PERCEPTIONS OF WHITEMUD PARK, AN URBAN WILDLAND

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Abstract

Perceptions of stakeholders of Whitemud Park, an urban wildland in Edmonton, Canada, were elicited using a web-based survey based on a modified repertory grid technique and semi-structured interviews with a subset of participants. The study was framed within personal construct theory. For many respondents, Whitemud Park was viewed in terms of its conservation role, and represented a positive alternative to the "unnatural" city encountered daily; signs of maintenance and development in the park were unwelcome reminders of the city. Perceptions were highly personal and reflected past interaction with the park as well as the education and careers of the participants. Conflicting perceptions were found towards cycling, trail running, and dog-walking, and also towards the perceived roles of the less-groomed park areas. It is recommended that environmental educators and park managers be aware of these perceptions to help ensure better communication and to minimise conflicts.

Keywords: urban wildlands, personal constructs, perception, nature, urban parks

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Edmonton's Wildlands

Bixler and Floyd (1997) define *wildlands* as "any large or small unmanicured area" (p. 444). While an isolated wilderness can be considered a wildland, so too can unruly backyards or small patches of undeveloped land in a city. As true wilderness disappears, and as more people recognise the benefits of interacting with nature, urban wildlands become increasingly important.

Edmonton, Alberta, has an extensive network of wildlands running throughout the North Saskatchewan River Valley (NSRV) and adjacent ravines (Figure 1). Stretching forty-eight kilometres through Edmonton, these wildlands constitute the largest protected urban parkland in North America (City of Edmonton, 2008). Although these areas are designated as "parks," they are truly wildlands; much of the NSRV and adjacent ravines contain little more than paths and thick forest. Despite the unmanicured appearance, Edmontonians are very proud of their city's "Ribbon of Green" (City of Edmonton, 2008).

As with other urban parks throughout North America and Europe (James et al., 2009), Edmonton's wildlands face increased pressure; Edmonton's population grew by 20.7 % between 1999 and 2009 (City of Edmonton, 2009a), and forecasters expect this expansion to continue (Tsounis, 2007). As evidence increases showing the benefits of interaction with nature, leaders from diverse fields such as health, architecture, childhood development and environmental education are calling for increased use of natural areas (e.g. Capra, 1999; Children & Nature Network, 2007; Kellert, 2005; Louv, 2005, 2007; Maller, Townsend, Pryor, Brown, & St Leger, 2006; these authors also review studies

showing the benefits of increased contact with nature). With this increased use comes the

potential for conflict as diverse groups urge decision-makers to create policies in line

with each group's interests, or as groups perceive conflicting roles for particular parks.
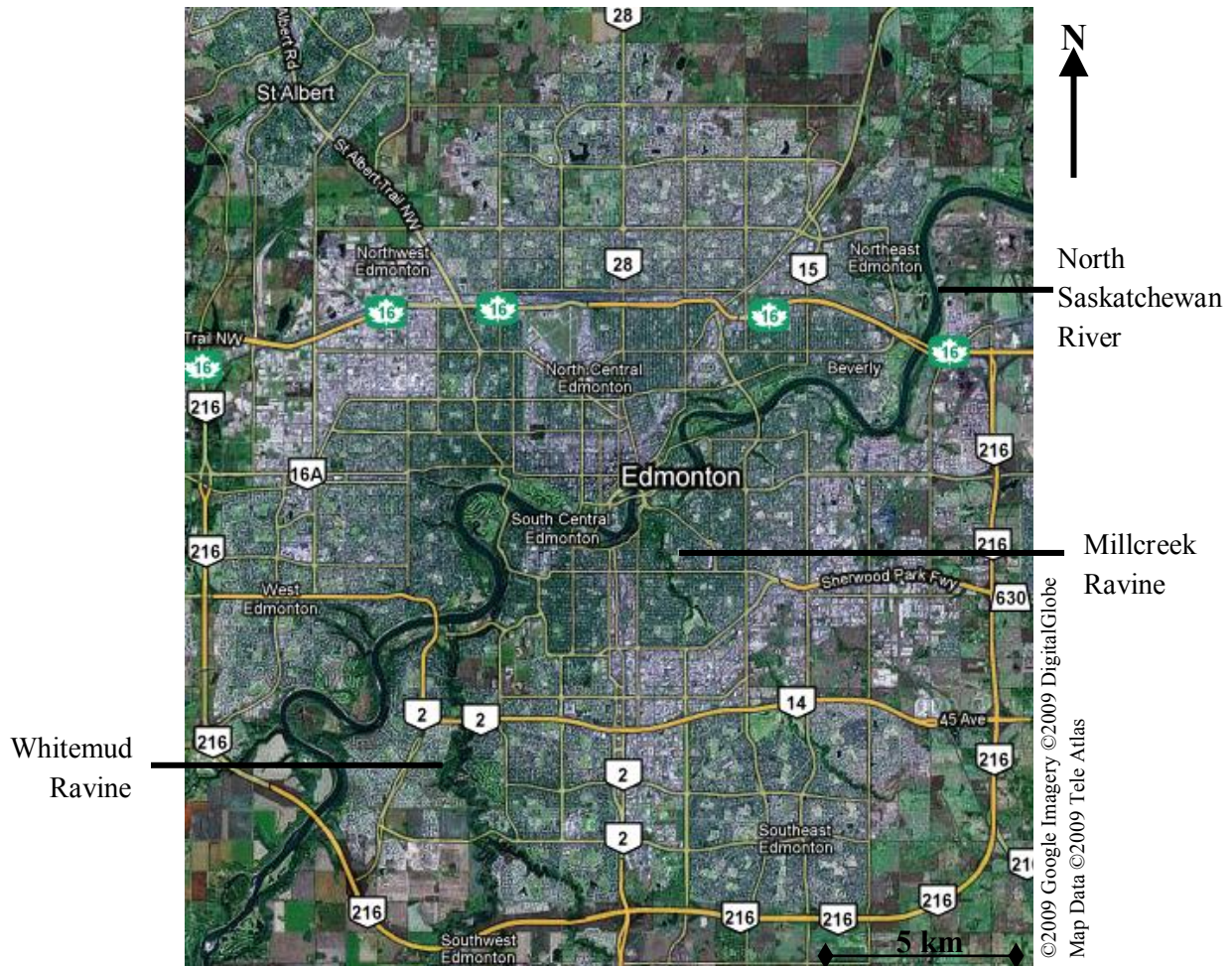
Figure 1. Edmonton, Alberta, the North Saskatchewan River Valley and adjacent ravines. Adapted from Google™ Maps (Google™ Imagery, 2009).

The Need for Studying Perceptions of Urban Wildlands

James et al. (2009) created an integrated research framework for examining

European urban green spaces. The themes of this framework move beyond simply

looking at ecological functions and use of green spaces to the valuation, management,

and government of these spaces, and the connections between these areas. Included in

this framework is a call to further explore the *experience of urban green space* in terms of the physiological and psychological aspects, and to explore cultural and sub-cultural differences in these experiences. While the authors were referring to research on European urban green spaces, I feel that their proposed research theme of experiencing urban green spaces is equally valid for Canadian urban wildlands. While exploring urban park literature, the majority of the studies I found either examined more developed urban green spaces (e.g. Home, Bauer, & Hunziker, 2007; Seeland & Nicolè, 2006), or were situated in the United States and Europe (e.g. O'Brien, 2006; Ward Thompson, Aspinall, Bell, & Findlay, 2005), each with significantly different socio-cultural groups than western Canada.

Kyle, Mowan and Tarrant (2004) also support a similar research focus, stressing that researchers should include human-nature interaction when describing ecosystems. They argue for more studies examining an individual's relationship to natural environments. Such studies, they claim, will enable wildland managers to "accommodate the diversity of meanings among users" (p. 452). To better understand wildlands as a whole, we need to study the people in the system.

Managing urban wildlands is complex. Not only do managers need to juggle competing interests of users, but they may also need to maintain the wildland's ecological function (James et al., 2009). For effective management, Edmonton planners need to understand both the ecological and human systems involved, and should consider their river valley as one large human-park system (Williams & Stewart, 1998). Exploring the perceptions of the people in this system would help managers, researchers, and others understand the human component of the human-park system.

Published knowledge of Edmonton's river valley system is heavily biased towards ecological and management-themed studies. Existing studies focus on understanding the river valley's ecological function (Spencer Environmental, 2006) and on generating public input into management processes (City of Edmonton Office of Natural Areas, 2006; The Dagny Partnership, 2004). More study is needed on the human component of the river valley system, research that goes beyond eliciting public consultation on park management.

Centrally located Whitemud Park[1] offers an excellent opportunity to investigate different perceptions towards Edmonton's wildlands. It is used for a wide variety of activities, but colliding interests may lead to conflict among certain groups. This park is not isolated; it is part of the contiguous river valley system. Consequently, its ecology, structure, use, and management are similar to those of adjacent parks and conclusions gained from studying this park will be applicable to the greater river valley system.

Research Problem

To explore holistically the human aspects of this system, I asked the question: How do park users, nearby residents and other stakeholders perceive Whitemud Park? In the context of this study, *perception* refers to the mental constructs people hold regarding the park system's various elements (e.g., the users, the different natural areas and their characteristics, or the park's ecological and other functions). Perceptions include

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[1] My use of the name *Whitemud Park* differs from that of the City of Edmonton. The City of Edmonton websites and documents (City of Edmonton, 2009b; EDA Collaborative, 2003) refer to Whitemud Park as only the picnic and field areas at the north end of Whitemud Ravine. However, colloquially, Whitemud Park, as I discovered, refers to a much larger section of the ravine. I use the name Whitemud Park in this broader sense.

personal constructs, as defined by Kelly (1955/1991). A *stakeholder* is anyone who uses, resides near, manages, maintains, or is otherwise connected to, the park.

Within the overarching question described above, I focused on the following objectives:

1. Describe and compare the types of perceptions (personal constructs) held by each group.

2. Describe how the perceptions of the "current" Whitemud Park relate to the perceptions of the "ideal" Whitemud Park, and compare this relationship across the groups.

3. Examine how the perceptions (personal constructs) relate to the various aspects of Whitemud Park, and compare these relationships across the groups.

To address my research question, I used surveys and semi-structured interviews, set within the framework of personal construct theory (PCT) (Kelly, 1955/1991), to gather perceptions of various park users towards Whitemud Park. By framing my research within PCT, I attempt to explore the park using perceptions from the stakeholders themselves, not set *a priori* as is so common in many survey-based studies (e.g. Hartig, Kaiser, & Bowler, 2001; Jorgensen & Anthopoulou, 2007). This thesis describes my research process as well as the various perceptions I uncovered and their significance to both Edmonton parks and to urban wildlands in general.

Researcher's Perspective

As a researcher of this problem, I was far from objective because I was, and still am, very familiar with the park. This intimacy was beneficial in that I was already aware

of many of the user groups of Whitemud Park and also aware of some of its history and current issues. However, this knowledge also meant that I had some prior conceptions already in place about how various groups use or view the park.

As a child, I visited the park to toboggan, and so was introduced to the area at an early age. In addition, I went to school nearby (though we used the ravine infrequently) and visited adjacent attractions such as a nature centre or historical park. However, it was while working as an outdoor educator that I really became familiar with the area. I learned about Whitemud Park's history from our training sessions and from knowledgeable program participants. I also became familiar with the terrain as I led snowshoeing, games, and other outdoor activities. At times, the site was almost a second home, as I occasionally stayed overnight during programs. I have many positive memories associated with Whitemud Park. I feel committed to conserving the park and thus was consequently not completely objective.

There were several benefits arising from my connection to the park. I was already familiar with some of the user groups, and knew people who could help me conduct my research. As well, I knew of many activities occurring in the park throughout the year. Being familiar with the park trails and terrain, especially of the more developed northern end, was beneficial when planning my research and designing my survey.

The downside to this familiarity, however, is that I already had preconceived ideas of Whitemud Park stakeholder perceptions as I conducted my study. By being so familiar with Whitemud Park and its users, by having lived in south Edmonton for most of my life, and by having interacted with Whitemud and other parts of Edmonton's river valley system, I could not avoid having preconceived notions. I value Whitemud Park for

the many pleasurable opportunities it has provided, both personal and through my

employment, and for its value as an ecological preserve, especially of the unique, old-

growth, ecosystems it has. My challenge was to go beyond these perceptions, to see what

other perceptions exist.

Chapter 2: Literature Review

Shifting Focus

Much research has been done on the visual perception of landscapes, and preferences for these landscapes (e.g. Herzog, Herbert, Kaplan, & Crooks, 2000; Herzog & Kutzli, 2002; Herzog & Bryce, 2007; R. Kaplan, Kaplan, & Brown, 1989; Mustafa, 1995; Ribe, 2002). In all of these studies, participants are shown a series of photographs depicting various environments and asked to rate the photos in terms of preference, personal safety, or some other criteria determined by the researchers. The researchers then correlate these ratings with visual aspects of the photos (e.g. amount and type of vegetation, openness of the landscape, or water features, in the case of Hertzog et al., 2000) or to variables based on visual aspects of the photos (e.g. openness, cues to mystery, and smoothness of groundcover, in the case of Herzog and Kutzli, 2002). This focus on visual landscape features implies that these characteristics are the dominant criteria for determining preferences. However, this approach often excludes the views of the very people participating in the survey. The participants are rarely asked *why* they prefer one landscape over another. Instead, the authors explain differences based on cultural or evolutionary factors (e.g. Herzog et al., 2000, who attributed an observed preference for rivers to "evolutionary predispositions favoring water and to strong cross-cultural biases favoring most waterscapes," p. 342).

However, there are growing calls to shift from an expert-led, visually-oriented approach to a more experiential, participant-led approach when exploring the relationship between people and landscapes (e.g. Fenton, 1985; Palmer, 2000; Scott, 2002; Scott, Carter, Brown, & White, 2009). As early as 1985, Fenton argued that in environmental

aesthetics research, "objective setting variables... have been studied in isolation from the actively perceiving and cognizing individual" (p. 325). More recently, Scott (2002) argued that landscape is viewed holistically and not in terms of individual elements, and called for research methodologies that "incorporate public perception explicitly into the policy-making process in a more proactive and innovative way" (p. 291). Palmer (2000), in examining the reliability of rating visible landscape qualities, suggested that qualitative techniques used to achieve depth of meaning may be as reliable as the rating scales chosen for their perceived reliability. However, studies of these kinds are only now becoming popular in the field of landscape studies.

As with landscape research, earlier studies on perceptions and attitudes towards urban parks also relied on rating photographs with little qualitative methodology (e.g. Schroeder, 1983, 1987). However, the shift towards participant-focused research is more established in this field, with interviews and focus groups often used to supplement survey data (e.g. Jorgensen, Hitchmough & Dunnet, 2007; Taplin, 2002). However, even during more recent studies, the approach is often expert-led, with the "expert" researcher assuming what is relevant to the participant (e.g. Ho et al., 2005; Krenichyn, 2004; Mowen & Confer, 2003; Payne, Mowen, & Orsega-Smith, 2002). Home et al. (2007) note that little attention has been given to the difference between the perceptions held by the respondents and those held by the researcher.

Personal Construct Theory

Kelly's Personal Construct Theory

To address the need for more participant-focused research, I framed the research within personal construct theory (PCT). Created by George Kelly in 1955 (and

republished in 1991), PCT is a metatheory about how people invent meaning. Kelly invented it as a complete psychology, with a fundamental postulate and eleven corollaries (Appendix A). While developed for use in psychotherapy, PCT is now used in additional fields such as education, business and marketing (Neimeyer & Bridges, 2004). PCT focuses "on the way individuals perceive their environment, the way they interpret what they perceive in terms of their existing mental structure, and the way in which, as a consequence, they behave towards it" (Cohen, Manion, & Morrison, 2007, p. 435). Kelly's theory focuses on understanding the individual, rather than on creating generalisations across a group.

In Kelly's view, people actively make sense of the world around them by creating *personal constructs* to interpret phenomena. Cohen et al. (2007) summarize Kelly's ideas:

> Personal constructs are the dimensions that we use to conceptualize aspects of our day-to-day world, and, as Kelly writes, people differ from each other in their construction of events. The constructs that we create are used by us to forecast events and rehearse situations before their actual occurrence. (p. 435)

Kelly described people as "scientists," continually testing and revising their constructs.

The constructs that a person creates in response to events fit together to create a construct system, which is his or her interpretation of reality (Kelly, 1955/1991). Each construct system is unique to a person, as are the constructs within that system. However, people may construe an event similarly, and consequently act similarly. According to PCT, people with similar construct systems will act in similar ways. If we can understand

another person's construct system, even if it is different from our own, we may be able to impact that person's construing.

Kelly writes that "a person's construct system is composed of a finite number of dichotomous constructs" (1955/1991, p. 41). Within this system, constructs can be considered ordinate; that is, some constructs can encompass, or supersede, other constructs. The higher constructs are superordinate, while the lower ones are subordinate. Additionally, constructs can be associated, or constellated, with other constructs, producing good or ill effects. Unfortunately, some constructs within a person's construct system can also be contradictory to other constructs, a situation known as fragmentation. For example, a person might purchase cars with good fuel economy in order to have a lower ecological footprint, but also insist on having the latest model. Fragmentation can cause a person stress when the illogical reasoning is discovered (Bennion, 2003).

Repertory Grid Technique

To discover a person's construct system, Kelly (1955/1991) developed the repertory grid technique. With this technique, a participant provides adjectives or descriptive phrases that divide a group of three elements (e.g. objects or particular people) into two similar and one different element, thus creating a dichotomous (bipolar) construct. For example, the person might divide a group of three dogs – a great Dane, a toy poodle and a golden retriever – into large dogs (the great Dane and retriever) and small dogs (the toy poodle), creating a *large* ↔ *small* construct. The person would then assign other types of dogs to each end (or pole) of the construct. Repeating the process with successive triads of dogs, a person produces many dichotomous constructs relating to his or her perceptions of dogs. The process produces a grid, or matrix, of the elements

and the constructs (Table 1). The researcher can then analyse this table for patterns (for example, the person may view large dogs as scary and quiet, and small dogs as noisy but friendly).

Table 1

Repertory Grid Example of Personal Constructs Describing Types of Dogs

Construct	Great Dane	Toy Poodle	Golden Retriever	Chihuahua	Cocker Spaniel
Large ↔ Small	Large	Small	Large	Small	Small
Scary ↔ Friendly	Scary	Friendly	Scary	Friendly	Friendly
Noisy ↔ Quiet	Quiet	Noisy	Quiet	Noisy	Noisy

Note: Repertory grid layout based on Kelly's personal construct theory (Kelly, 1955/1991).

Researchers have modified this initial technique by changing both how constructs are elicited and how the elements are rated. In addition to triadic elicitation described above, other methods of eliciting constructs include dyadic elicitation (dividing groups of two, instead of three, elements; Grice, 2008), or even simply having participants finish a sentence (e.g. "In math class I am _____ as opposed to _____"; Grice, Burkley, Burkley, Wright, & Slaby, 2004). In addition, greater resolution in the grid is achieved if participants rate elements along the construct, instead of assigning elements to one pole. For example, if a person had supplied a *calm ↔ anxious* construct to school subjects, they might assign "math class" a 5 (very anxious), "gym class" a 1 (very calm), and "music class" a 3 (Table 2). The researcher can then carry out principle component analysis or another type of factor analysis on this grid (Cohen et al., 2007).

Table 2

Repertory Grid Example of School Subjects With Constructs as 5-Point Rating Scales

Construct	Math Class	Gym Class	Music Class	Art Class
Calm (1) ↔ Anxious (5)	5	1	3	2
Fun (1) ↔ Bored (5)	3	1	5	2
Easy (1) ↔ Hard (5)	5	1	3	2

Note: Repertory grid layout based on Kelly's personal construct theory (Kelly, 1955/1991).

The Use of PCT in Research

Personal construct theory and repertory grid analysis are adaptable to different fields, since this theory and technique aim to understand constructs surrounding a set of elements. The elements may be specific people, relationships, occupations, or, as in my study, areas of a park. Consequently, researchers have used repertory grids in a wide variety of fields. In their book, *A Manual for Repertory Grid Technique*, Fransella, Bell and Bannister (2004) devote an entire chapter to the wide uses to which repertory grids have been put. Not surprisingly, given its birth in the field of psychology, repertory grids have extensively been used in clinical psychological studies (e.g. Freshwater, Leach, & Aldridge, 2001; Marsh & Stanley, 1995; Rowe, 1971). Grids have also been used in studies related to teaching (e.g. Lifshitz, 1974), and tourism (e.g. Embacher & Buttle, 1989; Lawton, 2005; Naoi, Airey, Iijima, & Niininen, 2006; Waitt, Lane, & Head, 2003), as well as many other areas (Fransella et al., 2004). Grids have also been used, but much more infrequently, to examine perceptions of urban parks (e.g. Home et al., 2007), urban

environments in general (e.g. Harrison & Sarre, 1975) as well as non-urban landscapes (e.g. Chipeniuk, 1995; Fenton, 1985; Mathews & Ilbery, 1982).

Most existing studies of wildland perceptions examine select aspects , such as setting preference (Herzog & Kutzli, 2002), wildland avoidance (Koole & van den Berg, 2005), or place attachment (R. L. Ryan, 2005); few studies focus on the range of possible perceptions. PCT allows for a less reductionist methodology, since constructs are elicited from participants instead of prescribed. Furthermore, framing my research within PCT addresses the calls for a more participant-oriented approach to examining perceptions.

Perceptions

Perceptions From PCT-Based Studies

Personal construct theory has been used occasionally in both tourism and landscape studies, and to a limited degree in urban park studies as well. These studies provide me with a preliminary idea of potential constructs.

Several of the PCT-based studies found constructs where the concept of *natural* was opposed to *human-influence*. For example, Chipeniuk (1995) used repertory grid technique to examine the sense of landscape naturalness among Euro-Canadian and First Nation cultures. The Euro-Canadian constructs he discovered in his study were largely variations on a *natural ↔ man-made*[2] construct. The determination of a landscape's naturalness was not necessarily based on its appearance, but on whether "in the understanding of the mind contemplating them, [its] history of production involves human agency" (p. 353).

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[2] "Man-made" is the term used in Chipeniuk (1995), so I have kept it when discussing his work, instead of replacing with a gender-neutral term.

Similarly, Lawton (2005) discovered a *natural ↔ artificial* construct in her study of residence perceptions of both natural and built tourist attractions of the Australian Gold Coast. She found that this construct was very influential when grouping respondents. Other versions of this construct include *domesticated ↔ natural* (Waitt et al., 2003), *natural ↔ human influence* (Fenton, 1985), and *landscape is formed to appear natural ↔ landscape is otherwise formed* (i.e. planned nature; Home et al., 2007).

