PLAN FOR A PLAYFUL CITY:
A TYPOLOGY OF LUDIC WAYS TO INCREASE PEDESTRIAN ACTIVITY

By:

Gabrielle M. Donoff

A Thesis submitted to the Faculty of Graduate Studies

University of Manitoba

In partial fulfillment of the requirements of the degree of

MASTER OF CITY PLANNING

Department of City Planning

Faculty of Architecture

University of Manitoba

Winnipeg

ABSTRACT

This research explores play as a motivator for pedestrian activity. A typology of playful pedestrian motivators grew from a literature review of walkability and public space, design for winter cities, and the developing concept of *ludic cities* (spaces guiding spontaneous and undirected playfulness). The typology was tested through comparison across 27 cases of playful urban pedestrian interventions. This process highlights what play can contribute to urban form, and what might be missing from standardized processes of designing, creating and evaluating pedestrian space. The analysis highlights key processes and design elements for incorporating play into the urban environment.

ACKNOWLEDGEMENTS

I would like to extend my thanks to the many people who helped make this project an enriching and productive learning experience. I am privileged to have worked with so many inspiring and committed professionals during this work.

Thank you to Dr. Rae Bridgman, my trusted mentor and advisor for this thesis. Your creativity, encouragement, and wisdom are inspiring, and I am lucky to be partnered with such a well-versed and kind faculty member. Thanks also to Dr. Richard Milgrom, for pushing this research to its most productive form, and for supporting this work within the Department of City Planning. Thank you also to Dr. Ann Marie Murnaghan, for your continued support and encouragement.

Thank you also to my City Planning peers and faculty for passing along relevant findings and offering your support. The encouraging nature of this department will guide my approach to collaborative work throughout my career.

A special thank you to the best papa ever, Dr. Michel Donoff: for all of your acknowledged professional and academic successes, it means the world to me that I can share this academic debut of mine with the presence of your creative expression across these pages. Thank you so much for illustrating this work and enlivening this project where words could not. Thank you also to the many designers and photographers who gave me permission to reproduce their photographs, and a special thanks to those who also offered up high quality versions.

I would also like to acknowledge the support I have received from the University of Manitoba Graduate Fellowship, and the Corrigill Scholarship in City Planning.

Thank you especially to my family and friends for supporting me all the way. I hope in turn I can inspire your lives in a ludic way!

Thank you!

TABLE OF CONTENTS

Abstract I
Acknowledgements II
Table of contents III
List of tables V
List of figures VI
List of copyright material for which permission was obtained VIII

CHAPTER I: INTRODUCTION
- 1.1 Introduction 1
- 1.2 Background 2
- 1.3 Research questions 4
- 1.4 Significance of research 4
- 1.5 Assumptions and limitations 6
- 1.6 Overview of thesis 8

CHAPTER II: METHODS
- 2.1 Theoretical framework 9
- 2.2 Research field 10
- 2.3 Literature review 10
- 2.4 Typology 12
- 2.5 Visual representations 15
- 2.6 Analysis 16
- 2.7 Ethics 17

CHAPTER III: LITERATURE REVIEW
- 3.1 Introduction 18
- 3.2 Good planning: Walkability and public space 18
- 3.3 Design for winter cities 33
- 3.4 Urban play: Ludic cities 47
- 3.5 Summary 60

CHAPTER IV: FINDINGS
- 4.1 Definition of a ludic pedestrian motivator 66
- 4.2 Typology 67
- 4.3 Applying the typology to cases 69
- 4.4 Trends 129
- 4.5 A typology of ludic ways to increase pedestrian activity 136

CHAPTER V: DISCUSSION
- 5.1 Implications for planning practice 139
- 5.2 Recommendations for future study 142
- 5.3 Conclusion 145

REFERENCES 151

APPENDIX
Appendix A: Copyright permission request sample letter 162

LIST OF TABLES

Table 1: Elements of design to encourage pedestrian activity 61
Table 2: Elements of design to encourage pedestrian activity in winter cities 63
Table 3: Ludic elements of design to encourage pedestrian activity 65
Table 4: Design elements summarized from case examples 130

LIST OF FIGURES

Figure 1: Typology of element types for ludic pedestrian motivators 68
Figure 2: 21 Balançoires (21 Swings) 71
Figure 3: 21 Balançoires (21 Swings) 71
Figure 4: 99 Tiny Games by Hide & Seek 74
Figure 5: Boom Bench by NL Architects 76
Figure 6: Boom Bench by NL Architects 76
Figure 7: Chatterbox by SoulPancake 78
Figure 8: Cloud Gate by Anish Kapoor 80
Figure 9: Das Netz by NL Architects 82
Figure 10: Das Netz by NL Architects 82
Figure 11: Das Netz by NL Architects 83
Figure 12: Entree Station Overvecht/ Transit Accelerator by HIK Ontwerpers 85
Figure 13: Fire hydrant-cum-water-fountain by Thor ter Kulve 87
Figure 14: In Orbit by Tomas Saraceno 89
Figure 15: In Orbit by Tomas Saraceno 89
Figure 16: In Orbit by Tomas Saraceno 90
Figure 17: In Orbit by Tomas Saraceno 90
Figure 18: La Ville Molle (The Soft City) by Raum 92
Figure 19: Limelight by Sans Façon 94
Figure 20: Limelight by Sans Façon 94
Figure 21: Mario Kart Bike Lane 96
Figure 22: Moving Forest by NL Architects 98
Figure 23: Moving Forest by NL Architects 98
Figure 24: Moving Forest by NL Architects 99
Figure 25: Off-Ground by Jair Straschnow and Giette Nygaard 101
Figure 26: Off-Ground by Jair Straschnow and Giette Nygaard 101
Figure 27: Park and slide by Luke Jerram 103
Figure 28: Park and slide by Luke Jerram 103
Figure 29: Piano Stairs 105
Figure 30: Pinball Exercise Machine by Omar Sotomayor 107
Figure 31: Playground by The Wa 109
Figure 32: Playground by The Wa 109
Figure 33: Pop up Swing by Thor ter Kulve 111
Figure 34: Pulse of the City by George Zisiadis 113
Figure 35: Pulse of the City by George Zisiadis 113
Figure 36: Red Swing Project 115
Figure 37: Roombeek The Brook by Buro Sant en Co 117
Figure 38: Sonus Loci by Stantec and Leanne Zacharias 119
Figure 39: Sonus Loci by Stantec and Leanne Zacharias 119
Figure 40: Stairway cinema by Oh.No.Sumo 121
Figure 41: Stairway cinema by Oh.No.Sumo 121
Figure 42: Stairway cinema by Oh.No.Sumo 122
Figure 43: Stairway cinema by Oh.No.Sumo 122
Figure 44: Tent Pile by Formlessfinder 124
Figure 45: Tent Pile by Formlessfinder 124

Figure 46: Whoopdeedoo by Greg Papove 126
Figure 47: Whoopdeedoo by Greg Papove 126
Figure 48: Zet die knop om! Switch that button! By HIK Ontwerpers 128
Figure 49: Zet die knop om! Switch that button! By HIK Ontwerpers 128
Figure 50: A typology of ludic ways to increase pedestrian activity 138

LIST OF COPYRIGHT MATERIAL FOR WHICH PERMISSION WAS OBTAINED

Figure 2 (page 71): 21 Balançoires (21 Swings). Reproduced with permission granted on February 2, 2014: Blouin, O. (2013). 21 Balançoires. Daily Tous Les Jours. Retrieved from http://www.dailytouslesjours.com/project/21-balancoires/. See also www.olivierblouin.com.

Figure 3 (page 71): 21 Balançoires (21 Swings). Reproduced with permission granted on February 2, 2014: Blouin, O. (2013). 21 Balançoires. Daily Tous Les Jours. Retrieved from http://www.dailytouslesjours.com/project/21-balancoires/. See also www.olivierblouin.com

Figure 4 (page 74): 99 Tiny Games by Hide & Seek. Reproduced with permission granted on June 19, 2014: Donoff, M. (2014) [personal sketch].

Figure 5 (page 76): Boom Bench by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2008). Boom Bench. *Projects.* From http://www.nlarchitects.nl/projects/

Figure 6 (page 76): Boom Bench by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2008). Boom Bench. *Projects.* From http://www.nlarchitects.nl/projects/

Figure 7 (page 78): Chatterbox by SoulPancake. Reproduced with permission granted on June 19, 2014: Donoff, M. (2014). [Personal sketch].

Figure 8 (page 80): Cloud Gate by Anish Kapoor. Reproduced with permission granted on June 19, 2014: Donoff, D. (2013). [Personal photograph].

Figure 9 (page 82): Das Netz by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2006). Das netz. *Projects.* From http://www.nlarchitects.nl/projects/

Figure 10 (page 82): Das Netz by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2006). Das netz. *Projects.* From http://www.nlarchitects.nl/projects/

Figure 11 (page 83): Das Netz by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2006). Das netz. *Projects.* From http://www.nlarchitects.nl/projects/

Figure 12 (page 85): Entrée Station Overvecht/ Transit Accelerator by HIK Ontwerpers. Reproduced with permission granted on April 9, 2014: HIK Ontwerpers. (2014a). Entrée Station Overvecht. Retrieved from http://www.hik-ontwerpers.nl/projecten/entree-station-overvecht/

Figure 13 (Page 87): Fire hydrant-cum-water fountain by Thor ter Kulve. Reproduced with permission granted on April 3, 2014: Thor ter Kulve. (2012). Fire hydrant water fountain. Photograph by Florestan Korp. Retrieved from http://www.thorterkulve.nl

Figure 14 (page 89): In Orbit by Tomas Saraceno. Saraceno, T. (2013). In Orbit. Licensed by Creative Commons by NC ND 3.0. Retrieved from http://www.tomassaraceno.com

Figure 15 (page 89): In Orbit by Tomas Saraceno. Saraceno, T. (2013). In Orbit. Licensed by Creative Commons by NC ND 3.0. Retrieved from http://www.tomassaraceno.com

Figure 16 (page 90): In Orbit by Tomas Saraceno. Saraceno, T. (2013). In Orbit. Licensed by Creative Commons by NC ND 3.0. Retrieved from http://www.tomassaraceno.com

Figure 17 (page 90): In Orbit by Tomas Saraceno. Saraceno, T. (2013). In Orbit. Licensed by Creative Commons by NC ND 3.0. Retrieved from http://www.tomassaraceno.com

Figure 18 (page 92): La Ville Molle (The Soft City) by Raum. Reproduced with permission granted on June 19, 2014: Donoff, M. (2014) [personal sketch].

Figure 19 (page 94): Limelight by Sans Façon. Reproduced with permission granted on April 11, 2014: Sans Façon. (2014). Limelight: Saturday night. Retrieved through email communication; also available at http://limelightontour.blogspot.ca

Figure 20 (page 94): Limelight by Sans Façon. Reproduced with permission granted on April 11, 2014: Sans Façon. (2014). Limelight: Saturday night. Retrieved through email communication with Sans Façon; also available at http://limelightontour.blogspot.ca

Figure 21 (page 96): Mario Kart Bike Lane. Reproduced with permission granted on June 19, 2014: Donoff, M. (2014) [personal sketch].

Figure 22 (page 98): Moving Forest by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2008). Moving Forest. Retrieved through email communication with NL Architects.

Figure 23 (page 98): Moving Forest by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2008). Moving Forest. Retrieved through email communication with NL Architects.

Figure 24 (page 99): Moving Forest by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2008). Moving Forest. Retrieved through email communication with NL Architects.

Figure 25 (page 101): Off-Ground by Jair Straschnow and Gitte Nygaard. Reproduced with permission granted on April 10, 2014: Straschnow, J., & Nygaard, G. (2014). Off-ground. Retrieved from www.off-ground.com

Figure 26 (page 101): Off-Ground by Jair Straschnow and Gitte Nygaard. Reproduced with permission granted on April 10, 2014: Straschnow, J., & Nygaard, G. (2014). Off-ground. Retrieved from www.off-ground.com

Figure 27 (page 103): Park and slide by Luke Jerram. Reproduced with permission granted on April 9, 2014: Jerram, L. (2014). Park and slide. *Life art.* Retrieved from http://www.lukejerram.com/projects/urban_slide

Figure 28 (page 103): Park and slide by Luke Jerram. Reproduced with permission granted on April 9, 2014: Jerram, L. (2014). Park and slide. *Life art.* Retrieved from http://www.lukejerram.com/projects/urban_slide

Figure 29 (page 105): Piano Stairs. Reproduced with permission granted on June 19, 2014: Donoff, M. (2014) [personal sketch].

Figure 30 (page 107): Pinball Exercise Machine by Omar Sotomayor. Reproduced with permission granted on April 8, 2014: Sotomayor, O. (2014). Image received through email communication.

Figure 31 (page 109): Playground by The Wa. Reproduced with permission granted on April 10, 2014: The Wa. (2011). Playground. Photo by Antoine Riviere. Retrieved from http://www.the-wabsite.com/works/2011/playground/

Figure 32 (page 109): Playground by The Wa. Reproduced with permission granted on April 10, 2014: The Wa. (2011). Playground. Photo by Antoine Riviere. Retrieved from http://www.the-wabsite.com/works/2011/playground/

Figure 33 (page 111): Pop up swing by Thor ter Kulve. Reproduced with permission granted on April 3, 2014: Thor ter Kulve. (2012). Fire hydrant water fountain. Photograph by Florestan Korp. Retrieved from http://www.thorterkulve.nl

Figure 34 (page 113): Pulse of the City by George Zisiadis. Reproduced with permission granted on April 9, 2014: Zisiadis, G. (2012). Pulse of the city. *Work.* Retrieved from http://www.georgezisiadis.com/#/pulse-of-the-city/

Figure 35 (page 113): Pulse of the City by George Zisiadis. Reproduced with permission granted on April 9, 2014: Zisiadis, G. (2012). Pulse of the city. *Work.* Retrieved from http://www.georgezisiadis.com/#/pulse-of-the-city/

Figure 36 (page 115): Red Swing Project. Reproduced with permission granted on June 19, 2014: Donoff, M. (2014) [personal sketch].

Figure 37 (page 117): Roombeek The Brook. Reproduced with permission granted on June 19, 2014: Donoff, M. (2014) [personal sketch].

Figure 38 (page 119): Sonus Loci. Reproduced with permission granted on April 8, 2014: Norman, L. (2013). Winter fun on the rivers, January 29, 2013. Retrieved from http://www.leifnorman.net/winter-fun-on-the-rivers-jan-29-2013/

Figure 39 (page 119): Sonus Loci. Reproduced with permission granted on April 8, 2014: Norman, L. (2013). Winter fun on the rivers, January 29, 2013. Retrieved from http://www.leifnorman.net/winter-fun-on-the-rivers-jan-29-2013/

Figure 40 (page 121): Stairway cinema by Oh.No.Sumo. Reproduced with permission granted on April 9, 2014: Oh.No.Sumo. (2012). Stairway Cinema. Photographs by Simon Devitt. Retrieved from http://ohnosumo.com/tagged/Stairway-Cinema

Figure 41 (page 121): Stairway cinema by Oh.No.Sumo. Reproduced with permission granted on April 9, 2014: Oh.No.Sumo. (2012). Stairway Cinema. Photographs by Simon Devitt. Retrieved from http://ohnosumo.com/tagged/Stairway-Cinema

Figure 42 (page 122): Stairway cinema by Oh.No.Sumo. Reproduced with permission granted on April 9, 2014: Oh.No.Sumo. (2012). Stairway Cinema. Photographs by Simon Devitt. Retrieved from http://ohnosumo.com/tagged/Stairway-Cinema

Figure 43 (page 122): Stairway cinema by Oh.No.Sumo. Reproduced with permission granted on April 9, 2014: Oh.No.Sumo. (2012). Stairway Cinema. Photographs by Simon Devitt. Retrieved from http://ohnosumo.com/tagged/Stairway-Cinema

Figure 44 (page 124): Tent pile by Formlessfinder. Reproduced with permission granted on April 11, 2014: Formlessfinder. (2013). Tent Pile. In Thomson, S. (9 December 2013) Formlessfinder summons architecture from sand at Design Miami. *Architizer.* Retrieved from http://architizer.com/blog/formless-finder-miami/

Figure 45 (page 124): Tent pile by Formlessfinder. Reproduced with permission granted on April 11, 2014: Formlessfinder. (2013). Tent Pile. In Thomson, S. (9 December 2013) Formlessfinder summons architecture from sand at Design Miami. *Architizer.* Retrieved from http://architizer.com/blog/formless-finder-miami/

Figure 46 (page 126): Whoopdeedoo by Greg Papove. Reproduced with permission granted on April 7, 2014: Papove, G. (2014). Whoopdeedoo Vancouver. Retrieved from www.gregpapove.com/Whoopdeedoo-vancouver

Figure 47 (page 126): Whoopdeedoo by Greg Papove. Reproduced with permission granted on April 7, 2014: Papove, G. (2014). Whoopdeedoo Vancouver. Retrieved from www.gregpapove.com/Whoopdeedoo-vancouver

Figure 48 (page 128): Zet die knop om!/Switch that button! by HIK Ontwerpers. Reproduced with permission granted on April 9, 2014: HIK Ontwerpers. (2008). Zet die knop om! Retrieved from http://www.hik-ontwerpers.nl/projecten/zet-die-knop-om/

Figure 49 (page 128): Zet die knop om!/Switch that button! by HIK Ontwerpers. Reproduced with permission granted on April 9, 2014: HIK Ontwerpers. (2008). Zet die knop om! Retrieved from http://www.hik-ontwerpers.nl/projecten/zet-die-knop-om/

CHAPTER I: INTRODUCTION

1.1 Introduction

This research explores play as a motivator for increasing pedestrian activity in the urban landscape. To consider how planners can support the design of playful pedestrian spaces, academic literature and urban design interventions that encourage playful pedestrian activity were compared. First, an interdisciplinary literature review was conducted to connect understandings of good pedestrian environments with winter city design, and our understanding of play as a human motivator. A base understanding of good pedestrian space is essential for incorporating play in a way that will encourage known pedestrian motivators. It is equally important to consider how play might change throughout the four seasons common across Canada, particularly in the prairies where deep snow and wind are typical.

Understanding how humans are motivated by play, and examining existing intersections of play and urbanism finalizes the components necessary for analysis. This second step compares an academic understanding of play as pedestrian motivator with 27 examples of playful urban interventions. The resulting similarities and differences can help to inform city planners about important process and design considerations for supporting playful pedestrian spaces. The goal of this research is not to settle on a best practice or best type of urban play, but to inspire and identify ways city planning can increase the rate and types of pedestrian activity by using play to increase engagement.

1.2 Background

Researchers in many fields are exploring ways to help Canadians achieve high standards of mental and physical health. The preventative health measure of maintaining physical activity is widely supported. There are many formalized resources for encouraging activity, but the simplest way to achieve the recommended "2.5 hours of moderate-to-vigorous –intensity aerobic activity each week" is to "walk wherever and whenever you can" (Public Health Agency of Canada, 2012). Many physical and psychological factors are known to encourage pedestrian activity, such as proximity of destinations, perceived safety, weather, and ready access to alternative forms of transportation (Kahn et al., 2002).

Planning policy continues to prioritize certain standards for pedestrian environments, with the goals of safety and universal access. Planners who look to increase pedestrian activity often consider factors like connectivity, density, and streetscape (Forsyth, Hearst, Oakes, & Schmitz, 2008; Forsyth, Oakes, Schmitz, & Hearst, 2007; Health et al., 2006). However, sidewalk design remains standard, and city builders still struggle to encourage walkability. The design of the pathway itself could be the missing link in encouraging pedestrian activity. City planners, with a holistic approach to cities and the pedestrians who walk in them, are the ideal profession to identify this need and help implement change.

Researchers of Fun Theory suggest the easiest way to change behaviour is to make an activity fun. The term *ludic* (from the Latin *ludus*, meaning play or playfulness) is often used in reference to playfulness as a broad human quality rather than one reserved for children. Author and planning professor Quentin Stevens (2007) refers to the

ludic city in his discussion of urban play. The built environment can be modified to include elements of surprise, discovery, physical challenge, mental stimulation, sensory perceptions, and whimsy. Pressman (1996) explains, "visual stimulation through more intense sensory participation will add greater vitality to urban life" (p.524).

Canadian cities in particular have many opportunities to increase pedestrian activity, but can be challenged by the curse and blessing of a four-season climate. Pressman, Norman, and Luttgen (2000) are optimistic about the advantages of designing for northern climates:

> The underlying message which Nordic design emits suggests that both industrial design, architecture and urban planning embody, evoke, and transmit meaning in the attempt to relate function to form, form to function and both of these to deeper, human needs. Through an analysis of the design process and the everyday products that surround us, we can gain a clearer comprehension of the universally understood language of form through which the built world can be interpreted (p.18).

Winter cities must intentionally design spaces that provide shelter from wind and snow, and battle short days and low temperatures. A stark contrast between seasons also provides opportunity: the anticipation of summer and winter activities supports the temporary and whimsical nature of play.

Most Canadian cities are far from perfect in the way their forms encourage pedestrian activity. At the intersection of basic pedestrian motivators, winter city design, and ludic cities, there is a place for interdisciplinary processes and design to change the way we approach urban walkability and the pedestrian experience.

1.3 Research questions

The following questions guide this research:

- How can play motivate pedestrian activity?
- What examples exist internationally of play elements in the pedestrian environment? How do they compare to literature on motivating pedestrian activity, pedestrians in winter cities, and research on play in the city?
- What can Canadian planners learn about encouraging urban play as a pedestrian motivator for local environments?

1.4 Significance of research

These contributions will benefit a broad range of planning practitioners across Canada. Community planners, commercial developers, transportation planners, infill specialists, park planners, consultants, urban designers, and policy makers all have stakes in the quality of our pedestrian environments. As planners strive to shape safe, healthy communities, we wonder what elements of the environment might motivate people to walk more frequently and spend more time outside. This research recognizes that play, as an intrinsic motivator, has largely been ignored by urban planning scholars. Elements of play already exist in cities around the world, but have received scant attention from an urban planning perspective. The Council of Educators in Landscape Architecture have identified active living and design of outdoor spaces for thermal comfort as research priorities (Deming & Swaffield, 2011, p. 27). I anticipate this project will provide more detail about how planners can encourage playful interventions in the urban environment.

It is acknowledged that with increasingly complex urban challenges, planners

need a set of skills and talents including knowledge of land, air and water resources, employment trends, cultural diversity and associated issues, the use and needs of new technologies, and conflict resolution (Canadian Institute of Planners, 2014). Achieving this relies on collaboration among experts across many disciplines. This research synthesizes interdisciplinary knowledge of what is known about active, safe, and inspiring pedestrian environments. Public health advocates, recreation specialists, kinesiologists, geographers, artists, industrial designers, and environmental psychologists all contribute to our understanding of highly functioning spaces. Ludic sentiments are common across these fields, as they are inherent to our very nature (Huizinga, 1950).

