though some have been found to be unsuccessful), there are over 15 pages between each of them, covering everything from motorcycle parking to crime prevention through urban design (CPTUD). This issue continues when individual streets are considered in greater detail.

The *City of Waterloo Nodes and Corridors Urban Design Guidelines* (2006) is another large document of about 150 pages. This document provides general guidelines, as well as specific guidelines relating to Uptown, Nodes, Corridors, and Transit Corridors. Like the Halifax guidelines above, this policy advises the use of many of the techniques derived in chapter four, but slips them into various sections throughout the document. For example, it is suggested that ‘green gateways’ can symbolize the ‘green’ character of the city of Waterloo, materials in new developments should be complimentary to the existing streetscape, and landmarks should be used to accentuate the importance of significant paths and junctions:

First impressions of a city are often the most lasting. Therefore, gateways present high-impact opportunities to convey the City's unique character. Waterloo's 'green' character should be expressed at gateway locations through special streetscape treatments. These gateway designs would be comprised of intensive planting, particularly of large deciduous trees (2006: 17).

Intersection: Position buildings close to the intersection to accentuate the importance of such a strategic corner location (2006: 26).

Materials and colors for proposed buildings, and for additions or renovation to existing structures, should compliment and be compatible with adjacent buildings. Blend modern style and materials with existing traditional features, local history and design elements of the street by recognizing the scale, rhythms, and patterns of structural bays, windows, doors, solids, and voids (2006:67).

While these examples are potentially guidelines for place-making, like in the example from Halifax, they are never provided collectively in a short concise and easy to use format. Here these guidelines are as many as 41 pages apart, and while they are accompanied by other guidelines scattered throughout, they are separated by everything from park maintenance to roof design.

A final example, this time from Victoria, deals with a much smaller document, but exhibits the same issue as the larger policies above. At a mere 8 pages, the *Quadra Village: Part 1 – Design Guidelines* (1998) are more succinct than the previous documents when suggesting some of the techniques derived in chapter four. Still, even at this shorter length, the guidelines for place-making are not all together, and have a number of unrelated guidelines filling the space between them. For example, recognizing the value of materials for creating order/continuity, the policy recommends “mark[ing] the pedestrian realm/route with material/color changes (1998: 4). Likewise, “special tree species can be used to mark distinctive locations and intersections (1998: 4).” Finally, the value of art is recognized for evoking meanings and memories:

Use local histories and personalities as a theme; develop public art as a visible trace of local memory. In general, encourage public art as a means strengthening a connection to the ongoing life of the neighbourhood, rather than as simply a decorative “theme” (1998: 5).

While there is only a single page between these three examples, there is still a great deal of information that comes between these guidelines and has little relation to place-making, including specifics about sidewalk dimensions, planter construction and light bulb requirements.

Solution:

All the examples above demonstrate that design guidelines for place-making are not presented in a concise format in the reviewed guidelines for Halifax, Waterloo, or Victoria. This means that urban designers looking to focus on sense of place need to flip through large documents (the Halifax design guideline’s are 268 pages) to pull out guidelines from within the relevant sections. Alternatively, the design guidelines demonstrated at the beginning of this section (Figure 6.1) are very concise, showing the six principles that create successful places, together with the techniques for building them, over a few pages. As the examples above show that many of these principles/techniques already exist in the guidelines, they could simply be compiled and repeated under their own heading, in a format similar to Figure 7.1 for quick reference.

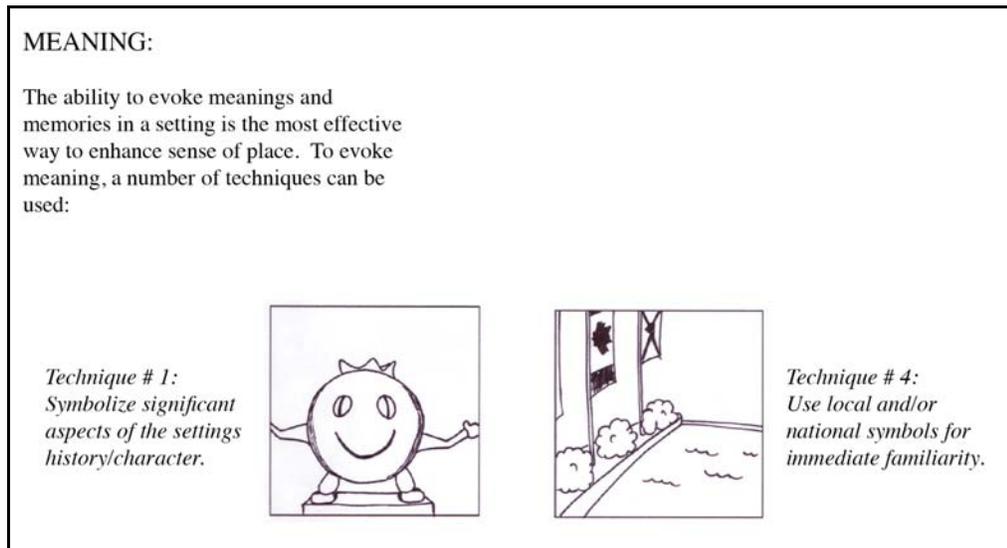
The *Halifax Streetscape Guidelines and Plans* demonstrate how this could look. These guidelines currently devote a brief section (2.4) to sense of place, defining it as, “an identity made up of a set of values, features and qualities that contribute to the personality of the city (2004: 2-5),” and suggesting it is reflected in these guidelines by:

- Design guidelines that are tuned to the characteristically narrow streets and sidewalks of this historic city;

- Streetscape plans that link and relate the different business districts to each other but also reflect their different identities; and,
- Visual identity and wayfinding signage programs that emerge from and reinforce some of the distinctive elements of the Capital District.

As guidelines similar to Figure 7.1 would basically summarize the guidelines relevant to place-making from sections 3 (Sidewalks)-8 (Public Art) (see appendix 5 for table of contents), a section dedicated to place-making would be more appropriate as section 9.0. Here, it would conclude the general guidelines, but come before the detailed streetscape plans. The section on place-making, and the bullets above, could continue by saying:

- And, a number of specific design guidelines intended to evoke meanings, encourage reflection and interaction, generate mystery, create enclosure, enhance order/continuity and promote a multi-sensory experience. These guidelines are reiterated below:



While guidelines for place-making would remain in the relevant sections (street trees, sidewalks, etc...) throughout the document, they would now be complemented by

an additional section that compiles them under a single heading. **Section 9.0 (Sense of Place)** would have no filler – only a definition of sense of place and maybe a brief description, followed by a set of concise guidelines that could be applied in the subsequent chapters regarding detailed streetscape plans. To ensure these guidelines are not just followed blindly, and designs give proper consideration to the remainder of the policy, it is recommended that designers be reminded that “this section is to be read in conjunction with...” all the relevant sections regarding accessibility, economics, weatherproofing, etc...

7.2.2.2 Problem # 2: Implementation policy mostly considers aesthetics or the physical dimension of sense of place at the expense of the social and psychological dimensions.

At the heart of this research, the distilled principles have shown that successful place-making must be multidimensional. While design policies in Halifax, Waterloo and Victoria include multidimensional policies, they often present examples of the guidelines derived in this research that only concern aesthetics or physical order/continuity. As an example, when discussing gateways (3.2.2.) the *City of Waterloo Nodes and Corridors Urban Design Guidelines* only recognize the value of symbols for enhancing order/continuity, advocating that “a symbol of the immediate area should be incorporated into the gateway feature to distinguish it from the other adjacent areas. The back of the structure should indicate that the traveller is leaving the area (2006: 18).” A second example from Waterloo that only recognizes the physical dimension (continuity) of place-making concerns built form, noting that “architecture massing and details ought to

reflect the visual identity of the existing adjacent historic/heritage architecture and/or buildings in good quality (2006: 29).”

Similar one-dimensional guidelines are found throughout the *Halifax Streetscape Guidelines and Plans* (2004), where recommendations ignore the social and psychological significance, in favour of aesthetics or the physical dimension of place-making. For example, sidewalk material is valued only for its aesthetic dimension, saying:

Other paving materials may be considered in certain circumstances to create a decorative effect, but must be durable, easy to maintain, and capable of being installed to create a smooth, accessible surface (2004: 3-9).