There were also constructs relating to appreciating the landscape or park. Home et al. (2007) found urban park users who perceived landscapes based on attraction (*landscape attracts the individual ↔ landscape is uninviting*) or stimulation (*the space inspires or stimulates ↔ the space is uninspiring*). Lawton (2005) found Australian tourists perceived landscapes in terms of *appealing/enjoying ↔ not appealing/enjoyable* or *interesting ↔ boring*. Gardiner, Matthews and Richards (1977, as cited in Mathews & Ilbery, 1982) found numerous constructs referencing appreciation, including *unattractive ↔ attractive*, *dislike ↔ like*, *dull ↔ exciting* and *depressing ↔ stimulating*.

Less common themes present in multiple PCT-based landscape or urban park studies include physical characteristics of the landscape (Fenton, 1985; Home et al., 2007; Gardiner et al., 1977, as cited in Mathews & Ilbery, 1982), accessibility (Fenton, 1985; Home et al., 2007; Gardiner, et al., as cited in Mathews & Ilbery, 1982), management (Home et al., 2007; Gardiner et al., as cited in Mathews & Ilbery, 1982), and peacefulness (Lawton, 2005; Gardiner et al., as cited in Mathews & Ilbery, 1982).

Construct themes that appear only in single publications include *dangerous ↔ safe*, one of two dimensions of constructs found by Waitt et al. (2003) in a study of Australian nature tourism (the other being the previously mentioned *domesticated ↔*

natural dimension); the themes of usefulness and restrictions on activities found by Home et al. (2007) when examining how residents of Zurich, Switzerland, construe urban green spaces; and constructs relating to degradation of the landscape, such as *spoilt ↔ untouched* and *polluted ↔ unpolluted*, as discovered by Gardiner et al. (1977, as cited in Mathews & Ilbery, 1982) when examining scenic qualities of the Devon Coast (UK).

Perceptions From Other Studies

Since I found very few studies based on PCT and the repertory grid technique that examine perceptions of nature and urban parks, I examined other landscape and urban park studies to find themes that represented bipolar constructs.

Predictors of environmental preference.

Often cited by many authors in landscape perception studies are R. Kaplan and S. Kaplan's (1989) book, *The Experience of Nature: A Psychological Perspective,* and R. Kaplan, S. Kaplan, and Brown's (1989) paper, "Environmental Preference: A Comparison of Four Domains of Predictors." They describe four domains that predict environmental preference: physical attributes of the landscape (e.g. slope, spatial diversity, or absence of direct human influence), land cover types (e.g. forest, scrubland, or agriculture), informational variables (e.g. the landscape's coherence, complexity, legibility, or mystery), and perception-based variables (e.g. the openness of the landscape, the smoothness of the groundcover, and the ease of traversing the landscape). Of all four domains, the perception-based variables are the strongest predictors of preference; preferred landscapes were easy to navigate, with smooth ground texture, and enclosed (R. Kaplan et al.). (Here, the definition of *perception* is referring to visual perceptions of landscapes, not mental constructs as I have used the word).

With the growing number of researchers arguing that landscapes are viewed holistically (e.g. Bourassa, 1990; Buijs, 2009; Coeterier, 1996; Ohta, 2001; Scott et al., 2009), I would expect that a person's constructs of urban wildlands would be influenced by his or her preference for different settings. Consequently, constructs may relate to the four predictor domains described by R. Kaplan and S. Kaplan (1989), and R. Kaplan et al. (1989), especially to perception-based variables. However, Bourassa (1990) suggests that preferences for "natural" landscapes are based on a different set of factors than preferences for urban landscapes. As a wildlife corridor through an urban centre, Whitemud Park may be construed in a manner both similar to and different from the manner used for construing landscapes.

Themes from wildland literature.

Studies on perceptions of wildlands are sources for possible constructs. These constructs could relate to fears of wilderness, concerns for personal safety, positive feelings associated with urban parks, and the juxtaposition of city and nature.

A prominent theme of wildland literature relates to reasons for avoiding wildlands. These reasons are numerous and variable. Koole and van den Berg (2005) suggest that because wilderness is "intrinsically associated with death," it inspires "more thoughts about death" than do cultivated or urban environments (p. 1014). Lee (2001, as cited in Adams, 2002) suggests that people are afraid of being in forests because of how folklore, fairy tales and horror films portray forests (see Cai, 1993, for examples of how nature is portrayed in folktales). Contrary to that, Bixler, Carlisle, Hammitt and Floyd (1994) found that students on field trips to natural areas were afraid of "getting lost" and expressed emotions of disgust. Bixler and Floyd (1997) argue that "disgust sensitivity

and desire for modern comforts may have a greater effect on negative perceptions of wildland environments than the more commonly reported overreactions to snakes and other wild animals" (p. 462).

Alternatively, avoidance may be due to a fear of criminal activity in secluded, forested, areas of urban parks. Many studies examining use of urban parks show that people (especially women and the elderly) are afraid of bullying, assault (physical or sexual), robbery, and other crimes (Jorgensen et al., 2007; Jorgensen & Anthopoulou, 2007; Taplin, 2002; Ward Thompson et al., 2005; Westover, 1983).

Despite fears associated with wildland areas, many users also have positive associations with urban parks or urban woodlands. These positive associations include relaxation and peacefulness (Jorgensen & Anthopoulou, 2007), stress relief and contentment (Jorgensen et al., 2007), and positive childhood memories (Jorgensen & Anthopoulou, 2007; Taplin, 2002),

An idea mentioned as a positive value in many of the papers mentioned above is the juxtaposition between the city and the wildland. Being in the wildland creates positive feelings of being in a remote place, escaping the stress of city life, noisy vehicles and roads and other aspects of "ordinary life" (Jorgensen et al., 2007, p. 282; O'Brien, 2006; Taplin, 2002). This contrast between the "natural" wildland and the "unnatural" city also emerges as a theme in studies examining the relationship between humans and nature (e.g. VanSiri, 1997; Vining, Merrick, & Price, 2008) and in other studies (e.g. Haluza-Delay, 2001; Taylor, 2007).

Related to the above theme is the relation between humans and nature. Vining, Merrick and Price (2008), in a study not related to a specific landscape or park, found that

Illinois and Minnesota residents associated words such as "undisturbed by humans," "uninhabited," and "not human-made" with concept of *natural*, and words such as "human-made entities," "cities/urban areas," "buildings/structures," "residential areas," "roadways," "lack of vegetation," and "evidence of development" with *unnatural.* The association of human-made entities with the unnatural occurred even when people considered themselves a part of nature. For teens from the greater Edmonton area that participated in a wilderness trip, nature was conceptualized "as a place out there, a reality fundamentally different and removed from their home reality of civilization" (Haluza-Delay, 2001, p. 43). For them, nature was construed as "undisturbed, unfamiliar, without people or human material development" (p. 43). These perceptions continued to exist six months after the trip. Although referring to a wilderness trip, this study, too, shows nature perceived as opposing the city, and undeveloped. With the commonly held "romanticised" view of nature, VanSiri (1997) writes, the absence of humans is what defines a nature experience.

Differing Perceptions

One of the corollaries of PCT is the individuality corollary; that is, each person's construct system is different and unique to that person (Kelly, 1955/1991). Examining these differences in perception is important, as both Buijs (2009) and VanSiri (1997) discovered. Buijs found five ideal images of nature held by the Dutch public (the wilderness, autonomy, inclusive, aesthetic and functional images), each with different implications for management. Closer to Edmonton, VanSiri describes four modes of interacting with urban nature in Calgary, Alberta; again each with differing management

implications. The distinctly different images highlight the importance of exploring the variety of perceptions associated with urban nature.

Many studies examine differing perceptions of urban parks and of various landscapes; however, these studies often focus only on visitors, or potential visitors. Differing perceptions among urban park users have been linked to ethnicity (Ho et al., 2005; Sasidharan, 2002), gender (Ho et al., 2005; Krenichyn, 2004), age (Jorgensen & Anthopoulou, 2007; Payne et al., 2002) and frequency of use (Ward Thompson et al., 2005). Different perceptions of landscapes (mostly non-urban) have also been linked to different sub-cultural groups (Brush, Chenoweth, & Barman, 2000; R. Kaplan & Herbert, 1987; Kearney et al., 2008)

Fewer studies utilise views of visitors and administration, park staff, or other decision-makers. However, the existing studies show the need for including each of these groups. Scott et al. (2009), for example, found differences in perceptions of the Scottish landscape between mountain bikers and land managers; from their analyses they proposed that landscape perceptions are dynamic, complex and personal, and that public perception of landscapes may not be consensual. Similarly, Rogge, Nevens and Gulinck (2007) found that farmers, landscape experts and country-dwellers each assigned importance to different features of the landscape and each considered different uses appropriate for a given landscape. Likewise, Bussey and Coles (2000) found that professionals undervalued the social importance of urban forests to the general public. Lastly, R. L. Ryan (2005) found two types of attachment to urban parks, each associated with distinctive management perspectives. These studies show the need for examining the variety of, and differences among, constructs held by different stakeholders.

Information on Edmonton's Natural Areas and its Stakeholders

Research on Edmonton's river valley system and other natural areas is heavily biased towards ecological knowledge. Studies commissioned by the City of Edmonton focus on understanding and preserving the river valley's ecological function, with an aim to balance preservation with public use (e.g. Spencer Environmental, 2006; Stantec Consulting, 2004). While there was extensive public consultation when management plans were developed (e.g. City of Edmonton Office of Natural Areas, 2006; Infact Research and Consulting, 2004), the focus was on getting input on how Edmonton should manage the natural areas. There have also been several studies of leisure and recreation trends in Edmonton and Alberta (e.g. City of Edmonton Community Services, 2002; Harper, Neider, Godbey, & Lamont, 1996; Harper, Godbey, Greenslade, & Mahaffy, 2008). While they do focus on perceived uses and benefits of parks, they often include the more developed parks and playgrounds as well as recreation facilities, and do not focus specifically on Edmonton's natural areas.

There have also been few independent studies. As with the commissioned studies, many of these also focus on ecological properties of Edmonton's river valley (e.g. Cruden, Peterson, Thomson, & Zabeti, 2002; Dow, Steffler, & Zhu, 2009; Forrest & Clair, 2006; Rains, 1987). However, a few do examine the relationship between residents and nearby natural areas (e.g. McGee, 2007; Munro, 2006), or examine Edmonton's urban parks from a planning perspective (e.g. Burns, 1997; Schwabenbauer, 1991). The handful of existing studies is very diverse, and shows a distinct need for studying the users of Edmonton's wildlands.

Chapter 3: Research Methodology

Research Design and Rationale

The research methodology was based on Kelly's (1955/1991) personal construct theory, and consisted of two stages. First, an initial survey using a modified repertory grid technique (based on Kelly's personal construct theory) elicited personal constructs about Whitemud Park and gathered demographic and park use data. Second, semi-structured interviews with a subset of the initial respondents further examined the constructs and themes discovered during the first stage.

By combining both the survey and interviews, I followed the pragmatic, mixed-methods approach advocated by Johnson and Onwuegbuzie (2004). They advocate for a "mix and match" approach, where researchers use both quantitative and qualitative research methods. Both methods can be used simultaneously (e.g. by having long answer and multiple-choice survey questions) or separately (e.g. by first creating a tally of observed park users followed by an interview of some of the park users). The flexibility of the mixed-methods approach allowed me to generate richer data and provide both breadth and depth to my study.

The survey was quite structured, using predominately closed questions so that answers could be easily compared across participants. Surveys generate numerical data that can be processed statistically; can be economical and efficient, accessing a wider target population; and provide flexibility for the participant (the survey can be done at the participant's convenience since the researcher need not be present) (Cohen et al., 2007). Not only did using a survey allow me to access a greater number of participants, but, as mentioned earlier, the repertory grid technique limited the influences of my preconceived

perceptions. That is, using the technique allowed park areas to be rated based on criteria provided by (and therefore relevant to) the participants, not based on criteria I perceived to be relevant.

However, because surveys provide results "uncluttered by specific contextual factors" (Morrison, 1993, as cited in Cohen et al., 2007, p. 206), I decided to explore these contextual factors with interviews. Interviews, especially with open-ended questions, "enable participants… to discuss their interpretations of the world in which they live, and to express how they regard situations from their own point of view" (Cohen et al., 2007, p. 349). They allow for in-depth exploration of the research themes and flexibility if important but unanticipated issues arise. However, due to their information-rich format, analysis of interviews can be very time-consuming and the number of interviewees must be limited. The surveys provided breadth but little depth; the interviews balanced the surveys by providing depth, but little breadth.

Study Site: Whitemud Park

The North Saskatchewan River Valley and the adjacent ravines form the largest urban park in North America (City of Edmonton, 2008). As part of this river valley system, Whitemud Park (Figure 2) is important for many ecological reasons. First, because of its length and proximity to the North Saskatchewan River Valley, foxes, deer, coyotes and many other animals use it as a wildlife corridor (Spencer Environmental, 2006). Furthermore, Whitemud Park's aquatic, riparian and terrestrial ecosystems result in a diversity of animals such as beavers, muskrat, song birds, merlins, owls, hares, minnows, and waterfowl (Alberta Sustainable Resource Development, 2008; personal observation). Lastly, the vegetation in the park is distinctive. The park contains sections

of older growth forest as well as flora adapted to the calcareous springs located in the park.
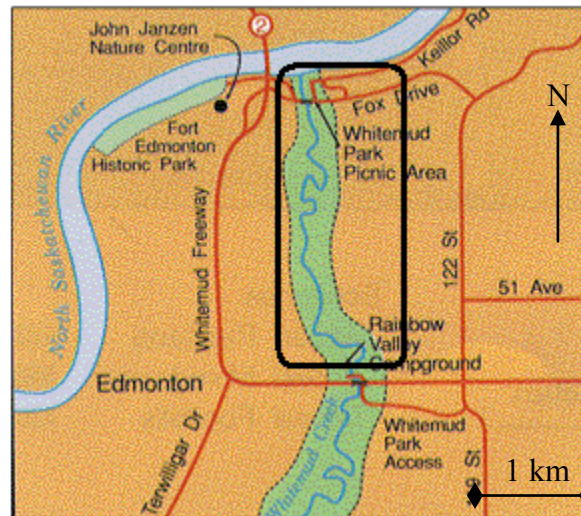
Figure 2. Location of Whitemud Park. Map adapted from Watchable Wildlife – Whitemud Park (Alberta Sustainable Resource Development, 2008).

In addition to its important ecological functions, Whitemud Park has various functions for users. For example, naturalists come to view the ecological diversity present in the park, while families use the lower part of an old ski hill for tobogganing. Mountain bikers and runners exercise along the ravine trails, and kayakers and canoeists use the creek during spring run-off. While not an official off-leash site, many owners walk their dogs in this park. In addition to these individuals using the area, various organisations use the park. The City of Edmonton operates summer day camps near the toboggan hill, and schools, clubs, and other organisations snowshoe, orienteer and play games in Whitemud Park throughout the year.

Whitemud Park's diverse uses and important ecological functions stem from its three distinct landscapes (Figure 3). The most manicured and open landscape in the park occurs near the parking lot, where one finds a steep grassy toboggan hill and small lawns

interspersed with bushes. Along the creek, a flat gravel path runs through old-growth forest. A lack of undergrowth in this area creates a relatively open landscape compared to the third section. This final section, on the hillier banks of the ravine, consists of dense bushes and trees with many small dirt paths. Of the three sections, this is the least manicured and open.

©2009 Google Imagery ©2009 DigitalGlobe
Map Data ©2009 Tele Atlas
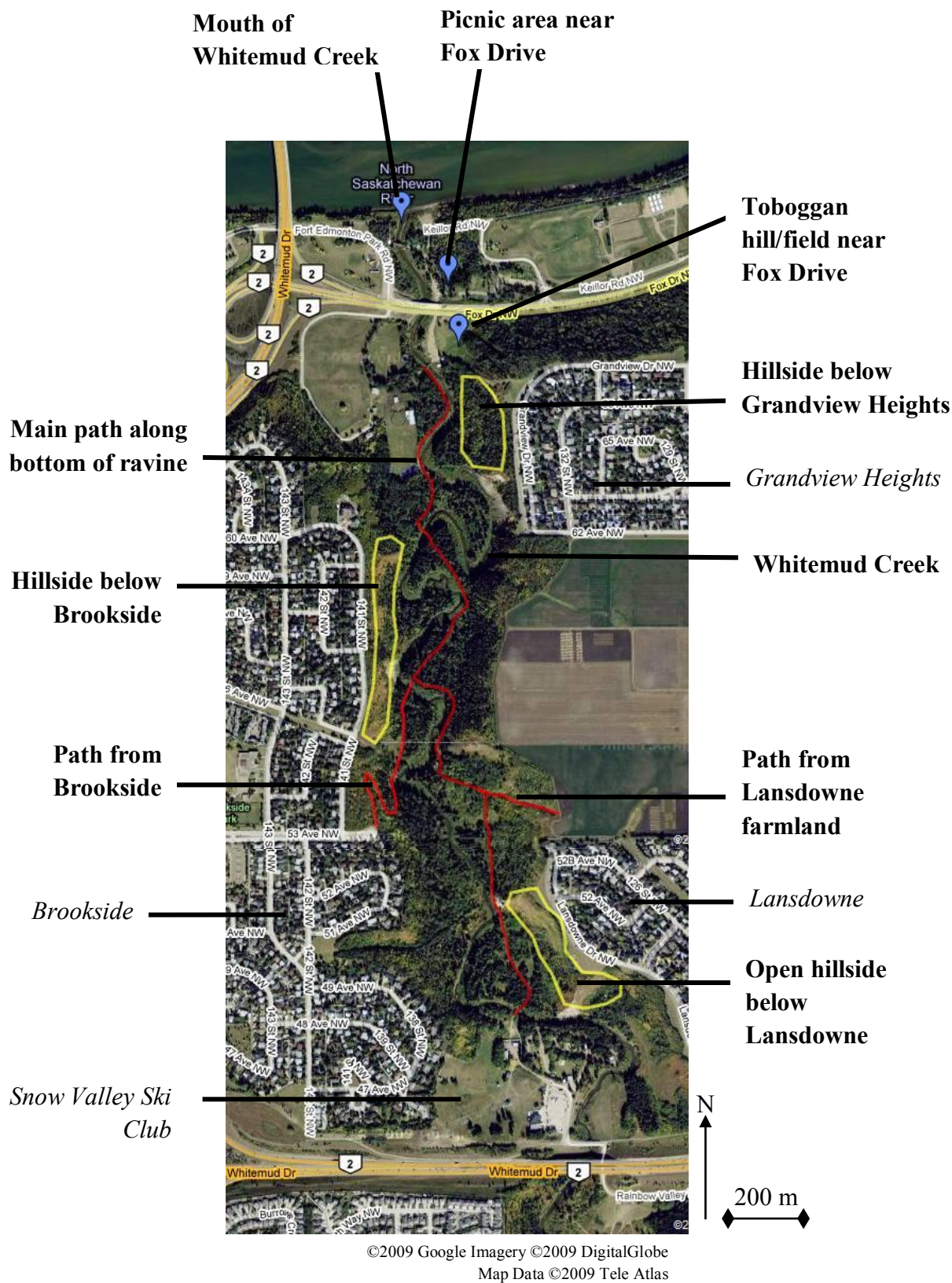
Figure 3. Map of Whitemud Park showing the park areas (elements) used in the survey and adjacent neighbourhoods. Bold labels are park areas, while italicised labels are adjacent neighbourhoods. Adapted from Google™ Maps (Google™ Imagery, 2009).

Project Participants and Recruitment

Study participants were associated with Whitemud Park in some way, such as various types of recreational park users, educators who use Whitemud Park as a base for environmental or other outdoor programs, park administrators, and residents who live near Whitemud Park and the northern part of the ravine. So as not to exclude youth, the study was open to those 12 years of age and older (although no one under the age of 18 participated).

To keep the study a manageable size, and to study an area that included both developed and largely undeveloped regions, I chose to use the northern portion of Whitemud Ravine; this area includes a picnic and toboggan area at the northern end. The neighbourhoods included in the study were those that were immediately adjacent to this area (Figure 3). The residents in these neighbourhoods would have easy access to the ravine, living immediately above, or within a few blocks of, the ravine.

Because I was targeting specific groups (i.e. those people associated with Whitemud Park), my study required a non-probability sample. A modified form of snowball sampling (Atkinson & Flint, 2001; Cohen et al., 2007) was selected because the study was carried out during the low-use season, and to recruit as many different types of stakeholders as possible. This form of sampling relies on the researcher contacting a few people with the desired characteristics (in this case, people associated with the park, or who knew people associated with the park), who then suggest other participants who meet the requirements. This technique was modified in that I used other, more direct, recruitment techniques to attract as diverse a sample as possible.

The various recruitment methods resulted in varying levels of success (sample invitations are provided in Appendix B). Most successful included:

- E-mailing an invitation to people I knew who used the park (the initial sample), with a request to forward the e-mail to others who might be interested in participating (the snowball effect). I also posted a similar invitation on a social networking website (www.facebook.com).

- Contacting outdoor recreation clubs and park-related organisations in Edmonton, again asking for my invitation to be forwarded on to their members. These organisations included an organisation that uses Whitemud Park in its outdoor programming and the City of Edmonton department responsible for the river valley park system.

- Delivering paper invitations to houses in two neighbourhoods adjacent to the ravine. I was not able to deliver to apartment buildings. As well, the Riverbend Ragg-Times agreed to advertise my study (the other community newsletters declined).

Less successful techniques included:

- Recruiting people who were using the toboggan hill and picnic areas. Winter conditions and construction on the access road made these areas little used, at the time I was recruiting.

- Contacting organisations located near the study area. My requests were either not answered or not passed along.

Through these various methods, some participants were invited multiple times, a technique which helped increase the response rate (personal communication with a

respondent). In the end, 43 participants completed the survey. Although this number seems small, it is typical of repertory grid research because of the unusual and time-consuming format of the survey (Waitt et al., 2003).

The study relied heavily on people volunteering to do the survey; non-responders were likely those who felt no association with the park, used the park infrequently, or misunderstood my request. One club contact person mentioned not wanting to overwhelm club volunteers with requests as a reason for not forwarding my request (personal communication). Because I used snowball sampling, a response rate cannot be calculated for this study.

Interviewees consisted of a subset of survey respondents; they were selected to represent the range of ages, residence location and type of park use existing in the larger set of participants. This diversity of respondent characteristics would hopefully provide the widest variety of perceptions (Cohen et al., 2007). Selecting respondents in this manner is known as maximum variation sampling (Anderson and Arsenault, 1998, as cited in Cohen et al., 2007). These interviewees were also selected because they indicated their willingness in the survey.