Urban design and planning research has been criticized for focusing on the application of existing knowledge, rather than the generation of new knowledge in frameworks and typologies (Du Toit & Mouton, 2013). This work will contribute to the limited, albeit growing, study of ludic cities, both by compiling examples of playful interventions, reinstating their importance, and distilling their features to be encouraged by city planners. Pressman (1996) believes establishing fundamental design gestures is necessary to further understand pedestrian motivators (p. 524). "If we are concerned with improving the quality of the physical world around us, it is evident that there needs to be an increased awareness of the impact of the visual environment on people's everyday lives" (Stanoff, 1991, p. xii). Forsyth's (2007) discussion on urban design innovation examines the role of research in furthering the field. Research allows practitioners to make informed choices between designs and to have a more articulate, reflexive and critical approach to design. Du Toit and Mouton (2013) further assert that the use of a typology, "the systematic study of types" (Deming & Swaffield, 2011, p. 133), can

provide greater clarity about what constitutes the examined elements, and appropriate uses of each type. This research broadens the factors commonly associated with increasing pedestrian activity, encourages an intersection of play and pedestrian activity, and contributes to promoting these factors as mainstream in urban design literature.

"We don't have choices about what century we live in, but we do have choices about where to live and how to live and we are also able to take part in changing the social and physical environments of our lives" (Carver, 1975, p. 248). This research challenges how we approach the environments we live in, by acknowledging the fundamental connections between physical environments and our mental, physical, and social selves. Planners who seek to create highly functioning public spaces that are safe, productive, and healthy, must consider conviviality as the commonality between users. Young and old, professional or student, visitor, resident, leader or lost should feel at home in the public spaces we share. Although verging on utopian, this composition is only attainable when a broad, interdisciplinary view is applied to pedestrian spaces. Planners are well positioned to unite the ludic commonalities across disciplines in this innovative approach to the future of urban spaces.

1.5 Assumptions and limitations

Several assumptions underlie this project. It is assumed an increase in pedestrian activity is generally desired for urban spaces in Canada. It is also assumed the reader has a general understanding of the many issues contributing to a decline in pedestrian use (for example, sprawl, decreased density, increased reliance on private automobiles and decreased dependence on public transit, as well as a general trend in the past 50 years

away from mixed use buildings). This research is not meant to propose a solution to these urban ills but rather poses urban play as a consideration for city planners as one crucial component of healthy, vibrant urban spaces.

Time and money have imposed limits to this project. One could dedicate a lifetime to the broad topics of good public space, winter city design, or ludic cities, and indeed, many have. However, in the interest of timely graduation, this project summarizes existing findings and begins exploring the potential of playful urban interventions. To truly assess the value of these cases, diligence would have to be taken to observe a site prior to the intervention's installation, and then after. Interviews with designers, users, and others would provide a richer context for elements only discovered through photographs and written descriptions for this work. Similarly, it is limiting that the included photographs are those composed by designers for their own promotion. It is recognized that the portrayal of the case examples is subjective to these photographs, which may be biased depictions. This limiting bias is acknowledged by approaching the content as the designer's intention, and not as the piece may function in reality.

A major limitation to the dissemination of this research is the traditional and formal format of this thesis. An ideal platform for this work would be an online database, where users could search through cases by tagged descriptors. An online format would also support links to designers' websites, and could easily include embedded videos and other multimedia to enhance the auditory and tactile quality of many of the found cases. One aspiration would be to allow this project to grow online, providing an opportunity for additional submissions and information-sharing across disciplines. An interactive

website as the one described would require greater expenses than are feasible at this time, but remain an opportunity for the future.

1.6 Overview of thesis

This document is organized in five chapters. The first chapter provides background, leading to the thesis research questions supported by the significance of the research, and concludes with assumptions and limitations of the project. The second chapter introduces the methodology of this thesis, outlining the theoretical approach, followed by a detailed description of the method types and analytical approach. The third chapter features a literature review of planning for good public space and walkability, designing for winter cities, and urban play. This literature review informs the typology which follows in Chapter 4, where findings include a working definition of play, and the typology which is tested on 27 examples of playful urban interventions. Chapter 4 concludes with an analysis of the trends observed between the typology from the literature and the process of matching it with the examined cases. In Chapter 5, this analysis is distilled for its implications for planning practice. The chapter concludes with further questions and recommendations for future study. The following work is greatly enhanced by the visual imagery which accompanies the cases included. A list of copyright permissions for these images can be found at the end of this document.

CHAPTER II: METHODS

2.1 Theoretical framework: Objectivist and constructivist strategies of inquiry

A combination of objectivist and constructionist strategies of inquiry guided this research. Objectivism asks *what, where, and how,* and is appropriate for research into phenomena about which little is known (Deming & Swaffield, 2011, pp. 36 & 85). Descriptive strategies are suited for "understanding landscape characteristics … to provide evidence in support of proposed design principles" (Deming & Swaffield, 2011, p. 85). This theory is well-aligned with the topic of research, where academic literature is scarce on planning for playful pedestrian environments, and it is hoped some design principles will emerge through future investigation.

Constructivism, an inductive strategy, involves classification, interpretation, and evaluation to analyze data (Deming & Swaffield, 2011, p. 9). By sorting data using properties, patterns, behaviours and themes, classification strategies produce new knowledge (Deming & Swaffield, 2011, p. 126). This is a "means, not an end", as new knowledge should continue to be tested and strengthened (even established taxonomies require constant renewal when new data becomes available) (Deming & Swaffield, 2011, p. 126-127). A constructivist approach will allow sample cases of play elements to be classified, interpreted, and evaluated in comparison to existing academic research, with the goal of producing new knowledge about the ways play infuses urban environments.

2.2 Research Field

The research field for this study is geographically broad. Although it is of particular interest to consider elements that function well in the winter season, this study is not limited to northern cities. Creative elements developed in southern climates have not been excluded, as they likely can inspire or be adapted to northern climates as well.

Johan Huizinga first identified a play-element in culture in his 1950 work, *Homo Ludens*. Huizinga identifies play as central to society's progress, and a critical component of what it means to be human. He asserts, "real civilization cannot exist in the absence of a certain play-element… To be a sound culture creating force this play-element must be pure… True play knows no propaganda; its aim is in itself, and its familiar spirit is happy inspiration" (Huizinga, 1950, p. 211). Today, there is a need for a more rigorous academic examination of play in the pedestrian environment. This work requires collecting, organizing, and analyzing a broad collection of empirical data. Because the research field is not bounded geographically, a definition of *ludic pedestrian motivators* (see Section 4.1) helps to limit the study field. Developing a definition of play for these purposes limits the field to findings that are likely to meet the study's objectives. At the same time, it is important that the 'filter definition' does not reject relevant findings that may not fit immediately within its bounds.

2.3 Literature review

The literature review serves two purposes. First, it reviews current understandings of pedestrian environments as they relate to literature on walkability and good public space, winter city design, and urban play. Due to the general lack of clarity and

consistency in the use of the term *play* when discussing the urban environment, the literature review is useful for initializing the inquiry into this topic (Deming & Swaffield, 2011, p. 146). Second, themes emerging from the literature inform the creation of the typology. The literature review in this sense represents a deductive approach, helping to focus the research and create a hypothesis about the types of play elements that are appropriate for motivating pedestrian activity and that would function in winter climates. Literature reviews allow accepted theories to be applied in new fields (Gray, 2009, p.98). In this research, academically recognized concepts of public space, walkable urban spaces, winter city street design, and play as a human motivator are used to shape a growing understanding of play in urban environments.

To write the literature review framing this study, information was gathered from textbooks, academic articles, professional publications, trade literature, conference papers, and statistics (Gray, 2009, p. 104). Sources are evaluated based on authority, accuracy, and objectivity. To ensure authority, only sources emanating from known and reputable institutions (for example, universities, governments, industries, or public agencies) were used. To verify accuracy, a preference for articles in peer-reviewed journals and references to well-known sources was privileged. In an attempt to identify bias and objectivity, literature was considered for acknowledgments of opposing viewpoints, ethical issues, and validity (Gray, 2009, p.117). This research follows Gray's (2009) "skills for critical engagement with literature" (p. 118). First, sources are analyzed to select and differentiate between data, and synthesized to determine the relationship between them. Next, comprehension is required to interpret the found data, theories, and arguments. Finally, knowledge is used to describe the principles generated.

The literature review is determined complete with the satisfaction of two factors. First, a workable and comprehensive definition of urban play should emerge. Second, themes for categories of the typology should be well supported and distinctive.

2.4 Typology

Studying types

For this research, a typology, "the systematic study of types" (Deming & Swaffield, 2011, p. 133) is used to examine an unknown and uncategorized array of playful design types. Typologies are both "multidimensional and conceptual" (Bailey, 1994, p.4), and are used in many disciplines to organize information. Using a typology to describe ludic design qualities demonstrates the breadth of play elements, and enables a greater understanding of features for motivating pedestrian activity and activating pedestrian environments year-round.

Typology is a useful tool of analysis because of the ability to easily make comparisons and isolate factors within a typological framework. Descriptive studies are used to describe and measure characteristics and their relations in a defined group (Zeisel, 2006, p. 93). The typology created for this research describes and categorizes design elements concerning walkability, winter cities, and urban play. Classifying data systematically "reduces complexity, identifies similarities, and identifies differences" (Bailey, 1994, p. 12). Because of this, the typology is accessible and informative to a wide range of users, and does not require access to the entire documentation of this study to be understood.

Some assume typologies are primarily useful for binary classification. Binary categorization is certainly useful for data analysis and numerical analysis, but does not incorporate the subjective and 'grey areas' of design. Using three variables, such as a "low, medium, high" scale, allows for more flexibility but still does not incorporate descriptive elements. A continuous method of classification attempts to include the descriptive data collected. A qualitative description, as seen in Du Toit and Mouton's (2013) typology for social research in the built environment, incorporates these variable elements, but is less easily analyzed to illustrate deficiencies and strengths. For this research, qualitative multiple sorting accommodates a wide range of typology elements and themes. Stanoff (1991) explains, "rather than using a set of bipolar dichotomies or numerical weightings which can be applied to tested items, multiple sorting allows people to sort items freely, according to their own criteria, into as many categories as they can describe" (p.5).

Typologies are sometimes criticized for being "theoretical constructs that do not exist empirically" (Bailey, 1994, p.15). Du Toit and Mouton (2013) warn another limitation of this method is typologies may give the impression the content within them is exhaustive. However, very large typologies can be unmanageable (Bailey, 1994, p.15), and are unreasonable for a quickly growing field of temporary installations. In this research, a manageable size of empirical data results from the time limitations and methods for data gathering and analysis (described below).

Case studies

Typically, case studies provide "intensive knowledge about individual objects, rather than generalizable information" (Zeisel, 2006). However, by comparing the elements of many cases by the same unit of analysis, this approach can be considered a descriptive multiple case study (Stake, 1995; Yin, 2003), providing a rich data set from which general conclusions can be drawn.

A complete classification procedure requires data inventory, an analysis to classify data through sorting and grouping, and a description of found patterns, limits, and themes (Deming & Swaffield, 2011, p. 127-128). The empirical data collected should also be as rich as possible, to include elements for categorizing and comparing within the data set. The literature review provides a rich set of data elements, and is supplemented by the comparison with real-world cases. This process allows for only "the data expected to be most helpful in addressing the research question" to be gathered (Deming & Swaffield, 2011, p. 131), and balances hypothetical and empirical data for the final typology.

Strategies for gathering instances of play elements in the pedestrian environment were flexible and informal, yet strategic. Time and financial limits of this study did not allow for physical visits to case locations. Information about the typology factors as well as cases was found in both academic and grey literature, such as online blogs and design websites. Navigating through these media required extensive on-line searching and also relied on several informal word-of-mouth suggestions from colleagues.

2.5 Visual representations

At one time, visual imagery was given very little attention in environment-behavior research (Stanoff, 1991, p .ix). Today, technology has allowed us an increased ability to visually represent and research our environments, and the practice has become increasingly popular (Zeisel, 2006). The cases examined in this research are highly visual, with their aesthetic qualities likely being the largest factor attracting pedestrians to them. Although some of the analysis of these cases is based on written descriptions of their form and function, a large component of the analysis process involves visual assessment from photographs and videos. In order to include the reader in this process and to enhance the understanding of the cases described, efforts to include photographs of all the included cases were made. Where copyright permission is not available, sketches of the design are substituted for continuity of this visual data. Stanoff (1991) supports that indirect representations are often used in design, explaining that graphic representations are useful where visually perceived properties of the environment are being assessed (p.3).

"By expanding the visual information base, we can understand more about the form, action, and interpretations given to environmental settings. Our understanding of social activity can be greatly enhanced by attention to the inside and outside appearance of the environment" (Stanoff, 1991, p. ix). Because of the highly visual component of this research, it must also be acknowledged that individuals vary greatly in their interpretations and appreciations of visual stimuli. To accommodate for this, the images included are meant not only to support the accompanying written analysis, but also to provide a means for the reader's own interpretations.

2.6 Analysis

In analysis, the researcher "moves reflexively between the observed data and the theoretical concepts that are brought to the investigation and used to make sense of what is found" (Deming & Swaffield, 2011, p. 152). For example, Zeisel's (1984) classic work, *Inquiry by Design: Tools for Environment-Behaviour Research,* suggests the researcher look for regularities, and also an absence of regularities (p. 42). Through the process of identifying and describing specific design qualities, emerging patterns have the potential to inform future policy and design.

The objective of constructing a typology is not to determine a best practice or prototype worthy of reproduction, but to document important elements of playful installations that may be supported by city planning practices. Once design qualities were identified through the literature review, a typology was constructed based on emerging themes. During the analysis, the typology was matched with play element cases based on similar design characteristics. This matching process allowed both the typology and the play element cases to be tested: qualities that did not match are noted as "other key features." This method of analysis follows Stanoff's (1991) recommendation for comparative appraisals, where the quality of an environment is judged against a standard of comparison (p. 3).

Each case is represented visually, either by photograph or sketch, and described based on information gathered visually and through the designer's own descriptive text. The general design philosophy of the designer is described, quoting the designer's own words where possible to accurately represent their intentions and perspective on their intervention. Then, "typology tags", those features consistent with what was found in the

literature, are listed followed by other extraneous “key features.” It should be noted that the visual representations vary, as some examples remain in the design stage and do not include a context or background scene in the visual representations. This was considered in analysis, and the context, when available, is noted.

2.7 Ethics

No in-depth interviews were required as part of the proposed research, therefore an ethics review was not required. Photographs obtained for publishing within this research have been reprinted with permission. Conscious effort has been taken not to make assumptions or broad categorizations that may insult or harm the reputation of the designers whose work was studied.

CHAPTER III: LITERATURE REVIEW

3.1 Introduction

This literature review serves two purposes. The first is to provide an in-depth background on the three themes that inform this thesis: walkability and good public space, winter city design, and playful urban spaces. The second is to create a typology summarizing the design elements that could be predicted as important considerations for ludic urban design, based on this literature. This chapter concludes with a chart (see p. 60) summarizing design elements to increase pedestrian activity and the corresponding literature.

3.2 Good planning: Walkability and public space

Introduction

Scholars across many fields including planning, urban design, and landscape architecture advocate for increasing the use of public space in cities. Discussions fall into three broad categories: the physical benefits of good public space, the social and psychological benefits of good public space, and what well-designed walkable public spaces look like. The literature surrounding each topic is discussed below.

A call to increase walkability through the design of good public space

Not all public spaces result in positive outcomes. Natrasony and Alexander (2005) use the Surrey City Centre in British Columbia as an example of a modernist space lacking in vitality, security, comfort and appeal for pedestrians (p.413). Specialization, standardization, and mass production create spaces oblivious to the local community, history, and ecosystem. Often, pedestrian spaces are over-regulated and controlled to the

point of generating fear and security concerns that are wholly unwarranted. Natrasony and Alexander (2005) call for a "commitment to place-making as a collective act of design" (p. 431), recognizing this as distinct from modernist design practices, and indicating that the provision of public space does not necessarily guarantee a functional or enjoyable public space.

The health benefits of increased physical activity in older adults have been proven and agreed upon in the study of preventative medicine (Hrobonova, Breeze, & Fletcher, 2011; Ory, Hoffman, Hawkins, Sanner, & Mockenhaupt, 2003). The Canadian Society for Exercise Physiology's Physical Activity Guidelines recommend 150 minutes of moderate-to-vigorous intensity aerobic physical activity per week, and cite walking as an easy way to incorporate this time into an adult's schedule. Similarly, health promotion organizations like Winnipeg in Motion (2014) encourage adults to increase their physical activity levels by including more 'steps' in daily life. However, Brown, Werner, Amburgey, and Szalay (2007) find despite its health benefits, US adults rarely use walking as transportation to access daily needs. Winnipeg in Motion provides neighbourhood trail information to encourage walking – but is this enough to make a difference? It is possible adults do not incorporate walking into their daily activities because they do not know where to walk, but likely there are other factors involved.

Barriers to pedestrian activity are numerous and seemingly growing. Sugiyama and Thompson (2007) assessed the quality of neighbourhood environments and their relation to community health. Residents who live in a self-assessed supportive environment were found to walk more than those who did not feel as positively about

their local community. Supportive environments may mean different things for different people.

Suminski et al. (2005) found women were more likely to walk in their neighbourhood if it was of average safety. For men, neighbourhood features did not correlate as strongly with walking for exercise or walking a dog (Suminski et al., 2005, p. 154). Perceptions of environmental safety vary between individuals, but have a larger impact on physical activity levels than actual crime or accident rates (Carver, Timperio, Hesketh, & Crawford, 2010). Strategic street lighting was found to reduce rates and fear of crime, leading to an increase in pedestrian street use after dark (Painter, 1996, p.200). Carver, Timperio, Hesketh, and Crawford (2010) found similar patterns in child and adolescent physical activity. Parents who perceived high risk of their children being harmed in their neighbourhood constricted outdoor physical activity and active transport, for example, walking to and from school. Correlations between perceived risk and lower levels of physical activity outside of school hours were particularly strong with parents of children and adolescent girls (p.1802). This research concludes with a recommendation for urban planners, policy makers, and health promotion officers to intervene to improve neighbourhood safety, suggesting that interventions related to design of the built environment can help create more pedestrian-friendly neighbourhoods (Carver, Timperio, Hesketh, & Crawford, 2010, p.1805).

Availability of local destinations also encourages walking for transportation (Suminski et al., 2005). Millward, Spinney and Scott (2013) analyzed the frequency and length of walking episodes categorized by origin, purpose, and destination in Halifax, Nova Scotia. More people walked to nearby retail than to work or school destinations.

This research confirms the distance-decay gradient, finding that most trips were between 600m and 1200m, with the frequency of trips decreasing as distance increased (Millward, Spinney & Scott, 2013, p107). Commercial destinations facilitating social interaction, such as restaurants, churches, and hair salons attract the highest levels of pedestrian activity in the elderly, supporting the need to "plan neighbourhoods with proximate access to social infrastructure, and residential environments that support activity across the life course" (Nathan et al., 2012, p. S46).

Burchfield, Fitzhug, and Bassett (2012) found weather-related factors are associated with trail use and outdoor physical activity. Particularly, weather conditions affect the physical levels of functionally impaired elderly community residents (Sumukadas, Witham, Struthers, & McMurdo, 2009). In Canada, snow, ice, and wind chill accentuate decreased activity due to low temperatures. Research on a heavy snowfall area in Joetsu, Japan, found that well-designed built environment features help to mitigate the potential barriers in snowy climates. Kosaka, Umezaki, Ishikawa, and Watanabe (2014) found that pedestrian activity was higher in areas featuring *gangi-dori,* "a traditional countermeasure structure against heavy snowfall, where rows of housing are connected at the eaves to form a roofed walking space along the street" (p. 124). The significance of sheltering snow from pedestrian spaces is a salient message for Canadian cities frequently blanketed by snow.

Physical barriers are an obvious, though common, impediment of physical activity. When sidewalks end, or pedestrians cannot physically walk between two points, there is little motivation to walk at all. Owens (1993) gives the example of the district of Lake Hills, Seattle, where uses are clearly separated, by fences: "Movement between

them is not invited or even possible" (p. 126). In contrast, Owens describes another Seattle district, Wallingford, where walking distances are minimized through the use of a grid pattern, and where all streets are accompanied by sidewalks to maximize route options and thus walkability. As our cities grow and suburban form dominates new development, we have a perfect opportunity to make neighbourhoods more walkable by considering connectivity and thus walkability for all residents.

To encourage pedestrian activity, it is convenient to begin by removing the barriers listed above. According to this literature, well-maintained neighbourhoods (especially during winter months), feel safe, have designated walking routes, good connectivity, and nearby destinations should in theory have high rates of pedestrian activity. However, the presence of these factors is not enough. Environmental design impacts our perception of these factors, which is ultimately what regulates use or non-use (Carver, Timperio, Hesketh, & Crawford, 2010), particularly for adult pedestrians (Van Dyck, De Meester, Cardon, Deforche, & De Bourdeauhuij, 2012).

Social and psychological benefits of public space

The social and psychological benefits of well-designed public space are well known, but difficult to quantify or attribute to specific environmental elements. The sense is emerging, however, that social and psychological benefits are not guaranteed to follow the factors that influence walkability. Elizabeth Renzetti (2013), for the Globe and Mail, examines the 'looming loneliness crisis' in cities like Vancouver, which typically score high on scales of livability. Societal factors such as an increase in single-person households (more people are living alone, as nearly the majority of condo dwellers in

Vancouver do), and an aging population (who are also more likely to live alone), can be attributed to less social interaction and thus an increase in loneliness. Renzetti quotes Charles Montgomery (2013) (author of *Happy City*) in an interview:

> Social isolation just may be the greatest environmental hazard of city living … worse than noise, pollution, or even crowding. And the way we've built cities – suburbs with no central meeting place, prioritizing the car and the condo tower, passing restrictive zoning bylaws – has made the problem worse. If we're concerned about happiness, then social disconnection in Canadian cities is an acute problem (Montgomery, 2013, in Renzetti, 2013 November 23).

With this in mind, it is important for planners to consider how public spaces may benefit social and psychological well being, and encourage designs that do so.

Several studies on health and place confirm people are attracted to social spaces. Cattell, Dines, Gesler, and Curtis (2008) studied the positive relation of public space with wellbeing and social relations. Several salient findings emerged. Although green space was highly valued, an equal number of study participants valued built environments such as streets and markets. Value was placed more on the shared and social elements of public space, and less on how the environment achieved it. Similarly, Brown et al. (2007) confirm that pedestrians are attracted to well visited places. The connections between vibrant public space and mental health are strong, and can be fostered by simple interventions.