Public art provides a unique example as the *Halifax Streetscape Guidelines and Plans* (2004) recognize that public art is valuable beyond the physical dimension, and can create a sense of place, enrich environments, promote creativity and cultural initiatives, attract visitors, and provide landmarks and meeting places. Unfortunately, this policy reverts to one-dimensional policies when guiding placement standards. Aesthetics and physical order/continuity is the only concern when it is recommended that public art:

Should not obstruct the pedestrian thoroughway, should not obstruct driver or pedestrian sightlines ... should not obstruct underground or overhead services ... must be designed and constructed to minimize maintenance requirements, [must] be designed to minimize vandalism, theft and graffiti, and [must] avoid providing places where garbage or litter will be deposited or collect (2004: 8.4)

Some final examples of one-dimensional guidelines can be found in Victoria. As mentioned previously, the *Quadra Village: Part 1, Design Guidelines* is a succinct, easy to follow document. It is also more successful at recommending multidimensional guidelines. For example, the social value of artwork is recognized when it is

recommended that designers, “integrate public art with design/fabrication of buildings, paving, street furniture, or lighting, rather than as monumental stand-alone objects ... [they should be] develop[ed] as ... [a] visible trace of local history (1998: 5).” The guidelines are equally multidimensional regarding street tree placement, advocating that:

Special tree species could be used to mark distinctive locations and intersections ... plant material should help create edges and enclosure ... or background to spaces and activity ... [designers] should consider placing trees ... to correspond and harmonize with building elements and rhythms (1998: 4).

Unfortunately, some examples remain where the guidelines focus solely on aesthetics and physical order/continuity, and exclude recommendations that highlight the social and psychological nature of design. For example, recommendations for paving materials are limited to enhancing order/continuity by using distinctive material to distinguish between pedestrian and vehicle space, advocating that designers:

Use special paving techniques/materials for pedestrian crossings at intersections and driveway crossings ... mark the pedestrian realm/route with material/color changes ... [and] use textured paving to alert motorists to pedestrian areas/pedestrian right-of-way (1998: 4).

Similarly, at intersections that are currently undefined (Hillside/Quadra, Kings/Fifth), it is recommended that order/continuity is enhanced by, “create[ing] landmark massing at the four corners ... to indicate the extent of the main area of the Quadra Village (1998: 3).”

Solution:

The examples above demonstrate that the reviewed guidelines often recognize the value of design elements only for aesthetics or creating order/continuity. This means settings are not being developed to their full potential. In the above examples, symbols are place markers to enhance order/continuity, ignoring their potential to evoke meanings when symbolizing the history/character of a setting. Historic materials ensure physical

continuity with surrounding buildings, overlooking their value for evoking meaning and transporting viewers to a previous time in the landscape. Art is located to avoid disorder/discontinuity or aesthetic displeasure, instead of being carefully positioned to encourage a sense of mystery. Finally, landmarks are advised at intersection corners to facilitate wayfinding, but never considered for evoking meaning when used to anchor the setting.

If included in the policies in the concise format shown in Figure 6.1, the guidelines of this research promote multidimensional place-making in two ways. First, the mere mention of meaning, slowing time, mystery, enclosure and sense stimulation serve as a reminder (or introduction in some cases) to designers that there is a dimension to their work beyond the physical and/or aesthetic dimension. Second, the guidelines present a number of easy-to-incorporate, illustrated techniques that can be built to satisfy these different dimensions.

Using a previous example, the *City of Waterloo Nodes and Corridors Urban Design Guidelines* recommend that “a symbol of the immediate area should be incorporated into the gateway feature to distinguish it from the other adjacent areas. The back of the structure should indicate that the traveller is leaving the area (2006: 18).” An additional section devoted to sense of place would show that symbolizing aspects of the settings history/character is the most effective way to evoke meanings in a setting, and should therefore be given consideration. Furthermore, the guidelines show (through presentation order and numbering) that meanings are the most effective principle of place-making, and therefore, an element should not be designed for order/continuity without proper consideration of the meaning(s) it evokes in a setting. Next, using the

illustrated example that shows how to symbolize aspects of the settings history/character (or a creative solution of their own) the designer could incorporate a multidimensional symbol into the gate, which evokes significant meanings and memories, but also distinguishes the setting from surrounding areas.

Paving material provides a second example of how the guidelines provided by this research promote multidimensional design. *The Halifax Streetscape Guidelines and Plans* discuss aesthetics, saying that “paving materials may be considered in certain circumstances to create a decorative effect, but must be durable, easy to maintain, and capable of being installed to create a smooth, accessible surface (2004: 3-9).” Again, an additional section on place-making (Figure 7.1) would ensure designers recognize the multidimensionality of place-making before detailed designs are considered. As the most effective principle of place-making, designers would be wise to first consider if paving material can be used to evoke meaning in a setting. Depending on the creativity of the designer, a number of techniques are listed in the guidelines. However, the most effective technique would be to incorporate fragments of the previous landscape into the path. This could be accomplished using the suggestion illustrated in Figure 7.1, or an alternative approach by the designer. In addition, the guidelines show that incorporating fragments of the previous landscape is an effective way to slow time, and encourage users to reflect on a previous time in the setting. Careful consideration could ensure the incorporated fragments satisfy both principles, and would therefore ensure a setting that is multidimensional. Finally, though much less effective, the guidelines show that pathways providing a variation in walking surfaces are also capable of creating a multi-sensory experience. While this could be balanced into the example above, it is important

to remember that this research determined it was not necessary to include every principle/technique that is relevant.

7.2.2.3 Problem # 3: A number of effective principles/techniques are absent from the design guidelines of the reviewed cities.

The second issue outlined above is that design guidelines often exclude recommendations regarding the social and psychological dimensions of design elements. Perhaps worse, is that even when multidimensional guidelines are offered, some of the most effective principles/techniques are absent from the reviewed policies. This is most obvious in regards to mystery and a multi-sensory environment. While the literature suggests, and empirical testing confirms they are important principles of place-making, neither is recognized in any of the guidelines reviewed. The techniques of place-making fare no better, with many of the most effective techniques absent from the reviewed urban design guidelines.

Considering mystery, a single example could not be found in the reviewed guidelines that recognized the significance of mystery in creating successful places. This was a surprise considering each policy provided guidelines where mystery would be an appropriate objective. For example, one of the joys of art is to be mystified and curious about a unique piece. Still, the public art guidelines in the *Quadra Village: Part 1, Design Guidelines*, stress the importance of relating art to local history, which would effectively evoke meanings, and slow time - the most effective principles as determined in this research - but do not mention mystery. By incorporating odd combinations of features that do not initially relate, or unique features that are not instantly recognizable, public art is very effective at generating this sense of mystery. Likewise, the *City of*

Waterloo Nodes and Corridors Urban Design Guidelines devote sections to pedestrian walkways (2006: 38, 72). While these guidelines deal with specific dimensions, access, accessibility, and recognize the value of using heritage materials to evoke meaning and slow time, it is not noted that curving paths to partially mask views can create a strong sense of mystery and encourage people to explore a setting further, as exemplified in the literature (Kaplan et al., 1998). While mystery is not the most effective principle of place-making, this research demonstrates that it is significantly valuable in settings with a number of unfamiliar users and should therefore not be excluded from design guidelines.

Similar results can be found for creating a multi-sensory experience. This would most obviously appear when each of the reviewed guidelines offers advice regarding street trees and vegetation. However, the *Halifax Streetscape Guidelines and Plans* (2004) outline the environmental and economical benefits of street trees, as well as the aesthetics value of vegetation, only alluding to their potential to stimulate the senses by recognizing the ability of trees to provide shade. The *City of Waterloo Nodes and Corridors Urban Design Guidelines* (2006) offer nothing more, covering species selection, planting, and replacement, and recommending that trees be placed along walkways to provide shade for pedestrians. Finally, in Victoria, as noted earlier, street trees are recognized for their ability to create edges and enclosure, and also to harmonize with the existing built form, but not even given credit for their shade qualities. In none of the guidelines reviewed was there direct mention of the smell of urban vegetation, the sound that a tree makes blowing in the wind, the sensation of leaning against a tree, etc... Worse still, none of the reviewed guidelines made any mention of including water in a

setting, which this research found to be the most effective technique for creating a multi-sensory environment.