Ethical Approval

This study was approved by the Research Ethics Board of Royal Roads University. In both the survey preamble and interview waiver (Appendix C), participants were informed of the nature and duration of the survey or interview, procedure for withdrawing from the study, measures taken to ensure security, privacy and confidentiality, and information on how to confirm the researcher credentials with Royal Roads University.

Participants were not compelled to participate, and were free to withdraw at any time. To withdraw during the survey, participants could simply navigate from the website (if completing the on-line survey) or choose to not return the paper survey. To withdraw after completing the survey, participants could contact me and I would remove the responses if possible. However, no participant contacted me for this purpose.

No identifying information was asked of the participants, other than optional contact information. In any presentations and written material, survey results and interview comments were reported anonymously. Only I had access to the raw data that could contain identifying information. Electronic data was password protected; audio recordings and waiver forms were kept in a locked cabinet. Participants were informed that the findings would be shared with Royal Roads University, potentially shared with organisations associated with Whitemud Park, and potentially shared with the general public through newsletters, peer-reviewed journals and other media, and at conferences and other public venues.

Pilot Study

I conducted a pilot study of the electronic survey with six respondents, during which the formatting, layout and instructions were further modified based on participant feedback. However, due to an initially low completion rate of the repertory grid portion of the survey (46%, with only 27 % providing more than four constructs), the survey was further modified after approximately one month by clarifying the instructions even further, removing some of the sentence completion tasks, adding a link to a map of the study area and by placing reference photographs on a linked, separate, webpage instead of on a page of the survey. After making these changes, the new completion rate for the

repertory grid section was 61%. For the entire online survey, the completion rate was 64%. Ten participants completed the initial longer survey and 33 participants the shorter, modified survey[3]. Because participants could choose to do as few or as many of the sentence completion tasks as they wished, and because elicited constructs were to be amalgamated for the analyses, I felt that I could still combine responses from participants completing the different forms of the survey.

Because of the short time frame, the first interview was also a pilot interview. The participant provided feedback on the interview process, which I used when designing and conducting the remaining interviews. The information from this person's interview was included (with permission) in the study.

Data Collection - Survey

The survey consisted of three sections: two short sections collecting demographic and park use information, and one larger section eliciting the repertory grid. Although the survey was designed to be completed on-line, a paper copy was also available. Both the electronic and paper surveys had the same structure and questions, as much as possible. They were designed to be completed in approximately 30 minutes, although for participants who chose to complete every sentence completion task and associated ratings, the time required may have been longer. Extreme care was taken to make the survey, especially the on-line version, as "user-friendly" as possible. Many of the pages included "escape" instructions, whereby the participant could jump to the end of the survey and not complete the remaining questions. The electronic survey was administered

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[3]The latter number includes both the electronic and paper-based survey.

through SurveyMonkey.com, web-based software for creating and administering on-line surveys. The paper version of the survey is provided as Appendix D.

I chose to use the internet for both my survey and for much of my communication with participants because of its ease of use and potential to reach a greater number of people (Cohen et al., 2007). As the format of this survey was similar to many landscape preferences studies in that participants rated photographs of landscapes (Herzog & Miller, 1998; Herzog & Kutzli, 2002; Mustafa, 1995; Rogge et al., 2007), I felt comfortable using the internet for my own photograph-based survey. Both Roth (2006) and Wherrett (1999, 2000) show that the internet can be easily and validly used in landscape preference surveys.

The repertory grid portion of the survey had two sections: first, participants examined three or four photographs of a specific park area and completed a sentence designed to elicit an opposing pair of perceptions concerning that park area. The sentence completion tasks address the first research objective, which was to examine the variety of personal constructs held by the stakeholders. Second, these perceptions (or this construct) became a gradient which was then used to rate other areas of the park (creating the eventual repertory grid). The rating scale had six points with no mid-point, so that participants were forced to rate areas as being closer to one pole or the other. The ratings could then be used to answer the second research objective, which was to examine how perceptions of the "current" Whitemud Park relate to the "ideal" Whitemud Park, and the third research objective, which was to examine how the personal constructs relate to various aspect of Whitemud Park.

The repertory grid elements consisted of specific areas of the park (as represented by photographs and written descriptions) and the idea of the park as a whole (participants were asked to imagine "the *whole* of Whitemud Park as it is now," and as they "would like it to be"). The park areas were chosen to represent different types of terrain, degrees of development, and potential uses. The "ideal" element of Whitemud Park "as you would like it to be" was included to address the second research objective and to determine the positive pole of the construct. The repertory grid constructs were provided by the participants, in the form of a sentence completion task (Grice et al., 2004). My goal, in designing these sentences, was to draw out a variety of constructs from the participants, not to provide the constructs.

To avoid the suggestion of potential human activities in the park (i.e. to avoid suggesting constructs), I used photographs without people or animals in them (digitally altering them, when necessary); where possible, I included both summer and winter settings (unavoidably, some sites had only winter photographs). In addition, extreme care was taken to avoid descriptions and examples that suggested potential constructs.

I considered using the more common triadic or dyadic elicitation of constructs, where respondents examine groups of three park areas (triadic) or two park areas (dyadic) and describe how one area is different from the other(s) (Fransella et al., 2004; Jankowicz, 2004). However, I found the web-based programs associated with these procedures too complicated to be completed on-line by the potential respondents. In addition, I found that participants focused on physical, visual, characteristics when comparing park areas (e.g. narrow versus broad paths, shrubs versus conifers). Instead, I opted for using sentence completion tasks, as suggested by Grice et al. (2004). This

method was more compatible with using a generic web-based survey tool and with issuing the survey in a paper format. As well, this method encouraged participants to provide constructs beyond the propositional physical descriptions (e.g. valuing "the gladed*[sic]* pathway as a means of traveling through the forest" as opposed to "iced paths depending on winter conditions").

Data Collection - Interview

For the second stage of the research, I interviewed a subset of respondents using a semi-structured interview format. Before starting on the interviews, I analysed the survey data (described later in the *Data Analysis* section); this analysis informed the interviews. The general structure consisted of some introductory questions briefly exploring use patterns, followed by questions exploring the interviewee's concept of the "ideal" Whitemud Park, further discussion of the interviewee's previously elicited constructs, and discussion of the group themes discovered in the analysis. A sample of prepared interview questions, noting which research objective is addressed with each question, is given in Appendix E.

Interviews lasted between 30 and 45 minutes, and took place in a location comfortable for both the interviewee and myself (most often a coffee shop). Two interviews were audio recorded on cassette tape, while five were recorded digitally. One was not recorded, due to error on my part, but I wrote notes from memory immediately following the interview. To ensure confidentiality, digital recordings were password protected, while cassette recordings were stored in a locked cabinet. For all the interviews, I took jot-notes, noting my own thoughts during and after the interview. Interviews were then summarised before the analysis. In all but one case, the interview

was one-on-one; in the remaining case, a participant's spouse was also present, and occasionally interjected comments.

Analysis of the Repertory Grid

Throughout this section, I use *grid* to refer to the individual matrix resulting from each survey. The general form of this grid has elements listed across the top, and constructs listed along the side. The central squares contain the ratings of each element, based on each construct. Table 2, shown in the section entitled *Repertory Grid Technique*, shows the typical form of this matrix.

I have organised this section to correspond with the research objectives, as listed earlier. Where applicable, $\alpha = 0.05$. Effect size was estimated using partial Eta squared, when possible. I used Microsoft Excel 2007 and SPSS Statistics 11.5 to carry out the quantitative analyses, including the cluster and principle component analyses.

Research Objective 1: Describe and Compare the Types of Perceptions (Personal Constructs) Held by Each Group

I generated construct categories using the core categorisation technique (Jankowicz, 2004, p. 149). With this technique, constructs were sorted based on their apparent similarity. Categories emerged from the constructs themselves; they were not set *a priori*. After sorting, I totalled the constructs in each category for resident area, frequency of park use and stakeholder group. While I had hoped to test for differences among construct categories and stakeholder groups using the chi-squared goodness of fit test for two-dimensional contingency tables, I was unable to do so because of a combination of a small sample size and a large number of construct categories.

Research Objective 2: Describe How the Perceptions of the "Current" Whitemud Park

Relate to the Perceptions of the "Ideal" Whitemud Park, and Compare This Relationship

Across the Groups

To prepare the grid for analysis, I reversed the construct ratings (when necessary) so that lower values corresponded with the positive pole of the construct. I assumed the "ideal" version of Whitemud Park to be positive, and then used the rating given to the "ideal" to determine which pole of the construct was positive, and whether a reversal was necessary. Such a transposition is recommended by MacKay (1992, as cited in Grice et al., 2004).

For individual grids, I calculated the similarity between elements (Jankowicz, 2004), and then compared these indices across the groups using a one-way repeated measures analysis of variance and pair-wise comparisons of the similarity indices (with Bonferroni adjustment for multiple comparisons). This procedure allowed me to examine how similar the perceptions of the ideal Whitemud Park were to the perceptions of current Whitemud Park or specific areas of the park. To determine whether demographic information and park-use characteristics influenced the perception of the ideal, I compared the similarity indices to these variables using a two-way repeated measures analysis of variance.

To increase validity, I also performed a cluster analysis of the elements on a "great grid." I used between-group average linkage to determine agglomeration, and squared Euclidian distance to determine distance between elements. The cluster analysis showed which park areas were rated most and least similarly, and also suggested groupings of elements used for exploring the third research objective. Since all

respondents rated the same group of elements, I could combine their constructs and ratings to form this "great grid" (Marsden & Littler, 2000). Because the two-way analysis of variance did not show any interactions between similarity indices and demographic or park use variables, I decided not to do a cluster analysis of each stakeholder group.

Research Objective 3: Examine How the Perceptions (Personal Constructs) Relate to the Various Aspects of Whitemud Park, and Compare These Relationships Across the Groups

While I had planned to use principle component analyses (PCA) of the "great grids" to examine the relationships between the constructs and the elements (Marsden & Littler, 2000), PCA failed to identify which constructs categories accounted for the highest variance in the group ratings of the elements. Instead, I used PCA to check the reliability of the previous groupings found using the cluster analysis.

So that I could still relate the constructs to the park areas, I compared the mean ratings of the four largest construct categories to three groups of park areas determined by cluster and principle component analysis. I assumed these construct categories were relatively homogeneous because of the low standard deviations for each park area. The park areas were grouped based on similarities between the cluster and principle component analyses.

Once again, because of the small sample size, I chose not to compare results across stakeholder groups. Effect sizes would have been small, and statistical differences, if found, would not have been significant; inferences would not have been generalisable.

Analysis of Interviews

After summarising the interviews, I read the summaries several times to become familiar with them and to highlight key phrases and ideas (G. W. Ryan & Bernard, 2008). After further rereading the texts, I identified important phrases and concepts and then manually sorted them into the themes generated by the initial readings (G. W. Ryan & Bernard, 2008). During this sorting, I revised the original themes as new patterns emerged. Important phrases were those that related to the research objectives listed earlier, expanded on the survey findings, or seemed unusual but significant.

G. W. Ryan and Bernard (2008) strongly recommend the above procedure for novice researchers such as myself. These steps also reflect the "progressive focusing" recommended by Parlett and Hamilton (1976, as cited by Cohen et al., 2007), whereby researchers move from general features to specific features when analysing qualitative data. In addition, because the interviews supplemented the surveys, the "paw" and "cut and paste" techniques described above kept the data analysis manageable; more complicated techniques, such as the coding in content analysis and grounded theory, would have been time-consuming and would have provided more detail than necessary.

Chapter 4: Findings

Participant Profiles

In total, 43 participants completed the survey, 8 of whom I further interviewed. Survey participant ages spanned all the age ranges presented in the survey, with the exception of those under 18 and over 90 (Figure 4). Slightly over half were female ($n = 26$, 60%). The majority of participants lived in Edmonton, but not adjacent to the study area ($n = 31$, 72%), while 8 participants (19%) lived in a community neighbouring the ravine and 4 participants (9%) lived outside Edmonton.
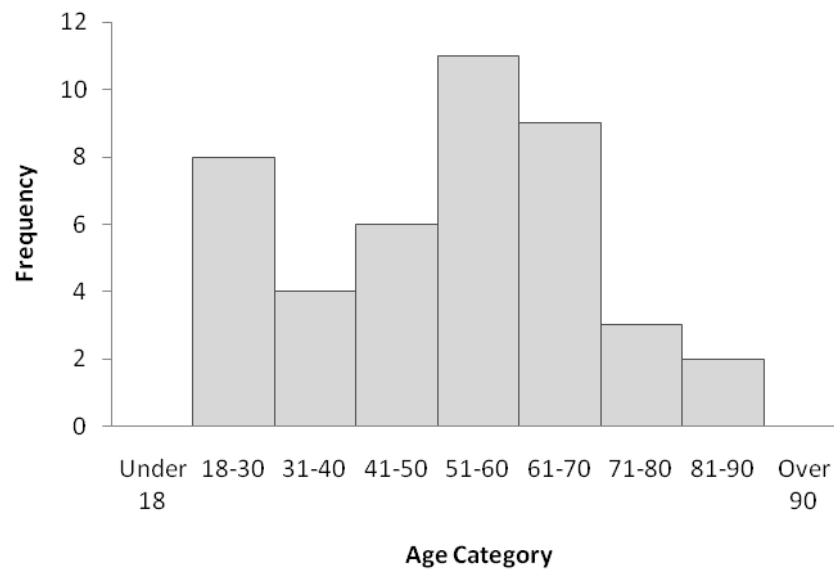
Figure 4. Distribution of participant ages ($N = 43$).

Fifty-three percent of participants ($n = 23$) classified their park use as *sporadic* (visiting "now and then, about once a month, on average"), 23% ($n = 10$) as *concentrated* (using the park at least once a week, but mostly in one season), and 21% ($n = 9$) as *frequent* (visiting the park at least once a week, but throughout the year). One participant

did not use the park. The most frequently reported activities were walking, bird/wildlife viewing, and biking, with over half of participants listing walking as their most common activity (Figure 5). However, participants also reported a wide variety of other activities, including fossil hunting, orienteering, photography, relaxing at the picnic tables and socialising. Interviewees reported fishing, leading summer day-camps, and exploring beaver dams, in addition to the activities reported on the survey.

Of the people who used the park ($n = 42$), most people classified themselves as *nature-based park users* (43%), *exercised-based park users* (35%), or a combination of the two (5%). Two people (5%) classified themselves as *social-outing-based park users*, while four people (10%) classified themselves as *day-camp or outdoor/environmental education leaders* (henceforth known as *program leaders*). Only one person classified himself or herself as a *park maintenance worker*. However, given that participants often listed both exercise- and nature-based activities, asking participants to classify themselves as one or the other may be inappropriate. Both the survey comments and the interviews further support that a nature-exercise combination may apply to more people than the data from that specific question suggest.
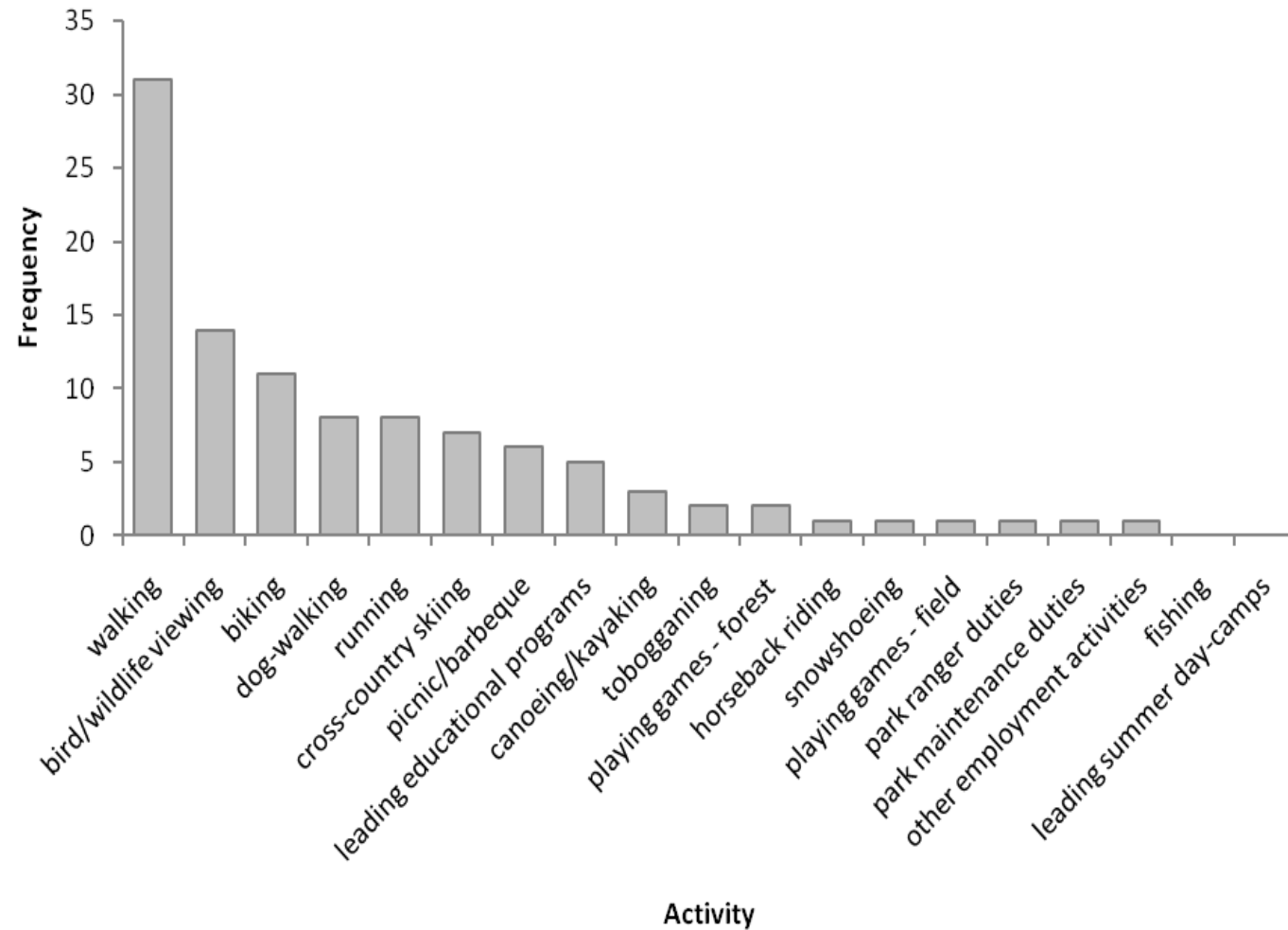
Figure 5. Self-reported activities of those Whitemud Park users, from survey data (*n* = 42). Participants were asked to choose their three most common activities in Whitemud Park from a list provided. Other reported activities include fossil hunting and other geological interests, orienteering (2), photography, relaxing and using picnic tables, and meeting and conversing with other users.

Survey Results

Description of Constructs

Participants provided anywhere from 1 to 8 bipolar constructs each, for a total of 160 constructs. From the constructs, 15 categories were determined (Table 3). However, often the completed sentences included more than one idea, which made sorting difficult. Many of the categories, or constructs, could easily be placed into more than one category, suggesting that certain ideas are closely associated with each other. The combination of ideas is consistent with the PCT concept of constellation. For ease of analysis, however, I assigned constructs to one category only. The sorted constructs are provided in Appendix F.

Table 3

Frequency of Construct Categories (N=160)

Category[a]	*Freq.*[b]	%
Urban comparison	27	16.9
Ecosystem protection	25	15.6
Degree of maintenance	23	14.4
Activity restriction	14	8.8
Positive vs. negative emotions	13	8.1
Physical descriptions	12	7.5
Level of use	8	5.0
Alternative activities	7	4.4
Park interaction characteristics	7	4.4
Exposure	6	3.6
Miscellaneous	4	2.5
Safety	4	2.5
Users	4	2.5
Other emotions	3	1.9
Predictability	3	1.9

[a]Categories derived from the constructs.
[b]Participants provided multiple constructs ($M = 3.7$), so $N_{constructs}$ is greater than the sample population.

Respondents provided a wide variety of constructs (Table 3). The three most common categories were Urban Comparison (16.9%), Ecosystem Protection (15.6%) and Degree of Maintenance (14.4%). In the Urban Comparison category, the constructs described the park in terms of a *nature ↔ city* dichotomy, or as an *in the city ↔ out of the city* dichotomy. *Nature* and *the city* were expressed as opposing ideas, such as "When I am in the above area, I feel *in nature*, as opposed to *in the city*," or "The current purpose of Whitemud Park is [to] *experience nature*, as opposed to [a] *city park*." (Italicisation indicates the words provided by the respondent to complete the sentence.) Often, nature was not mentioned; instead, the dichotomy was expressed in terms of being in or out of "the city": "When I am in the above area, I feel *removed from the city*, as opposed to *right in the middle of it*." Similarly, the park was described as a refuge from the city: "The above area should be used for *the enjoyment of a natural environment, removed from the cacophony of city noise*, as opposed to *an over-used intrusion into the natural environment full of mad-made structures*."

In the Ecosystem Protection category, the constructs described the park in terms of the quality of the ecosystem and maintaining that quality, including describing "development" as a threat to the ecosystem. Participants wrote, for example "The above area should be used for *enjoying clean water*, as opposed to *dumping*," or "In the above area, I value *walking in natural areas*, as opposed to *walking in overly disturbed and eroded* [areas]." One participant supplied, "I wish the above area was *left the way it is, in its natural state*, as opposed to *anyone coming up with some crazy idea for redevelopment*."

Lastly, in the Degree of Park Maintenance category, the constructs described the park in terms of how developed, or groomed, the park trails and other areas were, and often in opposition to *nature* or *natural.* One example of this *nature ↔ manicured* dichotomy is: "I wish the above area was *more natural*, as opposed to *an unnatural expanse of cropped green*." Other examples include "In the above area, I value *relatively undisturbed nature*, as opposed to *highly groomed trails,*" or "In the above area, I value *wild growth*, as opposed to *man-made [sic] paths (gravel or wood-chips)*."

In addition to these three main categories, there were four categories that included between 5% and 10% of the constructs each. In the Activities and Their Restriction category (8.6%), constructs described park areas in terms of the activity they could provide (e.g. hiking, skiing, canoeing) and the potential restriction of that activity. For example, one person supplied, "The above area should be used for *canoes*, as opposed to *no boating*."

Another less represented category consisted of Positive vs. Negative Emotions (8.1%). In this category, exclusively associated with the sentences that included the words "I feel", the constructs reflected positive and negative emotions. For example, one participant wrote, "In the above area, I feel *easy going*, as opposed to *strained*." Another wrote, "In the above area, I feel *serene and refreshed*, as opposed to *agitated and burdened*." I should note that while this category was exclusively associated with the "I feel" sentences, constructs supplied for these sentences also fell into other categories.