For instance, neighbourhood public space revitalization can have a large impact on local social networks. Portland's Sunnyside Piazza offers one example where a previously underused space was transformed with public art into a gathering space, resulting in an increased perceived sense of community, expanded social networks, and a greater sense of well being (Semenza, 2003). This supports findings that social

interaction can be promoted by the inclusion of activity generators and furniture arrangements that encourage social contact (Evans, 2003). The need for social contact is growing as technological change, larger populations, and specialization of activities have fragmented the public sphere. Mehta (2008) suggests: "the biggest competitive advantage of Main Streets [compared to big-box retailers] is their ability to make it possible for local people to see and meet one another as part of their daily routine" (p.242). Considering the social and psychological impacts of public space is a crucial though often missed component of urban design.

Planners often seek the 'low hanging fruit' first, when approaching a design problem. Researchers are identifying the opportunity for multi-generational interactions as an easy target, particularly as our aging population grows. Social space for older adults can shrink over time (for example, due to mobility issues or availability of activities), and there is a real need to design good public spaces to compensate for this (Wiles et al., 2009). "Multigenerational planning strives to make cities and neighbourhoods accessible, safe, and inclusive for children, youth, families, adults, and the elderly" (American Planning Association, 2011, p.2). Universal design standards are assessed as an effective way to improve the livability of homes and neighbourhoods, not only for the elderly and the disabled, but for every member of the community (American Planning Association, 2011, p.11). The 2002 APA *Policy Guide on Smart Growth* supports "compact, transit accessible, pedestrian-oriented, mixed use development patterns (American Planning Association, 2011, p.11). These features enable places where older people can meet with others (Sugiyama & Thompson, 2007).

> Much of the literature discussing sustainability, smart growth, and the creation of livable communities focuses on a single age group, such as the aging population,

> families with children, or young professionals. Multigenerational planning is a holistic approach that takes into consideration the needs of all age groups … to ensure generational equality and access" (American Planning Association, 2011, p.2).

Mixed, smart growth communities with vibrant streetscapes allow seniors in the community to act as guardians by providing eyes on the street (American Planning Association, 2011). It is interesting that the subjective perception of neighbourhoods (for example, believing the area to be 'neighbourly' and have good facilities) has a greater effect on social participation, health, and well being of older people than objective measures of how 'good' a neighbourhood is (Wiles et al., 2009).

Sugiyama and Thompson (2007) recommend designing open areas to facilitate informal interaction between neighbours requires more research to determine specific design qualities associated with increased interaction. Cattell et al. (2008) suggest the existing and potential social and therapeutic properties of public space should be built upon and acknowledged at a policy level (p. 558). Brown et al. (2007) encourage focusing on the range of social and environmental qualities that support walking: "the key to walking in urban areas may be the ability to achieve multiple goals, such as running errands, enjoying scenery and social milieu, avoiding the hassle and cost of driving, and enjoying the health benefits of walking" (p. 55).

As important as social interaction was in defining good public space, Cattell et al. (2008) found that places of escape were equally valued. Environments that allow users to relax, reflect, and escape domestic pressures were found to be extremely popular. Associated memories were also highly correlated with good public space. "From a mental health perspective, the quality of public open space within a neighbourhood appears to be more important than the quantity of public open space" (Francis, Wood, Knuiman, &

Giles-Corti, 2012). Quality public spaces can have a large impact on social tensions and inter-ethnic interaction and understanding (Cattell et al., 2008) – perhaps because of the reflective, communal qualities they exude. Madanipour (1999) proposes the design and development of public space is significant for fostering social integration and tolerance in cities, and that the public spaces of cities have always had political significance, often providing a venue for leaders to speak and demonstrations to occur. As racial and social segregation in cities grew, this 'common ground' disappeared (p. 885). As Canadian populations grow in diversity, public spaces to encourage social integration and make all users feel safe, welcome, and part of a larger community should be a priority for urban design.

Valuing walkable public spaces: what do they look like?

"The design of a city determines how its residents use it" (Center for Active Design, 2010, p.22). As Natrasony and Alexander (2005) explained in the case of modernist plazas, good intentions in design are not enough to prompt active public spaces. Many studies attempt to quantify urban design metrics that enable walkable publics spaces. For example, imageability, enclosure, human scale, transparency, and complexity are five qualities of a good walking environment outlined by the Robert Wood Johnson Foundation's Active living program (Clemente, Ewing, Handy, & Brownson, 2005). Cevero and Knockelman (1997) label the three D's of urban design and travel patterns: density, diversity, and design, as well as later additions, destination accessibility, and distance to transit. The Center for Active Design (2010) in New York

expands on these factors in their *Active Design Guidelines*, and the supplement, *Active Design: Shaping the Sidewalk Experience*. The latter publication explains,

> When they are good, sidewalks are interconnected, interesting, and inviting. When they are good, they are also good for the pedestrian. They entice people to walk on them, and to *be physically active without knowing it* [Author's own emphasis] (Center for Active Design, 2013, p. 11).

Sugiyama and Thompson (2007) suggest both the quantity and quality of outdoor activity are relevant to older people's health. For example, it was observed that encouraging environments provide opportunities to be active, as well as places where people can meet with others and enjoy nature (Sugiyama & Thompson, 2007). Quality environments were found to connect open spaces with paths lined with trees and vegetation. Brown et al. (2007) also finds that pedestrian activity is influenced by architectural and decorative styles along the walking path. Pedestrians enjoy people watching, and watching others enjoy themselves. Many factors encourage pedestrian activity for reasons other than physical health, and a wealth of literature distils the most successful motivators of pedestrian activity.

It is generally acknowledged that urban developments should provide for a mix of uses, allowing pedestrians to meet several of their basic needs by foot (Center for Active Design, 2010, p.26). Good urban design should accommodate a mixture of people and activities, bringing social cohesion back to the city (Madanipour, 1999, p. 890). Ory et al. (2003) recommend increasing intergenerational linkages, retrofitting the built environment to increase pedestrian activity in older adults. There is a large opportunity for physical activity facilities on school sites to allow for public use outside of school hours, increasing the opportunity for physical activity (Center for Active Design, 2010, p.33)

> The district, and indeed as many of its internal parts as possible, must serve more than one primary function; preferably more than two. These must insure the presence of people who go outdoors on different schedules and are in the place for different purposes, but who are able to use many facilities in common (Jacobs, 1969, p.150).

The *Active Design Guidelines* (Center for Active Design, 2010) recommend designing parks, open spaces, and recreational facilities to complement the cultural preferences of the local population, and to accommodate a range of age groups, including both children and their parents and guardians. By co-locating physical activity spaces for children and parents or guardians, physical activity can be simultaneously promoted for different age groups (p. 30). Spaces accommodating for multiple forms of recreation allow families to find activities for different ages in one location (Center for Active Design, 2010, p.30).

Jane Jacobs (1961) elaborates on the importance of mixed-use spaces, recommending that people of different ages should use different areas at different times of day to create community vitality. Playful elements of sidewalks can support all of these factors, particularly the continuous variety of a sidewalk, which "should provide a variety of functions for diverse users at different times, acting as the crucial framework for the public realm" (Center for Active Design, 2013, p.36). To promote activity, open spaces should be designed as part of large-scale developments, as access is a crucial part of increasing activity levels (Center for Active Design, 2010, p.30). The *Active Design Guidelines* (Center for Active Design, 2010) recommend locating public plazas along popular pedestrian streets (p. 34). Offices and commercial space should be designed with exercise facilities or walking paths nearby, to increase physical activity among workers (Center for Active Design, 2010, p.30). A celebrated champion of mixed use, Jane Jacobs explains:

> Parks can easily – too easily – be thought of as phenomena in their own right and described as adequate or inadequate in terms, say, of acreage ratios to thousands of population. Such an approach tells us something about the methods of planners, but it tells us nothing useful about the behavior or value of neighborhood parks. A mixture of uses, if it is to be sufficiently complex to sustain city safety, public contact and cross-use, needs an enormous diversity of ingredients. So the first question – and I think by far the most important question – about planning cities is this: How can cities generate enough mixture among uses – enough diversity – throughout enough of their territories, to sustain their own civilization?" (Jacobs, 1961, p.144).

From these scholars it can be concluded that merely providing public space is not enough – it must be designed to accommodate for a multitude of types of uses, ages of users, and function well throughout the day.

Good connectivity is fundamental to walkability. Logically, an increase in availability and accessibility to parks increases the likelihood someone will visit the space. Parra, Gomex, Fleischer, and Pinzon (2010) document built environment characteristics and perceived active park use among older adults. They find older adults are more likely to actively use a local park in areas with high connectivity to surrounding neighbourhoods. Similarly, Rosso, Auchincloss, and Michael (2011) found mobility in older adults is correlated with street connectivity that decreases pedestrian distances, proximity to destinations including retail, parks, and green spaces, and perceived safety. It is advised to avoid long, continuous blocks to allow pedestrians a greater choice of routes and quicker connections between two points (Ewing, 2009). Interconnected streets and sidewalks make it easier for pedestrians to efficiently and clearly reach desired destination. (Baran, Rodriguex, & Khattak, 2008). Parra et al. (2010) recommend that future research focus on increasing accessibility, availability and quality of park resources.

Pedestrian perceptions of safety and distance have been found to seriously impact pedestrian activity, and have a greater impact on walking frequency and route and mode choice than actual crime rates or path distances. For example, Painter (1996) found the installation of street lighting led to increased path use, independent of local crime rates. A buffer to distance pedestrians from moving vehicles is important for increased and perceived safety from pedestrian-vehicle collisions. Street furniture, trees, and other sidewalk infrastructure can help increase walking rates by improving conditions for all users, particularly those with impaired vision or hearing (Center for Active Design, 2010, p.40). Adkins, Dill, Luhr and Neal (2012) also found pedestrians were attracted to separated walking environments, adding that the presence of on-street parking acts as a buffer between pedestrians and vehicles (p. 507). Contrary to common assumption, it was found that features such as crosswalks, pedestrian signals, and traffic lights were negatively correlated with attractiveness for walking, which is assumed to be a result of such features being strategically installed in locations with high pedestrian-auto conflict (Adkins et al., 2012).

Mehta (2008) recommends "active living researchers further consider environmental aspects emerging from subjective measures and not ignore individual perceptions" (p.243). Alternating street spaces and small squares can have the psychological effect of shortening perceived walking distances (Ewing, 2009; Gehl, 1987). Brown et al. (2007) compared walk-able route perceptions with physical features to determine walk-able environments had more traffic, environmental social safety, pleasing aesthetics, natural features, pedestrian amenities, and land use diversity, compared with perceived un-walk-able environments. The *Active Design Guidelines*

(Center for Active Design, 2010) suggest providing signage "at buildings, transit stops, and major intersections showing a map and the distance, time, route, and calories burned to the nearest or next transit stop, [which] may encourage people to walk an extra transit stop or two" (p.28).

Active Design: Shaping the Sidewalk Experience (Center for Active Design, 2013) neatly conceptualizes the pedestrian environment through four "planes": the canopy above, ground plane below, and roadside and/or building wall on either side (p. 7). While roadside atmosphere and building facades may vary, pedestrian ground planes typically have a fairly uniform appearance concrete, brick pavers, or asphalt. Increasingly, urban designers are experimenting with ground cover techniques to establish and dictate pedestrian spaces (for example, zebra crosswalks). In one case, ground markings indicating dedicated areas for sports and multiple uses were found to promote increased pedestrian activity. Ridgers, Stratton, Fairclough, and Twisk (2007) found children attending schools where playgrounds were redesigned with coloured activity zones engaged in more vigorous activity than schools without them.

Some influential features of the pedestrian environment cannot be categorized into the Center for Active Design's four planes, however. Urban designer Vikas Mehta (2008) studies the sensorial and experiential pleasure that may be derived from the pedestrian environment, crucial components of successful walking environments. He cites the importance of feeling a sense of belonging and sensory pleasure as important motivators for pedestrian activity, more so than accessibility, usefulness (proximity of daily needs), safety, and comfort (Mehta, 2008, pp. 217 and 241). This literature indicates the quality of public space has a large impact on the perceived walkability of a space.

How to encourage pedestrian activity is an area for continued study. The possibility of collaboration between public and private sectors is suggested as a strategy for implementing design recommendations, many which are presently uncommon along the average city street, despite the numerous studies recommending improvements to pedestrian environments. The Center for Active Design (2013) outlines several ways planners and policy makers influence the built environment. Features not specifically mandated can remain "allowed," encouraging creative and appropriate uses within one block. Incentives encourage allowed features, often requiring some level of requirements and conditions to be met. Mandates work well for factors that can be accommodated in a variety of places, and may encourage more creative uses to be allowed because of pre-determined design standards. In many cities, removing impediments is a key way to keep policies aligned with current and innovative practices that may not have existed when the policies were first formed. Guidelines help to communicate large ideas about spaces, while preserving room for flexibility, variety, and creative interpretations (Center for Active Design, 2013, p. 70). Essentially, planners and policy makers play an important and crucial role in guiding pedestrian environments to be flexible, unique, and interesting to sustain and encourage pedestrian activity.

Walkable public spaces come in many shapes and forms, which is why we travel to gain unique city experiences from around the world. Because of the alarming number of un-walkable and pedestrian un-friendly spaces, researchers have compared qualities of walkable spaces and note several similarities. Generally, spaces with a mix of uses are successful in attracting a mix of users as well. A large variety of possible uses and activities in a space attracts a range of ages and types of users, throughout the day and

often on into the evening and night as well. Integrating recreation space with commercial and workspaces supports this type of mix. Perceptions of connectivity and safety are equally important, and greatly influence and motivate pedestrian behaviour. Planners must consider all four planes of pedestrian space: the building wall, street side, canopy, and ground cover, in creating comfortable pedestrian environments. Beyond this however, there seem to be other factors motivating pedestrian activity that do not rely on the physical environment. Planners can enable walkable public spaces by being flexible to allow for alterations to design which support pedestrian activity. It is useful to remember this process is not black and white: elements may be allowed, removed, mandated, and "incentivized" to guide safe, unique, and healthy public spaces.

3.3 Design for winter cities

Introduction

This section summarizes academic and grey literature to highlight some of the main challenges and solutions for designing winter pedestrian spaces. From documentation spanning over three decades (from the early 1980s to present, 2014), several patterns are observed. Authors such as Norman Pressman, Patrick Coleman, and Jan Gehl dominate what has been written on winter cities from an academic perspective. The themes throughout the literature are consistent and do not vary greatly over the time span. They are summarized below and imply that despite a wealth of knowledge on the subject, winter cities are still in desperate need of climate-sensitive design. Almost 20 years ago, Pressman (1996) expressed: "the most urgent dilemma of our time is how to create places which possess genuine meaning or "genius loci", in which inhabitants can

be proud to reside, and which appear to belong to and spring from their respective geographical and cultural contexts" (p.522).

In 1993, Gehl wrote that "smaller families, many single-person households, and more leisure time all place a new importance on the need for cities that can respond to the need for social interaction and a sharing of cultural experiences" (p.15). Culjat, Boris, and Erskine (1983)'s writing supports this, by explaining that "the indirect influence of climate is the influence that architectural solutions, created in response to some climatic pressure, exert on Man's social interaction by virtue of their specific physical and symbolic characteristics" (p.14). The release of the City of Edmonton's (2012) Winter City Strategy indicates this need is still pressing.

Gehl (1993) acknowledged the *winter* in winter cities may not be the root of the problem, but rather northern cities work poorly in all seasons. He elaborates:

> A northern city must be a very good summer place. Summer is the all-important season in the north, where people can participate in highly specialized patterns of outdoor activities. In Danish residential areas, friendships and neighborhood networks are invariably formed during the summer period. If the city works well in the summer, we can form the networks that will take us though the winter (Gehl, 1993, p.16).

Many of the recommendations described below improve pedestrian spaces year-round.

Embracing Nordic qualities

There are many opportunities for winter cities to be unique due to their climatic circumstances. Pamela Anthony, producer of Edmonton's Winter Light Festival, summarizes the importance of making the most of winter cities:

> Edmonton's combination of climate and urban landscape is quite rare, and Winter Light wanted to explore our winter city in lively and interesting ways. We found

> that people want to be activated; they want to be invigorated by winter experiences. So we invited people to walk beautiful park trails, to be dazzled by light in the dark, and simply enjoy getting together with other people in the outdoor environment. I think everyone recognized there's a character building aspect to winter, and when audiences put their boots on, they're celebrating winter community (City of Edmonton, 2012, p. 42).

Academic literature supports the importance of celebrating local climate and culture. Gehl (1993) expressed: "If I were mayor of a northern city, I would introduce a number of 'friendly gestures' to brighten and warm up the winter setting; I would make winter a special event in the city (p.19). Pressman (1996) also recommends developing an aesthetic for the north to fit with the surrounding environment, providing a clear cultural continuity between the built environment and its inhabitants. For example, in Nordic countries, Byggekunst (1986) notes the opportunity to play off of the "myth of arctic clarity", by embracing elements of pragmatism, playfulness, vernacular folk tradition, and an association of connections between traditional architectonic and urbanistic concepts. Pressman's (2000) work supports this, suggesting "elements of nordicity should be palpable in every season" (Pressman, 2000, p. 19). Winter festivals, safari and wildlife areas, and generally highlighting snow, ice, wind, and sun as positive features (Pressman, 1996) are some suggested tactics for "celebrating winter as a particular season with character and virtues" (Gehl, 1993).

Winter city challenges

It is not surprising that the rate of pedestrian activity is reduced during the winter season. Culjat, Boris, and Erskine (1983) discuss Gehl's observations of two distinct groups or types of activities: necessary activities which take place under any circumstances (for example, work or goal-oriented movement), and optional activities

which take place only if the external conditions are favourable. They recognize most social and recreational activities are considered as optional activities, and if the physical environment does not accommodate and support them, they will simply disappear from the total activity pattern:

> Cold climate reduces the outdoor season, limiting outdoor activities and thereby the social interaction related to those activities. Another direct influence is the effect climate has on the physical characteristics of the built environment, as when snow or ice become actual elements in the physical setting, and consequently influence the social activities related to this physical setting (Culjat, Boris, & Erskine, 1983, p.13).

Dunin-Woyseth (1990) also observed a restriction of Scandinavian residents' outdoor activities due to long cold winters, and found them to negatively influence local resident's well being. Steinsvick (2004) finds that the most limiting factors to recreation in winter climates, such as Alaska, are the combination of wind and snowfall, wind and cold conditions, and extreme cold, darkness, and rain. In addition, Li (1994) observed visible activity, seating density, urban context, temperature, and sun exposure were significant variables influencing use density in New York City. Negative effects of urban context have been observed by Shimoda and Mizuno (1996), who found that uncomfortable thermal sensation (feeling too cold or feeling the wind) tends to concentrate around intersections in northern Japan.

Some pedestrian challenges are not about the winter environment itself, but our ability to competently interact with it. Many pedestrians are frustrated, or choose not to walk at all, when roadways are cleared of snow in priority to sidewalks (Coleman, 2001). Unfortunately, northern selection of outerwear is not always adequate for extreme temperatures and wind chills, and certainly not designed for a sustained time outside (Coleman, 2001). Also, many urban northerners tend to wear darker clothing in the

wintertime, making them difficult to be seen by drivers (Dewar, 1993). Cultural attitudes of circling for the closest parking spot to an entranceway (Coleman, 2001), and similar patterns of hurrying from place to place in the winter, lead to reduced mobility and social interaction, which is felt both by pedestrians and business owners (Dunin-Woyseth, 1990). Dewar (1993) writes on the additional challenge for older adults during long, dark winters, when glare from snow and ice, and poor contrast due to glare and light conditions make it very difficult to see at night, all compacted by a time of extended darkness. Icy patches, piles and patches of snow, and eventually, the build up of slush, not only make walking difficult and increase a fear of falling, but also distract pedestrians' attention from vehicles on the roadway (Dewar, 1993). In many areas, where low levels of pedestrian activity are being targeted, winter conditions intensify pedestrian challenges and often result in unique planning and design solutions.

Pedestrian solutions

Many of the solutions presented for winter cities follow universal ideals for good pedestrian space. As Gehl (1993) notes, good winter cities should be good summer cities as well. High priority physical issues have been identified as pedestrian protection, access optimization, integrated development, and public open space (Dunin-Woyseth, 1990). Socially, Gehl (1993) recognizes the traditional functions of urban centers as meeting and market places. He explains: "A good meeting place offers a range of optional, social and recreational activities. In addition, a good meeting place must be democratic and allow citizens of different groups to meet and enjoy their city" (Gehl, 1993, p.15). Mänty and Pressman (1988) recommend designing spaces for resident groups to promote greater

social contact, and suggest integrating recreational facilities into the site design of large commercial and residential blocks.

Beyond the function of spaces, design must be conscious of local site conditions and context: “Outdoor social space has to be located, designed, and equipped to extend the outdoor the same intensity or in the same way. The solution lies in living with the climate, not in spite of it” (Culjat, Boris, & Erskine, 1983, p. 22). De Montigny, Ling, and Zacharias (2012) support that weather does decrease walking rates across many climates. In addition, they found that manipulating the ambient environment is also related to walking rates, and can be managed through sidewalk cleaning, snow removal, and efficient drainage (De Montigny, Ling, & Zacharias, 2012).

Winter gathering points are also identified as important features for winter cities. Edmonton’s Winter City Strategy recommends opening public places that are generally closed in the winter to develop anchor points throughout the city to allow people a place to linger, warm up and enjoy. Temporary or permanent warming huts, fire pits, winter food trucks, and year-round washroom facilities are suggested to help meet this goal. Further actions include an end-to-end ski proposal, to create a continuous cross-country ski trail across the city’s river valley. Steinsvick (2004) also provides useful ideas for meeting places and outdoor dining in winter climates. A sunny wall, bonfire area, tent or *lavvo* (similar to a teepee) provide comfortable places for resting outdoors. To accommodate for transitioning seasons, Steinsvick (2004) suggests a dry covered wooden platform in the sun to compensate for damp and cold earth as snow melts.

The Strategy cites Tromso, in Norway, where “white-of-ways” along main streets make it easy for locals to use skis or sleds (City of Edmonton, 2012, p.16-18). Projecting

positive images of winter is important for encouraging year-round pedestrian activity (Dunin-Woyseth, 1990). For *Winter Cities,* Gehl (1993) projects his ideal winter cityscape if he were mayor of a winter city:

> [There would be] a number of tiny friendly gestures for the winter season in 'my' city: in the summer we have ice cream vendors, but in the winter we would have special dark blue 'winter kiosks' selling soup, pancakes and Scandinavian Glogg (which would bring the rosiness back to most cheeks!) Also, we would manage to have a natural gas company sponsor a system of gas-stoves that would be hot points on many street corners, and not to be outdone, the electricity company would donate semi-circular insulated and heated 'warm-city-sofas' for some 16 persons. You would find these used all over my city" (Gehl, 1993, p.19).