The second issue noted here is that like mystery and a multi-sensory experience, some techniques shown to be effective in this research were often excluded in the reviewed guidelines. Aside from those techniques used to create mystery and a multi-sensory environment, the most significant techniques not included were incorporating fragments of the previous landscape, anchoring the setting with a strong symbolic focal point, and allowing multiple paths to allow choice and interaction. For example, the *City of Waterloo Nodes and Corridors Urban Design Guidelines* discuss the idea of using materials that are consistent with the existing or historic built form:

Where a new or infill development is to be constructed adjacent to an existing building, especially ones with architectural or historical significance (as determined by the Municipal Heritage Committee), consideration with regard to built form, scale, detailing, colour, and materials should be given to ensure harmony with the features of the existing building (2006 :60).

Develop a streetscape theme that incorporates design elements that are reminiscent of the City's past, i.e., pedestrian fixtures and street signs near historic architecture to keep in character of the space.

However, there is no mention in these guidelines of incorporating *actual* fragments of the previous landscape (such as adaptive reuse) as an effective method of evoking meanings, and encouraging reflection on a previous time in the setting.

In the simulations for this research, public art (the centerpiece sculpture) was used to incorporate fragments of the previous landscape and the reviewed guidelines suggest the connection between public art and history is recognized. For example, the *Quadra: Part 1, Design Guidelines* recommend that artwork:

Use local histories and personalities as theme; develop local art as a visible trace of local history ... [and] consider relating public art to local history (e.g. historic businesses, homes or residents) or especially the multicultural diversity of the neighbourhood (1998: 5).

The Halifax Streetscape Guidelines and Plans add that “public art is an important element in establishing and supporting a sense of place, a connection to the past, and the identity of sub-district communities (2004: 8-6).” Still, neither of these guidelines recommend including *actual* fragments of the landscape as a way to evoke meanings or encourage reflection.

A second technique that was shown to be effective in this research, but is unmentioned in the reviewed guidelines is evoking meaning by anchoring a setting with a strong, symbolic focal point. Two of the most significant opportunities to address this would be with public art or landmarks, but it is not discussed in either. For example, the *City of Waterloo Nodes and Corridors Urban Design Guidelines* discuss landmarks, saying:

Corner buildings could incorporate taller nonhabitable structures or freestanding elements (such as clock towers, decorative masts with banners, specialized lighting, and/or information displays) to frame and signal the importance of corner locations (2006: 87).

As already mentioned, the *Quadra Village: Part 1, Design Guidelines* (1998) recommend similar massing at the corner of prominent intersections. In neither of these guidelines is it recommended that similar landmarks are also valuable when located in the center of a setting. Likewise, both the *Halifax Streetscape Design Guidelines and Plans* (2004) and the *Quadra Village: Part 1, Design Guidelines* (1998) demonstrate the value of artwork, including monuments, fountains, sculptures, etc... for evoking historic

meaning in a setting. However, neither of these guidelines advocates that such features are also valuable as a centerpiece that anchors a setting.

As a final example of a technique that was unmentioned in the reviewed policies, we can consider pathways. The *City of Waterloo Nodes and Corridors Urban Design Guidelines* cover the technical details of pedestrian walkways, as well as access, paving materials, lighting, (2006: 37, 38, 118) and even recommends:

Future multi-use trails systems, along existing trails and sidewalks or through new development. Avoid combining recreational pathways with sidewalks if an alternative continuous route for the recreational pathway exists (2006: 38).

Likewise, the *Halifax Streetscape Design Guidelines and Plans* (2004) and the *Quadra Village: Part 1, Design Guidelines* (1998) discuss sidewalks and pedestrian walkways in regards to size specifications, barrier-free design, location of amenities, pedestrian flow, and maintenance and material choice. However, none of the policies offer any guidance on providing multiple pathways to offer choice to repeat visitors, which was shown in this research to be an effective method for slowing time and encouraging interactivity.

Solution:

All of the above examples demonstrate that a number of important principles/techniques of place-making, as discussed in the literature and tested in this research, are absent from the design guidelines of the examined cities. While this does not make place-making impossible, it significantly limits the options available to urban designers. Like issue # 2, the guidelines derived from this research offer an obvious solution, enhancing the depth and value of these principles by simply including them in the design policies. Including mystery and a multi-sensory experience in concise guidelines as advocated in section 7.2.1 not only shows they are important principles of

place-making, but also provides some techniques that are capable of fulfilling them. Once included in our policies, mystery and a multi-sensory experience are as operational as all the other principles included in the guidelines demonstrated in Figure 7.1.

For example, while mystery does not enhance sense of place as effectively as meaning or slowing time, this research (section 6.6) has shown that it is significantly important when dealing with settings that have transient and unfamiliar users. Therefore, a designer in such a setting may choose to focus on generating a sense of mystery before evoking meanings. Or, mystery may be used in combination with evoking meanings, as demonstrated in some of the previous examples, to ensure multidimensionality. In either case, the guidelines show that using odd combinations of features that do not initially relate and including unique features that are not instantly recognizable are effective ways to generate a sense of mystery. In regards to creating a multi-sensory environment, the guidelines show that the most effective technique is the inclusion of water features to stir the senses. Including a variation of walking surfaces, and incorporating nature to stir the senses are also effective techniques for creating a multi-sensory environment.

The techniques that are unmentioned in the reviewed policies are also validated by simply including them in the guidelines, and they become easily constructible with the addition of illustrated examples. Anchoring the setting with a strong, symbolic focal point would be shown as an effective way of evoking meanings in a setting. For example, the *City of Waterloo Nodes and Corridors Urban Design Guidelines* previously discussed only the physical dimension of landmarks, saying:

Corner buildings could incorporate taller nonhabitable structures or freestanding elements (such as clock towers, decorative masts with banners, specialized lighting, and/or information displays) to frame and signal the importance of corner locations (2006: 87).

The guidelines derived in this research would elaborate to show that landmarks, if acting as the symbolic anchor in a setting, are much more effective at enhancing sense of place because they are evoking meanings, and not simply creating order/continuity. Examples to demonstrate how to anchor a setting with a strong, symbolic focal point would of course be illustrated in the guidelines. Of course, adding to the solution of issue # 2, the same landmark would be capable of fulfilling other principles, thus creating a multidimensional setting.

Likewise, creating multiple/irregular paths to encourage choice on repeat visits would be shown to be an effective way to slow time, and encourage interaction in a setting. For example, it was noted previously that all three of the reviewed policies discussed sidewalks or pathways in relation to material, dimensions, access, etc... but there was no mention of offering users a choice to get to their destination. The inclusion of this technique in the guidelines of this research offers a solution to this issue. An urban designer that already has a number of elements that evoke meaning in the setting may be looking for an alternative using sidewalks and pathways. Or again, the designer might be looking to further enhance a sidewalk or pathway that already utilizes techniques to evoke meanings. In either case, the guidelines of this research show that using multiple/irregular pathways is capable of slowing time, and encouraging interactivity in a setting. Though this may not be as effective as evoking meanings, the guidelines show that slowing time is still the second most effective principle for enhancing sense of place.

Finally, incorporating fragments of the previous landscape would be shown to be a very effective technique for evoking meanings in a setting, and slowing time by

encouraging reflection. This was demonstrated in solution # 2, using paving material as an example.

7.3 RESEARCH IMPLICATIONS

As an exploratory study, this research has made significant strides to enhance the practical understanding of sense of place. The previously ambiguous concept has been defined in a manner sensitive to all concerned disciplines, and a set of common principles and techniques have been distilled from the literature, and refined through empirical testing. Still, while this research narrows the gap between theory and practice in place-making, questions are raised over the course of this research that are outside the scope of this thesis, but important enough for future consideration. Subsequent research on the practicality of place-making theory should look to reassess, and therefore strengthen, the principles and techniques of place-making.

7.3.1 Reassessing the Principles of Place-making

In total, six principles were distilled from the literature and refined through empirical testing. A working hierarchy was also derived, with meaning, slowing time, and mystery as the most effective principles of place-making, followed by order/continuity, a multi-sensory experience and enclosure. In this research, this hierarchy was presented as a ‘working’ model, as subsequent research is needed regarding mystery, multi-sensory experiences, and enclosure before their position on the hierarchy can be solidified.