The Physical Descriptions category (7.5%), included constructs that described an area in terms of a physical description of the area. For example, "I like that the above area is *very straight*, as opposed to *windy [sic]*." The constructs in this category are

examples of "pre-emptive" constructs, and while they may be associated with other constructs in the minds of the participants who provided them, they do not provide much information by themselves.

Lastly, among the moderately frequent categories, is the Level of Use category (5%). In addition to describing park areas in terms of a general level of use, some constructs reflected a concern about greater park use, whereas others implied that the park should be used more, especially by certain groups.

Last of all, I found a number of constructs that were different enough from each other to warrant separate categories, despite their small numbers. These categories each account for less than 5% of the constructs, yet are significant in that individuals expressed them. In the Alternative Activities category (4.4%), respondents construed an area in terms of perceived current uses (e.g. "wildlife viewing"), opposing those uses with alternative uses (e.g. "active recreation). In the Park Interaction Characteristics category (4.4%), constructs described how visitors interact with the park, or with the nature in the park (e.g. "more guided and directed" vs. "being free to explore). Participants also supplied constructs that dealt with the exposure of park areas (Exposure – 3.8%), safety in the park (Safety – 2.5%), various park users (Users – 2.5%), other emotions not inherently positive or negative (Other Emotions – 1.9%), and the predictability of the features (Predictability – 1.9%).

Many of the survey comments also reflected the themes described above. Most frequent were comments about preserving the park, including suggested regulations. People described their use of the park (past or current), described what they enjoyed about the park (its diverse flora and fauna, and its wildness) and as with the interviews,

some participants connected the study area to the greater Whitemud Ravine, or to the rest of the river valley system itself. In addition, several people (all in their 70's or 80's) reflected on what the park was like when they used it "many years ago."

Comparison of Construct Types Among User Groups

Due to the small number of survey participants, the planned chi-squared analysis of group differences was unrealistic. However, I noticed a few differences that may be significant. For example, when comparing proportion of perceptions to residence area, I noted that participants who resided near the ravine were much more likely to provide constructs from the Park Interaction Characteristics category than were other participants (Table 4). Likewise, frequent park users were more likely to express Ecosystem Protection constructs than less frequent users were (Table 5). However, these observed differences are likely due to the disproportionate influence of individuals that occurs when sample sizes are extremely low. When comparing among the largest self-chosen user categories (exercise-based, nature-based and day-camp leaders), little variation existed among the categories.

Table 4

Percentage of Construct Types as Compared to Residence Location

Construct Category	Adjacent[a]	Non-adjacent[b]	Outside Edmonton[c]
Urban comparison	25.0	14.2	21.1
Ecosystem protection	10.7	16.8	15.8
Degree of maintenance	10.7	15.9	10.5
Activity restriction	3.6	10.6	5.3
Positive vs. negative emotions	10.7	8.0	5.3
Physical descriptions	10.7	6.2	10.5
Level of use	7.1	5.3	0.0
Alternative activities	0.0	6.2	0.0
Park interaction characteristics	**14.3**	**1.8**	**5.3**
Exposure	0.0	4.4	5.3
Miscellaneous	3.6	2.7	0.0
Safety	0.0	2.7	5.3
Users	0.0	3.5	0.0
Other emotions	0.0	1.8	5.3
Predictability	3.6	0.0	10.5

Note. Percentages based on the total number of constructs for each residence location.
Bold categories and values indicate possible significance (non-statistical) in the proportion of constructs awarded to that category.
Total constructs: [a]28, [b]113, [c]19.

Table 5

Percentage of Construct Types as Compared to Frequency of Park Use

Construct Category	Sporadic[a]	Concent.[b]	Frequent[c]
Urban comparison	17.4	11.1	22.6
Ecosystem protection	**12.0**	**13.9**	**29.0**
Degree of maintenance	16.3	13.9	9.7
Activity restriction	9.8	11.1	3.3
Positive vs. negative emotions	7.6	5.6	12.9
Physical descriptions	5.4	8.3	9.7
Level of use	7.6	2.8	0.0
Alternative activities	5.4	5.6	0.0
Park interaction characteristics	4.4	8.3	0.0
Exposure	3.3	8.3	0.0
Miscellaneous	0.0	5.6	6.5
Safety	4.4	0.0	0.0
Users	3.3	0.0	3.3
Other emotions	1.1	2.8	3.3
Predictability	2.2	2.8	0.0

Note. Percentages based on the total number of constructs for each frequency of park use.
Bold categories and values indicate possible significance (non-statistical) in the proportion of constructs awarded to that category. Concent. = Concentrated
Total constructs: [a]92, [b]36, [c]31.

Perceptions of "Current" and "Ideal" Versions of Whitemud Park

Participants rated different areas of the park (including a "current" and "ideal" version of the whole park) based on the constructs they had previously provided. For each participant's ratings, I calculated the similarity between each area and the ideal version of Whitemud Park (Table 6). Using a repeated-measures one-way analysis of variance, I found significant differences in these similarity indices (SI) ($F = 16.91$, $df = 5.0^4$, $p = .00$, partial $n^2 = 0.38$). The current Whitemud Park was most similar to perceptions of the "ideal" Whitemud Park (mean SI = 87.2%), while the picnic and toboggan areas were least similar to the ideal (mean SI = 63.0% and 64.0%, respectively). The remaining areas were also quite similar to the perceived ideal, with mean similarity indices ranging from 75.9% to 84.6% (Table 6).

Pair-wise comparisons of the similarity indices (with Bonferroni adjustment for multiple comparisons) revealed that the *Toboggan area x Ideal* and *Picnic area x Ideal* similarity indices were significantly different from the other indices ($p \leq .04$). The *Mouth of Whitemud Creek x Ideal* and the *Current Whitemud Park x Ideal* similarity indices were also significantly different from each other ($p = .03$).

When examining the effect of community of residence, frequency of park use, park user type, gender and age on the similarity indices, no statistically significant differences were found using 2-way repeated measures analyses of variance. When examining participant ages, a 2-way repeated measures analysis of variance showed an interaction between Area and Age Category, but the effect size was small ($F = 2.12$, $df = 9.9$, $p = .03$, partial $n^2 = 0.14$).

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[4] Degrees of freedom for this and subsequent repeated-measures ANOVA are adjusted for lack of sphericity using the Greenhouse-Geisser correction.

Table 6

Mean Similarity Indices (SI) Comparing Each Area and the Ideal Version of Whitemud Park

Comparison	M (SI)[a]	M (SI) – ANOVA[b]
Current Whitemud Park x Ideal	87.2	88.4[c]
Whitemud Creek x Ideal	84.6	85.9
Main path x Ideal	83.5	83.0
Brookside path x Ideal	81.8	81.8
Brookside hillside x Ideal	80.2	80.7
Lansdowne hillside x Ideal	79.6	80.9
Lansdowne path x Ideal	78.9	79.8
Grandview hillside x Ideal	78.9	79.6
Mouth of Whitemud Creek x Ideal	75.9	77.1[c]
Toboggan area x Ideal	64.0	64.1[d]
Picnic area x Ideal	63.0	61.1[d]

[a]Due to missing ratings, between 33 and 36 SI values were used to calculate the means.
[b]ANOVA excluded all cases where a similarity index was missing. This column lists the adjusted means ($n = 29$).
[c]These two mean similarity indices were significantly different from each other ($p = .03$)
[d]These two mean similarity indices were significantly different from all other indices ($p < .04$).

A cluster analysis of the survey results shows similar patterns. Figure 6 shows three clusters:

- Cluster 1: The three hillside areas, plus the Brookside and Lansdowne paths;

- Cluster 2: The current and ideal versions of Whitemud Park, along with the main path and Whitemud Creek;

- Cluster 3: The toboggan and picnic areas.

The length of the lines joining Clusters 2 and 3 indicate that the toboggan and picnic areas are the most different from the ideal version of Whitemud Park, while moderately similar to each other. Similarly, the shortness of the lines between the current and ideal versions of Whitemud Park indicate that these two are perceived quite similarly.
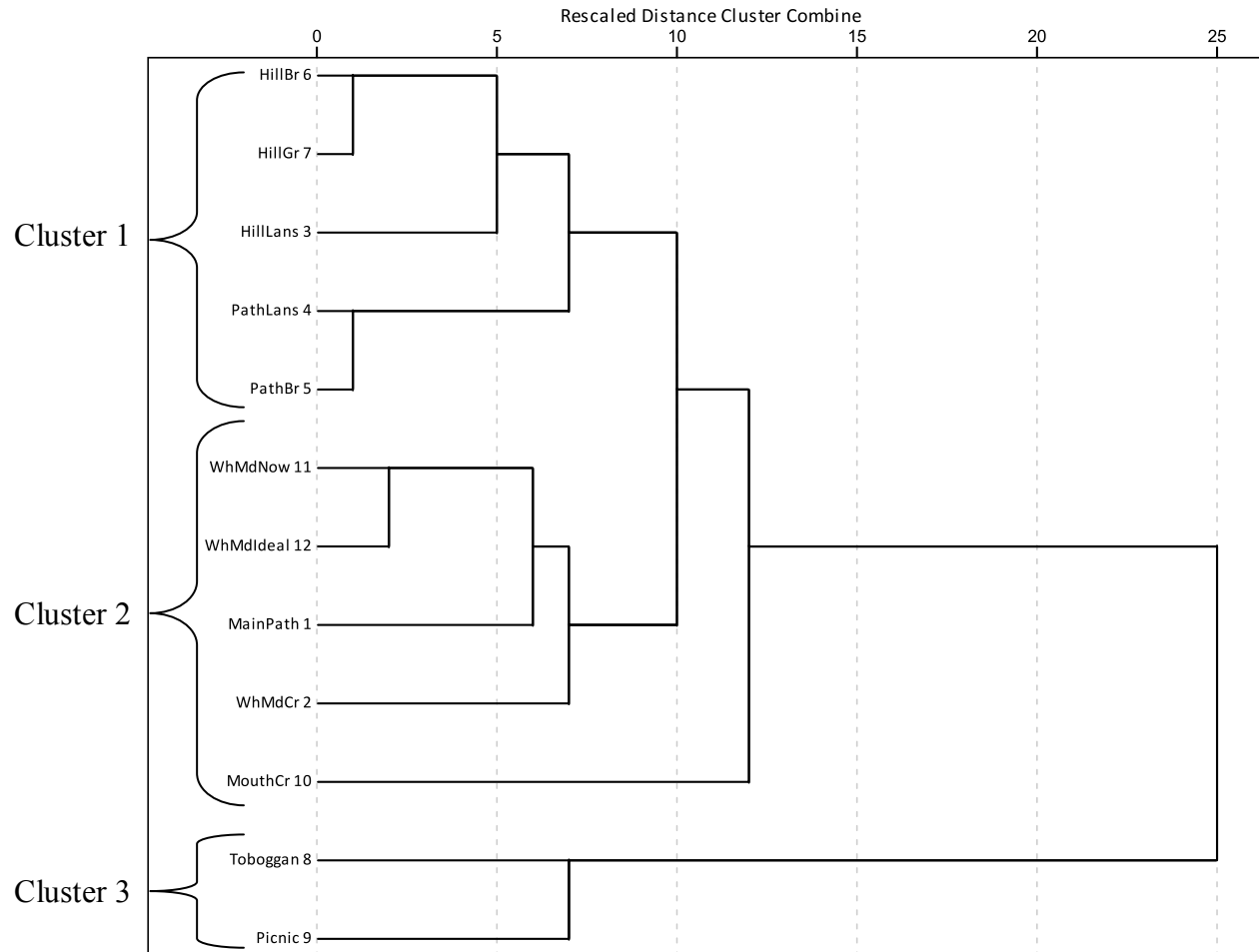
Figure 6. Dendrogram showing relationships between park areas. The length of horizontal line represents the mathematical distance between park areas, or between clusters, in terms of similarity. Short lines indicate little difference (i.e. high similarity); long lines indicate larger differences. Cluster 2 shows the areas closest to the "ideal" Whitemud (WhMdIdeal); Cluster 3 shows the two areas farthest from the ideal Whitemud. Cluster analysis performed using squared Euclidean distance and average linkage between groups.

Relationship Between Constructs and Park Elements.

To examine the relationship between the groupings of park elements and the constructs, I analysed the constructs and ratings using principle component analysis (PCA) with varimax rotation and Kaiser normalization. PCA creates independent components, or factors, based on underlying variables not readily observable by simpler statistical means (Burstyn, 2004). These factors allow several variables (i.e. park areas) to be represented by the smaller number of factors, because each factor is composed of separate underlying variables that have high correlation. Each factor can also be weighted in terms of each case (i.e. the individual constructs), so that groups of cases can be associated with particular factors.

PCA yielded three factors, accounting for 27.04%, 25.15%, and 21.37% of the total variance respectively, combining to account for a respectable 73.56% of the total variance. Table 7 shows the factor loadings for each of the park areas; park areas with high loadings were assigned to one of the three factors. Factor 1 consists of the Brookside, Grandview and Lansdowne hillsides. Factor 2 consists of the main path, the ideal and current versions of Whitemud Park, and the Brookside path. Factor 3 consists of the picnic and toboggan areas, and the mouth of Whitemud Creek. Whitemud Creek itself and the Lansdowne path were not assigned to any of the factors because their factor loadings were not similar enough to the other loadings for each factor.

Table 7

Factor Loadings of Park Areas From Principle Component Analysis With Varimax Rotation

Park Area	Component (Factor)		
	1	2	3
Brookside hillside	.892[a]	.201	.147
Grandview hillside	.872[a]		.158
Lansdowne hillside	.790[a]	.281	.188
Whitemud Creek	.609	.494	
Main path		.876[b]	.260
Ideal Whitemud	.207	.717[b]	.154
Current Whitemud	.256	.650[b]	.466
Brookside path	.445	.636[b]	.356
Lansdowne path	.468	.584	.357
Picnic area		.315	.885[c]
Toboggan area	.152	.314	.801[c]
Mouth of Whitemud Creek	.380		.702[c]

[a]Factor loadings assigned to Factor 1; cut-off point >0.790.
[b]Factor loadings assigned to Factor 2; cut-off point >0.636.
[c]Factor loadings assigned to Factor 3; cut-off point >0.702.

Unfortunately, the factor coefficient scores for the constructs were not very illuminating. I could not easily assign constructs to one factor or another, as I had initially hoped, because most constructs did not have sufficiently high coefficient scores for any one factor. This suggests, and is supported by the interviews and by the difficulty I had in assigning constructs to categories, that many of the categories are associated with each other.

Using the similarities between the principle component and cluster analyses, I grouped the park areas into the following types:

- Narrow paths: The three hillside areas (Grandview, Brookside and Lansdowne). These areas have relatively steep terrain, with access mostly through narrow paths such as deer trails (Figure 7).

- Wide paths and whole park: The main and Brookside paths, along with the current and ideal versions of Whitemud Park. The two paths are wider, maintained by the City of Edmonton, and pass mostly through forest. The Brookside path provides access down into the ravine, while the main path follows the creek along the ravine bottom (Figure 8).

- Open areas: The picnic and toboggan areas. These areas are at the north end of the ravine, with open fields, picnic tables and fire pits (Figure 9).

Grandview Hillside:

Brookside Hillside:

Lansdowne Hillside:

Figure 7. Narrow Paths Group – Grandview, Brookside and Lansdowne hillsides.

Main Path:

Brookside Path:

Figure 8. Wide Paths and Whole Park Group – main and Brookside paths, along with the current and ideal versions of Whitemud Park. No pictures are provided for current and ideal Whitemud Park, as participants were asked to imagine these concepts.

Picnic Area:

Toboggan Area:

Figure 9. Open Areas Group – picnic and toboggan areas.

Because I was unable to use PCA to describe the relationships between the park areas and the constructs, I compared the mean ratings of the four largest construct categories to the three groups of park areas (Table 8). I assumed these categories were relatively homogeneous (i.e. that both poles of the constructs had similar meanings) because of the low standard deviations for each park area.

Table 8

Mean Construct Category Rating for Each Type of Park Area

Category with representative construct	Park Area Type		
	Narrow Paths	Wide Paths and Whole Park	Open Areas
Urban comparison (*natural, out of the city ↔ city*)	2.39 – 2.58	1.50 – 1.58	3.27 – 3.56
Ecosystem protection (*preservation and use ↔ development and degradation*)	2.09 – 2.24	1.54 – 2.38	3.09 – 3.14
Degree of maintenance (*unmaintained, natural ↔ manicured, planned*)	1.74 – 2.42	2.09 – 2.95	4.05 – 4.24
Positive vs. negative emotions (*relaxed ↔ stressed*)	2.00 – 2.25	1.54 – 1.92	2.42 – 2.92

Note. $SD < 2.00$ for all categories and park types, with most categories having $SD < 1.5$.
Ratings for each park area were based on a 6 point scale, with 1 representing the extreme of the emergent (left) pole of the construct, and 6 representing the extreme of the implicit (right) pole.

Constructs in the Urban Comparison category often referred to being "out of the city" or opposed *nature*, *natural*, or *wilderness* to aspects of the city. The wide paths/whole park group was usually associated with the *natural, out of the city* poles of the constructs (especially the main path and ideal Whitemud Park). The open areas, on the other hand, had higher averages, near the middle of the scale, suggesting that these areas are associated more with *being in the city*, and the associated urban characteristics. The narrow path group fell in between the other groups on the *nature ↔ city* gradient. The *natural, out of the city* pole was the preferred pole.

An approximate gradient representing the Ecosystem Protection category would be *preservation and use ↔ development and degradation*, with "development" generally referring to the replacement of the park (in part or in whole) by buildings. However, the ratings in this category were somewhat more variable, suggesting less homogeneity in this category. Both the narrow and wide path areas were rated similarly, closer to the *preservation and use* pole of the construct, while the open areas were rated as being closer to the *development and degradation* pole, although still towards the middle of the gradient. The *preservation and use* pole was the preferred pole.

An approximate gradient representing the Degree of Maintenance category would be *unmaintained, natural ↔ manicured, planned*. The narrow path areas were rated closest to the *unmaintained, natural* pole of the construct, with the wide path areas also quite close. Not surprisingly, the open areas were rated as being much closer to the *manicured, planned* pole. The *unmaintained, natural* pole was the preferred pole. It is worth noting that the perceived ideal version of Whitemud Park is not at the extremely unmaintained end of the gradient, but is towards that end.

An approximate gradient representing the Positive vs. Negative Emotions category would be *relaxed* ↔ *stressed*. While all groups were associated with the *relaxed* pole, the large path areas were most extreme (i.e. participants would feel most relaxed/calm/happy in these areas), while the open areas were somewhat closer to the middle of the gradient (although still on the *relaxed* side). Not surprisingly, the *relaxed* pole was the preferred pole.

Interview Findings

Of the 43 participants who completed the survey, I interviewed 8. These people were selected because they reflected a particular type of stakeholder, but also approximately reflected the ages, frequency of use, and gender of the entire group of participants. As well, for the ease and comfort of both the interviewee and myself, I selected people who were acquaintances, if possible. However, the primary reason for selection was as a member of a particular user group.

Three interviewees resided adjacent to the ravine and frequently used it for runs, walks, and other activities; one of these three was also involved with provincial park administration. The remaining interviewees resided elsewhere in Edmonton. One participant used the park primarily for walks along the trails and one used the picnic areas at the north end of the ravine. Two interviewees used, or formerly used, Whitemud Park for outdoor education programs (but also used Whitemud Park in other contexts). Lastly, one interviewee was involved in park administration and maintenance of the entire River Valley park system, including Whitemud Park.

Due to the semi-structured format of the interviews, relevant themes often appeared throughout the interview instead of in response to a particular question.

Consequently, the interview findings are organised around the main themes of similarity and differences of perceptions, additional perceptions of the park, and the complexity of the constructs in relation to each other.

Similarities of Perception

The overwhelming similarity among all the interviewees was their appreciation of the nature that Whitemud Park provides. Participants either mentioned nature as a general concept (as in valuing the park for "being natural", or explaining that "you can enjoy nature" at the park), or spoke about specific encounters, often in response to being asked to describe their ideal version of Whitemud Park. For example, several interviewees mentioned specific wildlife that they had encountered (beaver, squirrels, coyotes, deer, and various birds), or specific landscapes (such as the "waterfall", or the "quiet area with spruce trees"). An appreciation of the views from the top of the ravine was also mentioned by several people.

This appreciation for nature often echoed the main construct categories found in the survey results (Urban Comparison, Ecosystem Protection and Degree of Maintenance). For example, almost every participant valued the contrast between Whitemud Park and the surrounding city, using phrases such as "[a] really nice refuge... in a busy city" and "you can enjoy nature... versus the city street sounds" As well, interviewees valued Whitemud Park for providing nature in the city, referring to it as "a little treasure", and "this little natural experience, right in the middle of the city". As Matt[5], a park maintenance worker, explained:

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[5] Names of interviewees have been changed to protect anonymity.

We're blessed to have a park system of this size [the North Saskatchewan River Valley], within a major metropolitan area, where one can leave work and change to go home... and get sidetracked on the way home, there's so many interesting things to see and do.

Appreciation of the nature in Whitemud Park extended to concern about protecting the nature, as several interviewees expressed apprehension over activities that would harm the existing ecosystems. These activities included dumping and burning garbage, overuse of certain trails or regions, pollutants entering Whitemud Creek from storm-water drains, and ignorance of the park's unique natural features leading to degradation (e.g. gravel being mistakenly dumped on a patch of rare orchids).

The appreciation of the nature also showed up as a concern over development and grooming, echoing the Degree of Maintenance construct category. Often, interviewees wanted any grooming and amenities to "fit" with nature and maintain the natural, wilderness feel of the park. Bridges, in particular, were described in terms of how well they matched the surroundings. For example, Christina, who walks her dog on the trails, mentioned that the bridges "look very developed," while Brenda, a nearby resident who runs on the trails, commented that one of the footbridges could be "wean[ed]... into nature more." Alison, another nearby resident who uses the trail system, appreciated that the bridges seemed to "fit in," and were not ostentatious. The trails, too, were often mentioned in relation to grooming, with some participants preferring narrower trails with little to no grooming, while others referred to specific materials (e.g. wood chips, or gravel) because these characteristics contributed to a more natural feel.