Design, function, and ambience should go hand in hand when planning for winter city pedestrian use.

Creative winter design techniques are bountiful and impact the function, safety, and attractiveness of public spaces:

> Where there is thermal comfort and safety, there is respect and beautification of public spaces. The physical environment of the winter city can either further or hinder social activities in outdoor public spaces. These activities are particularly important in the cold, dark months when mental health is adversely affected by isolation and other winter-induced stresses" (Pressman, Norman, & Luttgen, 2000, p.19).

Edmonton's winter city strategy elaborates on good winter design in its third and fourth goals: "Design our communities for winter safety and comfort", and "Incorporate urban design elements for winter fun, activity, beauty and interest" (City of Edmonton, 2012). Actions to improve winter safety and comfort include constructing sidewalk ramps that do not collect ice. Pressman (1996) recommends ergonomic design to prevent slipping, good handrails, and piloting heated walking surfaces in public gathering spaces. Providing snow deposit areas and drainage for melting snow, as well as creating designated pedestrian zones to separate humans from cars, are two of Pressman's (1996)

suggestions for protecting pedestrians, a particular concern during icy and slushy or wet conditions. Peritz (1994) suggests designing drains for the center of roads, to drain slush away from sidewalks. A creative action in Edmonton's winter city strategy for increasing winter pedestrian activity is to develop 'winter weather' accommodations for jaywalking and street crossing bylaws, so pedestrians can safely cross lower speed roads after yielding to traffic. There is also pressure to create 'winter friendly' pilot projects like providing free public transit when temperatures drop below a certain point, and to provide heated bus shelters and benches (City of Edmonton, 2012, p.19-21).

Easy pedestrian connectivity is important for encouraging pedestrian activity, no matter the season. In the winter, it is especially crucial. There are several strategies to shape the urban form to be more pleasant for pedestrians. Compact urban forms reduce travel time and can provide increased climate protection. By using energy efficient principles such as mixed land uses and increasing an emphasis on walking and transit, pedestrians may reduce their dependence on automobiles (Pressman, 1996). In the winter, compact urban forms should be 'walled-out' by clustering buildings and using vegetation, windscreens, snow fences, shelterbelts and a relatively compact spatial configuration. These techniques will assist in achieving a favourable microclimate (Pressman, 1996; Mänty & Pressman, 1988).

Creating a microclimate

Ideal microclimate conditions were found to influence users' behaviour and the public life of urban spaces positively and significantly only when temperatures reached about 4.5°C (as observed in New York City by Li, 1994). For most Canadian cities,

temperatures are far below this point throughout the winter season (November to March) (Weather Network, 2014). Thermal sensitivity is affected by the history of exposure (Shimoda & Mizuno, 1996). Various landscaping techniques can be used to reduce discomfort, by selecting and orienting (usually to the north and west) vegetation, shelterbelts, walls, and fences for better localized climates (Pressman, 1996; Pressman, 1993). In residential areas, arranging multi-family dwellings around interior courtyards reduces wind turbulence and velocity to create a more pleasant micro-climate (Pressman, 1996; Culjat, Boris & Erskine, 1983). Pressman (1996) also recommends well-designed and heated bus shelters to increase pedestrian comfort. Steinsvik's (2004) study of playgrounds in winter climates supports these objectives for creating microclimates, but also recommends contact with nature and designated structures for weather protection.

An important component of creating microclimates for comfortable pedestrian zones is to use solar design principles efficiently. Footpaths, streets, and dwellings should be oriented for maximum solar gain and to mitigate adverse climactic forces (Pressman, 1996; Pressman, 1993). It is also important to consider the orientation and scale of adjacent landscaping and buildings to prevent shadowing (Ryser & Halseth, 2008; Pressman, 1993). Steinsvick (2004) advises that recreation spaces should be sheltered and sunny. Ryser and Halseth (2008) recommend public benches, chairs, and seating areas have a southern orientation to maximize solar gain, citing examples in Zurich, Switzerland, where benches have movable back rests so people may choose to face the sun or the shade. Sun pockets that are south facing and wind sheltered enclose exposed outdoor areas on two or three sides to collect warmth (Philak, 1994). Similarly, the *Active Design Guidelines* (Center for Active Design, 2010) recommend parks and playgrounds

create a variety of climate environments to facilitate activity in different seasons and weather conditions, providing sunny and sheltered spaces for winter and shaded zones for summer (p.33).

Strategically planting vegetation is a popular way of maximizing winter solar gain. It is agreed that the urban form combined with strategic planting of trees and other vegetation can provide shelter and create a favorable microclimate (Steinsvik, 2004; Pressman, 1996). Deciduous trees can be positioned to provide shade during the summer, while allowing for winter sun penetration to reach urban spaces during the winter (Pressman, 1993; Moffat & Schiler, 1981). Coniferous trees can be beneficial year round for buffering wind (Pressman, 1993).

Material selection can make or break the function of outdoor winter spaces. Urban furniture can be improved by focusing on thermal qualities and attractive design (Pressman, 1996), for example, by using heat absorbing and heat reflecting materials strategically for benches, bus shelters, and handles (Pressman, 1993). In Calgary, Alberta, blacktop, bricks, slate, and sandstone have been used for their capacity to absorb the sun's radiant energy, melt snow, and enhance the warmth of urban space (Sutherland, 1998 November 7). Pressman and Luttgen (2000) look to northern Europe for design inspiration:

> Nordic nations have a tradition of unsurpassed design excellence. They were among the leaders in accepting the early tenets of modernity combining a sensitivity and respect for materials (usually found in the natural environment) and user requirements (emphasizing ergonomic factors), with an artistic flare inspired by a deep sense of belonging, resulting in products of genuine beauty – "objects d'art". Elegance, clean and simple lines, quality finish in treatment of the materials, comfort, correct proportion and clever application of texture and color impact 'character' despite an object's functional purpose normally being the major source of inspiration" (Pressman & Luttgen, 2000, p.18).

Being conscious of local materials, resources, and culture is important to designing functional and enjoyable public urban spaces that will last the test of time.

Responding to climate conditions

The most abundant resources in most winter cities are ice and snow. Pressman (1996) encourages using ice, snow, wind, and sun imaginatively as positive features. The first goal of Edmonton's Winter City Strategy is to "Make it easier to 'go play outside': provide more opportunities for outdoor activity" (City of Edmonton, 2012). The strategy outlines several design actions to help Edmontonians embrace the winter season, including using snow in public places to build snow forts, slides, sculptures and climbing mounds, building a city ice climbing wall, and using snow to build wind barriers. The strategy sees these as potential ways to minimize the need for moving snow to a different location after clearing it (City of Edmonton, 2012). Snow and ice can also be used to create art works and sculpture throughout the city (Coleman, 2000; Pressman, 1996). Coleman (2000) praises the City of Kemi, in Finland, for its annual construction of a snow castle, similar to seasonal snow structures and ice hotels and bars built in Quebec and Sweden. Winter-oriented outdoor amenities are crucial to encourage outdoor activities: dogsledding, cross-country skiing, ice rinks, ski trail networks, and kick sleds (popular in Sweden) are all suggested winter activities (Coleman, 2000; Pressman, 1996).

Lighting is an important consideration for extending pedestrian activity during dark winter months (Pressman, 1996). Climate responsive design principles that engage appropriate lighting and the use of warm colors may be attractive options to help residents cope with periods of low sunshine (Ryser & Halseth, 2008, p.36). Gehl (1993)

suggests urban spaces use darkness and light to celebrate the city and winter by creating special light decorations, light events and light snows to brighten the winter environment. Edmonton's Winter City Strategy also encourages the creative use of light and dark in winter, suggesting nightscaping, artistically using coloured lights, and creating dark zones specifically for sky watching (City of Edmonton, 2012).

Edmonton's Winter City Strategy cites inspiration from Longyearbyen, in Sweden, where a colour master plan for local buildings balances colour chaos against monotony (City of Edmonton, 2012, p.27-33). Similarly, Malmo, Sweden, has engaged in colour scheme planning, favouring warm colours and earth tones found in Scandinavia (Pressman, 2000). Using wood, and adding colour to buildings, roofs, and sidewalks helps to create a warmer and brighter atmosphere during winter (Radway et al., 1989). Pressman (1996) recommends strategically using colours to reflect light (such as white) and absorb heat (as dark colours do). Generally, bold colours like reds, oranges and yellows are most easily recognized in daylight and present in highest contrast with snow cover (Pressman, 1996). Flags, banners, murals, evergreen trees and shrubs, and mountain ash also add colour to winter landscapes (Ryser & Halseth, 2008; Pressman, 1996).

Implementation

In 1996, Pressman wrote extensively about design for winter cities, predicting these adjustments to our everyday environments will reduce stress, particularly during long winters. Almost two decades later, many northern cities still struggle with identifying as good winter cities. With the wealth of literature on winter city strategies, it

is clear there are barriers to implementation. Ryser and Halseth (2008)'s case study in Prince George, British Columbia, found despite expressed interest in winter city development, professionals and decision-makers involved in the development permit process do not possess sufficient knowledge about climate-responsive design to apply these principles to everyday practice. More importantly, knowledge about climate responsive design did not appear to be a major consideration in creating or evaluating commercial redevelopment projects. It was also observed local conditions were often misunderstood, for example, assuming "it's sunny enough" or "it doesn't get cold enough…." Pressman's 1996 article on sustainable winter cities provides many relevant insights for the planning, policy, and design of public space:

> Legislative norms, administrative frameworks, economic dictates and political priorities – together with stylistic trends and fashions – have been among the most influential force shaping our built milieu. These factors of international character have been sensitive neither to climatic considerations nor to "genius loci" attributes. Rather, they have tended to produce buildings and entire neighbourhoods with epitomize "placelessness" so similar are they in their use of materials, exploitation of site, isolation from prevailing cultural values and from the transitory qualities of the natural landscape. What has resulted is more often a steady-state, thermally neutral environment (where indoors and outdoors are no longer connected or related). Designs and realizations are similar whether in Oslo or Toronto, Helsinki or Phoenix, Reykjavik or Los Angeles (Pressman, 1996, p. 522).

It is important for planners to take an active role in addressing the issues and barriers to designing cities that respect their local climate, cultures, and aspirations.

Dunin-Woyseth (1990) categorizes policy issues into two categories: the detailed, meso scale (urban blocks, streets, neighbourhoods, and precincts), and the larger macro scale (districts, towns, and metropolitan areas). Both scales should be examined when seeking to amplify winter cities. Because designs affecting the macroscale are intensive

and require large budgets, Pressman (1996) recommends testing designs using climactic simulation modeling to ensure their efficiency before installation. On the administrative level, Mänty and Pressman (1988) recommend revising zoning bylaws and building codes, and maximizing public/private cooperation for efficient implementation. Dunin-Woyseth (1990) identifies economic interventions for winter cities to consider, such as transit assistance, winter subsidy programs, and tourism promotion. Goal six of Edmonton's Winter City Strategy is to "develop a four seasons patio culture." The strategy suggests launching a marketing campaign to encourage winter patios, with information on how to ensure thermal comfort (for example, blankets, wind shelter, and exterior patio lamps). A citywide annual winter one-day outdoor patio event is identified as a good way to launch outdoor winter patio culture in the city (City of Edmonton, 2012, p. 38).

There seems to be an identified need to bridge academic recommendations with the daily practices of designers, service providers, and business owners in winter communities who are capable of making the small changes that can have a large impact on winter city livability. "Climate, with all its extremes, has been credited with shaping national character and defining common identities. Given its impact on human behavior, climate should be regarded as a modifying or determining force in planning and urban design" (Pressman & Luttgen, 2000, p. 18).

3.4 Urban Play: Ludic cities

Introduction

Many of the strategies for highlighting wind, snow, and ice as positive features of winter cities involve a playful approach to design. Although play across the lifecycle often conjures images of hobbies or games, play is becoming popularized as an important way humans interact with our environments, and with each other. This section summarizes definitions of play, discusses the importance of urban play for human wellbeing, and identifies indicators of investments in the concept of the ludic city.

Defining play

In *The Ambiguity of Play,* Sutton-Smith (2001) exposes the difficulty of play being 'amphibolous,' meaning it goes two directions and is not clear. Play is often referred to as 'liminal', occupying a position at a threshold between reality and unreality (Sutton-Smith, 2001, p.1). In *Man, Play, and Games,* Caillois (1961) notes play can provide an escape from the conventions of social life. While Caillois (1961) and Sutton-Smith (2001) express that play is not productive, Johan Huizinga's popular and often-referenced *Homo Ludens* stresses the importance of play:

> Even in its simplest forms on the animal level, play is more than a mere physiological phenomenon or a psychological reflex. It goes beyond the confines of purely physical or purely biological activity. It is a *significant* function – that is to say, there is some sense to it. In play there is something "at play" which transcends the immediate needs of life and imparts meaning to the action. All play means something (Huizinga, 1950, p.1).

Huizinga (1950) further explains: "True play knows no propaganda; its aim is in itself, and its familiar spirit is happy inspiration" (p. 211).

Caillois (1961) divides play behaviour into four types: competition, simulation, chance, and vertigo. Playful competition, Huizinga (1950) agrees, is "a social impulse, older than culture itself" (p. 173). Simulation and chance are often seen in classic game types. In this context, vertigo refers to the act of escaping normal bodily experience, ranging from activity types to physical movements. Sutton-Smith (2001) elaborates on play experiences, describing play as progress (development through play), play as fate (for example, games of chance), play as power (as seen in sports), play as identity (community celebrations), play as imaginary (improvisation and creativity), and solitary play as valid play types (p.9-11). Huizinga (1950) is often quoted for his observation of play as a voluntary activity (p.7). Elaborating on this, Caillois (1961) reflects that play is an activity which is essentially free, and not obligatory (otherwise losing its attractiveness); uncertain in terms of outcome and initiative; and make-believe, accompanied by an awareness of freedom and un-reality.

In the urban pedestrian context, definitions of play hold but must be flexible. For example, Huizinga (1950) states: "one of the most important characteristics of play was its spatial separation from ordinary life. A closed space is marked out for it, either materially or ideally, hedged off from the everyday surroundings" (p.19). Urban play challenges exactly this, merging ludicity with often mundane pedestrian rhythms. Similarly, Stevens (2006) defines play in urban spaces as:

> actions lacking clear instrumental benefits, separation from everyday experience (either spatially through boundaries, or socially through rules or special roles), exploratory encounters with strangers, and the potential for competition, chance, simulation, and vertigo (p. 806).

The recurring themes between these scholars reinforce the *ambiguity* of play, as well as its suitability for incorporation within the urban environment.

Urban play for human wellbeing

With the discussion of play often comes skepticism of its utility: is it a waste of time and money to invest in play? Psychiatrists like Stuart Brown have recently popularized the importance of human wellbeing and play. Tartakovsky (2012), quotes Brown about the importance of play: "it's all around us, yet goes mostly unnoticed or unappreciated until it is missing". Brown's research has stemmed from noting a lack of playfulness in the lifecycles of criminals (National Institute for Play, 2009). In the same vein, Sutton-Smith (1997) is often paraphrased for his observation of the importance of play: " The opposite of play is not a present reality or work, it is vacillation, or worse, it is depression" (p.198). Unfortunately, considering play and work to be opposite has dominated workplace cultures until recently. For example, Google's dedication to providing a fun workspace has been widely popularized and praised. The company recognizes the value of happy employees, and finds investing in a fun workplace pays in the returns of increased innovation, collaboration, and productivity (Stewart, 2013, March 15). Academics have tested and support the formula of normalizing workplace fun and playfulness to yield increased productivity, job satisfaction, worker retention, and application attraction (Tews, Michel & Bartlett, 2012; Karl & Peluchette, 2006)

The presence of literature on play as primary to our society is growing, and gaining in popularity. Following Huizinga's (1950) *Homo Ludens,* a title chosen to emphasize the inseparable component of play to human nature, little has been written about the topic in connection to how this impacts the design of human environments. Lefebvre (1996) described play as an important function of cities, though this was not the focus of his studies. Instead, he wrote about how humans behave and interpret space. The

two are, in fact, connected. Dan Pink (2010), whose ideas have been popularized through RSA (Royal Society for the Encouragement of Arts, Manufactures and Commerce) Animate presentations, explains humans are motivated by self-direction, mastery, and a want to control our surroundings. This very much influences how humans find their way though cities and interact with the surrounding built environment. Self-acceptance, environmental mastery, and feelings of autonomy and independence are part of Ryff and Singer's (2008) *"Eudaimonia Checklist"* (*Eudaimonia* is a Greek term meaning happiness, human flourishing, and well-being, and the checklist includes essential components to reaching this state). Also on the list are positive relationships with others, personal growth throughout life, and a sense of meaning and purpose (Ryff & Singer, 2008). Similarly, Kerr and Apter (1991) found play can help learning and self-actualization, creativity, coping with stress, coping with change, and maintaining internal stability (p.168-173). It is reasonable to assume that positive pedestrian environments can positively impact all of these factors, when pedestrians feel they belong, can control their navigations and creative interactions with the city, and feel a sense of meaning and purpose as reflected by the built environment.

It is important to take play seriously. "Man only plays when he is a man in the full meaning of the word, and he is only completely a man when he plays… man is never so serious as when he plays" (Schiller, 1920, letter 15). Lefaivre and Döll (2007) write about play as a way to 'tame the savageness of life.' How to take play seriously is also reflected in the work of Kerr and Apter (1991), who discuss the psychological strategies to gain the pleasures of play.

Exposure to arousing stimulation, such as loud music, bright colours, or rare sights can provide puzzlement and interest. Playing through fiction and narrative, by playing along and feeling empathy with a character, is a common way adults play, for example, by reading, watching a movie, or attending a theatrical performance. Exploration, by moving off the beaten track into new territory (either literal territory or the metaphorical 'breaking ground' that a researcher may achieve), is another strategy to achieve playfulness: "Quite apart from the surprising, novel or unexpected events which can occur as a result of trying something new or facing the unknown, the very fact that one knows one is taking a risk and that the outcome is unclear can heighten the emotions and make one feel more alive" (Kerr & Apter, 1991, p. 19). Conversely, while difficulties and frustrations further motivate behaviour and cause playful stimulation, winning too easily is experienced as a 'let-down' (Kerr & Apter, 1991). Finally, negativism (deliberate and provocative rule-breaking, whether explicit regulations or laws or implicit social conventions and expectations) and facing danger can be extremely successful strategies to arouse the psychological pleasures of play (Kerr & Apter, 1991, p. 19).

Research on the benefits of play on aging has been recently popularized as the baby boomer generation begins to age past 65. A popular quote, often attributed to George Bernard Shaw, warns: "We do not cease playing because we grow old; we grow old because we cease playing" (source unknown). Play for older adults is emerging in many forms. Galit (2011) studied the emergence of seniors' online communities as a venue for leisure. The present fun culture was found to offer participants many desired benefits, including meaningful play, liminality (in coping with change), and communitas (a community feeling), as well as an opportunity to practice and demonstrate abilities,

and as a means for coping with aging, thus having a positive impact on seniors' well-being (Galit, 2011, p.226). Popular game types in this community include cognitive games, associative games (influenced by other's input), creative and imaginative games, and games that provided outlets for humor (Galit, 2011). Hoppes, Wilcox, & Graham's (2001) research found there are five recurrent themes of the meaning of play for older adults: mental and physical fitness, continuity of past interests, temporal structure, competition, and a sense of belonging (p.57). Galit (2011) and Hoppes, Wilcox, and Graham's (2001) research supports Elkind's (2007) conclusions of play across the life cycle: "Play is not a luxury but rather a crucial dynamic of healthy, physical, intellectual and social emotional development at all age levels. Play, love, and work are operative throughout the human life cycle" (p.5).

With over 80% of Canadians now residing in urban centers (Employment and Social Development Canada, 2014), how to increase pedestrian play within the city is a growing priority. Lefebvre's writing reflects the opportunity for cities to embody play: "As a place of encounters, focus of communication and information, the urban becomes what it always was: place of desire, permanent disequilibrium, seat of the dissolution of normalities and constrains, the moment of play and of the unpredictable" (Lefebvre, 1996, p.129). "City life is as much about moving *through* landscapes as it is about being *in* them …The answer to [this] conundrum lies in the intersection between psychology and design" (Montgomery, 2013, p.176 & 185).

Steven's (2004) work dominates the literature on urban play psychology. He observed that the psychological aspects of vertigo are stimulated by the social intensity of urban public spaces (p.152). Typically in public settings, "people remain strangers,

maintain a civil distance, and become only loosely engaged with each other" (p.152). Stephens (2004) explains that psychological vertigo provides escape from alienation and indifference in the city, allowing individuals to gain agency within the social world. This may result in increased involvement between strangers, by heightening mutual awareness and tension (p.152). "The processes of discovery, invention, and transformation inherent in play are concrete realizations of freedom" (Stevens, 2004, p. 139).

> People's exposure to strangers in urban spaces make an important contribution to the potential for creative activity and for escape. Freedom does not necessarily come through isolation. The expressive actions of others provide opportunities to make sense of the world. It is only through the presence of other people that certain forms of behaviour become possible (Stevens, 2004, p. 153).

The observational research described below shows examples of easing social tensions and engaging pedestrians with each other in the public sphere.

Stevens (2004) observes that "especially in urban spaces, play often occurs in the presence of a diversity of strangers, taking one beyond habitual patterns of social engagement" (p. 139). For example, a large public chess board engages not only its players but other passersby who may stop to watch or offer advice, and are ultimately also benefiting from the game even if they are not playing themselves (Stevens, 2004, p. 141). Stevens (2004) also studied the behavioral patterns of pedestrians interacting with statues on a busy pedestrian street, and found they provided many unique opportunities for interaction: throughout the seasons, pedestrians adorned the human-sized statues with scarves and toques, posed for photos with them, and would mock social interactions towards the figures. He explains:

> People engage in simulative play not just as a display to others, but to test their own bodily skills, as an escape into fantasy, and even just for its own sake, for the pleasure of the bodily experience. This artwork makes possible escape from everyday behaviour because, like most public art, it lacks 'function' in the strict

> sense; it doesn't help achieve any specific practical outcome. The representational purpose of these three figures is unclear (Stevens, 2004, p. 145).

The success of these observed statues are attributed to several design factors: the statues are on a footpath, at eye level, and close to where pedestrians congregate (near an intersection and bus stop). They can be easily reached, reached around, and people are free to inspect them and touch them (Stevens, 2004, p.145).