7.3.1.1 Mystery

As a principle of place-making, some important hypotheses require further consideration before the importance of mystery is understood. First, it is hypothesized in

this research that mystery is a unique principle whose success depends on the familiarity of the user. Mystery is likely to be more effective for unfamiliar visitors. This hypothesis encourages future research to focus on the audience, and truly uncover who they are, and what their motivations are. If audience specific research proves that the value of mystery, and potentially other principles, is dependent on the user, the next logical step in bridging the gap between theory and practice is the creation of user specific guidelines for place-making. Such research could go beyond familiarity, to consider age, ethnicity, education, etc...

Another explanation hypothesized in this research is that mystery and meaning are one in the same. While a mysterious feature (i.e. the existing train car) is meaningful to an unfamiliar user, the same feature was found to evoke meanings from participants who were familiar with the setting. Scope and time constraints prohibited this research to retest unfamiliar participants who had since visited the study site. Future research would provide valuable insight if participants were interviewed first using images of an unfamiliar setting, then given time to become familiar with the site before being re-interviewed.

7.3.1.2 A Multi-sensory Experience and Enclosure

The response to stimulating the senses and providing enclosure was underwhelming in this research, and it was suggested that this was due to the difficulty in eliciting affective responses, a lack of obvious examples, and the difficulty of perceiving a multi-sensory experience and enclosure from an image. Future research could clarify these issues, and solidify the position of multi-sensory experiences and enclosure on a hierarchy of place-making principles if more effective methods of elicitation were used.

For example, subsequent simulations could provide more obvious examples of enclosure, or focus on the principles individually. In addition, as this research has already distilled the important principles of place-making, future research could skip this step and focus on developing more immersive simulations, with auditory effects and simulated movement through a setting (Rohrmann and Bishop, 2002). Another option is actual immersion in a setting that fulfills these principles, offers full sense stimulation, and would likely better evoke affective responses.

7.3.1.3 Determine a Threshold of Principles/Techniques

In section 6.5, it was suggested that preference for place does not increase proportionately with the addition of design principles/techniques, and successful places need not exhaust the place-making principles/techniques. There is a significant opportunity for future research to explore this threshold and attempt to locate the point at which additional principles/techniques result in zero, or diminishing returns. In addition, section 6.5.1 hypothesizes that an undesirable feature in the setting is capable of rendering even the most effective principles/techniques ineffective. While some relevant empirical data was collected from this research, additional studies could confirm this hypothesis, which would logically lead to future research attempting to determine what constitutes an undesirable feature.

7.3.2 Reassessing the Techniques of Place-making

In addition to the future research directions encouraged above, before a complete hierarchy of place-making techniques can be finalized, it is essential to reassess a number of techniques that were questioned in this research due to the inclusion of the highly preferred train at Pier 21. This research was also inconclusive in determining the

effectiveness of a number of techniques which deserve further consideration. As well, future research regarding a hierarchy of techniques would benefit from abandoning the notion of an overall hierarchy as the value of each technique depends on the principle(s) it fulfills. Finally, it is noted that there is potential to test techniques not discussed in this research.

7.3.2.1 Exclusion of High Preference Features

An additional direction for future research is to exclude high preference features. In the findings of this research, it was suggested that the importance of some techniques - dividing large areas, incorporating fragments of the previous landscape, and using odd combinations of features that do not initially relate - may have been unintentionally exaggerated in this study. This was because the existing train at Pier 21, which was highly preferred by participants, was included in most of the images. While it was exemplified that similar reactions were produced by other features in these simulations, it would be valuable for future research to reinforce these techniques, excluding high preference features which embody only select place-making techniques, to avoid similar discrepancies.

7.3.2.2 Re-evaluate Inconclusive Techniques

While a broad foundation of techniques were determined through this research, empirical testing was inconclusive regarding a number of place-making techniques:

<i>Accentuate the Importance of Significant Paths and Junctions</i>
<i>Ensure Small Doses of Confusion in an Organized Whole</i>
<i>Include Unique Smells, but Preserve Natural Odours</i>
<i>Make Access More Difficult in Significant Areas</i>
<i>Position Objects to Take Advantage of their Sensory properties</i>
<i>Take Advantage of Strong Natural Landscapes</i>
<i>Use Environmental Effects to Highlight Significant Features</i>
<i>Partially Mask Important Views to Encourage Exploration</i>
<i>Provide Vistas to Encourage Exploration</i>

Figure 7.2: Inconclusive Techniques

Section 6.3.1 notes that attempts were made to represent these techniques in the simulations of Pier 21 (with the exception of using environmental effects to highlight significant features, which was excluded by time constraints). However, these techniques are generally more abstract than the rest of the techniques, and therefore harder to simulate. In this research, which required the simulation of a large number of techniques, these more abstract examples often went unnoticed. It was hypothesized, based on the personal experience of the researcher, that some of these techniques (i.e. partially masking important views) would prove effective in future research. Testing these techniques on their own could implement them into the viewpoints more effectively and should be more successful at evoking responses, and determining their position within the hierarchies of place-making techniques.

7.3.2.3 Abandon the Notion of an Overall Hierarchy

An additional consideration regarding a hierarchy of place-making techniques is that an overall hierarchy is essentially meaningless, and should be abandoned in favor of hierarchies based on the principles. This research notes that the principles of place-making are universal (minus mystery), but it is suggested that the techniques to satisfy them are dependent on the principle being filled. For instance, the urban designer looking to evoke meanings from visitors would be wise to symbolize aspects of the

settings history/character, though this technique has little value in creating a sense of mystery or enclosure. Therefore, future research should not waste time developing an overall hierarchy of place-making techniques in favor of developing a hierarchy based on the principle being satisfied.

7.3.2.4 The Possibilities are Endless

Finally, researchers looking to follow closely in the footsteps of this research could empirically test techniques that they feel would effectively satisfy the principles of place-making. The intentions of this research were to create a set of design guidelines to bridge the gap between theory and practice in place-making. This involves developing a framework that can be followed in practice, but does not require it to be exhaustive. Instead, this research is limited to the techniques distilled from the literature, as well as those introduced through empirical testing. It is recognized that a number of additional techniques likely exist, and it is encouraged that additional studies includes techniques developed by the researcher, as well as any additional techniques derived from participant interviews.

7.4 THESIS CONCLUSIONS

Broadly, this research aimed to bridge the gap between theory and practice in place-making. The first step was to alleviate the confusion in the existing literature and distill a common definition, as well as a set of principles and techniques that could be used to produce practical guidelines. Having determined that evoking meanings, slowing time, generating mystery, enhancing order/continuity, creating enclosure, and stirring multiple senses were the foundations of place-making, this research had already made a strong contribution to practical place-making. Still, further empirical testing suggested a

hierarchy amongst these principles, as well as the techniques that fulfilled them. It was also confirmed that, since the texts were brief on place-making techniques, there were a number of important techniques available to urban designers that were unmentioned in the literature. In regards to both principles and techniques, it was demonstrated that they need not be exhausted to ensure successful places. Finally, while these principles are generally universal, mystery is unique in that it depends on the familiarity of the user.

While the theoretical component of this research was a huge stride in itself, it was the way in which it was synthesized into a set of concise guidelines that is most significant when considering how to bridge the gap between theory and practice in place-making. This is because, as demonstrated above, practical guidelines can be easily integrated to solve the issues recognized in existing design guidelines. This ensures that when the official plans of Canadian cities promote the creation of a sense of place, it is given sufficient consideration in the relevant design policies. In creating settings with a strong sense of place, urban designers are creating settings that will enhance the experience of the people who use it, encourage attachment, and in turn, promote well-maintained and successful public spaces. While many examples of such places already exist (Rome, Khartoum, Prague, etc...), they are often shaped over time and blind attempts to recreate their special character generally fall flat. This research removes the blindfolds, dissects the characteristics that make these places special, and converts them into practical guidelines. While the findings of this research have been applied to the design guidelines of three mid-size Canadian cities, the researcher is confident that similar results would be found regarding cities throughout North America.