Potential Differences Among Stakeholders

While each of the interviewees could understand and identify with the three main construct categories (urban comparison, degree of maintenance, and ecosystem protection), I noted distinct differences in how each user spoke about the park. These differences were exemplified in the responses of each person when asked to describe characteristics of their ideal version of Whitemud Park (or asked to describe what they liked about the current version, if the two were similar). The people whose employment involved parks spoke about Whitemud Park in relation to their jobs. Matt, for example, whose job includes dealing with the public and with the harmful actions of park users, wanted Whitemud to "remain the same, bit more stewardship in the area, bit more education enforcement with regards to cycling, encroachment (resident encroachment onto the ravine)." He further mentioned the various changes he would like to see, changes that would allow more information to be passed along to the users (e.g. signage related to accessibility, nature awareness, and stewardship). Similarly, Tom, a provincial park administrator, focused on qualities that allowed for good use of the park but still protected the existing ecosystems. For him, characteristics of an ideal Whitemud Park would have "good access to it, from the surrounding communities, from the surrounding neighbourhoods" and "a good trail system that encourages you to stay on the trail." Likewise, Sally, involved in outdoor programming, described amenities that could be used for the programs as well as by the general public. Aspects of her ideal Whitemud included a building with indoor programming space and running water "so that kids won't dehydrate" as well as public washrooms with geothermal heating; she felt that

these changes would "make it more friendly to users, as well as still have it stay in its natural state."

The remaining people spoke of the park within the context of their use of it – either of the picnic areas, or of the central wooded area with the woodchip trails. Mary focused on the picnic areas more than the trails, and on the accessibility to the park. She thought that "the characteristics [of Whitemud Park] are really good because there are easily accessible… family areas on both ends,… and if you want to bike or walk or hike… the trails in the middle are really good." Having a young child influenced her use of the park, and consequently influence how she spoke of the park (i.e. in terms of whether an area would be suitable for her family). In contrast, the remaining people spoke of the natural features of the wooded areas, valuing the contrast between the wildland and the surrounding city. They spoke of variety – a variety of different trails, of terrain, of different natural features, or variety within a trail, including describing the variety of wildlife they have seen. Brenda, who frequently uses the wooded trails, describes the park as "idyllic", as "ideal as can be, considering we are right in the middle of the city." Anne even mentioned that she likes the "naturalness of it, and the fact that you *can* get lost, if you want to."

The interviewees also revealed different attitudes towards various park activities (and by extension, those people doing those activities), indicating areas of potential conflict. Some people were concerned about particular users, or particular types of users, especially users whose actions were seen as degrading the park ecosystems. For example, Matt viewed group trail runs as damaging, while Christina was concerned about horse-riding damaging trails. Several interviewees viewed cyclists negatively as harmful to the

park, particularly cyclists that ride off-trail and build obstacle courses. However, on-trail cycling, particularly slower cycling on the main path, was viewed positively, both by the park administrators and by some of the park users (however, I suspect there would also be people in the larger population opposed to such activity).

I also found differences of opinions regarding dog-walking in the park, ranging from one person who would like an off-leash area (Christina), to a park administrator who would like more enforcement throughout the mostly on-leash River Valley park system. According to Matt,

> The biggest issue [for Whitemud Park] is dogs off-leash, and running all over the place... and I don't think *anywhere* in the River Valley dogs should be allowed off-leash right now, although we do have the fourteen designated off-leash areas.... The whole bloody river valley is off-leash!

This concern is echoed in the survey results, where several people provided constructs that mentioned dog-walking in a negative light.

Perhaps one of the biggest, and most important, differences in perceptions is regarding the use of the narrower trails in Whitemud Park. Both park administrators expressed views wanting to keep most, if not all users, on the main, wider trails so that areas containing the narrower trails (e.g. the hillside areas) would be protected. However, it is these very areas that contribute to the "natural" feel of the park, for some of the interviewees. As Anne described,

> It's a lot different experience to be down in a park that feels very remote when you're walking along a tiny trail, or you're seeing a saskatoon bush right there and you pick saskatoons.... Very different experience to what you get normally.

It is also in these areas, as well as along the wider paths during low use times, that the greatest connection to nature is experienced. "There's a lot of multi-use trails in the city already," said Sally, "and I think the narrow, more secluded trail gives that direct connection to nature." Even the administrators themselves admitted they prefer the wilder areas of the park, and enjoy going on the narrower trails, and yet they are in favour of paths designed to keep people out of the adjacent forest.

Additional Perceptions

The interviews highlighted two additional perceptions, one of which was alluded to in the survey comments. The first is a sense of ownership of the park, especially among those who work, or have worked, extensively in the park. As Anne explains:

> I feel a little attached to those camp areas I spent so much time in like those areas are a part of me and who I am today. Sounds weird I know but I had some sort of work association there for 12 years. It kind of feels like an old house I once lived in that others are enjoying today the way I did all these years.

For Matt, involved with park maintenance and administration, this feeling of ownership extended to the whole river valley system.

The second perception is of the park as a part of the greater ravine, and of the entire river valley system. All of the interviewees saw Whitemud Park as existing within the larger park system, either mentioning how it physically connects to the North Saskatchewan River Valley, or contrasting their use of Whitemud Park with their use of other river valley parks. As well, especially for those who use the park for walking and running, the concept of "Whitemud" consisted of the ravine trails (and associated hillsides) that extended past the study area; the picnic areas might or might not be

included in this image. In our discussion of the park and the survey results, interviewees frequently mentioned the trails both north and south of Whitemud Drive. Matt's conception of "Whitemud" was the largest; it included the entire length of the ravine, including more distant areas such as the Sandy MacTaggart Nature Sanctuary near the outskirts of Edmonton.

The connection of the study area with the adjacent trail system was also evident in the survey comments; one person questioned why the survey focused only on the north part of the ravine, mentioning that "there is a lot more to Whitemud that is even more rugged and also used by our hiking group." Because the definition of Whitemud varied from person to person, I used each interviewee's definition when we explored concepts such as *natural*, *wilderness*, or *maintenance*.

I found it interesting that three people also mentioned the neighbouring farmland when discussing Whitemud Park. While acknowledging the separate ownership of this land (it is owned by the University of Alberta and not the City of Edmonton), several interviewees mentioned how the presence of the nearby farmland contributed to their appreciation of the area. Their descriptions suggest that, subconsciously, the farmland is included in their conception of "Whitemud." While Brenda valued the farm because she lives near it, Christina valued the combination of the farm and the ravine because of her past history in agriculture. The farm contributes to the feeling of being outside the city, and is associated with Whitemud Park in their minds.

Association of Constructs

Most of the interviewees associated certain of the construct categories in their mind; that is, in the terms of personal construct theory, the constructs were *constellated*.

Primarily, the Urban Comparison category, the Degree of Maintenance category, and the Predictability category were all constellated, and possibly subsumed under a superordinate construct of *natural* ↔ *unnatural*. The adjective *natural* was associated both with a lack of maintenance and with feelings of being away from the city. As Sally explained, for her, gravel trails with mowed buffer zones have "that urban feel, that 'I'm walking in the city' feel." Anne liked Whitemud Park better than other parks because she felt it was "more natural":

> There's not a lot of mowed lawns and so... walking there,... you can feel like you are not in an urban park, that you are in a provincial park or some sort of wilderness park.... If you see it [benches and garbage cans], it reminds you that you are in a managed area and if you don't see it, you feel like you could be in the backcountry.

Mary, too, expressed similar feelings. For each person, maintenance such as benches, paved trails, and mowed path borders were unwelcome reminders that she was still in an urban area.

Christina went further, and linked her construct of *disorder* ↔ *order* (part of the Predictability category) to both of the above categories. To her, disorder was considered more natural, and not managed. She valued the disorder she saw in the less maintained areas because it represented a form of freedom. She felt it was important to have a place in the middle of the city "where nature has imposed its own design, and we have left it that way." "City parks," on the other hand, were "totally designed."

These associations apply to the personal construct systems of the people interviewed; however, given the frequency of constructs in both the Urban Comparison

and Degree of Maintenance categories, and the difficulty I had assigning in constructs to one category, these associations also apply to many of the survey participants, as well. I suspect that further examination of the entire construct set would reveal additional associations.

Chapter 5: Discussion and Conclusions

Variety of Constructs

The respondents valued Whitemud Park for the opportunities it affords for contact with nature (especially those organisms that are seen to exist primarily outside the city), as a place for relaxation and stress release, as a positive balance to negative aspects of city living, and for providing opportunities for various outdoor pursuits. These themes are very similar to those found by Burgess, Harrison and Limb (1988); Jorgensen et al. (2007); Taplin (2002); VanSiri (1997) and many others. However, the repertory grid technique was chosen to highlight the diversity of perceptions surrounding Whitemud Park, and to access less-voiced, subconscious, perceptions. An approach that focused more on *a priori* perceptions would not have elicited such a wide a range of relevant concepts, nor explored the implicit ideas attached to the explicit concepts listed above. Furthermore, an *a priori* approach might have generated ideas irrelevant to people associated with the park. This variety and depth is what I will explore in this section.

Two of the main construct categories were Urban Comparison (constructs opposing *nature*, *natural*, or *wilderness* to aspects of the city) and Degree of Maintenance (constructs mentioning grooming and maintenance of the park areas, especially of the trails). Taken individually, these categories are similar to those found in landscape and urban park studies using repertory grids. The Urban Comparison category is similar to Chipeniuk's (1995) *natural ↔ man-made* factor, Fenton's (1985) dimension of *natural ↔ human-influence*, and Lawton's (2005) amalgamated construct of *natural ↔ artificial*, while the Degree of Maintenance category is similar to Gardiner et al.'s (1977, as cited in Mathews & Ilbery, 1982) construct of *neglected ↔ well-maintained*, Waitt et al.'s (2003)

domesticated ↔ *natural* dimension, and Home et al.'s (2007) management, planned nature, and plant growth construct categories (surprisingly, unlike the results of my study, Home et al.'s 2007 study of urban green spaces did not find constructs that contrasted green spaces with city characteristics).

However, when taken together, the results show a more complicated picture than the above published studies provide. The interviews revealed that there were strong associations (constellation) between the Urban Comparison and Degree of Maintenance categories, and also with the smaller Predictability category (these constructs referred to order and predictability). The concept of *natural* was viewed positively and associated with less maintenance and less order, while maintenance and order were associated with the "unnatural" city. The prominence of maintenance-related constructs connected to the urban comparison constructs suggests that respondents view the type and degree of maintenance as a surrogate for how "natural" they perceive the park to be.

For many respondents, Whitemud Park represents a positive alternative to the "unnatural" city encountered daily, and signs of maintenance and development are unwelcome reminders of it. The prominence of, and association between, the Urban Comparison and Degree of Maintenance categories adds to the growing body of evidence, not based on personal construct theory, showing that many people view themselves and their structures as separate from nature (Haluza-Delay, 2001; Schultz & Tabanico, 2007; VanSiri, 1997; Vining et al., 2008).

None of the previously mentioned studies based on personal construct theory explored whether the constructs they discovered were constellated. This deficiency may be due to researchers relying on the repertory grid format to gain a larger sample size at

the expense of expanding on the elicited constructs using time-consuming interviews that could also limit the sample size. It is interesting to note, too, that references to maintenance and development appear far more frequently in the studies based on personal construct theory (including mine), than in other studies where participants are asked about the meaning urban nature has for them (e.g. Taplin, 2002; VanSiri, 1997). The themes that resulted from combining both repertory grids with interviews suggests that this approach should be used more often when trying to access the implicit perceptions that might otherwise not be found using more conventional approaches.

Participants often spoke about Whitemud Park in terms of protecting its existing ecosystems. Concerns ranged from large abstract threats of "development" to smaller specific issues such as burning garbage in fire pits or the impacts of cycling and trail running. This focus on protecting existing park ecosystems does not appear as often in urban park literature, or in the landscape perception studies (although it is related to the common theme of valuing parks and woodlands for their opportunities to encounter native flora and fauna). Home et al. (2007) expressly note the absence of constructs relating to this theme, despite including respondents who were initially believed to hold such a construct. The emphasis on protection that I found, however, is consistent with park planning studies generated by the City of Edmonton (City of Edmonton Office of Natural Areas, 2006; EDA Collaborative, 2003; Infact Research and Consulting, 2004; The Dagny Partnership, 2004). I suspect the prominence of this theme is due to a number of reasons. First, Edmonton's North Saskatchewan River Valley (NSRV) is promoted by the City (and by Edmontonians, themselves) as a natural wildlife corridor and as an essential part of plans to conserve Edmonton's nature (City of Edmonton Office of

Natural Areas, 2007; City of Edmonton, 2008; Spencer Environmental, 2006); the NSRV

is very much a part of many Edmontonian's identity (City of Edmonton Community

Services, 2002). Second, Whitemud Park and the greater Whitemud Ravine exist, in a

large part, to conserve rare ecosystems unique within Edmonton (EDA Collaborative,

2003), and this knowledge would be present in the minds of participants. Lastly,

Edmonton has an active conservation community (City of Edmonton Office of Natural

Areas, 2006), many of whom, I suspect, are also part of the outdoor recreation

community, and would therefore be more likely to participate in my study.

Several of the construct categories related to the use of the park. Many

participants viewed Whitemud Park, or certain areas of the park, in terms of specific

activities and their restriction, specific activities and their alternatives, and also in terms

of potential park users and to what extent the park is used (collectively, these were 21%

of all constructs provided). This theme also appeared in the interviews, where several of

the interviewees spoke about Whitemud Park in relation to their use of it. Those who

used the park for exercise, for example, described certain areas in terms of the challenge

those areas provided while running. This surprising prominence of use-related categories

(also seen in Home et al., 2007) supports Schweingruber's suggestion that perceptions of

urban green spaces include the usefulness of that space (2006, as cited in Home et al.

2007).

Unlike participants in the majority of existing urban park studies, several survey

participants in my study provided constructs relating to *how* people experience the park,

particularly how people experience nature within the park. This unusual occurrence of

experience-related constructs shows not only the variety of perceptions that surround

Whitemud Park, but, as Scott et al. (2009) suggest, their existence shows that perceptions of landscapes (in this case, urban wildlands) are highly personal: two of the five participants providing these constructs provide outdoor or environmental education programs, while one is involved with park administration. Further interviews with two of these participants illustrated the influence of their careers (not necessarily their interaction with Whitemud Park) in forming this particular construct.

Based on the existing literature surrounding urban woodland parks and other wildlands, I expected to find constructs regarding personal safety such as the probability of being physically or sexually assaulted (Jorgensen & Anthopoulou, 2007; Krenichyn, 2004) or the probability of encountering harmful animals or insects (Bixler & Floyd, 1997). While safety-related constructs were provided by a few people (e.g. " 'safe and creatively managed' versus 'left undesigned[sic]' ") and also mentioned briefly by some of the interviewees, this theme is quite weak as compared to other studies, even those not actively researching fear or personal safety (e.g. O'Brien, 2006). While safety may be a concern for some participants, it is not dominant in their construct systems concerning Whitemud Park; the park and greater ravine are viewed primarily through other constructs.

The fact that safety was only mentioned a few times may reflect the comfort level park users have with going to the park. Ward Thompson et al. (2005) provides one possible explanation; she found that frequent users were less fearful of being alone in woodlands, suggesting that the "familiarity of regular visiting gives people a sense of confidence and identity with the woodlands which overrides concerns and anxieties" (p. 141); a similar effect may exist with my participants, especially those who use the park

frequently throughout the year or seasonally for work. A different explanation was suggested by one of the interviewees. Tom, a park administrator, suggested that people using Whitemud Park see the park as a "safer environment" because they "see an environment where they're in nature, but there are other people nearby, or they're meeting other people"; he suggested that Whitemud Park would be thought of as a "relatively safe environment, because it is that social environment... you feel a part of the city, as opposed to part of the wilderness." Further study is needed to examine why safety concerns were not expressed by people who use the park, and whether personal safety is a more dominant construct among non-park users.

The variety of perceptions shows the complexity of the human component of Whitemud Park. However, it is important to note that these perceptions were not universal to all participants, and will likely not be universal to the general population of people associated with Whitemud Park. The main themes of Urban Comparison, Ecosystem Protection and Degree of Maintenance were common to the majority of participants, and are therefore likely to appear in the general population of North Saskatchewan River Valley users. The rarer themes, such as Alternative Activities and Park Interaction Characteristics, were only mentioned by a few participants each, and would likely be much less common in the larger population. These perceptions are also very specific to the context of an Edmonton wildland, and extreme care should be taken generalising these results to a wider North American or even Canadian population.

Ideal Version of Whitemud Park

When asked how they would envision an "ideal" version of Whitemud Park, participants revealed that they valued Whitemud Park and ravine in its current form, with

a few small developed areas and larger tracts of relatively undeveloped forest and creek ecosystem. They perceived the current and ideal versions to be quite similar, whether expressed through repertory grid ratings or verbal descriptions. The heavy emphasis on nature and natural features in the ideal image of Whitemud Park and the greater ravine, as well as the connection between the ravine and the rest of the North Saskatchewan River Valley system, echoes the information collected in public consultations on Edmonton's parks and natural areas (e.g. City of Edmonton Office of Natural Areas, 2006; The Dagny Partnership, 2004).

There are plans to establish and develop further sections of the ravine (as proposed in City of Edmonton, 2009c; EDA Collaborative, 2003; Stantec Consulting, 2004). Given the emphasis on nature, and given Whitemud Park's other perceived roles of being a contrast to the city and a means of conserving existing ecosystems, care should be taken in these future developments. Any development of trails, parking lots, buildings and other amenities will be seen by many people as a degradation of the ravine's ability to conserve the forest and creek in their natural states; this development will also act as a reminder of the surrounding city, lessening the "natural" feel of the area. As one park user, Mary, commented, "When it's really groomed, or paved, [with] lots of stuff along the trails... it feels more like... 'Oh yeah, they've intentionally made this park within the city'." Likewise, Christina referred specifically to a pipe that crosses the ravine, stating that "it reminds you that you are still in the middle of the city." However, as previously mentioned, the perceptions in my study reflect only those who chose to participate; development and grooming may encourage use of the ravine by less-traditional users. Using building strategies that "blend" the amenities in with the surrounding areas may

help to maintain the natural feel of the park and still encourage non-traditional users. Participants mentioned materials such as wood, wood chips and gravel as seeming "more natural" than asphalt and paved trails.

The interviews also suggest that even people who use the picnic areas instead of the trails value the nature in the park. Mary, who primarily uses the picnic areas of Whitemud Park and not the forested trails, completed the first sentence completion task as "In the above area, I value *trees* as opposed to *groomed trails*" (Mary's words are italicised). During the interview, she explained that trees and vegetation around the paths felt "more natural" and helped create a "country feel." As Home et al. (2007) write,

> It is not always necessary to actually go to nature to receive feelings of wellbeing but it is essential to know that one could if one wanted to. The knowledge that it is there can be as important to city residents as the direct uses that they gain from it. (p. 48)

Unfortunately, it was difficult to recruit people who primarily use the picnic areas due to the need to collect data in late winter and early spring (the picnic sites are generally used during the warmer months). However, the interview comments from my study and the information collected on Edmontonian's environmental attitudes (Harper et al., 1996; Infact Research and Consulting, 2004; The Dagny Partnership, 2004) indicate that this appreciation is likely. More research is needed to determine the extent to which non-users and picnic users value Whitemud Park specifically for its nature.

However, despite the preference of many of the respondents for the less managed, more "natural" areas of the park, respondents revealed that their ideal Whitemud Park is not extremely unmaintained. Participants still felt that some maintenance and grooming

was desirable, as was shown by the close association between the ideal version and the large paths in the repertory grid, and by various interview comments. This preference for some maintenance in the form of gravel or wood chip trails may be due to a preference for landscapes that provide visibility and ease of walking, as R. Kaplan et al. (1989) and Hertzog and Kutzli (2002) suggest. Alternatively, the least developed areas may be too "wild," invoking fear and other ambivalent feelings, as mentioned by Jorgensen and Tylecote (2007) and Koole and van den Berg (2005). I hypothesise that it may reflect not so much a preference for landscapes that provide ease of movement, or an avoidance of the wilder areas, but an awareness that the larger paths go through the wilder areas of the park. In support of this hypothesis, the large paths were rated as being less like the city than were the smaller paths through the less developed areas; the larger paths may be viewed as providing more (and easier) opportunities for encountering specific flora and fauna that are symbolic of non-city environments. The wilder patches beside the trails may be perceived to have a greater diversity of flora and fauna, and a therefore a greater chance of encountering more species.

Difference Among Groups

Whilst my study was able to highlight the variety of constructs, I was unable to make statistical distinctions between stakeholder groups because of the small sample size; hence, it is difficult to make generalisations. In addition, this lack of construct differentiation between groups, especially between the exercise- and nature-based users, may stem from the fact that many people choose the ravine specifically to combine the two types of uses – to exercise in a nature-filled area. Consequently, having participants choose between exercise-based use and nature-based use may not be a relevant decision

for many. Even the people who did not classify themselves as nature- or exercise-based park users (e.g. those who lead programs or are involved in administration) also use the park recreationally. As Scott et al. (2009) mention, landscape perceptions are complex and personal, and experiences with landscapes can produce multiple identities. This complexity can mask any differences in perceptions existing between different types of users.

There were conflicting perceptions towards specific activities such as group trail runs, riding horses, cycling off-trail, and dog walking, or towards specific park features such as the use of the smaller, narrower paths that criss-cross the ravine. These potential conflicts are similar to conflicts mentioned in other urban park studies (e.g. the conflict between dog-walkers and cyclists mentioned in Taplin, 2002). That people associated with Whitemud Park held different perspectives is not surprising, given the individuality corollary of personal construct theory (Kelly, 1955/1991), and given the complex and personal nature of landscape perceptions noted by other authors (Rogge et al., 2007; R. L. Ryan, 2005; Scott et al., 2009). These differing perceptions towards specific activities or park features emphasise the importance of exploring the perceptions of as many stakeholders as possible, so that conflicts can be minimised or avoided.

This importance is exemplified by the contrasting perceptions regarding the use of the narrower trails in Whitemud Park. Both park administrators expressed views wanting to keep most, if not all users, on the main, wider trails so that the areas containing the small trails would be protected. These narrower trails are used by runners, naturalists, and especially by children and youth (personal observation). However it is these very areas that contribute to the "natural" feel of the park, where the trees are closer together and the

vegetation is less managed. It is also in these areas, as well as along the wider paths during low-use times, that the greatest connection to nature is experienced. Even the administrators themselves admitted they prefer the wilder areas of the park, and enjoy going on the small, narrow, trails, and yet they are in favour of "well-designed" paths that encourage people to stay out of the denser forest. Louv (2005) and other authors argue that direct experiences off the main trails, not directed experiences on the trails, help foster attachment to natural areas and, for many people, contribute to the development of a conservation ethic. Even though the majority of use is along the main paths, the potential of the narrower paths, denser bush and steeper terrain is important. These are the areas that lead to the beaver dams to be explored, the tufa springs, the giant fallen tree, and the secret areas that children explore during day-camps. These are the areas that may be the most important for environmental educators, areas that help foster a connection to nature (Kellert, 2005).