Ludic Cities

Huizinga (1950) observed a decline in the incorporation of play with society: "The 19th century leaves little room for play. Tendencies running directly counter to all that we mean by play have become increasingly dominant" (p.191). He observes that culture ceased to be 'played' at a time when outward forms no longer gave the appearance of a higher mode of life: "There is no more striking symptom of the decline of the play-factor than the disappearance of everything imaginative, fanciful, and fantastic from men's dress after the French Revolution" (Huizinga, 1950, p.192). Lefaivre and Döll (2007) state a "need for an inspiring alternative that cultivates the potential of *homo ludens* in an urban context" (p.28). They propose changing the vernacular from *playground* to *playspace* would allow for a new perspective on play, representing mental freedom and deviation from rules. "Play space is something that is for all ages and all places" (Lefaivre & Döll, 2007, p. 28). Bunham (2010) gains inspiration from the energy and innovation that can be found in the streets today (p.139). Comparing urban renewal to the impact of an open source culture to online media, he looks to street art as a potentially powerful movement for sparking urban creativity (Burnham, 2010).

Hendricks (2001) identifies a potential barrier to urban creativity, warning "urban design in general and play area design in particular can be problematic as a design project because it is difficult to identify who "owns" the space" (p.86). Arguing public urban spaces are owned by all, Hendricks (2001) advises that spaces for real activities, like play, need to be created with real life people in mind (Hendricks, 2001, p.86). Knee-jerk reactions to designing public space for 'real life' often raise questions of public safety and liability. This topic is well covered in the ample literature on children's play spaces regarding risk-management, the potential hazards of designing "too-safe" and "boring" play spaces, and the fundamental cognitive, developmental, and social benefits of exciting, malleable, unpredictable, and 'risky' play environments originating with the Adventure Playground movement (Play England, 2008; Shackell, Butler, Doyle, & Ball, 2008; Talen, 2012).

There are many strategies for increasing play in the pedestrian environment. "A purely hedonic approach to urban happiness would determine how the city affects our mood, then would boost the good stuff and stamp out the bad" (Montgomery, 2013, p.31). Montgomery explains that environmental psychology has plenty of data for such a task. For example, we are bothered by sharp edges, loud, unpredictable noises, darkness, and dead-end alleys, but we enjoy novelty, soft edges, nice scents, gentle surprises, and pleasant memories (Montgomery, 2013, p.32). Increasingly, researchers are beginning to use what we know about psychological responses to our environments, and apply these tactics to create more comfortable, functional, and enjoyable pedestrian spaces. For example, Montgomery (2013) notes "people are much more helpful and generous when they step off a rising escalator than when they step off a descending escalator – in fact,

ascending in any fashion seems to trigger nicer behaviour" (p.157). For neighbourhood conviviality, observations show residents interact most with each other when their front yards are shallow enough for conversation, but deep enough for retreat. Gehl measured this ideal depth at 10.6 feet (Montgomery, 2013, p. 133). Although interactions such as these can be measured, it is important to remember:

> Play suggests that not all human action seeks to be efficient or to serve one narrow instrumental purpose. The ways in which people experience the environment surrounding them are not merely instrumental; they are often exploratory, whimsical, unsystematic, and wasteful of energy. Hence there is no overriding normative reason for urban structure to always be legible or for city image to be fixed (Stevens, 2006, p. 820).

Stevens (2006) studies 'playful' experiences characteristic of the urban condition (such as spontaneous encounters with strangers, unfamiliar experiences, and distraction), by contrasting Lynch's classic model of perceptions of space with the author's own studies of behaviour in public spaces. Lynch (1960) famously observed humans' perceptions of the city as recognizing paths, nodes, edges, landmarks, and districts. Stevens (2006) also observed paths, but evaluated intersections, boundaries, props and thresholds as more accurately shaping human behaviour in public spaces. For example, paths of unusual narrowness or width attract attention (Lynch, 1960). The narrowness of laneways, high bridges over water, or surfaces that are smooth, rough, sloped or steep consistently encourage pedestrian activity. People's travel was not always seen to be efficient: people wander, they skateboard and cycle, reshaping their experience of the city, moving faster or slower, making it more stimulating, perhaps more dangerous, discovering its potentials (Stevens, 2006, p. 807). It was also observed that separating pedestrians from vehicular traffic promoted playful use of space, as users could focus on

the sensations of the path rather than worrying about their safety. Boundaries were also observed as attracting playful activities, as pedestrians may push against boundaries, or attempt to move or see beyond them (Stevens, 2006, p. 808). Props, intended to make public settings more comfortable and aesthetically pleasing, also stimulated non-instrumental, exploratory, and risky forms of movement. For example, skateboarders explore ledges and rails, teens play 'king of the castle' on benches and bike racks, and younger children leapfrog over bollards (Stevens, 2006, p.812).

Another important design strategy for urban play is to create a play network. Lefaivre and Döll (2007)'s guidelines for play networks stress that each component of the network should be connected visually and functionally, via play routes from place to place or a course for skating or jogging, activating individual play areas into a larger play network. As well, it is important play networks offer play potential to all age groups. Various levels of play should be considered, for example, *interstitial*, fitting seamlessly in the urban structure between public and private areas (suitable for the youngest children due to heightened supervision), or *polycentric,* turning in-between places into small niches for neighbourhood discovery (Lefaivre & Döll, 2007).

There are many recent examples of projects and initiatives seeking to merge play and the urban pedestrian landscape. The concept of "play streets" has existed in the UK since the post-war era. They are praised by Jacobs (1961):

> There is no point in planning for play on sidewalks unless the sidewalks are used for a wide variety of other purposes and by a wide variety of other people too. These uses need each other, for proper surveillance, for a public life of some vitality, and for general interest. If sidewalks on a lively street are sufficiently wide, play flourishes mightily right along with other uses" (Jacobs, 1961, p.86).

The goal of play streets is to create safe spaces for people of all ages to be social and active. Street Plans Collaborative (2012) recommends initiative be taken by neighbourhood or associations, local advocates, and city planning departments to provide space for recreation and community interaction, as many city neighbourhoods lack adequate space to do so (Street Plans Collaborative, 2012). The benefits are mutual: "Planners do not seem to realize how high a ratio of adults is needed to rear children at incidental play. Nor do they seem to understand that spaces and equipment do not rear children. These can be useful adjuncts, but only people rear children and assimilate them into civilized society" (Jacobs, 1961, p.82). The literature on play for children, winter play, and play motivators overlaps in Steinsvick's (2004)'s presentation at the Winter Cities International Conference on challenging winter frontiers. Steinsvick recommends that winter play is best encouraged when landscapes are left in their natural state. In this way, nature does not prescribe plan and can be used in multiple ways, stimulating basic needs for physical activity, experimentation, and exploration (Steinsvick, 2004, p.2).

An initiative in Poland approaches urban play from a larger scale, where Bronikowska (2011) proposed a Polish Traditional Games Park in Poznan as a chance to emphasize local and national heritage, and a venue where visitors can enjoy *ludo-diversity* through the value of play and games for the survival of local culture (p.322). "This kind of park might be the right place to show other inhabitants of Poznan and visitors a part of regional and national culture and history and also to give people the chance to explore our social life of the past and to carry it playfully and peacefully into the future" (Bronikowska, 2011, p. 322). Hope is given that the park may equally attract

adults in participating in games with their children – much different from the stereotypical hierarchy of parents watching their children from a nearby park bench.

In Canada, a recent competition embodies the intersection of play as a motivator for health. Changemakers, a non-profit, social entrepreneurship group, is sponsoring *The Play Exchange,* with the tagline: "share your ideas for a healthier Canada." The competition, with a winner to be announced in January 2015, offers up to 1 million dollars from the Government of Canada to entries with "creative ideas that empower people to make healthy choices and address major health concerns" (Changemakers, 2014). Under the basis that "play is essential to health and well-being, promotes development of creativity, imagination, self-confidence and self-efficacy, as well as physical, social, cognitive, and emotional strengths and skills" (Changemakers, 2014), the competition is looking for projects that encourage active living by positively influencing people's behaviour. Leading up to the entry deadline on June 18, 2014, submitted entries are available for viewing on an interactive map on the contest website (Changemakers, 2014). This platform allows for inspiration to be spread beyond the sharing of the final contestants, who will be featured on a CBC special. Although titled *The Play Exchange,* the contest does not define play or what they are seeking in specific terms, allowing for the true playful nature of creativity and innovation.

In Amsterdam, Scott Burnham conceived and curated the exhibition *Droog Event 2: Urban Play*, an international project that highlights "street-level inventiveness, energy and innovation as a window into a new form of creativity and urbanism in the city" (Experimental Design, 2014). Thirteen innovative designers and architects from around the world were invited to create interventions, tools, toys and objects for temporary

placement along Amsterdam's riverfront. Contrary to some forms of urban design, where objects are created explicitly to discourage public interaction and intervention, this collection of objects encourages interaction and physical engagement by the public (Experimental Design, 2014; Burnham, 2014). Experimental Design (2014) states on its website:

> Throughout almost every major city in the world, individuals are taking it upon themselves to physically alter their cities to make them more creative, interactive, personal and fun. What we are witnessing is an unparalleled level of creative urban intervention which represents the intersection of the latest genre of street art and the beginnings of open source urban design (Experimental Design, 2014).

The concept of open source urban design is very recent and does not appear to be widely used. Open source urban design embodies the creative, collective, and dynamic environment necessary to foster urban play, and seems an appropriate and potentially valuable term to describe what is only beginning to emerge in our urban landscape.

3.5 Summary

The following tables summarize the literature review findings on elements of design to encourage pedestrian activity, winter city design, and ludic elements of design to encourage pedestrian activity. The corresponding sources are listed in the order they were discussed in this section. This allows for easy reference of design elements supported by the literature to encourage ludic pedestrian activity, with specific recommendations for winter climates. The design elements listed in these tables are further organized in the typology in Section 4.2.

Table 1: Elements of design to encourage pedestrian activity

ELEMENTS OF DESIGN TO ENCOURAGE PEDESTRIAN ACTIVITY:	
DESIGN ELEMENT	SOURCE
Perceived safety/security	Natrasony & Alexander (2005) Suminski et al. (2005) Carver, Timperio, Hesketh, & Crawford (2010) Van Dyck, De Meester, Cardon, Deforche, & De Bourdeauhuij (2012) Wiles et al. (2009)
Comfort, sense of belonging	Natrasony & Alexander (2005) Mehta (2008)
Street lighting	Painter (1996) Carver, Timperio, Hesketh, & Crawford (2010)
Connection to community history	Natrasony & Alexander (2005)
Connection to local ecosystem/nature	Natrasony & Alexander (2005) Sugiyama & Thompson (2007)
Destinations within walking distance (600 to 1200 meters)	Suminski et al. (2005) Millward, Spinney & Scott (2013) Nathan et al. (2012) Center for Active Design (2010)
Protection from weather-related factors	Burchfield, Fitzhug, & Bassett (2012) Sumukadas, Witham, Struthers, & McMurdo (2009) Kosaka, Umezaki, Ishikawa, and Watanabe (2014)
Good connectivity, ability to make route choices	Owens (1993) Center for Active Design (2013) Center for Active Design (2010) Parra, Gomex, Fleischer, & Pinzon (2010) Rosso, Auchincloss, & Michael (2011) Ewing, (2009) Baran, Rodriguex, & Khattak (2008) American Planning Association (2011)
Imageability	Clemente, Ewing, Handy, & Brownson (2005)
Enclosure	Clemente, Ewing, Handy, & Brownson (2005)
Human scale	Clemente, Ewing, Handy, & Brownson (2005)
Designated space for activity/recreation	Sugiyama & Thompson (2007) Center for Active Design (2010)
Interesting and unique paths	Brown et al. (2007)

Opportunity to people-watch	Brown et al. (2007)
Opportunity for mixed-use	Madanipour (1999) Jacobs (1961) Center for Active Design (2010) Center for Active Design (2013) American Planning Association (2011)
Opportunity for intergenerational linkages	Ory et al. (2003) American Planning Association (2011)
Buffer from vehicles	Adkins, Dill, Luhr & Neal (2012) Center for Active Design (2010) Adkins et al. (2012).
Design to decrease perceived walking distances	Mehta (2008) Ewing (2009) Gehl (1987) Brown et al. (2007) Center for Active Design (2010)
Unique ground covering	Center for Active Design (2010) Ridgers, Stratton, Fairclough, & Twisk (2007)
Opportunity to socialize/ witness socializing	Montgomery (2013) Cattell, Dines, Gesler, & Curtis (2008) Brown et al. (2007) Semenza (2003). Evans (2003) Mehta (2008) Wiles et al. (2009) Sugiyama & Thompson (2007)
Opportunity for escape	Cattell et al. (2008)

Table 2: Elements of design to encourage pedestrian activity in winter cities

ELEMENTS OF DESIGN TO ENCOURAGE PEDESTRIAN ACTIVITY IN WINTER CITIES	
DESIGN ELEMENT	SOURCE
Celebrating winter spirit, local climate and culture through northern aesthetic and tradition	City of Edmonton (2012) Gehl (1993) Pressman (1996) Pressman (2000) Byggekunst (1986) Culjat, Boris, & Erskine (1983) Dunin-Woyseth (1990) Pressman & Luttgen (2000)
Outdoor recreation: cross country skiing, skating, snowshoeing, sledding	City of Edmonton (2012) Coleman (2000) Pressman (1996)
Increased pedestrian lighting, creative use of light	Dewar (1993) Pressman (1996) Ryser & Halseth (2008) Gehl (1993) City of Edmonton (2012)
Cleared, easily navigable paths	Dewar (1993) De Montigny, Ling, & Zacharias (2012) Pressman (1996) Peritz (1994)
Weather protection	Dunin-Woyseth (1990)
Pedestrian protection from sliding vehicles	City of Edmonton (2012) Pressman (1996)
Social contact	Gehl (1993) Mänty & Pressman (1988)
Warming huts, fire pits	City of Edmonton (2012) Pressman (1996)
Compact urban form to reduce travel time & pedestrian distances	Pressman (1996)
Create a favorable microclimate	Pressman (1996) Mänty & Pressman (1988) Pressman (1993) Culjat, Boris & Erskine (1983) Steinsvik (2004)
Vegetation: strategic use of conifers and deciduous plantings	Pressman (1996) Steinsvik (2004) Pressman (1993) Moffat & Schiler (1981)
Maximize solar gain	Pressman (1993) Pressman (1996) Ryser & Halseth (2008)

	Steinsvik (2004) Philak (1994) Center for Active Design (2010)
Heat absorbing or reflecting materials	Pressman (1993) Pressman (1996) Sutherland (1998 November 7)
Using ice, snow, and wind as positive features	Pressman (1996) City of Edmonton (2012) Coleman (2000)
Local colour strategy: warm, bold colours	City of Edmonton (2012) Pressman (2000) Radway et al. (1989) Ryser & Halseth, 2008 Pressman (1996)

Table 3: Ludic elements of design to encourage pedestrian activity

LUDIC ELEMENTS OF DESIGN TO ENCOURGE PEDESTRIAN ACTIVITY	
DESIGN ELEMENT	SOURCE
Competition	Caillois (1961) Galit (2011)
Simulation	Caillois (1961) Kerr & Apter, (1991)
Chance/risk	Caillois (1961) Sutton-Smith (2001) Kerr & Apter, (1991)
Vertigo	Caillois (1961) Stephens (2004) Montgomery (2013)
Developmental play	Sutton-Smith (2001)
Imaginary/fictional/narrative play	Sutton-Smith (2001) Kerr & Apter, (1991)
Solitary play	Sutton-Smith (2001)
Relationships with others	Ryff & Singer (2008) Stevens (2004) Stevens (2006)
Separate from everyday experience	Stevens (2006) Huizinga (1950)
Self direction/self acceptance	Pink (2010) Ryff & Singer (2008)
Environmental mastery	Pink (2010) Ryff & Singer (2008)
Ability to control/see cause and effect	Pink (2010)
Colour attractiveness	Kerr & Apter, (1991)
Auditory stimulation	Kerr & Apter, (1991)
Exploratory play/rare sights	Kerr & Apter, (1991)
Acting contrary to social convention	Kerr & Apter, (1991) Lefebvre (1996)
Cognitive games	Galit (2011)
Creative play	Galit (2011)
Opportunity to touch/interact with street fixtures	Stephens (2004)
Paths of unusual narrowness, width, or texture	Lynch (1960)
Separate pedestrians from traffic	Stevens (2006)
Ability to see or move beyond boundaries	Stevens (2006)
Use of props to alter movement	Stevens (2006)
Play network	Lefaivre & Döll (2007)

CHAPTER IV: FINDINGS

4.1 Definition of a ludic pedestrian motivator

In order to systematically accept and reject examples of play elements for testing the typology, a definition of *ludic pedestrian motivators* has been created from the information gathered in the literature review. The intention of this definition is to distinguish between play in sport or recreation in contrast to elements that simply challenge convention. For example, cases of the growing trend of 'seniors' playgrounds' originating from Swiss Parcourse, where conventional exercise equipment is installed in a park setting, has been rejected from this research because it is not assessed to be a true alternative to pedestrian convention, as it requires a separate intention of recreation/sport. Similarly, Parkour, the growing activity of using urban elements as props for precision jumps and balance has been excluded because of its nature as a sport and the small cohort of the population able and willing to participate in its extreme nature. The definition is intentionally left subjective and vague through the use of "other means of playful interaction" to accommodate for unknown interventions that have been or will be created.

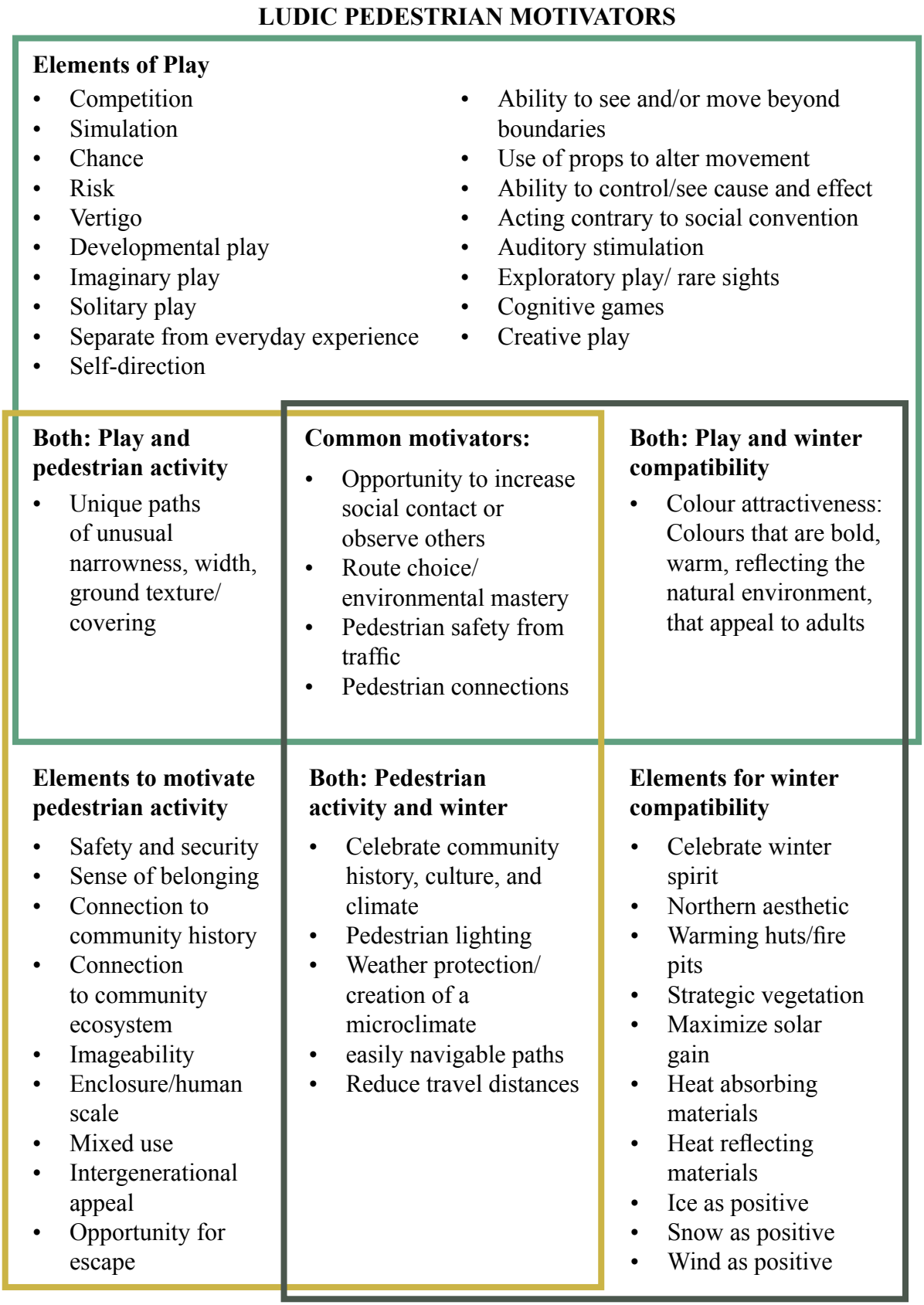
Ludic pedestrian motivator:

A design of or addition to the urban form that provides an alternative to adult pedestrian conventions by inspiring happiness through increased social interaction, competition, simulation, chance, vertigo, or other means of playful interaction with the urban environment.

4.2 Typology

The following typology highlights elements types of potential importance to designing ludic pedestrian motivators. The typology is structured as a Venn diagram, with one box for each literature review topic: elements of play, elements to motivate pedestrian activity, and elements for winter compatibility. The overlapping sections highlight elements that were supported in several sections, or all sections, of the review.

Figure 1: Typology of element types for ludic pedestrian motivators



4.3 Applying the typology to cases

As detailed in Chapter 2: Methods, 27 examples of playful urban interventions are documented below. Each includes a description of the project, the surrounding design philosophy, and appropriate 'typology tags' corresponding with the typology of design elements summarized from the literature review, above. The 'other key features' section lists extraneous design factors not described by the typology tags. All images are reproduced with permission (see copyright information at the end of this document). The examples below are listed in alphabetical order by project name.

21 Balançoires (21 Swings) by Luc-Alain Giraldeau and Daily Tous les jours

Montreal, Canada

Description:

Twenty-one Swings (Figure 2 and Figure 3) is "an exercise in musical cooperation" (Daily Tous les Jours, 2014). 21 colourful swings were hung along a wide downtown sidewalk for three summers in Montreal. Triggered by motion, each swing emits sounds while swinging, creating a "giant collective instrument that stimulates ownership of the new space, bringing together people of all ages and backgrounds, and creating a place for playing and hanging out in the middle of the city center" (Daily Tous les Jours, 2014).

Design philosophy:

21 Balançoires has been installed in Montreal each summer in 2011, 2012, and 2013. Tous les Jours partnered with Luc-Alain Giraldeau, an animal behaviour professor at the Université du Quebéc à Montréal. He explains: "cooperation emerges when the behavior of each individual depends on the decisions of the rest of the group: it's a game where, from the start, you need to adjust to the actions of others" (Daily Tous les Jours, 2014).