~ APPENDICES ~

APPENDIX 1: SUMMARY OF THE PRINCIPLES AND TECHNIQUES OF PLACE-MAKING

Placemaking Principle # 1: Order and Continuity

- *Technique: Ensure Small Doses of Confusion in an Organized Whole*
- *Technique: Divide Large Areas into Smaller Sections*
- *Technique: Include Maps to Provide Context and Facilitate Easy Orientation*
- *Technique: Anchor the Setting with a Strong Symbolic Focal Point*
- *Technique: Separate Primary Paths from Secondary Paths*
- *Technique: Create Paths with a Clear Beginning and End*
- *Technique: Incorporate Fragments of the Previous Landscape*
- *Technique: Use Complimentary Materials*

Placemaking Principle # 2: Mystery

- *Technique: Provide Vistas to Encourage Exploration*
- *Technique: Partially Mask Important Views to Encourage Exploration*
- *Technique: Hint at Important Features Being Passed by Along a Pathway*
- *Technique: Incorporate Fragments of the Previous Landscape*
- *Technique: Provide Experiences in Sequences that Build on One Another*
- *Technique: Use Odd Combinations of Features that do not Initially Relate*
- *Technique: Use Environmental Effects to Highlight Significant Features*

Placemaking Principle # 3: Enclosure and Prospect/Refuge

- *Technique: Take Advantage of Strong Natural Landscapes*
- *Technique: Provide Shelter Above and Behind to Create Enclosure*
- *Technique: Use Entrances to Clearly Define Areas*

- *Technique: Anchor the Setting with a Strong Symbolic Focal Point*

Placemaking Principle # 4: Slowing Time – Interactivity and Reflection

- *Technique: Divide Large Areas into Smaller Sections*
- *Technique: Include Multiple/Irregular Paths to Allow Choice and Interaction*
- *Technique: Include Features that can be Touched and Manipulated*
- *Technique: Incorporate Fragments of the Previous Landscape*

• **Placemaking Principle # 5: A Multi-sensory Experience**

- *Technique: Take Advantage of Strong Natural Landscapes*
- *Technique: Include a Variation of Walking Surfaces*
- *Technique: Include Unique Smells, but Preserve Natural Odours*
- *Technique: Position Objects to Take Advantage of their Sensory properties*

• **Placemaking Principle # 6: Meanings**

- *Technique: Divide Large Areas into Smaller Sections*
- *Technique: Clearly Distinguish Between Pedestrian and Vehicular Spaces*
- *Technique: Accentuate the Importance of Significant Paths and Junctions*
- *Technique: Provide Experiences in Sequences that Build on One Another*
- *Technique: Carefully Consider the Emotional Significance of Colors*
- *Technique: Take Advantage of Strong Natural Landscapes*
- *Technique: Incorporate Fragments of the Previous Landscape*
- *Technique: Anchor the Setting with a Strong Symbolic Focal Point*
- *Technique: Use Local and/or Historic Materials to Reference the Past Setting*
- *Technique: Employ Local and/or National Symbols for Immediate Familiarity*
- *Technique: Make Access More Difficult in Significant Areas*

- *Technique: Carefully Consider the Symbolic Significance of Colors*

APPENDIX 2: THE SIMULATIONS – PIER 21, HALIFAX, N.S.



Simulation 1: Current Condition - Viewpoint 1



Simulation 2: Current Condition - Viewpoint 2



Simulation 3: Current Condition - Viewpoint 3



Simulation 4: Current Condition - Viewpoint 4



Simulation 5: Physical Principles - Viewpoint 1



Simulation 6: Physical Principles - Viewpoint 2



Simulation 7: Physical Principles - Viewpoint 3



Simulation 8: Physical Principles - Viewpoint 4



Simulation 9: Social Principles - Viewpoint 1



Simulation 10: Social Principles - Viewpoint 2



Simulation 11: Social Principles - Viewpoint 3



Simulation 12: Social Principles - Viewpoint 4



Simulation 13: Psychological Principles - Viewpoint 1



Simulation 14: Psychological Principles - Viewpoint 2



Simulation 15: Psychological Principles - Viewpoint 3



Simulation 16: Psychological Principles - Viewpoint 4



Simulation 17: Combined Principles - Viewpoint 1



Simulation 18: Combined Principles - Viewpoint 2



Simulation 19: Combined Principles - Viewpoint 3



Simulation 20: Combined Principles - Viewpoint 4

APPENDIX 3: THE PLACEMAKING TECHNIQUES USED IN EACH SIMULATION

<i>Placemaking Techniques</i>	Simulation #					
	5	6	7	8	9	10
<i>Accentuate the Importance of Significant Paths and Junctions</i>			Added trees and planters along the major pathway	Added trees and planters along one of the major pathways	Highlighted the main pathway using images, flower planters and historic lamp posts	
<i>Anchor the Setting with a Strong Symbolic Focal Point</i>					Included a centerpiece to symbolize a connected world	
<i>Arrange Objects as a Preview of the Main Attraction</i>					Centerpiece suggests the inside is about a connected world Included historic artwork outside of the museum	Added flags of the immigrating countries into the sidewalk
<i>Carefully Consider the Emotional Significance of Colors</i>		Added flowers using inviting colors Added flags using inviting colors	Added flowers using inviting colors	Added flowers using inviting colors	Added flowers using inviting colors	Added flags in the ground using inviting colors
<i>Carefully Consider the Symbolic Significance of Colors</i>					Added red flowers to symbolize Canada	
<i>Clearly Distinguish Between Vehicle and Pedestrian Space</i>						

<i>Create Gathering Places near Nature to Encourage Restoration</i>		Added a pocket park with trees in the center		Added a pocket park with trees in the center		
<i>Create Paths with a Clear Beginning and End</i>			Added a variation in color to highlight significant destinations	Added a variation in color to highlight significant destinations		
<i>Divide Large Areas into Smaller Sections</i>		Provided a pocket park to allow choice of destinations		Provided a pocket park to allow choice of destinations	Provided a centerpiece to allow choice of destination	
<i>Employ Local and/or National Symbols for Immediate Familiarity</i>						Added flags of the immigrating countries into the ground
<i>Hint at Significant Historical Features being Passed By</i>					Added a central water feature to hint at the water behind Pier 21	
<i>Include a Variation of Walking Surfaces</i>		Added grass in the pocket park	Provided two distinct kinds of boardwalk	Added grass in the pocket park Added a variety of boardwalk Added distinct entrance materials	Added grass in the centerpiece	
<i>Include Features that can be Touched and Manipulated</i>						
<i>Include Local Artwork</i>					Added historic pictures on the lamp posts	

<i>Include Maps/Signage to Provide Context and Facilitate Easy Orientation</i>			Included maps at each major entrance			
<i>Include Multiple/Irregular Paths to Allow Choice and Interaction</i>						
<i>Include Natural Features to Contrast a Stark Built Form</i>		Included trees in the pocket park	Included trees and flowers along the major pathway	Included trees in the pocket park	Added flowers around the centerpiece	
<i>Include Natural Features to Stir the Senses</i>		Included trees in the pocket park Included flowers in the pocket park	Added flowers along the main path	Included trees in the pocket park Added flowers along the main path Added flowers in the pocket park	Added flowers along the main path Added flowers around the centerpiece Added water in the centerpiece	
<i>Include Unique Features that are not Instantly Recognizable</i>						
<i>Include Unique Features that make People Stop</i>					Added a centerpiece representing a connected world	
<i>Include Water Features to Stir the Senses</i>					Added a centerpiece representing a connected world	
<i>Incorporate Fragments of the Previous Landscape</i>					Added additional boardwalk Added historic lamp posts	

<i>Incorporate Nature to Symbolize Life</i>		Included trees in the pocket park Included flowers in the pocket park	Added trees along the major pathway Added flowers along the major pathway	Included trees in the pocket park Included flowers in the pocket park	Included flowers in the centerpiece Included flowers along the main pathway	
<i>Partially Mask Important Views to Encourage Exploration</i>						
<i>Position Objects to Take Advantage of their Sensory properties</i>					The high water feature ensures people see the movement of the water Flower potters are large to position flowers closer to the nose	
<i>Provide Experiences in Sequences that Build on One Another</i>					All the outside features work as an introduction leading up to the building	
<i>Provide Opportunities for Informal Seating</i>		Grass in the pocket park can be used for informal seating		Grass in the pocket park can be used for informal seating		
<i>Provide Seating Along Paths and in people Places</i>	Added benches along the major pathway	Provided small seating areas in the pocket park	Added benches along the major pathway	Added benches along the major pathway Provided small seating areas in the pocket park		
<i>Provide Shelter Above and Behind to Create Enclosure</i>						