Study Limitations and Sources of Error

Sources of error in my study (and therefore impacts on reliability and validity) stem from three main areas: the methodology and methods used, the constructs, and the sample. Kelly's personal construct theory and the repertory grid technique are both a limitation and strength of this project. According to Jankowicz (2004), "repertory grid technique is little used beyond its specialist adherents, and the central value of personal construct psychology as the basis for understanding all epistemologies in the first place has been scandalously neglected" (p. xviii). He estimates that there are fewer than a thousand personal construct psychologists throughout the world. However, strength and validity lie in the completeness of the theory and in the design of the repertory grid

technique that attempts to understand the respondent on their own terms. "It is an attempt to stand in others' shoes, to see their world as they see it, and to understand their situation and their concerns" (Fransella et al., 2004, p. 6).

Both Jankowicz (2004) and Fransella et al. (2004) strongly recommend that elements be mutually exclusive and "all of a kind" (Jankowicz, p. 29), so that the elicited constructs will be applicable to all elements (in the language of PCT, if elements are not homogeneous, one or more might fall outside the range of convenience of a particular construct). Ideally, I would have used several different parks as the elements, instead of different areas of one park; however, that approach had its own drawbacks, requiring a much larger and less defined study area and more resources than I was able to provide. After much consideration, and given the limited budget and time constraints of my project, I decided to use only Whitemud Park, including both the smaller areas and the whole park as elements. Despite Jankowicz' admonition, I felt that the value of including the current and ideal versions of Whitemud outweighed the possibility that some constructs may not be applicable to all elements. Additionally, for this reason, I included a "not applicable" option with each rating scale.

As with all studies, both quantitative and qualitative, my study was not able to completely capture all the perceptions of the participants. The quantitative survey method, despite being based in personal construct theory, is still reductionist; interviewees provided more detailed information about each of their elicited constructs, showing associations between constructs that would not otherwise have been found, and provided a context for their constructs. The qualitative interviews serve as a reminder that for each construct elicited from a participant, it is situated in a backdrop of his or her

education, career, past experiences with Whitemud and other parks, and other influences. However, the mixed-method approach (using both quantitative and qualitative methods) is still a strong approach, in that each section balanced the weakness of the other.

In addition, the unusual format of the survey (the repertory grid test) likely inhibited many people from completing the survey. One respondent of the pilot survey stated that she felt uncomfortable when completing the survey because of its unusual format (eliciting ideas to create the rating scales), and would not likely complete similar surveys in the future. Despite my attempts to put respondents at ease by providing additional explanation, one participant still felt that the survey was "too esoteric and subjective for many potential responders."

Another limitation of the project is my use of electronic and paper surveys instead of direct interviews to elicit the repertory grid. These instruments did not give me the chance to confer back with all the respondents to see whether my interpretation of the data corresponded with their understanding of their own perceptions. To counteract this limitation, I interviewed a subset of the survey respondents to further clarify and explore the themes discovered in the first part of the study. Consequently, the interviews were a form of triangulation as well as a means for the respondent to clarify his or her answers; the interviews increased both the reliability and validity of the study. Further triangulation came from the various quantitative data analyses (e.g. clustering, principle component analysis) that I used to analyse the repertory grid.

The analysis of the constructs themselves is a potential source of error. Sorting the constructs is subjective, and entirely dependent on the themes I discover. Another researcher might have highlighted different themes. In addition, two or more constellated

constructs were often provided as one response, making sorting the responses extremely difficult. Due to limited resources, I could not have the constructs sorted a second time by an independent reviewer, as suggested by Jankowicz (2004). However, throughout my analysis, I would return to the constructs and re-evaluate my categorisation, making slight adjustments.

There was also the possibility that a respondent could provide a *bent* construct, one whose emergent and implicit poles belong to two different constructs. For example, one participant completed the following sentence as "The current purpose of Whitemud Park is *highly valued by me and my family*, as opposed to *neglected by the City of Edmonton*" (words provided by the participant are given in italics)[6]. In the mind of the participant, these ideas might be opposites, or this sentence might reflect a bent construct. However, the anonymous nature of the survey makes clarifying this issue impossible.

Lastly, a significant impact on external validity occurs with the sample of participants. Due to both self-selection by participants, my ignorance of certain stakeholder groups, and my reliance on web-based promotion and administration of the survey, some groups were unintentionally vastly under-represented or missing from the study. These groups include nearby residents who do not use the park, users of the picnic sites (who may have greater ethnic diversity than the trail users), trail users who are not part of an outdoor or naturalist group, and the aboriginal community currently using the park. Unfortunately, reaching non-users is difficult (though not impossible), and I became aware of the aboriginal use of the park too late in my study to explore their perceptions.

The small sample size of the survey and the small number of interviewees also makes generalising the findings to larger populations, or even to the individual

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[6] This construct was classified as miscellaneous.

stakeholder groups, difficult. The small sample size was due to a variety of factors: the failure of certain groups to respond, the difficulty in reaching users who are not part of a club or organisation, construction along the main access road to the park which led to the perception that the park was closed, the winter-time setting for the study, and the somewhat unusual format of the survey.

Recommendations for Future Research

The majority of urban park studies are situated in the United States and Europe, each with significantly different socio-cultural groups than western Canada (e.g. Ho et al., 2005; Home et al., 2007; Jorgensen & Anthopoulou, 2007). In addition, these studies often examined more developed urban green spaces (e.g. Taplin, 2002). Given the extent of urban wildlands in Alberta (an informal survey using Google™ Maps satellite imagery, Google™ Imagery, 2009, shows forested or undeveloped river valleys in most Alberta cities), more studies are needed that explore perceptions of these wilder green spaces of towns and cities.

In addition to further Canadian studies, there is still a need to have studies that focus on stakeholder-derived perceptions of urban wildlands (as opposed to preconceived, researcher-determined perceptions). Scott et al. (2009) write that "it is crucial for planners and policy-makers who are looking at the future needs of areas to utilise proactive and deliberative techniques to elicit public perceptions through more experiential and multidimensional approaches" (p. 420). The mixed-method, repertory grid technique used in this study answers this call to some degree, but further study is needed using these "experiential and multidimensional approaches" (p. 420).

Due to the limited resources available for this study, and the non-traditional approach for my survey, I was not able to reach certain stakeholders (such as nearby residents who do not use the park, users of the picnic area, and aboriginal users) or generate a large sample. Future research is needed to address both these issues, especially given the variety and diversity of perceptions shown in this study. With the continual revision of management plans, a continued strong effort is needed to reach the populations who do not typically choose to participate in consultation sessions.

A number of questions arise directly from the results. For each respondent, the construct system surrounding Whitemud Park was based on their past interaction with the park and with other natural areas both in and outside of the city (whether recreational or through employment). However, on what is the construct system based when contact with Whitemud Park or other wildlands is limited? This question is particularly relevant in relation to people who reside near the ravine but do not use it. In addition, what are the perceptions of aboriginal users towards Whitemud Park, who interact with the park and its nature in a different manner than non-aboriginal participants? A different interaction is implied by the proposal put forth by the Indigenous Elders Cultural Resource Circle Society (2006, as cited on-line by the City of Edmonton, 2009), where portions of Whitemud Park would be used for cultural and ceremonial activities.

Last of all, do the perceptions brought forth in this study apply to the other parks in Edmonton, including more developed parks, or are they specific to Whitemud Park? In the dialogue of personal construct theory, what is the range of convenience of the constructs elicited in the context of Whitemud Park? Examining the range of convenience

of these constructs would also explore to what extent the results of this study can be generalised to other parts of Edmonton's North Saskatchewan River Valley park system.

Conclusion

Recently, James et al. (2009) created a document outlining the various aspects of urban green spaces that they felt needed to be studied. Put together by leading researchers of urban parks, this document outlined five themes for urban green space research: the physicality, experience, valuation, management and governance of urban green space. My study fell within the *experience of urban green space* theme, helping to answer the following two research questions proposed by the authors:

#10 What are the dynamic interactions between societal, personality, situational, and temporal factors and individual and group engagement with urban green spaces?

#13 What are the necessary quantities, qualities and configuration of urban green spaces that contribute to their regular use such that different segments of a society with changing socio-demographic characteristics may gain benefits? (James et al., p. 70)

My study showed that Edmontonians "engage" with urban green spaces (Questions #10) by perceiving them in diverse ways, including contrasting the natural setting of the park to the surrounding cityscape, focusing on signs of maintenance as being unnatural and representing the surrounding city, and viewing the park in terms of its potential and actual use. "Necessary quantities, qualities and configuration" (Question #13) of Edmonton urban parks, particularly those having a conservation function, would include a mix of narrower and wider trails that provide access to a variety of terrain and

ecosystems in their natural state; materials and buildings that have a natural feel; as well as a few semi-developed areas, in addition to the large undeveloped areas, that allow for a variety of uses yet minimise impact on the naturally occurring ecosystems. Fortunately, Whitemud Park and the larger Whitemud Ravine already have these characteristics.

To revisit my own research question: How do park users, nearby residents and other stakeholders perceive Whitemud Park? While I was unable to generalise findings to specific stakeholder groups, I found that perceptions of Whitemud Park are diverse and specific to each individual. While some themes were common to many individuals (such as viewing much of Whitemud Park as natural and a piece of wilderness in the city), others were specific to one or two individuals and reflected their past education or career (such as perceiving the park in terms of *how* it is experienced). The diversity of perceptions within the sample and the lack of association between types of perceptions and specific stakeholder groups, emphasizes the complexity of the human-park system and the need for understanding this complexity.

Given the calls for increased contact with nature (Kellert, 2005; Louv, 2005; Maller et al., 2006), environmental educators and park decision-makers need to understand how people perceive this nature. They should be aware that each person has their own unique set of perceptions surrounding wildlands and that these perceptions differ from individual to individual, and should also be aware of how these perceptions are formed (Bennion, 2003). Environmental educators are likely to encounter the perceptions described in my study, and should be aware of how similar or different their own perceptions are to those of the people they are trying to reach. Better communication

will occur if educators can understand the perceptions of their audience (Bennion, 2003). This study of Whitemud Park aids in this understanding.

Finally, as with environmental educators, those with power to make decisions affecting Edmonton's river valley park system need to be aware of the perceptions of the stakeholders towards the wildlands and how they differ from their own perceptions and values, and aware of how these differences might lead to conflict. For example, both environmental educators and park decision-makers need to be aware of conflicting perceived roles for specific regions. While the less managed areas may be perceived by park administrators as having the greatest conservation potential, these areas are also valued by exercise-based users for providing greater physical challenge, and by environmental educators for providing less structured encounters with nature. Understanding the human components of the river valley park system is an essential part of maintaining Edmonton's "Ribbon of Green."

References

Adams, L. (2002, March 31). Fear factor cuts back forests. *The Sunday Times,* p. 13.

Alberta Sustainable Resource Development. (2008). *Watchable wildlife – Whitemud Park.* Retrieved October 28, 2008, from http://www.srd.alberta.ca/fishwildlife/viewingguide/edmonton/edmowcrmap.aspx (Note: 2008 version of website no longer exists.)

Atherton, J. S. (2007). *Learning and teaching: Personal construct theory.* Retrieved October 5, 2008, from http://www.learningandteaching.info/learning/personal.htm

Atkinson, R., & Flint, J. (2001). Accessing hidden and hard-to-reach populations: Snowball research strategies. *Social Research Update,* (33), 1-4.

Bennion, R. C. (2003). *"Man the scientist": A paper on personal construct theory.* Unpublished manuscript, Brigham Young University, Provo, UT.

Bixler, R. D., Carlisle, C. L., Hammitt, W. E., & Floyd, M. F. (1994). Observed fears and discomforts among urban students on field trips to wildland areas. *Journal of Environmental Education, 26*(1), 24-33.

Bixler, R. D., & Floyd, M. F. (1997). Nature is scary, disgusting, and uncomfortable. *Environment & Behavior, 29*(4), 443-467.

Bourassa, S. C. (1990). A paradigm for landscape aesthetics. *Environment and Behavior, 22*(6), 787-812.

Brush, R., Chenoweth, R. E., & Barman, T. (2000). Group differences in the enjoyability of driving through rural landscapes. *Landscape & Urban Planning, 47*(1), 39.

Buijs, A. E. (2009). Lay people's images of nature: Comprehensive frameworks of values, beliefs, and value orientations. *Society & Natural Resources, 22*(5), 417-432.

Burgess, J., Harrison, C. M., & Limb, M. (1988). People, parks and the urban green: A study of popular meanings and values for open spaces in the city. *Urban Studies, 25*, 455-473.

Burns, A. (1997). *Design recommendations for an outdoor public space in downtown Edmonton, Alberta.* Unpublished master's thesis, University of Alberta, Edmonton, Canada.

Burstyn, I. (2004). Principal component analysis is a powerful instrument in occupational hygiene inquiries. *British Occupational Hygiene Society, 48*(8), 655-661.

Bussey, S. C., & Coles, R. W. (2000). Urban forest landscapes in the UK – progressing the social agenda. *Landscape & Urban Planning, 52*(2), 181.

Cai, M. (1993). Folks, friends, and foes: Relationships between humans and animals in some eastern and western folktales. *Children's Literature in Education, 24*(2), 73-83.

Capra, F. (1999). *Ecoliteracy: The challenge for education in the next century.* Retrieved June 24, 2008, from http://www.ecoliteracy.org/publications/pdf/challenge.pdf

Children & Nature Network. (2007). *Research and studies: Volume one - February 2007.*

Retrieved June 24, 2008, from

http://www.childrenandnature.org/research/volumes/C16/16

Chipeniuk, R. (1995). A repertory grid test of the claim that sense of landscape

naturalness is specific to culture. *Cross-Cultural Research: The Journal of*

Comparative Social Science, 29(4), 335-360.

City of Edmonton. (2008). *City of Edmonton: Parks & River Valley.* Retrieved October

22, 2008, from http://www.edmonton.ca/attractions_recreation/parks-river-

valley.aspx

City of Edmonton. (2009a). *City of Edmonton: Census history.* Retrieved October 24,

2009, from http://www.edmonton.ca/city_government/municipal_census/census-

history.aspx

City of Edmonton. (2009b). *City of Edmonton: Whitemud Park.* Retrieved October 24,

2009, from

http://www.edmonton.ca/attractions_recreation/parks_rivervalley/whitemud-

park.aspx

City of Edmonton. (2009c). *Whitemud integrated plan amendment: Indigenous elders*

proposal - kihci askiy (sacred land). Retrieved September 27, 2009, from

http://www.edmonton.ca/attractions_recreation/documents/Open_House_Handout_Ju

ne3_2009.pdf

City of Edmonton Community Services. (2002). *Urban parks master plan: Leisure and recreation trends analysis*. Edmonton, Alberta: Author. Retrieved August 26, 2009, from

http://www.edmonton.ca/city_government/documents/CityGov/LeisureAndRecreatio nTrendsAnalysisForUrbanParks.pdf

City of Edmonton Office of Natural Areas. (2006). *Natural connections: Edmonton's integrated natural areas conservation plan, public engagement process summary*. Edmonton, AB: Author. Retrieved August 31, 2009, from

http://www.edmonton.ca/environmental/natural_areas/natural-connections-conservati.aspx

City of Edmonton Office of Natural Areas. (2007). *Natural connections strategic plan: Edmonton's integrated natural areas plan*. Edmonton, Canada: Author. Retrieved November 8, 2009, from

http://www.edmonton.ca/environmental/documents/Natural_Connections_-_Final_Document_June.pdf

Coeterier, J. F. (1996). Dominant attributes in the perception and evaluation of the Dutch landscape. *Landscape & Urban Planning, 34*(1), 27-44.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed.). London: Routledge.

Cruden, D. M., Peterson, A. E., Thomson, S., & Zabeti, P. (2002). Thirty-five years of activity at the Lesueur landslide, Edmonton, Alberta. *Canadian Geotechnical Journal, 39*(1), 266-278.

Dow, K. E., Steffler, P. M., & Zhu, D. Z. (2009). Case study: Intermediate field mixing for a bank discharge in a natural river. *Journal of Hydraulic Engineering, 135*(1), 1-12.

EDA Collaborative. (2003). *Whitemud integrated plan: Executive summary* (Report No. 2003CSPS16). Edmonton, AB: City of Edmonton Community Services. Retrieved September 27, 2009, from http://www.edmonton.ca/attractions_recreation/documents/Whitemud_Integrated_Plan_-_2003CSPS16_Attachment.pdf

Embacher, J., & Buttle, F. (1989). A repertory grid analysis of Austria's image as a summer vacation destination. *Journal of Travel Research, 27*, 3-7.

Fenton, D. M. (1985). Dimensions of meaning in the perception of natural settings and their relationship to aesthetic response. *Australian Journal of Psychology, 37*(3), 325-339.

Forrest, A., & Clair, C. C. S. (2006). Effects of dog leash laws and habitat type on avian and small mammal communities in urban parks. *Urban Ecosystems, 9*(2), 51-66.

Fransella, F., Bell, R., & Bannister, D. (2004). *A manual for repertory grid technique* (2nd ed.). Chichester, England: John Wiley & Sons Ltd.

Freshwater, K., Leach, C., & Aldridge, J. (2001). Personal constructs, childhood sexual abuse and revictimization. *British Journal of Medical Psychology, 74*, 379-397.

Google™ Imagery. (2009). *Google™ maps.* Retrieved November 1, 2009, from http://maps.google.ca

Grice, J. W. (2008). *Introduction to Kelly's repertory grid technique.* Stillwater, Oklahoma: Oklahoma State University. Retrieved October 6, 2008 from http://www.idiogrid.com/workshop/IdiogridWorkshopPart_I.swf

Grice, J. W., Burkley III, E., Burkley, M., Wright, S., & Slaby, J. (2004). A sentence completion task for eliciting personal constructs in specific domains. *Personal Construct Theory & Practice, 1*, 60-75.

Haluza-Delay, R. (2001). Nothing here to care about: Participant constructions of nature following a 12-day wilderness program. *Journal of Environmental Education, 32*(4), 43-48.

Harper, J., Godbey, G., Greenslade, L., & Mahaffy, C. (2008). *In Alberta... recreation and parks matter! Public perceptions on use and benefits of local government recreation and parks services - research summary*. Edmonton, Alberta: Alberta Recreation and Parks Association. Retrieved August 28, 2009, from http://www.arpaonline.ca/rr/res/ARPA%20Public%20Summary-FinalLOWRES.pdf

Harper, J., Neider, D., Godbey, G., & Lamont, D. E. (1996). *The use and benefits of local government recreation and park services: City of Edmonton, Alberta*. Winnipeg: Health, Leisure and Human Performance Research Institute, University of Manitoba.

Harrison, J. A., & Sarre, P. (1975). Personal construct theory in the measurement of environmental images. *Environment and Behavior, 7*(1), 3-58.

Hartig, T., Kaiser, F. G., & Bowler, P. A. (2001). Psychological restoration in nature as a positive motivation for ecological behavior. *Environment & Behavior, 33*(4), 590-607.

Herzog, T. R., & Bryce, A. G. (2007). Mystery and preference in within-forest settings. *Environment & Behavior, 39*(6), 779-796.

Herzog, T. R., Herbert, E. J., Kaplan, R., & Crooks, C. L. (2000). Cultural and developmental comparisons of landscape perceptions and preferences. *Environment & Behavior, 32*(3), 323-346.

Herzog, T. R., & Kutzli, G. E. (2002). Preference and perceived danger in field/forest settings. *Environment & Behavior, 34*(6), 819-835.

Herzog, T. R., & Miller, E. J. (1998). The role of mystery in perceived danger and environmental preference. *Environment & Behavior, 30*(4), 429-449.

Ho, C., Sasidharan, V., Elmendorf, W., Willits, F. K., Graefe, A., & Godbey, G. (2005). Gender and ethnic variations in urban park preferences, visitation, and perceived benefits. *Journal of Leisure Research, 37*(3), 281-306.

Home, R., Bauer, N., & Hunziker, M. (2007). Constructing urban green spaces: An application of Kelly's repertory grid. *Tourism Review, 62*(3), 47-52.

Infact Research and Consulting. (2004). *Urban parks management plan: General public consultation*. Edmonton, Canada: City of Edmonton Community Services. Retrieved August 31, 2009, from http://www.edmonton.ca/attractions_recreation/parks_rivervalley/urban-parks-management-plan.aspx

James, P., Tzoulas, K., Adams, M. D., Barber, A., Box, J., Breuste, J., et al. (2009). Towards an integrated understanding of green space in the European built environment. *Urban Forestry & Urban Greening, 8*(2), 65-75.

Jankowicz, D. (2004). *The easy guide to repertory grids*. Chichester, England: John Wiley & Sons Ltd.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14-26.

Jorgensen, A., & Anthopoulou, A. (2007). Enjoyment and fear in urban woodlands – does age make a difference? *Urban Forestry & Urban Greening, 6*(4), 267-278.

Jorgensen, A., Hitchmough, J., & Dunnett, N. (2007). Woodland as a setting for housing-appreciation and fear and the contribution to residential satisfaction and place identity in Warrington New Town, UK. *Landscape & Urban Planning, 79*(3), 273-287.

Jorgensen, A., & Tylecote, M. (2007). Ambivalent landscapes - wilderness in the urban interstices. *Landscape Research, 32*(4), 443-462.

Kaplan, R., & Herbert, E. J. (1987). Cultural and sub-cultural comparisons in preferences for natural settings. *Landscape & Urban Planning, 14*(4), 281-293.

Kaplan, R., & Kaplan, S. (1989). *The experience of nature: A psychological perspective*. New York: Cambridge University Press.

Kaplan, R., Kaplan, S., & Brown, T. (1989). Environmental preference: A comparison of four domains of predictors. *Environment & Behavior, 21*(5), 509-530.

Kearney, A. R., Bradley, G. A., Petrich, C. H., Kaplan, R., Kaplan, S., & Simpson-Colebank, D. (2008). Public perception as support for scenic quality regulation in a nationally treasured landscape. *Landscape & Urban Planning, 87*(2), 117-128.

Kellert, S. R. (2005). *Building for life: Designing and understanding the human-nature connection*. Washington, DC: Island Press.

Kelly, G. A. (1991). *The psychology of personal constructs: A theory of personality, Volume One.* London: Taylor & Francis.

Koole, S. L., & van den Berg, A. E. (2005). Lost in the wilderness: Terror management, action orientation, and nature evaluation. *Journal of Personality & Social Psychology, 88*(6), 1014-1028.

Krenichyn, K. L. (2004). Women, physical activity, and the urban outdoor environment: A study of Prospect Park, Brooklyn, New York. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 64* (12), 6313.

Kyle, G. T., Mowen, A. J., & Tarrant, M. (2004). Linking place preferences with place meaning: An examination of the relationship between place motivation and place attachment. *Journal of Environmental Psychology, 24*(4), 439-454.