Typology tags:

Vertigo | Developmental play | Separate from everyday experience | Self-direction | Ability to see beyond boundaries | Use of props to alter movement | Acting contrary to social convention | Auditory stimulation | Opportunity to increase social contact or observe others | Bold, 'adult' colours | Intergenerational appeal |

Other key features:

Cooperation | Auditory feedback | Ownership of space | Wide sidewalk setting | Collaboration with a behavior researcher | Occurred in successive summers |

Figure 2: 21 Balançoires (21 Swings). Reproduced with permission granted on February 2, 2014: Blouin, O. (2013). 21 Balançoires. Daily Tous Les Jours. Retrieved from http://www.dailytouslesjours.com/project/21-balancoires/. See also www.olivierblouin.com

Figure 3: 21 Balançoires (21 Swings). Reproduced with permission granted on February 2, 2014: Blouin, O. (2013). 21 Balançoires. Daily Tous Les Jours. Retrieved from http://www.dailytouslesjours.com/project/21-balancoires/. See also www.olivierblouin.com

99 Tiny Games by Hide & Seek

London, England

Description:

99 Tiny Games (Figure 4) appeared across London (three games in each of the city's 33 boroughs) during the London 2012 Olympics. Each game appears as a giant sticker on the ground, "to be stumbled upon." The stickers contain simple rules for quick and easy games that anyone can play, any time they want. "Players will be tested on everything from wits to creativity to cooperation to determination, all within immediate reach of their home, workplace, or favorite pub" (Hide & Seek, 2012).

For example:

Twickers (Queen Square, Camden):

"A game requiring nerves of steel, and twigs. Players pick up twigs and hold them with two hands, so each twig overlaps, On the count of three, they pull the twigs towards themselves, the loser being the one whose twig breaks first" (Steadman, 3 August 2012).

Them's Fightin' Words (Middlesex University, Barnet):

"Standing opposite each other on stone slabs, players adopt a fencing pose and yell the names of people they both know (real or fictional). If agreed that one player's named person would win a fight against the other, then that player moves forward a space (and the other player moves back). The winner is the one who is the first to force their opponent back three spaces from the start" (Steadman, 3 August 2012).

Design philosophy:

Stickers were placed across the city in public spaces such as sidewalks and subway stations. Games could be located on an online map. The 99 Tiny Games ran from the 28th of July to the 20th of August, 2012. "We bet that if everyone stopped to play even just for a few minutes everyday the world would undoubtedly be a better place. 99 Tiny Games serves as a reminder to everyone to always be playful, no matter where you are" (Hide & Seek, 2012).

Typology tags:

*Varies from game to game
Competition | Simulation | Chance | Developmental play | Imaginary play | Separate from everyday experience | Use of props to alter movement | Acting contrary to social convention | Exploratory play | Cognitive games | Creative play | Opportunity to increase social contact or observe others | Colour attractiveness and colour that appeals to adults | Connection to community history | Connection to community ecosystem | Intergenerational appeal | Celebrate community history and culture | unusual ground cover (sticker) |

Other key features:

Short period of time | Coordinated with local event | Written instructions | Low cost/ No infrastructure necessary |

Figure 4: 99 Tiny Games by Hide & Seek. Reproduced with permission granted on June 19, 2014: Donoff, M. (2014) [personal sketch].

Boom Box by NL Architects

Amsterdam, The Netherlands

Description:

NL Architects designed the Boom Bench (Figure 5 and Figure 6) for the Urban Play II Experimenta in Amsterdam, 2008. "Boom Bench is 'regular' street furniture with an added value: via Bluetooth you can connect your cell phone to the speakers in the Bench; let's get loud" (NL Architects, 2008). The temporary installation lasted six weeks, attracting adolescents from all over town. The Boom Bench contains eight 60-watt co-axial speakers and two subwoofers, playing music with 95 dB high quality sound. The seat contains a Bass Shaker to "transform deep sounds into vibrations that enhance the physical sensation of your tunes" (NL Architects, 2008).

Design philosophy:

> Since the Walkman and the Boom Box, music became mobile again. People carry their music and play it over headphones, or more popular every day, over small speakers on their cell phones or iPods. Especially kids like to go public, they like to share. The music extends their personality onto the streets (NL Architects, 2008).

Typology tags:

Self-direction | Ability to control | Auditory stimulation | Opportunity to increase social contact or observe others | Neutral colour | Sense of belonging/permission | Mixed use | Intergenerational appeal | Opportunity for escape | Celebrate community culture |

Other key features:

User control | Specifically attractive to young adults | Common street furniture transformed |

Figure 5: Boom Bench by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2008). Boom Bench. Projects. From http://www.nlarchitects.nl/projects/

Figure 6: Boom Bench by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2008). Boom Bench. Projects. From http://www.nlarchitects.nl/projects/

Chatterbox by SoulPancake

Los Angeles, United States of America

Description:

Chatterbox (Figure 7) is the pop-up creation of SoulPancake (2012), a group from Los Angeles that creates various activities to answer "life's big questions." Recognizing that it can be difficult for adults to make new friends and meet new people, SoulPancake tested the chatterbox as a venue for social conversation. The chatterbox is a handmade plywood ball pit, with an overhead sign reading "take a seat, make a friend." Typically, two pedestrians climbed into the box and began conversation. Prompt questions were written on larger balls in the pit, for example, "name three things on your bucket list," or "find one thing in common with the person you are talking to."

Design philosophy:

The Chatterbox was temporarily set up on a busy street corner in Los Angeles in 2012, and interactions were filmed and shared in an edited You Tube video. The project went viral through the Oprah Winfrey Network.

Typology tags:

Separate from everyday experience | Use of props to alter movement | Acting contrary to social convention | Cognitive games | Opportunity to increase social contract with others | Bold colours | Sense of belonging | Human scale | Intergenerational appeal | Celebrate community culture |

Other key features:

Temporary | Busy location | Concept promoted nationally | You Tube promotion | Written prompts |

Figure 7: Chatterbox by SoulPancake. Reproduced with permission granted on June 19, 2014: Donoff, M. (2014). [Personal sketch].

Cloud Gate by Anish Kapoor

Chicago, United States of America

Description:

Cloud Gate (Figure 8), commonly referred to as "The Bean" in Chicago, invites pedestrian interaction with the surrounding urban environment. Over 80% of the structure's 10-meter high mirrored surface reflects the buildings and sky surrounding the site (Chicago Architecture, 2014). The reflective quality of this intervention augments pedestrian's orientation within the city, and is accessible only to pedestrians who can approach it, photograph it, and enjoy theirs and others' stretched faces and bodies to their heart's content.

Design philosophy:

Cloud Gate was designed by Anish Kapoor, and completed in 2004. The 'bean' is 42 feet wide and 66 feet high, with an arch of 9 feet that pedestrians can walk under. Cloud Gate is situated in Chicago's downtown Millennium Park (Chicago Architecture, 2014).

Typology tags:

Ability to see beyond boundaries | Rare sights | Rare texture (mirror), literally reflects environment | Opportunity to observe others | Imageability (acts as a landmark) | Intergenerational appeal |

Other key features:

Mirror | Permanent Installation | Local attraction |

Figure 8: Cloud Gate by Anish Kapoor. Reproduced with permission granted on June 19, 2014: Donoff, D. (2013). [Personal photograph].

Das Netz by NL Architects

Berlin, Germany

Description:

Daz Netz (Figure 9, Figure 10, and Figure 11) is a hang-out structure for pedestrians of all ages in Berlin. "Das Netz is a playground. A playground not restricted to kids only!" (NL Architects, 2006). "Besides the symbolic and visual qualities of connecting and bridging, das Netz is a useable object: it works as a belvedere, offering views over the lake. It is an 'urban hammock', a trampoline, a climbing object" (NL Architects, 2006).

Design philosophy:

> 60 years after the War, Berlin is still a 'sponge'. The city fabric is perforated with empty lots, remnants of the air raids. Dominant planning ideas intend to restore t he tissue and fill up the holes … the voids can be used for many things: pocket parks, parking, playgrounds (NL Architects, 2006).

Typology tags:

Risk | Vertigo | Separate from everyday experience | Self-direction | Ability to see and move beyond boundaries | Use of props to alter movement | Exploratory play | Path of unusual material | Route choice/environmental mastery | Pedestrian connection | Pedestrian safety from traffic | Neutral colour | Safety and security | Sense of belonging | Connection to community history | Imageability | Enclosure/human scale | Mixed use | Intergenerational appeal | Opportunity for escape |

Other key features:

Infill

Figure 9: Das Netz by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2006). Das netz. Projects. From http://www.nlarchitects.nl/projects/

Figure 10: Das Netz by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2006). Das netz. Projects. From http://www.nlarchitects.nl/projects/

Figure 11: Das Netz by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2006). Das netz. Projects. From http://www.nlarchitects.nl/projects/

Entree Station Overvecht/ Transit Accelerator by HIK Ontwerpers

Amsterdam, The Netherlands

Description:

Adjacent to the outdoor stairs leading to Amsterdam's Overvecht train station, HIK Ontwerpers designed a slide, or officially, "transit accelerator", as an alternative efficient mode of rushing to commute (HIK Ontwerpers, 2014a). The space is punctuated by bright red handrails and the shiny slide, partially covered, has become a popular alternative for young and old entering the space (Figure 12).

Design philosophy:

> Our urban designs are both functional and innovative by giving urbanites a platform for interaction and dialogue. Designing a site-specific public art installation requires a flexible attitude towards the current situation and the demands for change. It is key that throughout the design process both general interests and aesthetics are cherished (HIK Ontwerpers, 2014b).

Typology tags:

Vertigo | Solitary play | Separate from everyday experience | Self-direction | Use of props to alter movement | Acting contrary to social convention | Path of unusual form | Route choice/environmental mastery | Pedestrian connection | Attractive colour scheme | Intergenerational appeal | Easily navigable | Reduces travel time | Heat reflecting material

Other key features:

Familiar equipment

Figure 12: Entrée Station Overvecht/ Transit Accelerator by HIK Ontwerpers. Reproduced with permission granted on April 9, 2014: HIK Ontwerpers. (2014a). Entrée Station Overvecht. Retrieved from http://www.hik-ontwerpers.nl/projecten/entree-station-overvecht/

Fire hydrant-cum-water fountain by Thor ter Kulve

Design prototype, Holland

Description:

By adding a rotating fountain attachment to existing fire hydrants, Kulve created a fully interactive piece (Figure 13). Water flow is initiated by a push button and stops after 20 seconds. The fountain creates intricate water patterns, with aesthetically detailed nozzle that is visible when water is not flowing.

Design philosophy:

This design is part of Thor ter Kulve's graduation work, which centered around designing a collection of products that reshape and redefine public space in Holland. "I wanted to show what is possible with what already exists" (Kulve, 2012). "By using well known products, Kulve demonstrates how temporary interventions that modify existing typologies can transform a notion of a well-recognizable object" (Designboom, 2014).

> The term public space somehow suggests that urban environments are open to our free use. The reality is that public space is over regulated. There is little room for free use, no room for play. A serious obstacle is zoning or urban planning with the attached discussions on what is permissible where and the ambition to regulate on this for the long run. To make public space free and alive again I propose temporary interventions making short term use of the plastic possibilities of specific places (Kulve, 2012).

Typology tags:

Separate from everyday experience | Ability to control/see cause and effect | Bold colour | Connection to community infrastructure | Human scale | Celebrate community climate (warm weather) | Creation of a microclimate (cooling) |

Other key features:

Concept | Water | Aesthetic quality when not in use | Modification to existing, common elements |

Figure 13: Fire hydrant-cum-water fountain by Thor ter Kulve. Reproduced with permission granted on April 3, 2014: Thor ter Kulve. (2012). Fire hydrant water fountain. Photograph by Florestan Korp. Retrieved from http://www.thorterkulve.nl

In Orbit by Tomas Saraceno

Dusseldorf, Germany

Description:

In Orbit is an installation by Tomas Saraceno, assembled in the Kunstsammlung Nordhein-Westfalen in Germany (Figure 14, Figure 15, Figure 16, and Figure 17). Suspended over 20 meters above a piazza, visitors can move in a weightless manner through the cloud-like landscape. The net construction is accessible on three levels, covering 2500m^2. PVC spheres of up to 8.5m in diameter separate the levels.

> Viewed from below … the people enmeshed in this net seem to be swimming in the sky. For the artist, this floating space becomes an oscillating network of relationships, neural pathways, resonances, and synchronous communication – a new digital geography, one that is experienced in physical terms (Furuto, 27 June 2013).

Design philosophy:

> The precise observation of nature and the conceptual development of its phenomena are consistent trademarks of Saraceno's work, which dissolves the boundaries between art and science. In this installation, space is perceived through vibration – just as it is by spiders. The result is a new, hybrid form of communication (Furuto, 27 June 2013).

Typology tags:

Vertigo | Separate from everyday experience | Ability to see and move beyond boundaries | Use of props to alter movement | Exploratory play | Unique surface texture | Route choice/environmental mastery | Neutral colour, reflecting cloud-feel | Enclosure/human scale | Intergenerational appeal | Opportunity to escape | Opportunity to observe others

Other key features:

Suspension | Bio mimicry | Vibration | Temporary | Observable | Tactile | Physical test |

Figure 14: Saraceno, T. (2013). In Orbit. Licensed by Creative Commons by NC ND 3.0. Retrieved from http://www.tomassaraceno.com

Figure 15: Saraceno, T. (2013). In Orbit. Licensed by Creative Commons by NC ND 3.0. Retrieved from http://www.tomassaraceno.com

Figure 16: Saraceno, T. (2013). In Orbit. Licensed by Creative Commons by NC ND 3.0. Retrieved from http://www.tomassaraceno.com

Figure 17: Saraceno, T. (2013). In Orbit. Licensed by Creative Commons by NC ND 3.0. Retrieved from http://www.tomassaraceno.com

La Ville Molle (The Soft City) by Raum

Bourges, France

Description:

La Ville Molle (Figure 18) softens a section of the sidewalk in Bourges, France, applying a water-balloon texture underneath bricks that mimic the surrounding pavement (Raum, 2010). "The urban environment is usually hard and angular, and we've never questioned the idea, but this project does and that's what makes it interesting. It's an adults playground that adds a layer of experience to the city" (De Boer, 2 January 2013).

Design philosophy:

"Fun, as a design tool in urbanism, is increasingly used to make people proud and cautious of their environment. It changes the conception of the pedestrian infrastructure in our cities. Although this floating pavement isn't very practical, it teases imagination and helps people to approach public space with a different attitude" (De Boer, 2 January 2013).

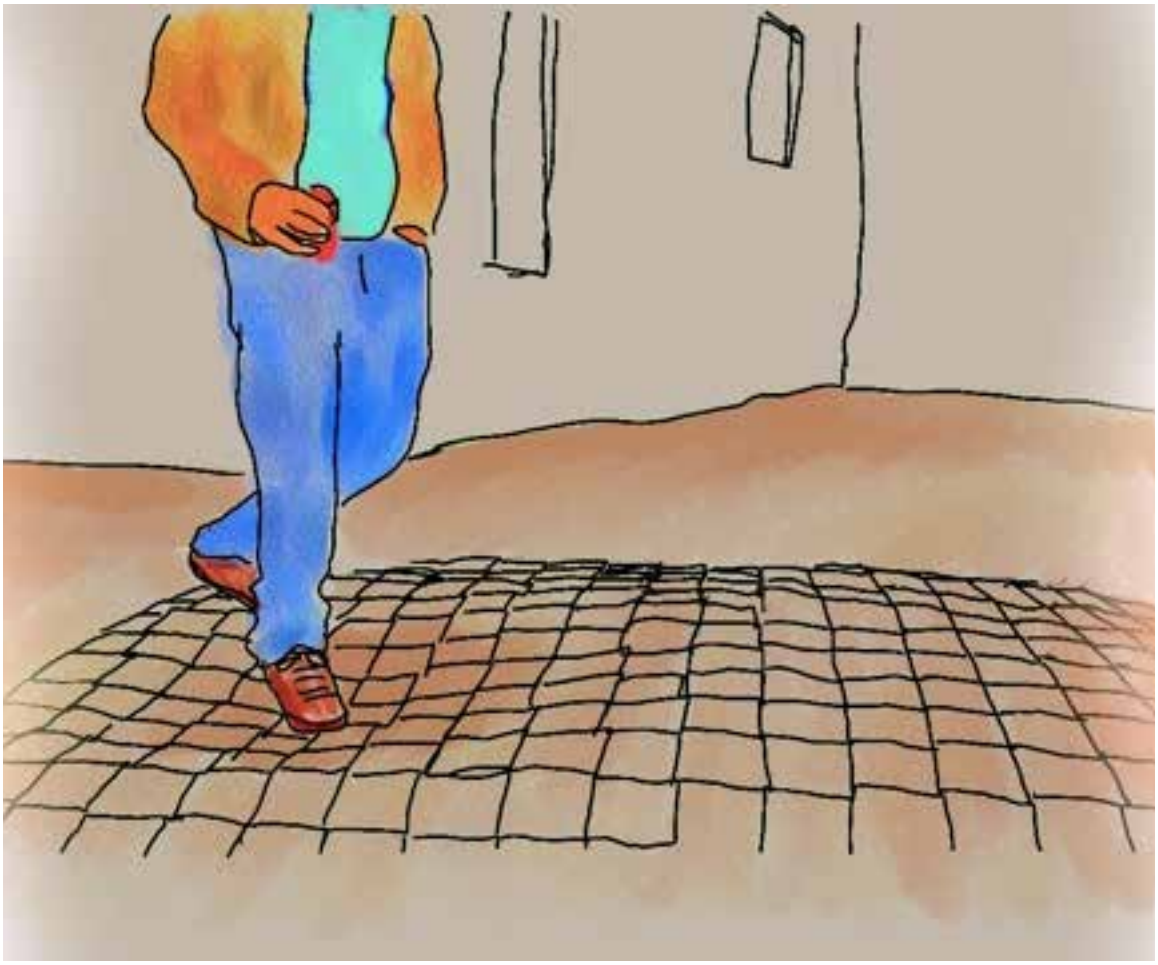
Typology tags:

Risk | Vertigo | Use of props to alter movement | Unique path texture | Route choice | Mimics surrounding environment | Connection to existing environment | Intergenerational appeal |

Other key features:

Softens hard architecture | Plays off of existing patterns |

Figure 18: La Ville Molle (The Soft City) by Raum. Reproduced with permission granted on June 19, 2014: Donoff, M. (2014) [personal sketch].



Limelight by Sans Façon

Touring installation

Description:

Limelight is a touring installation that replaces a street light with a theatre spotlight, turning sidewalks around the world into impromptu performance space (Figure 19 and Figure 20). Pedestrians often pause under the light, posing for friends, dancing, or merely improvising in the moment. Limelight has toured cities across the world, including Arlington, Calgary, Frankfurt, Gaborone, Glasgow, Inverness, Kansas City, London, Miami, Newcastle, Salford, Toronto, and Vancouver (Sans Façon, 2014).

Design philosophy:

This unique approach to street lighting is engaging for participants and passers-by alike (Sans Façon, 2014).

Typology tags:

Simulation | Imaginary play | Solitary play | Separate from everyday experience | Self-direction | Use of props to alter movement | Acting contrary to social convention | Creative play | Unique path texture (illuminated) | Opportunity o increase social contact or observe others | Imageability | Mixed use | Intergenerational appeal | Could celebrate community history and culture | Pedestrian lighting | Easily navigable |

Other key features:

Performance | Touring | Affects surface but not in a tactile way | Encourages creativity |

Figure 19: Limelight by Sans Façon. Reproduced with permission granted on April 11, 2014: Sans Façon. (2014). Limelight: Saturday night. Retrieved through email communication; also available at http://limelightontour.blogspot.ca

Figure 20: Limelight by Sans Façon. Reproduced with permission granted on April 11, 2014: Sans Façon. (2014). Limelight: Saturday night. Retrieved through email communication with Sans Façon; also available at http://limelightontour.blogspot.ca

Mario Kart Bike Lane Treatment, Anonymous

Portland, United States of America

Description:

In 2010, Portland commuters were treated to humorous graffiti stenciled along their bike lanes: "pranksters" had painted symbols from the popular racing video game, Mario Kart, along the paths (Hickey, 25 August 2010). Bananas, stars, speed bursts, and super mushrooms dotted the routes, adding a whimsical and nostalgic touch to what might otherwise be an unremarkable and mundane activity (Figure 21).

Design philosophy:

Matt Hickey (25 August, 2010) of CNET remarks: "as far as we can tell, [the stencils] serve no real purpose other than to be cool, nerdy public art. And we can see nothing wrong with that."

Typology tags:

Simulation | Unique ground covering | Imageability | Intergenerational appeal | Path remains easily navigable |

Other key features:

Guerilla | Spray paint | Bicycle route | Popular culture

Figure 21: Mario Kart Bike Lane. Reproduced with permission granted on June 19, 2014: Donoff, M. (2014) [personal sketch].

Moving Forest by NL Architects

Amsterdam, The Netherlands

Description:

Gen Yamamoto of NL Architects created Moving Forest for the Urban Play II Experimenta in Amsterdam, 2008 (Figure 22, Figure 23, and Figure 24). For the project, 100 trees were planted in shopping carts, affixed with signs such as "free" and "take me home!" (Dezeen, 30 November 2008). During the six weeks of the exhibit, the trees traveled and found homes across the city. Trees that were not adopted were donated to a local schoolyard. Inspired by fairytales of mythical woodlands, Moving Forest brings whimsy to the crusade of greening urban spaces.

Design philosophy:

Inspired by fairytales of mythical woodlands, Moving Forest brings whimsy to the crusade of greening urban spaces.

Typology tags:

Self-direction | Ability to move beyond boundary | Use of props to alter movement | Ability to control/see cause and effect | Exploratory play/rare sights | Route choice/environmental mastery | Natural environment | Connection to community ecosystem | Mixed use | Intergenerational appeal | Celebrate community culture and climate | Creation of a microclimate | Strategic vegetation |

Other key features:

Control outcome | Ecological component | Everyday object | Whimsy |

Figure 22: Moving Forest by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2008). Moving Forest. Retrieved through email communication with NL Architects.

Figure 23: Moving Forest by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2008). Moving Forest. Retrieved through email communication with NL Architects.

Figure 24: Moving Forest by NL Architects. Reproduced with permission granted on April 14, 2014: NL Architects. (2008). Moving Forest. Retrieved through email communication with NL Architects.

Off-Ground by Jair Straschnow and Gitte Nygaard

Copenhagen, Denmark

Description:

Off-ground is a design of transformable, eco-friendly hammocks (Figure 25 and Figure 26). "Using rejected fire-hoses, off-ground is about up-scaling playing elements combined with seating alternatives – hanging, floating, swinging, laying – one size fits all. Each seating element can easily be shifted between a low seat, a hammock or a swing. (Straschnow & Nygaard, 2014). Off-ground has been temporarily set up around Copenhagen, Denmark.