<i>Provide Vistas to Encourage Exploration</i>						
<i>Separate Primary Paths from Secondary Paths</i>			Used distinct materials to separate pathways	Used distinct materials to separate pathways		
<i>Symbolize Aspects of the Settings History/Character</i>					Added a centerpiece representing a connected world	Added flags to symbolize the immigrating countries
<i>Take Advantage of Strong Natural Landscapes</i>						
<i>Use Bright Colors to Contrast a Stark Background</i>		Added trees to contrast the background buildings	Added flowers to contrast the background buildings	Added trees and flowers to contrast the background buildings	Added flowers to contrast the background buildings	Added flags to the ground to contrast the background buildings
<i>Use Complimentary Materials</i>					Extended the existing boardwalk to span the entire Pier 21 property	
<i>Use Entrances to Clearly Define Areas</i>						
<i>Use Highly Recognizable Sense Stimulants</i>		Added trees to stir the senses	Added flowers to stir the senses Added trees to stir the senses	Added flowers to stir the senses Added trees to stir the senses	Added flowers to stir the senses	
<i>Use Local and/or Historic Materials to Reference the Past Setting</i>					Extended the existing boardwalk to span the entire Pier 21 property	
<i>Use Natural Features as a Buffer</i>		Trees in the park provide shade from the sun		Trees in the park provide shade from the sun		

<i>Use Natural Features to Beautify the Setting</i>		Added trees to beautify the setting	Added flowers and trees to beautify the setting	Added flowers and trees to beautify the setting	Added flowers to beautify the setting	
<i>Use Odd Combinations of Features that do not Initially Relate</i>						Added flags of the immigrating countries

Placemaking Techniques	Simulation #					
	11	12	13	14	15	16
<i>Accentuate the Importance of Significant Paths and Junctions</i>	Highlighted the main pathway using images, flower planters and historic lamp posts	Highlighted the main pathway using flags, flower planters and historic lamp posts				
<i>Anchor the Setting with a Strong Symbolic Focal Point</i>		Included a centerpiece to symbolize a connected world	Included a centerpiece to symbolize a connected world			Included a centerpiece to symbolize a connected world
<i>Arrange Objects as a Preview of the Main Attraction</i>	Included historic artwork outside of the museum	Centerpiece suggests the inside is about a connected world	Centerpiece suggests the inside is about a connected world			Centerpiece suggests the inside is about a connected world
<i>Carefully Consider the Emotional Significance of Colors</i>	Added flowers using inviting colors	Added flags in the ground using inviting colors				
<i>Carefully Consider the Symbolic Significance of Colors</i>	Added red flowers to symbolize Canada					
<i>Clearly Distinguish Between Vehicle and Pedestrian Space</i>			Added a pedestrian oriented café area			Added a pedestrian oriented café area

<i>Create Gathering Places near Nature to Encourage Restoration</i>			Provided a café area surrounded by trees			Provided a café area surrounded by trees
<i>Create Paths with a Clear Beginning and End</i>			The café area suggests a clear destination			The café area suggests a clear destination
<i>Divide Large Areas into Smaller Sections</i>		Provided a centerpiece to allow choice of destination	Provided the café area and a centerpiece to allow choice of destination			Provided the café area and a centerpiece to allow choice of destination
<i>Employ Local and/or National Symbols for Immediate Familiarity</i>		Added flags of the immigrating countries into the ground				
<i>Hint at Significant Historical Features being Passed By</i>	Extended the train track to show where it once went	Added a central water feature to hint at the water behind Pier 21 Extended the train track to show where it once went	Added a central water feature to hint at the water behind Pier 21		Added a water path to hint at the water behind the Pier	Added a central water feature to hint at the water behind Pier 21
<i>Include a Variation of Walking Surfaces</i>		Added grass in the centerpiece	Added a variety of boardwalk Added distinct entrance materials			Added a variety of boardwalk Added distinct entrance materials
<i>Include Features that can be Touched and Manipulated</i>			Added a water feature to splash in		Added a water path for kids to play in	Added a water feature to splash in
<i>Include Local Artwork</i>	Added historic pictures on the lamp posts	Added historic pictures on the lamp posts				Added a sculptured bench in the café area

<i>Include Maps/Signage to Provide Context and Facilitate Easy Orientation</i>						
<i>Include Multiple/Irregular Paths to Allow Choice and Interaction</i>				Added a pathway through Pier 22		Added a pathway through Pier 22
<i>Include Natural Features to Contrast a Stark Built Form</i>	Included flowers along the main pathway		Included trees in the café area			Included trees in the café area
<i>Include Natural Features to Stir the Senses</i>	Included flowers along the main pathway	Added flowers in the centerpiece	Included trees in the café area Added a water fountain			Included trees in the café area Added a water fountain
<i>Include Unique Features that are not Instantly Recognizable</i>						Added a bench with ship pieces on the head
<i>Include Unique Features that make People Stop</i>		Added a centerpiece representing a connected world	Added a centerpiece representing a connected world		Added a water path for people to play in	Added a centerpiece representing a connected world
<i>Include Water Features to Stir the Senses</i>		Added a centerpiece representing a connected world	Added a centerpiece representing a connected world		Added a water path	Added a centerpiece representing a connected world
<i>Incorporate Fragments of the Previous Landscape</i>	Added historic lamp posts Extended the train track	Added additional boardwalk Added historic lamp posts Extended the train track				

<i>Incorporate Nature to Symbolize Life</i>	Included flowers along the main pathway	Included flowers in the centerpiece	Included trees in the café area			Included trees in the café area
<i>Partially Mask Important Views to Encourage Exploration</i>				Added a water passage that hides what is on the other side		Added a water passage that hides what is on the other side
<i>Position Objects to Take Advantage of their Sensory properties</i>	Flower potters are large to position flowers closer to the nose	The high water feature ensures people see the movement of the water Flower potters are large to position flowers closer to the nose				
<i>Provide Experiences in Sequences that Build on One Another</i>	All the outside features work as an introduction leading up to the building	All the outside features work as an introduction leading up to the building	All the outside features work as an introduction leading up to the building			All the outside features work as an introduction leading up to the building
<i>Provide Opportunities for Informal Seating</i>						
<i>Provide Seating Along Paths and in people Places</i>			Provided seating in the café area			Provided seating in the café area
<i>Provide Shelter Above and Behind to Create Enclosure</i>			Surrounded the café area with trees to create a feeling of enclosure	Added a tunnel through Pier 22 where you can reflect in private		Surrounded the café area with trees to create a feeling of enclosure Added a tunnel through Pier 22 where you can reflect on the images in private

<i>Provide Vistas to Encourage Exploration</i>				The water passage through Pier 21 provides a view over the Halifax Harbour		The water passage through Pier 21 provides a view over the Halifax Harbour
<i>Separate Primary Paths from Secondary Paths</i>					Used distinct materials to separate pathways	Used distinct materials to separate pathways
<i>Symbolize Aspects of the Settings History/Character</i>		Added an abstract centerpiece representing the immigrant journey Added flags to symbolize the immigrating countries	Added a centerpiece representing a connected world			Added a centerpiece representing a connected world
<i>Take Advantage of Strong Natural Landscapes</i>				Provided a water passage to take advantage of the harbour views		Provided a water passage to take advantage of the harbour views
<i>Use Bright Colors to Contrast a Stark Background</i>	Added flowers to contrast the background buildings	Added flowers to contrast the background buildings	Added trees to contrast the background buildings			Added trees to contrast the background buildings
<i>Use Complimentary Materials</i>		Extended the existing boardwalk to span the entire Pier 21 property	Used wood in the café area to compliment the existing boardwalk			Used wood in the café area to compliment the existing boardwalk
<i>Use Entrances to Clearly Define Areas</i>			Added an entrance gate in the café area			Added an entrance gate
<i>Use Highly Recognizable Sense Stimulants</i>	Added flowers to stir the senses	Added flowers to stir the senses	Added Trees to stir the senses Added water to stir the senses			Added Trees to stir the senses Added water to stir the senses