Lawton, L. J. (2005). Resident perceptions of tourist attractions on the gold coast of Australia. *Journal of Travel Research, 44*(2), 188-200.

Lifshitz, M. (1974). Quality professionals: Does training make a difference? A personal construct theory study of the issue. *British Journal of Social and Clinical Psychology, 13*, 183-189.

Louv, R. (2005). *Last child in the woods: Saving our children from nature-deficit disorder.* Chapel Hill: Algonquin Books of Chapel Hill.

Louv, R. (2007, March/April). Leave no child inside: The growing movement to reconnect children and nature. *Orion Magazine,* Retrieved August 6, 2007, from http://www.orionmagazine.org/index.php/articles/article/240/

Maller, C., Townsend, M., Pryor, A., Brown, P., & St Leger, L. (2006). Healthy nature healthy people: 'contact with nature' as an upstream health promotion intervention for populations. *Health Promotion International, 21*(1), 45-54.

Marsden, D., & Littler, D. (2000). Repertory grid technique: An interpretive research framework. *European Journal of Marketing, 35*(7), 816-834.

Marsh, M., & Stanley, R. (1995). Assessment of self and others during treatment for *anorexia nervosa*. *Journal of Constructivist Psychology, 8*, 97-116.

Mathews, H., & Ilbery, B. (1982). Behavioural geography: Two uses of repertory grid analysis. *Bulletin of Environmental Education,* (133), 23-25.

McGee, T. K. (2007). Urban residents' approval of management measures to mitigate wildland–urban interface fire risks in Edmonton, Canada. *Landscape & Urban Planning, 82*(4), 247-256.

Mowen, A. J., & Confer, J. J. (2003). The relationship between perceptions, distance, and socio-demographic characteristics upon public use of an urban park "in-fill". *Journal of Park & Recreation Administration, 21*(3), 58-74.

Munro, T. (2006). *Where to live and what to learn when you get there: The influence of greenspace on housing decisions and the potential for environmental education programs.* Unpublished master's thesis, Royal Roads University, Victoria, Canada.

Mustafa, K. B. M. (1995). A cross-cultural comparison of visual landscape preferences for the natural environment. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 55* (11), 3637.

Naoi, T., Airey, D., Iijima, S., & Niininen, O. (2006). Visitors' evaluation of an historical district: Repertory grid analysis and laddering analysis with photographs. *Tourism Management, 27*(3), 420-436.

Neimeyer, R. A., & Bridges, S. K. (2004). *Personal construct theory.* Retrieved October 5, 2008, from http://www.pcp-net.org/encyclopaedia/pc-theory.html

O'Brien, E. (2006). Social housing and green space: A case study in inner London. *Forestry: An International Journal of Forest Research, 79*(5), 535-551.

Ohta, H. (2001). A phenomenological approach to natural landscape cognition. *Journal of Environmental Psychology, 21*(4), 387-403.

Palmer, J. F. (2000). Reliability of rating visible landscape qualities. *Landscape Journal, 19*(1), 166-178.

Payne, L. L., Mowen, A. J., & Orsega-Smith, E. (2002). An examination of park preferences and behaviors among urban residents: The role of residential location, race, and age. *Leisure Sciences, 24*(2), 181-198.

Rains, B. (1987). Hollocene alluvial sediments and a radiocarbon-dated relict beaver dam, Whitemud Creek, Edmonton, Alberta. *Canadian Geographer, 31*(3), 272-277.

Ribe, R. G. (2002). Is scenic beauty a proxy for acceptable management? *Environment & Behavior, 34*(6), 757-780.

Rogge, E., Nevens, F., & Gulinck, H. (2007). Perception of rural landscapes in Flanders: Looking beyond aesthetics. *Landscape and Urban Planning, 82*(4), 159-174.

Roth, M. (2006). Validating the use of internet survey techniques in visual landscape assessment—An empirical study from Germany. *Landscape & Urban Planning, 78*(3), 179-192.

Rowe, D. (1971). Poor prognosis in a case of depression as predicted by the repertory grid. *British Journal of Psychiatry, 118*, 231-244.

Ryan, G. W., & Bernard, H. R. (2008). *Techniques to identify themes in qualitative data.* Unpublished manuscript. Retrieved October 16, 2008, from http://www.analytictech.com/mb870/Readings/ryan-bernard_techniques_to_identify_themes_in.htm

Ryan, R. L. (2005). Exploring the effects of environmental experience on attachment to urban natural areas. *Environment & Behavior, 37*(1), 3-42.

Sasidharan, V. (2002). The urban recreation experience: An examination of multicultural differences in park and forest visitation characteristics. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 62* (7), 2568.

Schroeder, H. W. (1983). Variations in the perception of urban forest recreation sites. *Leisure Sciences, 5*(3), 221-230.

Schroeder, H. W. (1987). Dimensions of variation in urban park preference: A psychophysical analysis. *Journal of Environmental Psychology, 7*(2), 123-141.

Schultz, P. W., & Tabanico, J. (2007). Self, identity, and the natural environment: Exploring implicit connections with nature. *Journal of Applied Social Psychology, 37*(6), 1219-1247.

Schwabenbauer, A. A. (1991). *MacKinnon Ravine and Government Hill Parks: A case study in Edmonton's River Valley and ravine system.* Unpublished master's thesis, The University of Manitoba, Winnipeg, Canada.

Scott, A. (2002). Assessing public perception of landscape: The LANDMAP experience. *Landscape Research, 27*(3), 271-295.

Scott, A., Carter, C., Brown, K., & White, V. (2009). 'Seeing is not everything': Exploring the landscape experiences of different publics. *Landscape Research, 34*(4), 397-424.

Seeland, K., & Nicolè, S. (2006). Public green space and disabled users. *Urban Forestry & Urban Greening, 5*(1), 29-34.

Spencer Environmental. (2006). *State of natural areas project.* Edmonton: City of Edmonton. Retrieved July 5, 2008, from http://www.edmonton.ca/environmental/natural_areas/2006-edmonton-state-of-natural.aspx

Stantec Consulting. (2004). *Recreation and parks planning study: South Whitemud Ravine, Edmonton.* Edmonton, Canada: City of Edmonton Community Services. Retrieved August 31, 2009, from

http://www.edmonton.ca/attractions_recreation/parks_rivervalley/south-whitemud-ravine-planning.aspx

Taplin, D. H. (2002). *Art, nature, and people: Landscape values of an urban park.* Unpublished doctoral dissertation, City University of New York, New York.

Taylor, L. E. (2007). *The production of nature in planning for urban expansion: A cultural landscape study of new urban growth in Oakville, Ontario.* Unpublished doctoral dissertation, University of Toronto, Toronto, Ontario, Canada.

The Dagny Partnership. (2004). *Urban parks management plan: Integrated consultation report - needs assessment phase.* Edmonton, AB: City of Edmonton. Retrieved August 31, 2009, from http://www.edmonton.ca/attractions_recreation/parks_rivervalley/urban-parks-management-plan.aspx

Tsounis, P. (2007). *Edmonton economic forecast update: Slower growth for 2008, but rebounding activity for 2009-2012.* Edmonton: Corporate Business Planning Department, City of Edmonton. Retrieved June 24, 2008, from http://www.edmonton.ca/InfraPlan/Economic%20Information/SocioEconomic%20Outlook/economic_update%202%20.pdf

VanSiri, G. (1997). *Nature in the city: An exploration of urban park planning in response to contemporary relationships with the natural environment.* Unpublished doctoral dissertation, The University of British Columbia, Vancouver, Canada.

Vining, J., Merrick, M. S., & Price, E. A. (2008). The distinction between humans and nature: Human perceptions of connectedness to nature and elements of the natural and unnatural. *Human Ecology Review, 15*(1), 1-11.

Waitt, G., Lane, R., & Head, L. (2003). The boundaries of nature tourism. *Annals of Tourism Research, 30*(3), 523-545.

Ward Thompson, C., Aspinall, P., Bell, S., & Findlay, C. (2005). "It gets you away from everyday life": Local woodlands and community use--what makes a difference? *Landscape Research, 30*(1), 109-146.

Westover, T. N. (1983). Perceptions of crime and conflict in urban parks and forests. *Dissertation Abstracts International, 44* (7), 2246.

Wherrett, J. R. (1999). Issues in using the internet as a medium for landscape preference research. *Landscape and Urban Planning, 45*, 209-217.

Wherrett, J. R. (2000). Creating landscape preference models using internet survey techniques. *Landscape Research, 25*(1), 79-96.

Williams, D. R., & Stewart, S. I. (1998). Sense of place: An elusive concept that is finding a home in ecosystem management. *Journal of Forestry, 96*(5), 18-23.

Appendices

Appendix A

Kelly's Fundamental Postulate and Corollaries

Fundamental Postulate: a person's processes are psychologically channelized by the ways in which he anticipates events

- **Construction** Corollary: a person anticipates events by construing their replications
- **Individuality** Corollary: Persons differ from each other in their constructions of events
- **Organization** Corollary: Each person charactersitically evolves for his convenience in anticipating events, a construction system embracing ordinal relationships between constructs
- **Dichotomy** Corollary: A person's construct system is composed of a finite number of dichotomous constructs
- **Choice** Corollary: A person chooses for himself that alternative in a dichotomized construct through which he anticipates the great possibility for the elaboration of his system.
- **Range** Corollary: A construct is convenient for the anticipation of a finite range of events only
- **Experience** Corollary: A person's construction system varies and he successively construes the replications of events.
- **Modulation** Corollary: The variation in a person's construction system is limited by the permeability of the constructs within whose ranges of convenience that variants lie.
- **Fragmentation** Corollary: A person may successively employ a variety of construction subsystems which are inferentially incompatible with each other.
- **Commonality** Corollary: To the extent that one person employs a construction of experience which is similar to that employed by another, his processes are psychologically similar to those of the other person.
- **Sociality** Corollary: to the extent that one person construes the construction processes of another he may play a role in the social process involving the other person.

(Kelly, 1955, as cited in Atherton, 2007)

Appendix B

Sample Invitations to Participate in Study

Sample Invitation to Personal Contacts

Subject: Whitemud Park

Hi everyone!

As some of you may know, I am a Master's student with Royal Roads University, working on my thesis. I am studying how various groups (for example, park users, nearby residents, or park staff) perceive urban wildlands such as Whitemud Park. (This park is at the north end of Whitemud Ravine, between Whitemud Drive and Fox Drive [hyperlink to map].) As part of this study, I would like to survey people who visit the park, live near it, or whose work involves Whitemud Park in some manner. If you fall into any of these categories, please consider completing my survey at:

www.surveymonkey.com/whitemud. It takes about 30 minutes to complete.

As well, could you forward on this link to other people or groups/clubs you think fall into these categories? Or, if you send me the contact information, I can contact them directly. Thanks!

I am doing this study because more and more people are interested in Edmonton's River Valley system. Edmonton continues to grow, and leaders in education, health and the

environment encourage us to use the parks and forests around us. This increased interest may lead to conflicting ideas concerning the role of urban parks. The information I gather will aid not only park administrators, but also environmental educators who wish to use Edmonton's natural areas.

I am happy to answer any questions that you might have. I can be reached at [e-mail address] [7], or [phone number]. You are also welcome to establish my credentials with Royal Roads University by contacting Dr. Rick Kool, Program Head – Environmental Education and Communication, at [phone number] or [e-mail address].

Many thanks to those who have already filled in the survey!

Sincerely,

Dorothy Kelker, BSc.

Master's Student

Royal Roads University

phone: [phone number]

e-mail: [e-mail address]

---

[7] E-mail addresses, phone numbers, and other identifying contact information have been removed.

Invitation to Personal Contacts posted on Facebook™

Please Do My Whitemud Park Survey!

Do you visit Whitemud Park? Do you live beside Whitemud Park but do not use it?

To all my Edmonton friends out there:

As you may or may not know, I am doing my Master's in Environmental Education and Communication through Royal Roads University. For my thesis, I am examining different perceptions of Whitemud Park, an example of an "urban wildland." As part of my study, I am surveying as many people as possible who are associated with Whitemud Park. I am in the process of contacting various groups in Edmonton that use the park. To get the ball rolling, however, I am asking people I know to be a part of the project.

So if you use Whitemud Park (the north section, between the North Saskatchewan River and Whitemud Drive), or if even if you live beside the park but don't use it, please consider doing my survey:

www.surveymonkey.com/whitemud

The survey should take about 30 minutes to complete.

Edmonton continues to grow, and leaders in education, health and the environment encourage us to enjoy the parks and forests around us. Consequently, more and more

people are interested in our River Valley system. This increased interest may lead to conflicting ideas concerning the role of urban parks. Through this study, I hope to understand how various groups (for example, park users, nearby residents, or park staff) perceive urban wildlands such as Whitemud Park. The information I find should aid not only park administrators, but also environmental educators who wish to use Edmonton's natural areas.

If you use Whitemud Park, or even live beside it but don't use it, please do my survey!

Thanks so much,

Dorothy

Sample Invitation to Organisations Associated with Whitemud Park

Subject: Whitemud Park

Hi,

I am a Master's student with Royal Roads University, and I am studying how various groups (for example, park users, nearby residents, or park staff) perceive urban wildlands such as Whitemud Park. As part of this study, I would like to survey people who visit the park, and I am hoping you can mention my on-line survey to the members of the Edmonton Nature Club. I suspect that many of your members visit Whitemud Park, and I would really like to include some of them in my study.

To reach people who use Whitemud Park, I am contacting various nature- and outdoor-organisations in Edmonton. I am hoping you can help me by mentioning my survey in your newsletter, on your website, or by e-mailing the link to your members. I am uncertain of the various options you may have. I can provide a small write up of my proposed study, if you'd like, or an advertisement. You can check out my survey at www.surveymonkey.com/whitemud. It takes about 30 minutes to complete.

I am doing this study because more and more people are interested in Edmonton's River Valley system. Edmonton continues to grow, and leaders in education, health and the environment encourage us to use the parks and forests around us. This increased interest may lead to conflicting ideas concerning the role of urban parks. The information I gather will aid not only park administrators, but also environmental educators who wish to use Edmonton's natural areas.

I would be happy to answer any questions that you might have. I can be reached at [e-mail address], or [phone number]. You are also welcome to establish my credentials

with Royal Roads University by contacting Dr. Rick Kool, Program Head –

Environmental Education and Communication, at [phone number] or [e-mail address].

I look forward to hearing from you.

Sincerely,

Dorothy Kelker, BSc.

Master's Student

Royal Roads University

phone: [phone number]

e-mail: [e-mail address]

Appendix C

Survey Preamble and Interview Waiver

Survey Preamble

How do you think? A Parks Perception Survey

Thank you for participating in my survey! I am exploring different perceptions of the River Valley parks, as part of my Master's thesis *Differing Perceptions of an Urban Wildland System*. **I am inviting you to participate in the first stage of this research, a survey that asks you about your perceptions of Whitemud Park.**

The survey should take about 30 minutes to complete, at no expense or risk to yourself beyond the donation of your time. (You are also welcome to participate in the second stage, an interview; you will be invited to do so at the end of the survey.)
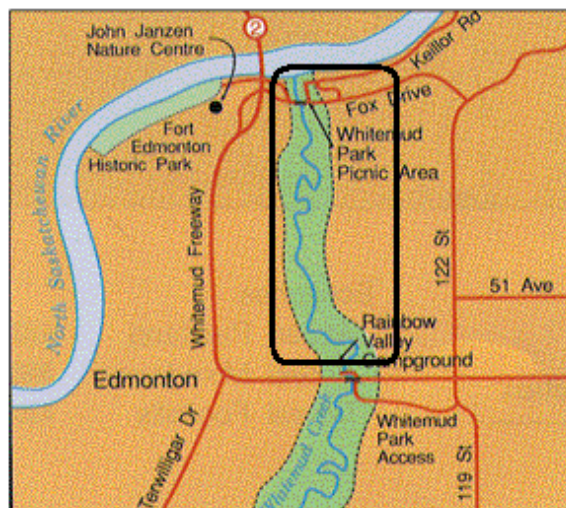
Location of Whitemud Park

The back of this page contains important information on:
- participation and withdrawal
- security, privacy and confidentiality
- my connection with Royal Roads University

Please keep this sheet for future reference.

Thank you for taking time to participate in my study! **Your completion of this survey will constitute your informed consent.** Please feel free to contact me if you have any questions.

Sincerely,

Dorothy Kelker, BSc.
Master's student, Royal Roads University
Phone: [phone number]
e-mail: [e-mail address]

Participation and Withdrawal

You must be at least 12 years old to complete this survey. If you are under 18 years of age, you must have permission from your parents.

You are not compelled to participate in this research project. You are also free to withdraw at any time without prejudice. Similarly, if you choose not to participate in this research project, I will keep this information in confidence.

To withdraw during the survey, simply do not return the survey. To withdraw after you complete the survey, please contact me and I will remove your responses if they are easily identifiable.

Security, Privacy and Confidentiality

No identifying information will be asked of you, other than optional contact information. Information will be stored on my personal computer. The information will be analysed and summarised, in anonymous format, in the body of the final report. **At no time will any specific comments be attributed directly to you.** All identifying information will be kept strictly confidential.

I will share the findings of this study with Royal Roads University. A copy of my thesis will be housed there, publicly accessible on-line through *UMI/Proquest* and the *Theses Canada* portal. I may also share the findings with organisations associated with Whitemud Park, such as the City of Edmonton and River Valley Programs (this study is independent of these organisations, however). I may also publish the findings in newsletters, peer-reviewed journals, and other media, and at conferences and other public venues. At no time will any specific comments be attributed directly to you. All identifying information will be kept strictly confidential and raw data will not be viewed by any other person beyond myself and my supervisors. The raw data will be kept for up to five years and then destroyed; the processed data (without identifying information) may be kept longer to facilitate publication of findings.

Other Information

This project is part of the requirement for a Master's Degree in Environmental Education and Communication, at Royal Roads University (RRU). You are welcome to establish my credentials by contacting Dr. Richard Kool, Program Head – Environmental Education and Communication, at [phone number] (toll free) or [e-mail address]. RRU's Research Ethics Board has reviewed and approved this study

Interview Waiver

I am exploring different perceptions of Edmonton residents towards the River Valley parks, as part of the study *Differing Perceptions of an Urban Wildland System.* I would like to include you in my study because you represent one of the many types of Whitemud Park users. **I am inviting you to participate in the second stage of this research, an interview.**

The interview will consist of a series of open-ended questions that explore the answers you gave in the initial survey, and explore the findings of the first stage of the research. All of the questions will deal with the perceptions of people in the study toward Whitemud Park. The whole process should only take about half-an-hour to forty-five minutes, at no expense or risk to yourself beyond the donation of your time.

Thank you for taking time to participate in my study! I am happy to answer any questions you may have before, during or after the interview.

Sincerely,

Dorothy Kelker, BSc.
Master's student, Royal Roads University
Phone: [phone number]
e-mail: [e-mail address]

Security, Privacy and Confidentiality

The interview will be recorded using both a cassette and digital recorder. The audio cassette will be stored in a locked box; the digital files will be stored, password protected, on my computer. In addition to the audio recording, I may make personal observations in writing; these notes will be kept in the same locked box. If you do not wish the interview to be taped, I can record your answers manually. The information will be analysed and summarised, in anonymous format, in the body of the final report. **At no time will any specific comments be attributed directly to you.** All identifying information will be kept strictly confidential and raw data will not be viewed by any other person beyond myself and my supervisors. The raw data will be kept for up to five years and then destroyed; the processed data (without identifying information) may be kept longer to facilitate publication of findings.

I will share the findings of this study with Royal Roads University (as part of my published thesis). A copy of my thesis will be housed at Royal Roads University, available online through *UMI/Proquest* and the *Theses Canada* portal and will be

publicly accessible. I may also share the findings with organisations associated with Whitemud Park, such as the City of Edmonton and River Valley Programs (this study is independent of these organisations, however). I may also publish the findings in newsletters, peer-reviewed journals, and other media, and at conferences and other public venues. At no time will any specific comments be attributed directly to you. The raw data will be kept for up to five years and then destroyed; the processed data (without identifying information) may be kept longer to facilitate publication of findings.

Participation and Withdrawal

You are not compelled to participate in this research project. If you do choose to participate, you are free to withdraw at any time without prejudice, and all records of your interview will be destroyed. Similarly, if you choose not to participate in this research project, this information will also be maintained in confidence. For those who participated in this study through your work, your choice to participate further will have no effect on your employment.

Other Information

This project is part of the requirement for a Master's Degree in Environmental Education and Communication, at Royal Roads University. You are welcome to establish my credentials with Royal Roads University (RRU) by calling Dr. Richard Kool, Professor – Environmental Education and Communication at [phone number] (toll free: [phone number]). RRU's Research Ethics Board has reviewed and approved this study.

A copy of this waiver and information sheet will be given to you.

Signatures

By signing this waiver:
- you give free and informed consent to participate in this project.
- give permission for Dorothy Kelker to record and transcribe this interview
- give permission for the transcript to be used (anonymously) in any reports and presentations that arise from this study
- give permission for the audio tapes and digital files to be deleted once the study is completed and published

Name of Participant (Please Print):   **Name of researcher (Please Print):**

_____   _____
Signed: _____   Signed: _____
Date: _____   Date: _____

Appendix D

Repertory Grid Survey

The following is the paper version of the survey. The electronic survey included one more sentence completion task and associated ratings, as well as "skip logic" which allowed the participant to jump to the end of the survey without completing the intervening pages.