Design philosophy:

> Straschnow and Nygaard (2014) explain their philosophy behind Off-ground: Play is free, is in fact freedom. Play is essential to our well being. Why is play most commonly associated with children? Why are all playing facilities in public space scaled down to kid's size? Why do all seating facilities in public space sum up to rigid benches?

Typology tags:

Vertigo | Use of props to alter movement | Ability to control | Bold colours, appeals to adults | Intergenerational appeal | Opportunity for escape |

Other key features:

Recycled materials | User can transform |

Figure 25: Off-Ground by Jair Straschnow and Gitte Nygaard. Reproduced with permission granted on April 10, 2014: Straschnow, J., & Nygaard, G. (2014). Off-ground. Retrieved from www.off-ground.com

Figure 26: Off-Ground by Jair Straschnow and Gitte Nygaard. Reproduced with permission granted on April 10, 2014: Straschnow, J., & Nygaard, G. (2014). Off-ground. Retrieved from www.off-ground.com

Park and slide by Luke Jerram

Bristol, England

Description:

Luke Jerram's 90m slip-n-slide style waterslide is in development for Park Street, downtown Bristol (Figure 27 and Figure 28). "This massive urban slide transforms the street and asks people to take a fresh look at the potential of their city and the possibilities for transformation. Imagine if there were permanent slides right across Bristol: This is our city, and maybe it's up to shape it's future?" (Jerram, 2014).

Design philosophy:

"Enabling people to navigate the streets of their city in a new way, the slide is a simple architectural intervention and a playful response to the urban landscape. The installation requires public participation to be activated. The person on the slide becomes the performer, while spectators on either side watch on" (Jerram, 2014). The designers hope to share the instructions for constructing this slide out of inexpensive materials, so that others around the world may construct similar urban slides.

Typology tags:
Risk | Separate from everyday experience | Self-direction | Ability to move beyond boundaries/movement convention | Use of props to alter movement | Acting contrary to social convention | Unique path | Opportunity to observe others | Route choice/environmental mastery | Pedestrian connection | Bold colour | Imageability | Intergenerational appeal | Celebrate community culture and climate | Creation of a microclimate | Reduce travel time |

Other key features:
Water | Play off of conventional play equipment | Temporary | Funded by a Spacehive fundraising Campaign |

Figure 27: Park and slide by Luke Jerram. Reproduced with permission granted on April 9, 2014: Jerram, L. (2014). Park and slide. Life art. Retrieved from http://www.lukejerram.com/projects/urban_slide

Figure 28: Park and slide by Luke Jerram. Reproduced with permission granted on April 9, 2014: Jerram, L. (2014). Park and slide. Life art. Retrieved from http://www.lukejerram.com/projects/urban_slide

Piano Staircase by The Fun Theory (an initiative of Volkswagen)

Stockholm, Sweden

Description:

A staircase at the entrance to a Swedish subway was retrofitted with playable piano keys as the stair treads (Figure 29). The transformation was videotaped before and after the installation, showing that initially, those exiting the subway nearly uniformly used an escalator adjacent to the stairway. After, most pedestrians enjoyed the piano stairs over the escalator.

Design philosophy:

The Fun Theory (2009a) is "dedicated to the thought that something as simple as fun is the easiest way to change people's behaviour for the better." The piano staircase was a temporary instillation, but has been copied by other groups around the world in similar public spaces.

Typology tags:

Simulation | Self-direction | Use of props to alter movement | Ability to control/see cause and effect | Auditory simulation | Creative play | Unique path of unusual ground covering | Route choice/environmental mastery | Intergenerational appeal | Opportunity to observe others |

Other key features:

Encourages physical activity | Fun motivation | "Plays" off of existing infrastructure | Reinterprets mundane movement of walking up stairs | Temporary | Funded by large corporation, Volkswagen |

Figure 29: Piano Stairs. Reproduced with permission granted on June 19, 2014: Donoff, M. (2014) [personal sketch].

Pinball Exercise Machine by Omar Sotomayor

Design concept

Description:

Omar Sotomayor's concept for the Pinball Exercise Machine (Figure 30) was a finalist for the 2009 Fun Theory Award.

> How do we get more people to exercise? The idea here is to combine a standard step machine with a pinball machine. The machine is then operated by moving your feet to control each arm inside the machine. Hit the ball, get points and have fun! (The Fun Theory, 2009b).

Design philosophy:

Although this design is only in the conceptual stage, the theory behind the design highlights the opportunity to activate the otherwise idle pedestrian activity of waiting for the bus. Noting that those who wait for the bus will often sit whether they are active or not, Sotomayor's design capitalizes on this free time in a pedestrian's day to incorporate some physical activity that is fun and engaging.

Typology tags:

Competition | Chance | Solitary play | Separate from everyday experience | Self-direction | Use of props to alter movement | Ability to control/see cause and effect | Cognitive game | Bold colours | Potential to celebrate community culture | Opportunity to observe others |

Other key features:

Occupied while waiting: captive audience | Traditional game revitalized | Foot-eye coordination |

Figure 30: Pinball Exercise Machine by Omar Sotomayor. Reproduced with permission granted on April 8, 2014: Sotomayor, O. (2014). Image received through email communication.

Playground by The Wa

Marseille, France

Description:

Playground by The Wa is a temporary conversion of a do-not-enter sign into a basketball-hoop inspired garbage can (Figure 31 and Figure 32). With a garbage bag suspended approximately 8 feet above ground, the sign was covered to imitate the backboard of a basketball hoop, encouraging pedestrians to dunk their garbage.

Design philosophy:

> Playground was temporarily installed in Marseille, France, in 2011.
> The fluency with which The Wa adopts the visual and political landscapes of the locations of his installations is a curious and inevitable result of his creative experiences and collaborations with an extraordinary array of artists. The originals of these works are almost all removed from their initial site, and the attempt to evoke the relational elements of their installation only serves to highlight the inadequacy of the written work. To experience The Wa's work first hand is an endeavor of the brave, the quick and the curious (The Wa, 2014).

Typology tags:

Developmental play | Self-direction | Use of props to alter movement | Ability to control | Acting contrary to social convention of throwing out trash | Intergenerational appeal |

Other key features:

Encouraging good behavior (throwing away garbage) | Temporary | Play off of existing sport (basketball) |

Figure 31: Playground by The Wa. Reproduced with permission granted on April 10, 2014: The Wa. (2011). Playground. Photo by Antoine Riviere. Retrieved from http://www.the-wabsite.com/works/2011/playground/

Figure 32: Playground by The Wa. Reproduced with permission granted on April 10, 2014: The Wa. (2011). Playground. Photo by Antoine Riviere. Retrieved from http://www.the-wabsite.com/works/2011/playground/

Pop up swing by Thor ter Kulve

Design prototype, Holland

Description:

Constructed from powder coated steel pipes, wooden seating, and a pair of heavy straps, the pop-up swing (Figure 33) can be attached to anything that is firmly anchored (Designboom, 2014). Designer Thor ter Kulve explains: "It's my strong belief that in a time of economic hardship and individual isolation we should address ourselves to public space as a collectively owned domain and possible ways to use it to our joint benefit" (Kulve, 2012).

Design philosophy:

This design is part of Thor ter Kulve's graduation work, which centered around designing a collection of products that reshape and redefine public space in Holland. "I wanted to show what is possible with what already exists" (Kulve, 2012). "By using well known products, Kulve demonstrates how temporary interventions that modify existing typologies can transform a notion of a well-recognizable object" (Designboom, 2014).

> The term public space somehow suggests that urban environments are open to our free use. The reality is that public space is over regulated. There is little room for free use, no room for play. A serious obstacle is zoning or urban planning with the attached discussions on what is permissible where and the ambition to regulate on this for the long run. To make public space free and alive again I propose temporary interventions making short term use of the plastic possibilities of specific places (Kulve, 2012).

Typology tags:
Vertigo | Solitary play | Separate from everyday experience | Self-direction/ability to control | Potentially ability to see beyond boundaries | Use of props to alter movement | Acting contrary to social convention | Human scale | Intergenerational appeal |

Other key features:
Concept | Modification to existing, common elements | Constructed from well-known materials |

Figure 33: Pop up swing by Thor ter Kulve. Reproduced with permission granted on April 3, 2014: Thor ter Kulve. (2012). Fire hydrant water fountain. Photograph by Florestan Korp. Retrieved from http://www.thorterkulve.nl

Pulse of the City by George Zisiadis

Boston, United States of America

Description:

Pulse of the City (Figure 34 and Figure 35) is an art installation that turns pedestrian's heart beats into music. "Amidst the chaotic rhythms of the city, it helps pedestrians playfully reconnect with the rhythm of their bodies. It combines art, design, and technology to promote the use and celebration of public space in an uplifting and imaginative way" (Zisiadis, 2012a). Hearts are mounted on posts at chest-height, inviting passing pedestrians to hold the stylistic handles and listen to a song that matches their heart beat as it is projected from a speaker in the center of the heart. In 2012, five hearts were installed across Boston, Massachusetts.

Design philosophy:

"I think pulse of the city really shows the magic of what can happen when we make public space fun, playful, and engaging" (Zisiadis, 2012a).

Typology tags:

Ability to see cause and effect | Auditory stimulation | Opportunity to increase social contact or observe others | Bold colour | Sense of belonging | Intergenerational appeal | Celebrate community |

Other key features:

Science/bio mimicry | Music/auditory | Art installation | Collaborative project |

Figure 34: Pulse of the City by George Zisiadis. Reproduced with permission granted on April 9, 2014: Zisiadis, G. (2012). Pulse of the city. Work. Retrieved from http://www.georgezisiadis.com/#/pulse-of-the-city/

Figure 35: Pulse of the City by George Zisiadis. Reproduced with permission granted on April 9, 2014: Zisiadis, G. (2012). Pulse of the city. Work. Retrieved from http://www.georgezisiadis.com/#/pulse-of-the-city/

Red Swing Project

International

Description:

Red Swing Project's (2014) mission is simple: "We strive to positively impact under-utilized public spaces with simple red swings". The project began in 2007 and since then, over 200 swings of red painted wood have been hung with retired rock climbing rope across the world (Figure 36).

Design philosophy:

"The red swing remains constant while the environmental backdrops and cultural contexts change from place to place" (Red Swing Project, 2014). Examples of under-utilized places that swings have been hung include under bridges and overpasses, abandoned town squares, along riverbanks, and in alleys.

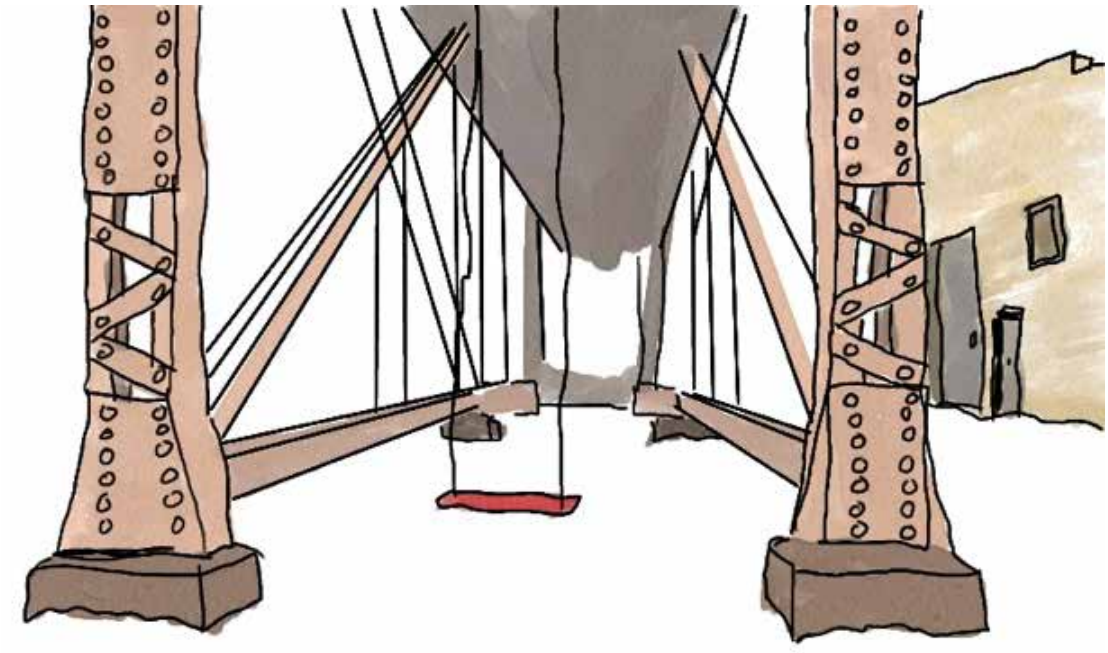
Typology tags:

Vertigo | Solitary play | Separate from everyday experience | Self-direction/ability to control | Potentially ability to see beyond boundaries | Use of props to alter movement | Acting contrary to social convention | Bold (red) colour | Human scale | Intergenerational appeal | Heat absorbing material (wood) |

Other key features:

Crowd sourced: website contains instructions for how to hang your own swing | Under-used space | Online map of swing locations |

Figure 36: Red Swing Project. Reproduced with permission granted on June 19, 2014: Donoff, M. (2014) [personal sketch].



Roombeek The Brook by Buro Sant en Co

Enschede, The Netherlands

Description:

Roombeek The Brook (Buro Sant en Co, 2010) provides alternative routes for pedestrians along Roombeek, a commercial street in Enschede, in the Netherlands. The project restored a small stream which formerly was flowing underground, bringing it to the surface and designing a pattern of stepping-stones for pedestrians to jump across (Figure 37).

Design philosophy:

Buro Sant en Co Landscape Architects (2010) explain:

> Now the water is part of the urban environment and has become the district's new central point. Its asymmetrical design, which widens and narrows along the street, accentuates its different spatial features. The base of the stream is treated with a rough structure that reduces the flowing speed of the water and creates a constant reflective pattern on the water surface. A distinctive composition of sharp edged stepping stones refers to the randomness of natural processes and is also a reference to the fireworks explosion.

Typology tags:

Ability to move beyond boundaries | Use of props to alter movement | Exploratory play | Unusual path | Route choice/environmental mastery | Pedestrian connections | Reflects the natural environment | Connection to community ecosystem | Human scale | Intergenerational appeal | Opportunity to observe others | Reduce travel distances |

Other key features:

Water | Alternate paths | Local ecology |

Figure 37: Roombeek The Brook. Reproduced with permission granted on June 19, 2014: Donoff, M. (2014) [personal sketch].

Sonus Loci by Stantec and Leanne Zacharias

Winnipeg, Canada

Description:

Sonus Loci (Figure 38 and Figure 39) was one of the winning warming hut designs for Winnipeg, Manitoba's 2013 competition for warming huts to line the city's river skating trail. A series of vertical chimes were planted in a scattered formation, embedded in the skating ice. This design allowed skaters to skate between the chimes, providing a more tactile experience to their skate. "The landscape created by this site specific work, at the confluence of the Red and Assiniboine Rivers, naturally amplifies and transforms wind, a winter agent that causes even the most hardy of Canadians to seek shelter from its bite on a cold winter night" (Warming Huts, 2014).

Design philosophy:

> Quieted by shelter, wind continues to sing, howl, and moan, making its presence known. Slowly populating the landscape, first one, then two, clusters of five, seven, and then many, increasing like a crescendo of voices in a choir; a landscape of white phosphorescent sounding tubes emerge from the scored ice of the Red River Mutual Trail. Each sonical tube harnesses the energy of the wind to create a unique tone, and at the center of this polyphonic chorus, the Sonus Loci– offering shelter to those who encounter it, passing through along their course. The anthem of this melodic garden of sounding tubes, a chorus of timbres and textures, strikes a cord– balancing the power of this ephemeral landscape's sound of silence (Warming Huts, 2014).

Typology tags:
Auditory simulation | Attractive 'adult' colour scheme | Connection to community ecosystem (wind), ice | Intergenerational appeal | Celebrate community culture and climate | Celebrate winter spirit | Northern aesthetic | Ice as positive | Wind as positive |

Other key features:
Auditory | Temporary, could be seasonal | Collaboration: musician and designers |

Figure 38: Sonus Loci. Reproduced with permission granted on April 8, 2014: Norman, L. (2013). Winter fun on the rivers, January 29, 2013. Retrieved from http://www.leifnorman.net/winter-fun-on-the-rivers-jan-29-2013/

Figure 39: Sonus Loci. Reproduced with permission granted on April 8, 2014: Norman, L. (2013). Winter fun on the rivers, January 29, 2013. Retrieved from http://www.leifnorman.net/winter-fun-on-the-rivers-jan-29-2013/

Stairway Cinema by Oh.No.Sumo

Auckland, New Zealand

Description:

The stairway cinema converts an unused stairway into a mini-movie theatre, by converting a makeshift awning into a small-scale cinema (Figure 40, Figure 41, Figure 42 and Figure 43). Short movies are shown, similar to they variety that pedestrians might watch on their phones while waiting for the bus. "The individual experience is exchanged for the communal and social, lending to a shared, fun and architecturally framed experience" (Oh.No.Sumo, 2012). The Stairway Cinema was installed at a busy intersection where pedestrians wait at bus stops and for nearby Laundromats. The structure is waterproof, providing some light inside and welcoming customers to sit on brightly coloured cushions. The film is projected over the entrance where a screen is cantilevered over the end of the structure (Oh.No.Sumo, 2012).

Design philosophy:

Auckland's Oh.No.Sumo (2012) is an experimental design collective, with an ongoing goal "to experiment with architecture and the way it can engage with the public in unique and exciting ways". "Oh.No.Sumo aims to push the boundaries of conventional design practice and allows for uninhibited design freedoms through creative thinking and active participation" (Oh.No.Sumo, 2012).

Typology tags:
Simulation |Auditory stimulation | Opportunity to increase social contact | Bold colour | Sense of belonging | Potential connection to community history and culture | Enclosure/human scale | Opportunity for escape | Weather protection |

Other key features:
Video media/ social media | Shelter | Collective form of activity that already existed |

Figure 40: Stairway cinema by Oh.No.Sumo. Reproduced with permission granted on April 9, 2014: Oh.No.Sumo. (2012). Stairway Cinema. Photographs by Simon Devitt. Retrieved from http://ohnosumo.com/tagged/Stairway-Cinema

Figure 41: Stairway cinema by Oh.No.Sumo. Reproduced with permission granted on April 9, 2014: Oh.No.Sumo. (2012). Stairway Cinema. Photographs by Simon Devitt. Retrieved from http://ohnosumo.com/tagged/Stairway-Cinema

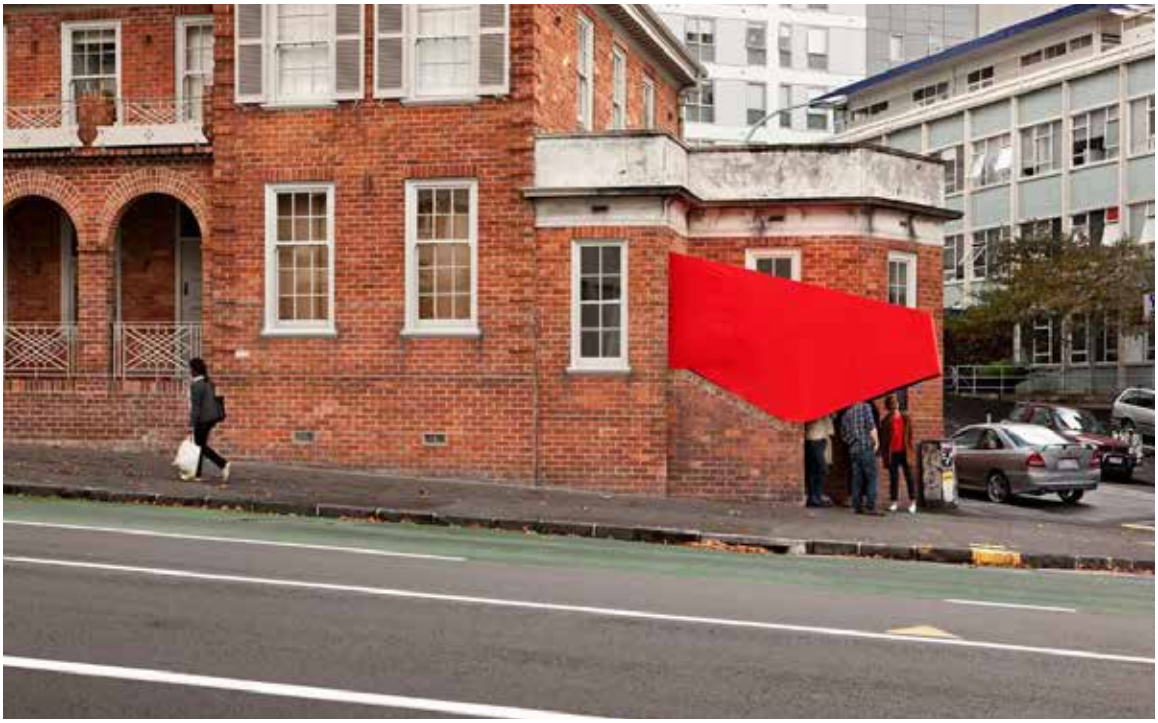


Figure 42: Stairway cinema by Oh.No.Sumo. Reproduced with permission granted on April 9, 2014: Oh.No.Sumo. (2012). Stairway Cinema. Photographs by Simon Devitt. Retrieved from http://ohnosumo.com/tagged/Stairway-Cinema

Figure 43: Stairway cinema by Oh.No.Sumo. Reproduced with permission granted on April 9, 2014: Oh.No.Sumo. (2012). Stairway Cinema. Photographs by Simon Devitt. Retrieved from http://ohnosumo.com/tagged/Stairway-Cinema

Tent Pile by Formlessfinder

Miami, United States of America

Description:

Tent Pile (Figure 44 and Figure 45) is the winning installation for a competition hosted by Design Miami, calling for "innovative interpretations of crossing the threshold" from the parking lot to the event venue. The piece is essentially a half-pyramid of sand supported by a retaining wall and covered with a cantilevered roof (Thomson, 9 December 2013). "Visitors are invited to ascend the sand and activate the space. For Formlessfinder, the obsequious art world notion of 'look, don't touch' is abolished (Thomson, 9 December 2013).

Design philosophy:

Formlessfinder is known for their avant-garde, deconstructed architecture where form is not first: "It's about reengaging process and material, and by default, the building will take shape" (Thomson, 9 December 2013). For Tent Pile, Formlessfinder found that a 30-degree angle would maintain the sand dune's shape as visitors scaled its slope. Garrett Ricciardi, one half of Formlessfinder, explains, "so much in architecture is seen on blogs or designed to effuse spectacular views. The pile is weird enough to make jaded viewers stop" (Thomson, 9 December 2013).