<i>Use Local and/or Historic Materials to Reference the Past Setting</i>		Extended the existing boardwalk to span the entire Pier 21 property				
<i>Use Natural Features as a Buffer</i>			Surrounded the café area with trees to buffer from sun and traffic			Surrounded the café area with trees to buffer from sun and traffic
<i>Use Natural Features to Beautify the Setting</i>	Added flowers to beautify the setting	Added flowers to beautify the setting	Added trees to beautify the setting			Added trees to beautify the setting
<i>Use Odd Combinations of Features that do not Initially Relate</i>		Added flags of the immigrating countries				Provided a bench with ship pieces to make people encourage their relationship

Placemaking Techniques	Simulation #			
	17	18	19	20
<i>Accentuate the Importance of Significant Paths and Junctions</i>	Highlighted the main pathway using flags, flower planters and historic lamp posts		Highlighted the main pathway using flags, flower planters and historic lamp posts	Highlighted the main pathway using flags, flower planters and historic lamp posts
<i>Anchor the Setting with a Strong Symbolic Focal Point</i>	Included a centerpiece to symbolize ships and the immigrant journey			Included a centerpiece to symbolize ships and the immigrant journey

<i>Arrange Objects as a Preview of the Main Attraction</i>	<p>Provided flags of the immigrating countries outside of the museum</p> <p>Centerpiece suggests the inside is about a journey</p>	Included historic artwork outside of the museum	Provided flags of the immigrating countries outside of the museum	<p>Provided flags of the immigrating countries outside of the museum</p> <p>Included historic artwork outside of the museum</p> <p>Centerpiece suggests the inside is about a journey</p>
<i>Carefully Consider the Emotional Significance of Colors</i>	<p>Added flowers using inviting colors</p> <p>Added flags using inviting colors</p>		<p>Added flowers using inviting colors</p> <p>Added flags using inviting colors</p>	<p>Added flowers using inviting colors</p> <p>Added flags using inviting colors</p>
<i>Carefully Consider the Symbolic Significance of Colors</i>	Added red flowers to symbolize Canada		Added red flowers to symbolize Canada	
<i>Clearly Distinguish Between Vehicle and Pedestrian Space</i>				
<i>Create Gathering Places near Nature to Encourage Restoration</i>		Added a pocket park surrounded by nature		Added a pocket park surrounded by nature
<i>Create Paths with a Clear Beginning and End</i>			Added a variation in color to highlight significant destinations	Added a variation in color to highlight significant destinations

<i>Divide Large Areas into Smaller Sections</i>	Provided a centerpiece to allow choice of destination	Provided a pocket park, and a water passage to allow choice of destination		Provided a pocket park, and a water passage to allow choice of destination
<i>Employ Local and/or National Symbols for Immediate Familiarity</i>	Included flags of the immigrating countries		Included flags of the immigrating countries	Included flags of the immigrating countries
<i>Hint at Significant Historical Features being Passed By</i>	Added a central water feature to hint at the water behind Pier 21		Extended the train track to show where it once went	Added a central water feature to hint at the water behind Pier 21 Extended the train track to show where it once went
<i>Include a Variation of Walking Surfaces</i>		Added grass in the pocket park		Added grass in the pocket park Added a variety of boardwalk Added distinct entrance materials
<i>Include Features that can be Touched and Manipulated</i>	Added a water feature to splash in			Added a water feature to splash in
<i>Include Local Artwork</i>	Added a sculptured centerpiece	Added historic pictures in the water passage		Added historic pictures in the water passage Added a sculptured centerpiece

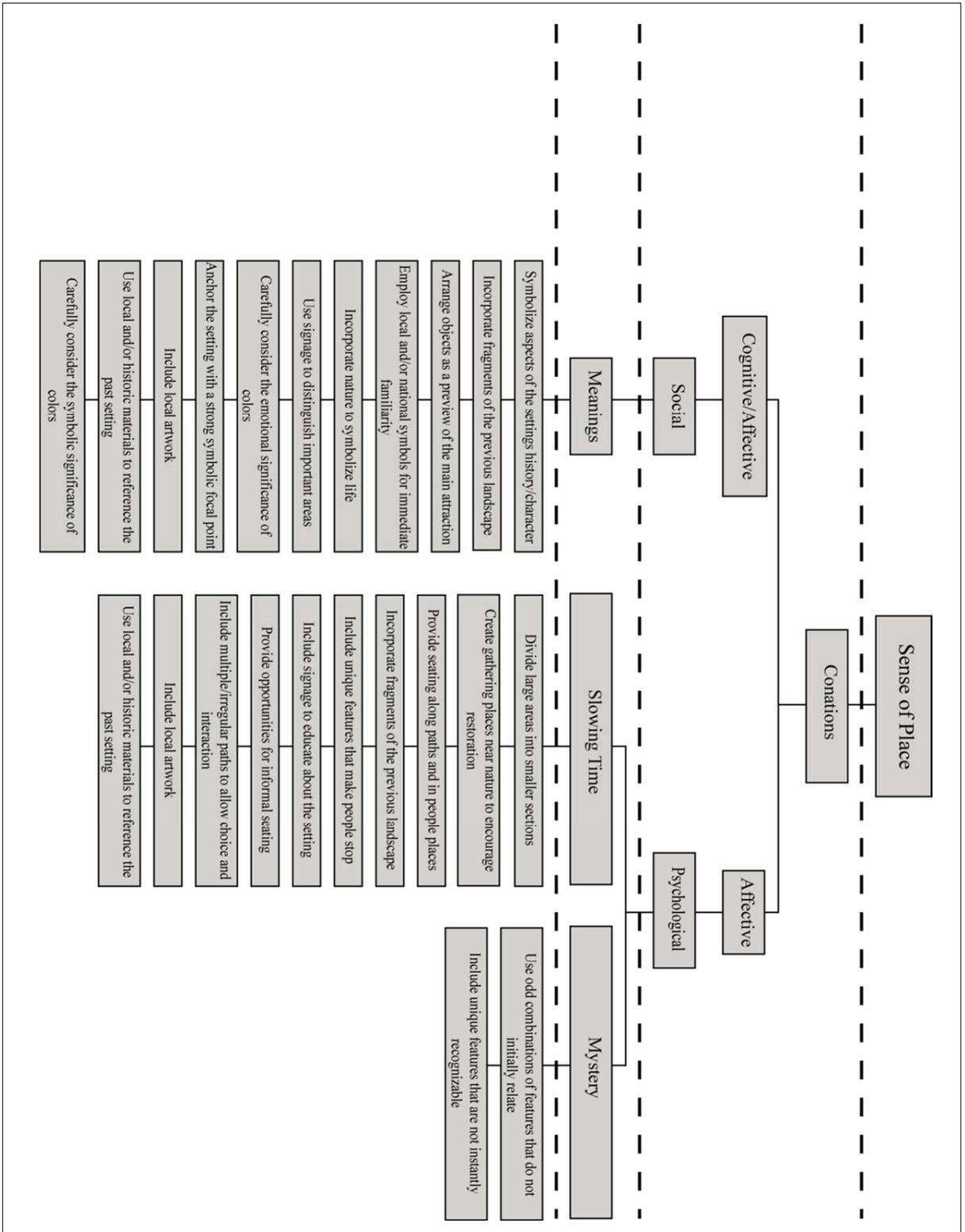
<i>Include Maps/Signage to Provide Context and Facilitate Easy Orientation</i>			Included maps at each major entrance	
<i>Include Multiple/Irregular Paths to Allow Choice and Interaction</i>		Added a pathway through Pier 22		Added a pathway through Pier 22
<i>Include Natural Features to Contrast a Stark Built Form</i>	Included flowers along the main pathway	Included trees in the pocket park	Included flowers along the main pathway	Included trees in the pocket park Included flowers along the main walkway
<i>Include Natural Features to Stir the Senses</i>	Included flowers along the main pathway Added a water feature	Included trees in the pocket park	Included flowers along the main pathway	Included trees in the pocket park Added flowers along the main walkway Added a water feature
<i>Include Unique Features that are not Instantly Recognizable</i>	Added an abstract centerpiece representing the immigrant journey			Added an abstract centerpiece representing the immigrant journey
<i>Include Unique Features that make People Stop</i>	Added an abstract centerpiece representing the immigrant journey			Added an abstract centerpiece representing the immigrant journey
<i>Include Water Features to Stir the Senses</i>	Added an abstract centerpiece representing the immigrant journey			Added an abstract centerpiece representing the immigrant journey