How do *you* think? A Parks Perception Survey

About You

1. Age Range:
   - O 17 and under
   - O 18 – 30
   - O 31 – 40
   - O 41 – 50
   - O 51 – 60
   - O 61 – 70
   - O 71 – 80
   - O 81 – 90
   - O 91 and over

2. If you are 17 or younger:
   - O I have permission from my parent/guardian to do this survey

3. Gender:
   - O Female
   - O Male

4. I live in the following community:
   - O Aspen Gardens
   - O Brookside
   - O Bulyea Heights/Brookview
   - O Grandview Heights
   - O Lansdowne
   - O Other Edmonton Community
   - O I don't live in Edmonton

Park Use

1. I would describe my park use as:

   O non-existent – I never go to Whitemud Park
   (go directly to the next section, "Your Perceptions," p. 4)

   O sporadic – I go now and then (about once a month, on average)
   (jump to Question 4)

   O frequently – I visit the park at least once a week, throughout the year
   (jump to Question 4)

   O concentrated – I go frequently (at least once a week) at certain times of the year, but rarely at other times

   (complete Questions 2 and 3)

If you described your park use as "concentrated," please answer the following two questions:

2. I visit the park the *most* during this season:

O Spring	O Winter
O Summer	O Fall

3. I visit the park the *least* during this season:

O Spring	O Winter
O Summer	O Fall

4. Please indicate the three most common activities you do in Whitemud Park:

	Most Common Activity	2nd Most Common Activity	3rd Most Common Activity
walking			
dog-walking			
running			
biking			
horseback riding			
fishing			
canoeing/kayaking			
snowshoeing			
cross-country skiing			
tobogganing			
picnic/barbeque			
playing games in the picnic/field areas			
playing games in the forested areas			
bird/wildlife viewing			
park ranger duties			
leading environmental/outdoor education programs			
leading summer day-camps			
park maintenance duties			
other employment activities			
other activity (please list):			

5. Based on my most common activities in the park, I would classify myself as (pick one):

O Exercise-based park user (I use the park mostly for exercise)

O Nature-based park user (I use the park mostly to "enjoy nature")

O Social-outing park user (I use the park mostly to spend time with friends and/or family)

O Park Ranger

O Day-camp leader or outdoor/environmental program leader

O Park maintenance worker

O Other – I would classify myself as a: _____

Familiarity of Park Areas

The questions ahead will deal with several areas of Whitemud Park. *(Photographs and a map are provided in the accompanying booklet to help you identify each region.)*

Please rate your familiarity with each area:

	Very Unfamiliar 1	2	3	4	Very Familiar 5	Never been to that area
Main path along bottom of ravine	1	2	3	4	5	Never been
Whitemud Creek	1	2	3	4	5	Never been
Open hillside below Lansdowne	1	2	3	4	5	Never been
Path from Lansdowne farmland	1	2	3	4	5	Never been
Path from Brookside	1	2	3	4	5	Never been
Hillside below Brookside	1	2	3	4	5	Never been
Hillside below Grandview Heights	1	2	3	4	5	Never been
Toboggan hill/field near Fox Drive	1	2	3	4	5	Never been
Picnic area near Fox Drive	1	2	3	4	5	Never been
Mouth of Whitemud Creek	1	2	3	4	5	Never been

Your Perceptions

The next few pages each have two sections:
1. a sentence to complete, based on how you think about a particular area of the park
2. a series of rating scales that use the answers you provided in the first section to rate each area of the park.

Don't worry if you are unfamiliar with an area; use the photographs provided to imagine what that area is like. In fact, I am particularly interested in your perceptions of the unfamiliar areas.

You do not need to do all the remaining pages: do as many pages as you have time for, then go to the last page to finish the survey. If you find one page difficult, feel free to move on to the next.

Please think about the following area:

Hillside below Grandview Heights

-on the east slope of Whitemud ravine, below Grandview Heights
-a mixture of bushes and trees, with small paths throughout
-includes natural springs, partway up hillside
-accessible from parking lot near Fox Drive and from Grandview Heights

If you are unfamiliar with this area, please use the photos provided to imagine what it is like.

Consider the sentence:
"In the above area, I value *[Answer A]* , as opposed to *[Answer B]* ."

You might value the *narrow paths* because you can disappear into the bushes (Answer A). The opposite, in your mind, might be *wide open paths* with clear visibility (Answer B). Or you might value the *exercise* you get while moving through the area, as opposed to the *easy walk* that you might have in another area. I am not looking for a specific type of answer, just opposing pairs of ideas related to areas such as Whitemud Park.
Now, using single words or short phrases, please complete the same sentence using **your** values:

"In the above area, I value *[Answer A]* , as opposed to *[Answer B]* ."

Answer A _____

Answer B _____

Your two previous answers form a gradient, with Answer A on one side, and Answer B on the other. For example, if you completed the above sentence as:

"In the above area, I value the narrow paths , as opposed to wide open paths ."

The A---B gradient would be *narrow paths* ◄————► *wide open paths*.

Please rate each area using your answers from above.

extremely *A*	somewhat *A*	a little *A*	a little *B*	somewhat *B*	extremely *B*
1	2	3	4	5	6

◄————————————————————————————————————►

Please be careful that you use the correct numbers. 1-3 always refer to Answer A, and 4-6 always refer to Answer B (it's easy to get switched around).

*** Pictures are provided in the accompanying booklet.***

"The following areas are...

	Extremely A				**Extremely B**		**Not Applic-able**
	1	2	3	4	5	6	
Main path along bottom of ravine	1	2	3	4	5	6	N/A
Whitemud Creek	1	2	3	4	5	6	N/A
Open hillside below Lansdowne	1	2	3	4	5	6	N/A
Path from Lansdowne farmland	1	2	3	4	5	6	N/A
Path from Brookside	1	2	3	4	5	6	N/A
Hillside below Brookside	1	2	3	4	5	6	N/A
Hillside below Grandview Heights	1	2	3	4	5	6	N/A
Toboggan hill/field near Fox Drive	1	2	3	4	5	6	N/A
Picnic area near Fox Drive	1	2	3	4	5	6	N/A
Mouth of Whitemud Creek	1	2	3	4	5	6	N/A
The *whole* of Whitemud Park, as it is now	1	2	3	4	5	6	N/A
The *whole* of Whitemud Park, as you would like it to be (its ideal form)	1	2	3	4	5	6	N/A

Please think about the following area:

Main path along bottom of ravine

-mostly flat or low hills
-mostly through forests of tall trees, with scattered open areas
-accessible from Snow Valley Ski Club and from parking lot near Fox Drive

If you are unfamiliar with this area, please use the photos to imagine what it is like.

Please complete the following sentence:

"When I am in the above area, I feel _[Answer A]_ , as opposed to _[Answer B]_ ."

Answer A _____

Answer B _____

Your two previous answers form a gradient, with Answer A one side, and Answer B on the other. Please rate each area using this *A----B* gradient.

extremely *A*	somewhat *A*	a little *A*	a little *B*	somewhat *B*	extremely *B*
1	2	3	4	5	6

Please be careful that you use the correct numbers. 1-3 always refer to Answer A, and 4-6 always refer to Answer B (it's easy to get switched around).

Pictures are provided in the accompanying booklet.

"When I am in the following area, I feel...

	Extremely A					Extremely B	Not Applic-able
	1	2	3	4	5	6	
Main path along bottom of ravine	1	2	3	4	5	6	N/A
Whitemud Creek	1	2	3	4	5	6	N/A
Open hillside below Lansdowne	1	2	3	4	5	6	N/A
Path from Lansdowne farmland	1	2	3	4	5	6	N/A
Path from Brookside	1	2	3	4	5	6	N/A
Hillside below Brookside	1	2	3	4	5	6	N/A
Hillside below Grandview Heights	1	2	3	4	5	6	N/A
Toboggan hill/field near Fox Drive	1	2	3	4	5	6	N/A
Picnic area near Fox Drive	1	2	3	4	5	6	N/A
Mouth of Whitemud Creek	1	2	3	4	5	6	N/A
The *whole* of Whitemud Park, as it is now	1	2	3	4	5	6	N/A
The *whole* of Whitemud Park, as you would like it to be (its ideal form)	1	2	3	4	5	6	N/A

Feel free to skip one or both of the remaining pages. **You do not need to complete the entire survey.** If you want to finish, please complete the last page (p. 14) and return the survey.

<p align="center">* * * * * * * * *</p>

Please think about the *whole* of Whitemud Park, as it is <u>now</u>.

Using single words or short phrases, please complete the following sentence:

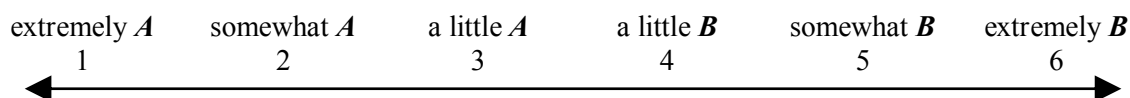"The current purpose of Whitemud Park is *[Answer A]* , as opposed to *[Answer B]*."

Answer A _____

Answer B _____

Your two previous answers form a gradient, with Answer A one side, and Answer B on the other. Please rate each area using this *A----B* gradient.

extremely *A*	somewhat *A*	a little *A*	a little *B*	somewhat *B*	extremely *B*
1	2	3	4	5	6
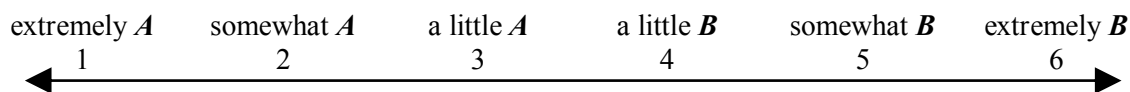
Please be careful that you use the correct numbers. 1-3 always refer to Answer A, and 4-6 always refer to Answer B (it's easy to get switched around).

Pictures are provided in the accompanying booklet.

"The purpose of the following area is...

	Extremely A				Extremely B		Not Applic -able
	1	2	3	4	5	6	
Main path along bottom of ravine	1	2	3	4	5	6	N/A
Whitemud Creek	1	2	3	4	5	6	N/A
Open hillside below Lansdowne	1	2	3	4	5	6	N/A
Path from Lansdowne farmland	1	2	3	4	5	6	N/A
Path from Brookside	1	2	3	4	5	6	N/A
Hillside below Brookside	1	2	3	4	5	6	N/A
Hillside below Grandview Heights	1	2	3	4	5	6	N/A
Toboggan hill/field near Fox Drive	1	2	3	4	5	6	N/A
Picnic area near Fox Drive	1	2	3	4	5	6	N/A
Mouth of Whitemud Creek	1	2	3	4	5	6	N/A
The *whole* of Whitemud Park, as it is now	1	2	3	4	5	6	N/A
The *whole* of Whitemud Park, as you would like it to be (its ideal form)	1	2	3	4	5	6	N/A

Feel free to skip this page if you want to finish. To finish, please complete the last page (p. 14) and return the survey.

<div align="center">* * * * * * * * *</div>

Please think about the following area:

Picnic area near Fox Drive

-at the north end of the park, near the North Saskatchewan River and Fox Drive
-accessible by car from Fox Drive

Please complete the following sentence, using ideas not given earlier:

"I wish the above area was _[Answer A]_ , as opposed to _[Answer B]_ ."

Answer A _____

Answer B _____

Please rate each area:
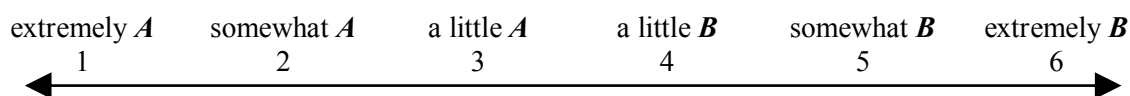
extremely *A*	somewhat *A*	a little *A*	a little *B*	somewhat *B*	extremely *B*
1	2	3	4	5	6

Please be careful that you use the correct numbers. 1-3 always refer to Answer A, and 4-6 always refer to Answer B (it's easy to get switched around).

"The following area is...

	Extremely A				**Extremely B**		**Not Applic**
	1	2	3	4	5	6	**-able**
Main path along bottom of ravine	1	2	3	4	5	6	N/A
Whitemud Creek	1	2	3	4	5	6	N/A
Open hillside below Lansdowne	1	2	3	4	5	6	N/A
Path from Lansdowne farmland	1	2	3	4	5	6	N/A
Path from Brookside	1	2	3	4	5	6	N/A
Hillside below Brookside	1	2	3	4	5	6	N/A
Hillside below Grandview Heights	1	2	3	4	5	6	N/A
Toboggan hill/field near Fox Drive	1	2	3	4	5	6	N/A
Picnic area near Fox Drive	1	2	3	4	5	6	N/A
Mouth of Whitemud Creek	1	2	3	4	5	6	N/A
The *whole* of Whitemud Park, as it is now	1	2	3	4	5	6	N/A
The *whole* of Whitemud Park, as you would like it to be (its ideal form)	1	2	3	4	5	6	N/A

Thanks for completing my survey!

The second stage of this study consists of a 45-minute interview that further explores the results of this survey. May I contact you for a follow-up interview?

O Yes (please provide e-mail or phone number below)

O No

Would you like to be sent the executive summary of this research?

O Yes (please provide e-mail or mailing address below)

O No

Contact Information (optional):

e-mail:_____

phone: _____

I may use this information to contact you for the above reasons. I will not give it to any other person or organisation.

mailing address:

Comments:

Thank you for completing my survey! To return it, mail or drop it off at either location:

Dorothy Kelker
[Address 1]

Dorothy Kelker
[Address 2]

Alternatively, call me at [phone number] and I will pick up the survey.

If you have any questions about the project, please feel free to contact me at [e-mail address] or [phone number].

Sincerely,

Dorothy Kelker
Master's Student
Environmental Education and Communication
Royal Roads University

ROYAL ROADS
UNIVERSITY
Learner

Appendix E

Sample Semi-Structured Interview Questions

Interview Question	Research Objective(s)
Introduction	
1. When were you last at Whitemud Park?	
2. Get context – frequency, how long participant has been going to Whitemud Park	
3. Which section of the park do you use most, and why? Least – why? (this question may generate new constructs)	1, 3
Ideal versus Current Park	
4. Please describe your ideal version of Whitemud Park.	2
5. How closely do you think Whitemud Park, as it is today, matches your ideal version of Whitemud Park?	2
6. Which sections of the park are closest to your ideal? Farthest from your ideal? Why?	2, 3
Discussing the Interviewee's Constructs	
Looking at the survey that you did last month, these are the pairs of opposing ideas (constructs) that you listed:	
a. Natural vs. Manicured	
b. To enjoy/bond with nature vs. Forgetting it exists	
c. Easy going vs. strained	
d. Enjoyed by more people vs. Barely used	
e. Individuals vs. Commercial businesses	
7. Do you have any comments about the type of constructs you provided?	1

Sample Semi-Structured Interview Questions (continued)

Interview Question	Research Objective(s)
8. Why do you think you view parts of Whitemud Park in terms of "natural/manicured"? Why do you value natural over manicured?	1
9. Why the focus on how the park is used? E.g. "to enjoy/bond with nature/forgetting it exists" and "enjoyed by more people/barely used"	1

Discussing Group Themes

Many of constructs provided by other people fell into one of three main categories:
- Contrasting Nature/Whitemud Park with the City Environment
- Protecting the Whitemud Park environment
- The degree of park maintenance (e.g. level of trail development)

While one of your constructs fell into the Degree of Maintenance category (natural vs. manicured), your other constructs fell into some of the smaller categories (e.g. Park Interaction Characteristics, or Positive vs. Negative Emotions).

10. Why do you think you did not provide constructs in the Urban Comparison theme? The Ecosystem Protection theme? Are these categories relevant to you?	1

Other comments?

Appendix F

Bipolar Constructs Elicited Using the Survey

Urban Comparison

Emergent Pole (Answer A)	Implicit Pole (Answer B)
Splendour *[sic]* of natural environment in middle of big city	human-made streetscape
relaxed and invigorated, in awe of the natural beauty in the middle of a city	feeling like I live in a big city
An oasis in the city	Another city street
to enjoy nature in the city	manicured lawns
offer a natural playground and sanctuary in an urban area	urban development
almost out of the city	in the city
removed from the city	right in the middle of it
away from the city	in a populated polluted environment
outside the city	surrounded by people/cars/noise
away from the "business" of the city	in a loud, crowded city
Seclusion from the city noise	visibility
to privide *[sic]* a natural escape from the city and to preserve natural land within the city	simply create greenery
a refuge for people and nature	another city park
the enjoyment of a natural environment, removed from the cacophany *[sic]* of city noise	an over-used intrusion into the natural environment full of man-made structures
experience in nature	experience in a city scape *[sic]*
experience nature	city park
nature	city
in a natural area	in an urban area
out of doors	in the city
in nature	in the city

Urban Comparison (continued)

Emergent Pole (Answer A)	Implicit Pole (Answer B)
the signs of nature	city noise
nature is important	hearing traffic
green space	development
enjoy nature	surrounded by concrete
closer to nature	walking on concrete
about enjoying nature	becoming a cement city
to enjoy and maintain nature	become a cement city

Ecosystem Protection

Emergent Pole (Answer A)	Implicit Pole (Answer B)
watching wildlife	dumping garbage
recreation	dumping garbage and dogs' business
enjoying clean water	dumping
canoeing, skiing, snowshoeing	storm sewer run-off
wildlife habitat	dumping
viewing and education	activities that might disrupt nature
to allow people to experience unspoiled natural beauty	provide a congested thoroughfare through the park
outdoor recreation and conservation	manicured (desolate)
hiking, nature, animal watching and bird watching	commercialization or redevelopment
hiking, cross-country skiing, wildlife viewing	further development of any type
recreation	development
enjoyment of nature, exercise, quiet, tranquil space	further development of any type
enjoyment of nature	ordered landscape
provide recreation in a park setting	protecting and providing for some appropriate recreational opportunities

Ecosystem Protection (continued)

Emergent Pole (Answer A)	Implicit Pole (Answer B)
preserve nature	provide recreation
preserved	over-developed
preserving the tufa spring	wide trails
nature	people
left as it is	becoming a less natural setting
left as is	added to
unchanged	changed
happy with the things the way they are	disruption of the paths and natural scenery
left the way it is in its natural state	anyone coming up with some crazy idea for redevelopment
the paths, nature, wildlife and scenery	any type of redevelopment or commercialization
walking in natural areas	walking in overly disturbed and eroded

Degree of Maintenance

Emergent Pole (Answer A)	Implicit Pole (Answer B)
wilderness aspect	developed park areas ie *[sic]* north Hermitage
wild growth	man-made paths (gravel or wood chips)
wild	maintained
varied wilderness	uniformly groomed
a variety of naturally occuring *[sic]* plants	trees planted and maintained by the city
trees	groomed trails
green space	developed/groomed
the natural growth of the area	the more developed groomed areas
natural ecology	development
Natural	planned
the natural landscape	more manufactured paths
natural	manicured
a more natural rugged setting	paved and civilized
natural	groomed trails
natural landscape and materials for paths	man-made structures, paved paths
more natural	less developed
natural	manufactured
was more natural	an unatural *[sic]* expanse of cropped green
more natural	more manicured
relatively undisturbed nature	highly groomed trails
A rustic hiking trail	stairs and pavement
unmaintained trail	maintained trail
[leave] less developed	[than] more

Activity Restriction

Emergent Pole (Answer A)	Implicit Pole (Answer B)
track-set on bottom trails	not track-set
great for cross-country skiing	narrow with roots
canoes	no boating
kayaking and nature watching	restricted access excluding bikes and boats
beavers and kayaks	no access
easy access for picnics	no place to sit
environment	ease of movement
compelled to trek	deterred from hiking
I can walk nicely in various weather condition *[sic]*	a path that varies with the weather condition *[sic]*
good footing	dangerous footing
open paths	narrow paths so I can move quickly along and have good sight lines.
accessible walking paths	unaccessible *[sic]* paths
dry paths -- easier to walk on	soggy paths -- making walking more difficult
the gladed *[sic]* pathway as a means of traveling through the forest	iced paths depending on winter conditions

Positive Versus Negative Emotions

Emergent Pole (Answer A)	Implicit Pole (Answer B)
easy going	strained
serene and refreshed	agitated and burdened
relaxed	tense
relieved	anxious
calm	frantic
peace, serenity, tranquility	stress, anxiety
relaxed	stressed
peaceful and happy	nervous and bothered
happy and relaxed	anxious
elated	stress
free	confined
refreshed by the natural environment	hemmed in by the urban sprawl
comfortable	uncomfortable

Physical Descriptions

Emergent Pole (Answer A)	Implicit Pole (Answer B)
very straight	windy
winding paths	apparent dead ends
narrow paths	gravel trails
narrow paths in the woods	icy hills
[picnic area was] dry	wet
farther from traffic	near busy road
treed (along the north edge)	right on top of Fox Drive
plants and occasional animals	mud and snow
I enjoy the narrow paths and wildlife	open areas and lack of wildlife
the closeness of the paths and nature	wide open areas
straight and empty	natural and winding
the walking paths	the bush

Level of Use

Emergent Pole (Answer A)	Implicit Pole (Answer B)
better known and used by more families	left under-used for quiet reflection
enjoyed by more people	barely used
Narrow paths with isolation and closeness to nature	Wide busy paths meeting many people
for leisurely outings away from an urban traffic	a park that could become "too busy" with activity
low-impact trails that allow for quiet walks	multi-use trails that bring noise and speed
Sociable, meeting people and getting excercise *[sic]*	Introspective and communing with nature
the feeling of being in the nature	a more frequented path
open, well used paths	"animal paths"

Alternative Activities

Emergent Pole (Answer A)	Implicit Pole (Answer B)
natural recreational activities	mechanized recreational activities
walking in wooded surroundings	motorized dog walking
wildlife and wildlife viewing	active recreation
for people to enjoy a natural enviroment *[sic]*	an exercise gym or a place for dogs to do their business
recreation and educational	large traffic and picnic area
spiritual retreat	loud alchohol-fueled parties
to enjoy nature	burn things in the fire pit

Park Interaction Characteristics

Emergent Pole (Answer A)	Implicit Pole (Answer B)
more guided and directed	being free to explore
an organised and directed experience of nature	a completely free experience in nature
to enjoy/bond with nature	forgetting it exists
outdoor enjoyment	outdoor satisfaction
allowing people to experience nature in a social environment	allowing people to get away from others to experience nature
allowing people to experience nature in what they feel is a safe environment	protecting nature from people
nature based experience	developed, noisy experience

Exposure

Emergent Pole (Answer A)	Implicit Pole (Answer B)
more sheltered	more exposed
secluded serene	open and exposed
divided	completely open
More secluded	In the open
quiet, closed-in path	wide-open field
more exposed	in the bush

Safety

Emergent Pole (Answer A)	Implicit Pole (Answer B)
safe and at peace as it is well maintained	unsafe and worried about getting lost
better used	kind of creepy
maintained as a safe place for families to enjoy	neglected
safely and creatively managed	left undersigned *[sic]*

Users

Emergent Pole (Answer A)	Implicit Pole (Answer B)
very valuable to all people in Edmonton	anyone thinking of redevelopment or commercialization
individuals	commercial business
maintained by the city as a multipurpose park for both young and old to enjoy	become available for commercialization or neglected [due] to lack of park funds allocated
safe walking paths for all levels of fitness (including wheelchairs)	paths restricted to only the very fast and fit

Other Emotions

Emergent Pole (Answer A)	Implicit Pole (Answer B)
calm	excited
too much space	part of nature
in a spacious area	crowded

Predictability

Emergent Pole (Answer A)	Implicit Pole (Answer B)
mysterious	predictable
the narrow paths for the closeness to vegetation + its variety	open paths offer fewer unexpected interests
disorder	order

Miscellaneous

Emergent Pole (Answer A)	Implicit Pole (Answer B)
a great view point	ugly and boring
good exercise	easy walk
more natural	empty
highly valued by me and my family	neglected by the City of Edmonton
people to use and enjoy	--
enjoying nature and exercising	no downside!