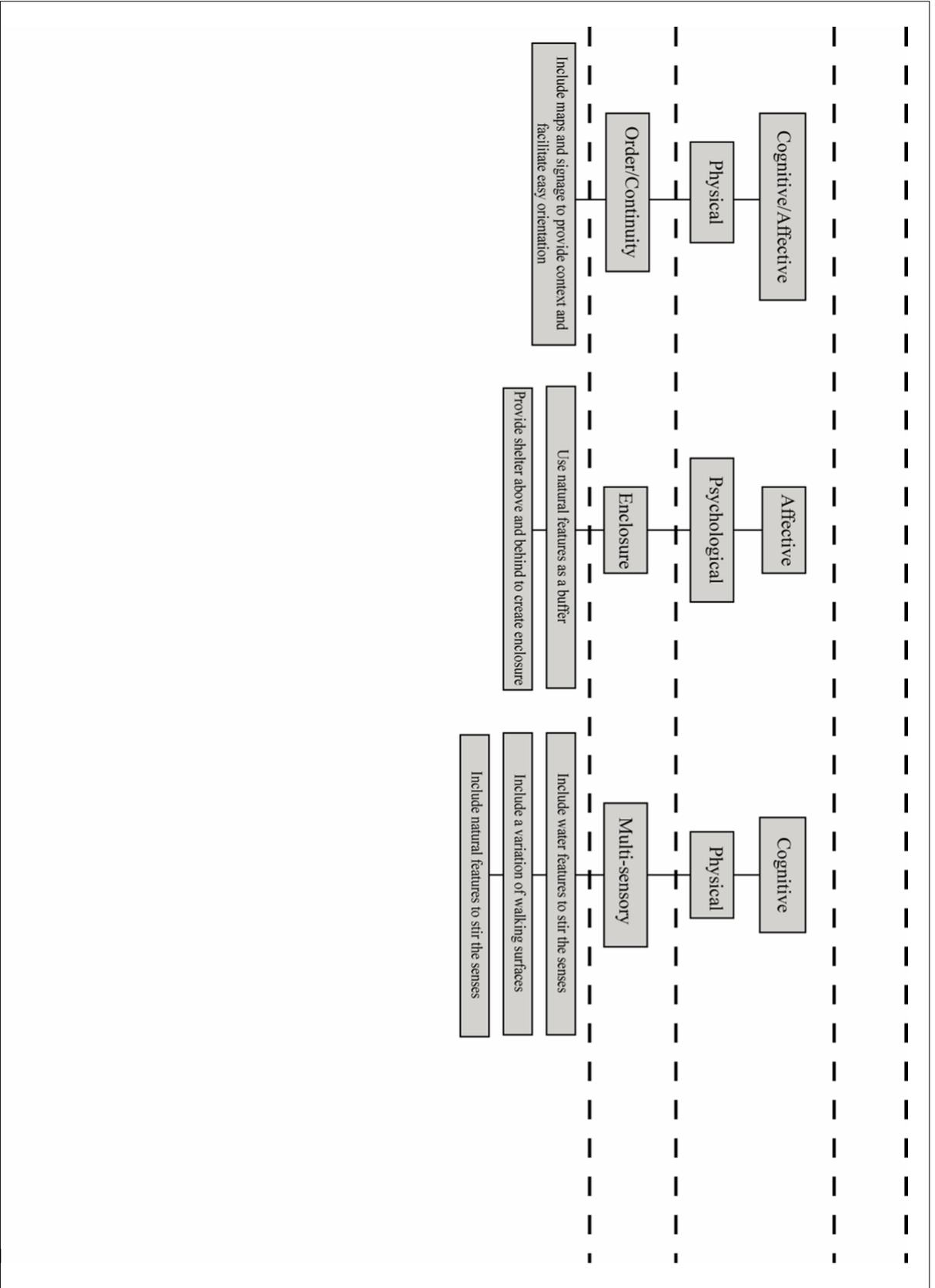
<i>Incorporate Fragments of the Previous Landscape</i>	Included historic lamp posts		Added historic lamp posts Extended the train track	Added additional boardwalk Added historic lamp posts Extended the train track
<i>Incorporate Nature to Symbolize Life</i>	Included flowers along the main pathway	Included trees in the pocket park	Included flowers along the main pathway Include flowers in the bench head	Included trees in the pocket park Included flowers along the main walkway
<i>Partially Mask Important Views to Encourage Exploration</i>		Added a water passage that hides what is on the other side		Added a water passage that hides what is on the other side
<i>Position Objects to Take Advantage of their Sensory properties</i>	Flower potters are large to position flowers closer to the nose		Flower potters are large to position flowers closer to the nose	Flower potters are large to position flowers closer to the nose
<i>Provide Experiences in Sequences that Build on One Another</i>	All the outside features work as an introduction leading up to the building		All the outside features work as an introduction leading up to the building	All the outside features work as an introduction leading up to the building
<i>Provide Opportunities for Informal Seating</i>		Grass in the pocket park can be used for informal seating		Grass in the pocket park can be used for informal seating
<i>Provide Seating Along Paths and in people Places</i>		Provided small seating areas in the pocket park	Added benches along the major pathway	Provided small seating areas in the pocket park

<i>Provide Shelter Above and Behind to Create Enclosure</i>		Surrounded the pocket park with trees to create a feeling of enclosure Added a tunnel through Pier 22 where you can reflect on the images in private		Surrounded the pocket park with trees to create a feeling of enclosure Added a tunnel through Pier 22 where you can reflect on the images in private
<i>Provide Vistas to Encourage Exploration</i>		The water passage through Pier 21 provides a view over the Halifax Harbour		The water passage through Pier 21 provides a view over the Halifax Harbour
<i>Separate Primary Paths from Secondary Paths</i>				
<i>Symbolize Aspects of the Settings History/Character</i>	Added an abstract centerpiece representing the immigrant journey Added flags to symbolize the immigrating countries		Added flags to symbolize the immigrating countries	Added an abstract centerpiece representing the immigrant journey Added flags to symbolize the immigrating countries
<i>Take Advantage of Strong Natural Landscapes</i>		Provided a water passage to take advantage of the harbour views		Provided a water passage to take advantage of the harbour views
<i>Use Bright Colors to Contrast a Stark Background</i>	Added flowers, flags, etc... to contrast the background buildings	Added trees to contrast the background buildings	Added flowers, flags, etc... to contrast the background buildings	Added trees, flowers, flags, etc... to contrast the background buildings

<i>Use Complimentary Materials</i>				Extended the existing boardwalk to span the entire Pier 21 property
<i>Use Entrances to Clearly Define Areas</i>				Added an entrance gate
<i>Use Highly Recognizable Sense Stimulants</i>	Added flowers to stir the senses	Added trees to stir the senses	Added flowers to stir the senses	Added trees, water, flowers, etc... to stir the senses
<i>Use Local and/or Historic Materials to Reference the Past Setting</i>				Extended the existing boardwalk to span the entire Pier 21 property
<i>Use Natural Features as a Buffer</i>		Surrounded the pocket park with trees to buffer from sun and traffic		Surrounded the pocket park with trees to buffer from sun and traffic
<i>Use Natural Features to Beautify the Setting</i>	Added flowers to beautify the setting	Added trees to beautify the setting	Added flowers to beautify the setting	Added trees, water, flowers, etc... to beautify the setting
<i>Use Odd Combinations of Features that do not Initially Relate</i>	Added ship pieces into the centerpiece to encourage users to ponder their relationship Added flags of the immigrating countries		Added flags of the immigrating countries	Added ship pieces into the centerpiece to encourage users to ponder their relationship Added flags of the immigrating countries

APPENDIX 4: THE COMPLETE STRUCTURE OF SENSE OF PLACE





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FIGURES (Unlisted images taken by the researcher)

Figure 4.1: <http://www.canada-maps.org/nova-scotia/thumbs/nova-scotia-map.gif>

Figure 4.2: <http://www.halifaxinfo.com/images/merchants/CitadelAerial.jpg>

Figure 4.3: http://www.nova-scotia-kanada.de/pics/halifax_2b.jpg

Figure 4.4:

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Figure 4.5: <http://www.mikecampbell.net/images/pier21.jpg>

Figure 4.7: <https://www.pier21.ca/exhibitions/virtual-exhibits/a-day-in-may/>

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