Typology tags:
Vertigo | Separate from everyday experience | Ability to move beyond boundaries | Use of props to alter movement | Exploratory play | Path of unusual texture | Route choice/environmental mastery| Natural materials/colour | Potential connection to community ecosystem | Intergenerational appeal | Weather protection |

Other key features:
Threshold | Manipulative | Scientifically calculated form to ensure function | Bio mimicry

Figure 44: Tent pile by Formlessfinder. Reproduced with permission granted on April 11, 2014: Formlessfinder. (2013). Tent Pile. In Thomson, S. (9 December 2013) Formlessfinder summons architecture from sand at Design Miami. Architizer. Retrieved from http://architizer.com/blog/formless-finder-miami/

Figure 45: Tent pile by Formlessfinder. Reproduced with permission granted on April 11, 2014: Formlessfinder. (2013). Tent Pile. In Thomson, S. (9 December 2013) Formlessfinder summons architecture from sand at Design Miami. Architizer. Retrieved from http://architizer.com/blog/formless-finder-miami/

Whoopdeedoo by Greg Papove

Vancouver, Canada

Description:

The Whoopdeedoo is a feature for urban commuters, briefly varying terrain type on a otherwise level-grade cycling path (Figure 46 and Figure 47). The ramp is designed to be used by cyclists of all ages and comfort levels, and was specifically designed using bright colours to draw attention to passers-by. Safety was considered, indicating a center line for balance and flags to mark the edges of the ramp. The Whoopdeedoo premiered in Vancouver, British Columbia, through funding by pennysmash.ca and vancouverisawesome.com.

Design philosophy:

Designer Greg Papove explains: "The Whoopdeedoo project is about breaking daily routine and providing a fun moment on your daily bicycle commute" (Papov, 2014).

Typology tags:

Risk | Vertigo | Self-direction | Use of props to alter movement | Unique path: unusual narrowness and texture | Opportunity to observe others or participate | Route choice/environmental mastery | Bold colour combined with natural material | Intergenerational appeal | Easily navigable path | Heat absorbing material |

Other key features:

Safety built-in (risk management) | Designed to attract users & passers by | Option to use or not use (can cycle around) | For cyclists specifically | Funded by grants from Penny Smash and Vancouver is Awesome |

Figure 46: Whoopdeedoo by Greg Papove. Reproduced with permission granted on April 7, 2014: Papove, G. (2014). Whoopdeedoo Vancouver. Retrieved from www.gregpapove.com/Whoopdeedoo-vancouver

Figure 47: Whoopdeedoo by Greg Papove. Reproduced with permission granted on April 7, 2014: Papove, G. (2014). Whoopdeedoo Vancouver. Retrieved from www.gregpapove.com/Whoopdeedoo-vancouver

Zet die knop om!/Switch that button! by HIK Ontwerpers

Amsterdam, The Netherlands

Description:

HIK Ontwerpers designed a playful bench to look like a giant classic red switch button (Figure 48 and Figure 49). Functional as a public bench, the chair is illuminated when the user sits on one side and turns the switch "on".

> Because the bench gives light, it can also be used during night hours. When leaving the spot it would be appropriate to switch the bench off again. Everybody understands that. The project is not only a funny and playful intervention in public space, but also a statement that tries to make people more aware of energy consumption and encourage them to save energy when possible (De boer, 25 December 2012).

Design philosophy:

> Our urban designs are both functional and innovative by giving urbanites a platform for interaction and dialogue. Designing a site-specific public art installation requires a flexible attitude towards the current situation and the demands for change. It is key that throughout the design process both general interests and aesthetics are cherished (HIK Ontwerpers, 2014b).

Typology tags:
Self-direction | Use of props to alter movement | Ability to control/see cause and effect | Bold colour | Safety and security by increased illumination | Intergenerational appeal | Pedestrian lighting | Heat reflecting |

Other key features:

Humorous design | Energy conservation | Unique seating |

Figure 48: Zet die knop om!/Switch that button! by HIK Ontwerpers. Reproduced with permission granted on April 9, 2014: HIK Ontwerpers. (2008). Zet die knop om! Retrieved from http://www.hik-ontwerpers.nl/projecten/zet-die-knop-om/

Figure 49: Zet die knop om!/Switch that button! by HIK Ontwerpers. Reproduced with permission granted on April 9, 2014: HIK Ontwerpers. (2008). Zet die knop om! Retrieved from http://www.hik-ontwerpers.nl/projecten/zet-die-knop-om/

4.4 Trends

Matching the above cases to the typology of factors discovered in the literature review affirms many established motivators of play and pedestrian activity are found in existing examples of urban play. Because this sample of urban play elements is not, and could never be, exhaustive, it is inappropriate to discredit typology factors that were not observed in the cases, unless the factor were to be tested individually. However, there were design components identified in the cases examined that elaborate on or are extraneous to the material covered by the literature review. Those factors, described as 'other key features' in the cases, are summarized below.

Table 4: Design elements summarized from case examples

Design element	Type
Process of creation	Art installation
	Attraction
	Conceptual drawing
	Grant funding
	Guerilla
	Interdisciplinary collaboration
Promotion of element	Coordination with local event
	Crowd sourcing
	Online map
	You Tube
Materials	Well-known materials
	Ecological component
	Low cost
	Mirror
	No infrastructure necessary
	Recycled materials
	Spray paint
	Suspension
	Water
	Written instructions or prompts
Design	Aesthetic quality when not in use
	Affects surface but not in a tactile way
	Bio mimicry
	Scientifically calculated
	Softens hard architecture
	Video media
	Social media
	Humorous or whimsical design
	Infill
	Local ecology
	Popular culture
	Traditional game revitalized
Auditory influence	Auditory feedback
	Vibration
Duration	Successive seasons
	Permanent installation
	Temporary
	Touring
Uses of existing infrastructure	Creative form of activity that already exists
	Everyday object

	Familiar equipment
	Modification to existing/common street elements (eg. Existing street furniture)
	Busy location
	Under used space
Motivation type	Fun physical activity
	User can control/transform outcome
	Cooperation
	Encourages creativity
	Energy conservation
	Observable
	Ownership of space
	Performance
	Physical test
	Shelter
	Tactile
Path	Alternative/optional path
	Threshold
	Wide sidewalk setting
	Bicycle path

Element creation

An element of design not covered in the literature review revealed through the case examination is the creation mode of the examined designs, that is, how they came to be. In many cases, designs are the result of collaborative work, for example, between designers and musicians, behavioural scientists, or artists. In several examples, the selected designs were produced for a curated exhibition or other scheduled event. Many are in the design concept stage, and have not been officially implemented in the urban context. Others, such as Chicago's Cloud Gate, are permanent attractions (Chicago Architecture, 2014). The range of ways play elements have been incorporated into the urban environment is perhaps partially linked to the mode of funding the project received. The examined cases ranged from corporate marketing campaigns (such as Volkswagen's Fun Theory [2009]) to local grants (like Vancouver is Awesome [Papov, 2014]), to guerilla operations (as demonstrated by the Mario Kart Bike Lane [Hickey, 25 August 2010]).

Promotion

Many of the articles and designer's websites discussing the examined play elements also include information about how the project was promoted. In many cases, projects are promoted through You Tube videos or local media. Many cases are also documented on well-visited websites such as Pop Up City, Architizer, and Dezeen. It is not uncommon for projects to correspond with local events, such as 99 Tiny Games coinciding with the London Olympics (Hide & Seek, 2012), or the Tent Pile's association with Design Miami (Thomson, 9 December 2013). The Red Swing Project (2014) is a

good example of strong promotional efforts, crowd-sourcing its design by including online instructions for hanging swings, and providing an interactive map of swing locations on its website, a tactic also employed for 99 Tiny Games (Hide & Seek, 2012). Many cases also spread word of their work through social media.

Materials

An interesting trend found in the examined cases is the use of well-known and often recycled materials, such as fire hoses for Off-Ground (Straschnow & Nygaard, 2014). In many cases, a preference for low-cost materials is noted, and in some cases, low infrastructure, such as the stickers for 99 Tiny Games (Hide & Seek, 2012). Other materials that were used but not acknowledged in the academic typology include mirrors, spray paint, suspension cables, the incorporation of water, and the inclusion of written instructions or prompts.

Design

Several design trends emerged from the case examples independent of the typology. Several cases emphasized the importance of a piece maintaining a design quality even when it is not in use. A notable trend is the use of bio mimicry in design, where several cases imitated the natural environment through design of the built form, such as the heartbeat of Zisiadis' (2012a) Pulse of the City In Orbit's web (Furuto, 27 June 2013), and the dune-like form of Tent Pile (Thomson, 9 December 2013). Design processes also included scientific calculations to ensure function or to intentionally guide human behaviour, as was the intention for In Orbit (Furuto, 27 June 2013) and 21

Balançoires (Daily Tous les Jours, 2014). Another trend was to use design to soften hard architecture (for example, Raum's [2010] La Ville Molle). One of the most unique applications of this is Limelight (Sans Façon 2014), altering the ground surface not in a tactile way but with illumination. Another interesting design incorporation is the use of video media and social media in design (for example, the Oh.No.Sumo's [2012] Stairway Cinema). The use of humor and whimsy, common in the designs of HIK Ontwerpers (2014) embodies a general playfulness not well described in the academic literature. Other notable design features include infill space (capitalized by NL Architects' [2006] Das Netz), addressing local ecology (for example, Buro Sant en Co's [2010] Roombeek The Brook) and incorporating popular culture (as done for the Mario Kart Bike Lane [Hickey, 25 August 2010]). Many cases employed revitalizing more traditional or classic game forms, and incorporated a general sense of whimsy in their design.

Auditory influence

Although auditory simulation was addressed through the academic literature, it presented itself in unpredicted ways in the case examples. Specifically, auditory feedback, as seen through Zisiadis' (2012a) Pulse of the City, 21 Balançoires (Daily Tous les Jours, 2014), the Piano Staircase (The Fun Theory, 2009a), and the vibrations of NL Architects' (2006) Boom Bench take an auditory quality beyond passive reception to a level of responsiveness and control.

Duration

An important pattern discovered by comparing the process of case implementation is the common temporary nature of many of the examined cases. Some projects reoccur in successive seasons (for example, every summer as for 21 Balançoires [Daily Tous les Jours, 2014] or every winter, for Winnipeg's Warming Huts [2014]). Others are temporary or pop-up installations, present for only a short and defined period of time, or touring as an exhibition around the world, such as Limelight (Sans Façon, 2014).

Uses of Existing Infrastructure

Many of the cases examined altered existing infrastructure for their design. Incorporating common activities, everyday objects, and modifying familiar equipment are tactics used by many of the designs uncovered. Often, cases were located in an already busy location, taking advantage of an already present/captive audience (for example, Oh.No.Sumo's [2014] Stairway Cinema) rather than attracting them to an area. In other examples, under-used spaces were activated by the installation, as seen in NL Architect's Daz Netz, or the Red Swing Project (2014).

Motivation Type

Some of the cases used fun as a motivator for physical activity (see, for example, The Fun Theory's [2009a] Piano Stairs). Being able to control an outcome (like Kulve's [2012] Fire Hydrant cum Water Fountain) or transform an object (like the shape-shifting Off-Ground Straschnow and Nygaard [2014]) are popular tactics for engaging use. Other

motivators used are cooperation (21 Balançoires [Daily Tous les Jours, 2014]), general creativity, encouraging good behaviour (such as The Wa's [2014] Playground encouraging garbage disposal), or performance (as seen in Limelight [Sans Façon, 2014]).

Paths

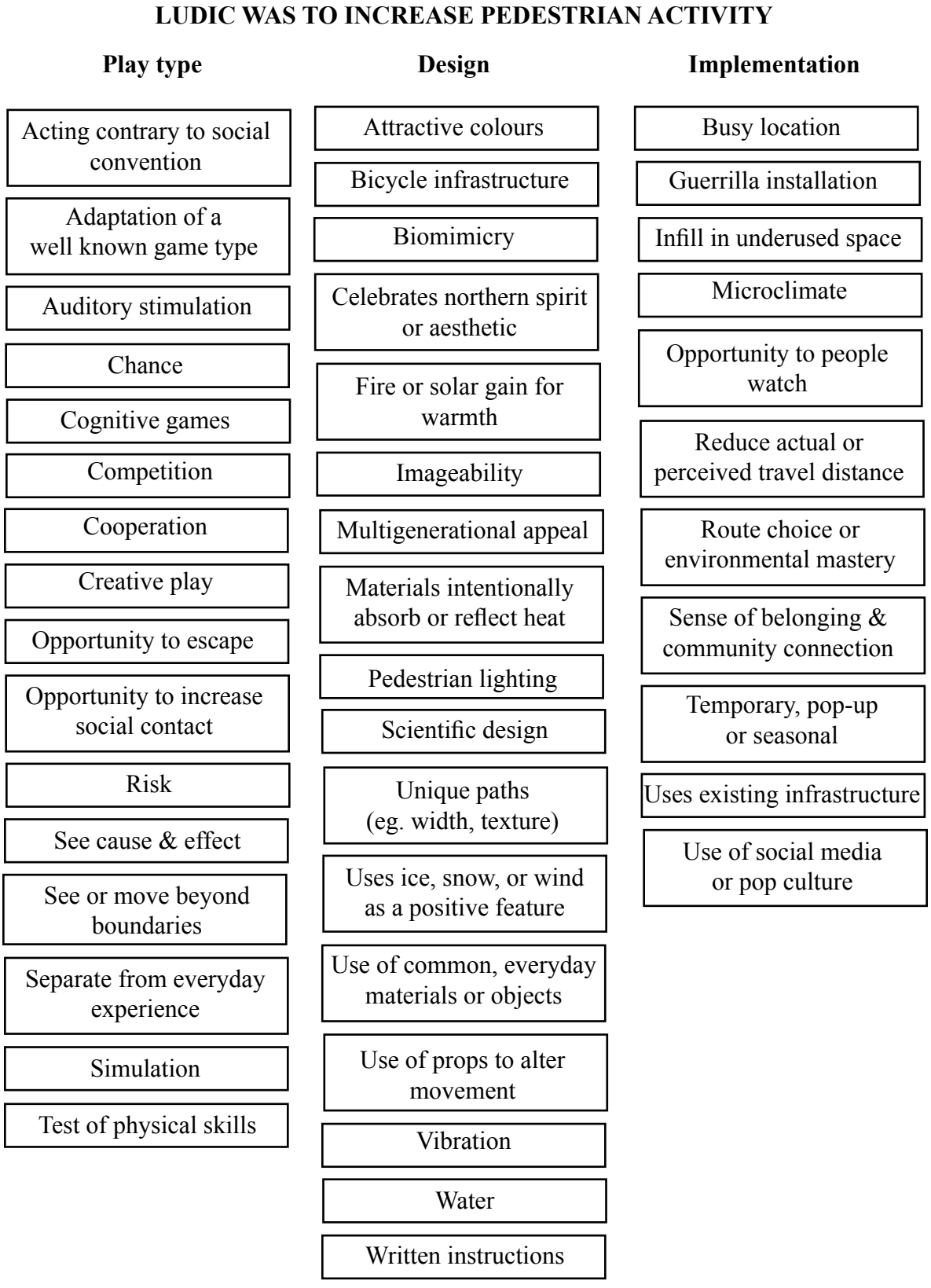
Several of the examples gathered include specific path treatments, providing alternative path types and opportunities to explore thresholds (as in Formlessfinder's [2013] Tent Pile). Bicycle path treatments were also found to amplify pedestrian settings.

4.5 A typology of ludic ways to increase pedestrian activity

This revised typology (Figure 50: A typology of ludic ways to increase pedestrian activity) is the result of comparing the literature review findings (Figure 1: Typology of element types for ludic pedestrian motivators) with Table 4: Design elements summarized from the case examples. Three categories describe the important components of ludic pedestrian interventions: play type, design, and implementation. The literature review findings were well represented in the cases examined, and have been transferred to the revised typology. Studying the cases highlighted the importance of the implementation of ludic designs, and so this category has been added and highlighted in the revised typology. In this study, few examples were found specifically for winter city conditions. This component remains represented in the design category, but is also an important consideration for implementation, strengthening the need to adapt designs to their specific location and the local culture and climate. The design of the typology is

meant to clearly display various ludic ways to increase pedestrian activity, and not to present one type over another. Under each column, types are listed alphabetically.

Figure 50: A typology of ludic ways to increase pedestrian activity



CHAPTER V: DISCUSSION

5.1 Implications for planning practice

Introduction

This research examines literature on play in the urban environment and compares it to examples of urban play in the built form. The intention is not to describe a 'best practice' of urban play, but to identify elements of design and the design process that can be supported in the greater city planning context. The following trends have emerged through the literature review and examination of cases above.

Interdisciplinary learning and collaboration

Reviewing the literature on pedestrian motivations, urban play, and the winter city context reveals there is much to gain from interdisciplinary collaboration. The many overlaps in findings from the literature review support that the elements of good urban design are of interest to a wide variety of professions and disciplines. Further, diverse studies of walkability, winter cities, and urban play have independently found similar conclusions. This points to many opportunities for interdisciplinary learning and collaboration on strategies to encourage pedestrian activity through ludic design.

Many of the case studies examined are a result of interdisciplinary collaboration. Artists and designers may partner with planners, architects, psychologists, engineers, or behavioural scientists to create useable ludic interventions that incorporate an academic approach to form and function. Planners are well situated, particularly as the field of urban design develops, to both partake in and encourage interdisciplinary work.

Plan for flexibility

The examples of urban play documented originated in different ways, for example, through collaboration, curated exhibits, or permanent attractions and fixtures. This diversity shows there are many roles for and opportunities to incorporate play into the urban environment. An important lesson for city planners is to allow for flexibility to accommodate these different styles of urban play. By allowing for temporary or "pop-up" uses, cities can encourage local creativity and engage in "open-source urban design", an idea that is growing in the online city-building community (Open Source Urbanism, 2013; Polis, 2012). Flexibility in public space and regulations creates a setting for playful interventions to occur.

Environmental motivators

Comparing the cases examined to the literature revealed several strong themes of environmental motivators. As the literature predicted, many of the ludic interventions were designed to appeal to users by at least some of the following tactics: connections to local community history and ecosystems, increased imageability of a city, translating vast urban forms to a human scale, the design of interesting and unique paths, enhancing mixed use spaces, providing opportunities for intergenerational linkages, decreasing perceived walking distances, additions of unique ground coverings, and by providing an opportunity to mentally and physically escape the ordinary urban environment. Acknowledging and incorporating these environmental motivators into urban design, in ludic ways or not, is an important step for city planners in designing healthy and livable cities.

Winter cities

Winter cities have a great advantage for creating unique urban play opportunities. Temporary uses and the anticipation of seasonal activities are well suited for cities with four seasons. Planners must not use the winter as an excuse for decreased pedestrian rates, but rather embrace Nordic climates and culture and use them to their greatest advantage.

Copying pedestrian environments that function in warmer climates is an inappropriate and outdated technique. Some ludic interventions are transferable, but in winter cities, context is everything. Planning spaces to provide pleasant microclimates will support a wide range of pedestrian uses. Material types and colours may need to be adjusted for a more appropriate winter design. Playful applications of light are particularly attractive for short and dark winter days. Play in the urban environment is a universal way to celebrate winter spirit, local climate, and culture through northern aesthetic and tradition.

Urban play doesn't have to be expensive or complicated

In many cases, the studied ludic interventions used well-known, inexpensive materials and 'played' off of existing infrastructure. Using recycled materials adds interest, and is an eco-friendly and cost-effective way to design ludic interventions. Crowdsourcing ideas (requesting input from a large group of people, often through social media) is also cheaper than hiring a design team, and increases citizen participation and ownership of a space. In some cases, ludic interventions used no infrastructure at all, providing merely a set of instructions for an activity. The non-permanent nature of many

playful examples highlights how simple and creative playful ideas can have a large impact on pedestrian environments.

Play is only one (important) piece of the puzzle

The overlap among themes found in the literature review demonstrates the suitability of play to address some common urban issues. Increasing social contact, providing an opportunity for environmental mastery, and increasing pedestrian safety can all be addressed by playful urban tactics. However, ludic interventions must coexist and be supported by a good planning framework that addresses larger infrastructure and policy issues. As a piece of the puzzle, urban play should not be ignored: play is an important part of human learning and decision making, well being, and overall happiness and satisfaction with a place.

5.2 Recommendations for further study

The purpose of this research is to provide a broad review of the important processes and design considerations for ludic cities. At the center of a new and growing field, the intersection of planning, design, and psychology is bound to grow and develop. This project begins to compare academic findings with real-world examples of urban play. Stanoff (1991) supports that "inquiry into the application of research findings to design and planning can have a positive impact on improving the quality of the environment" (p. xi). There are many directions in which further study and experimentation may lead. Some suggestions are listed below:

How effective are playful interventions at addressing pedestrian comforts?

This research has shown the potential of play in the urban environment to address identified factors of pedestrian activity, such as perceived safety and a sense of belonging. Now, with an inventory of cases of urban play, and typology of ludic ways to increase pedestrian activity, specific designs may be tested for their impact on increasing pedestrian comforts. To effectively test this, several types of playful interventions could be studied by measuring pedestrian safety and sense of belonging before and after installation. Interviews, surveys, and ethnographic observation could be used to measure pedestrian responses to ludic urban interventions. Observational research would also balance the bias of analyzing designers' own promotional material and photographs of their designs. An updated typology could reflect research findings testing each type for its success or popularity.

What are the barriers to including more playful designs in the urban environment?

As with all ideas, proposing a more ludic approach to city building is certain to meet resistance. A study into the barriers to urban play would be useful in determining the feasibility of these ideas. Purposefully approaching perceived barriers or existing skepticism is equally important as 'selling' the idea of the ludic city. Planners could ask designers how urban planning could support them, and vice versa. Matching examples of urban play to the typology showed that some factors that are predicted to increase pedestrian activity have not been included in urban interventions. A barrier to urban play could be a potential gap in information sharing between disciplines.

How can this information be shared across disciplines and between regions?

The overlap in research findings indicates researchers in diverse fields are mutually interested in similar topics of walkability, health, and wellbeing at the pedestrian scale. Throughout this research, it was discovered that even within the same university, researchers were unaware of each other's similar work. Because urban play is of interest across many disciplines, there is a need to investigate how information may be shared among those with similar interests. One potential area for investigation is the feasibility of a website database and resource for those interested in learning about, planning for, or designing ludic cities. Connecting with existing movements, such as lean urbanism, pop-up cities, and tactical urbanism, may help connect planner's visions with movements that have started from the ground up.

Policy implications

Successful ludic interventions can be supported by policy in several ways. A baseline of human comfort is necessary to encourage pedestrian activity. If a street does not feel safe, or offer protection from harsh weather, it is unlikely a playful addition could counter these necessities. Rather than policies guiding sidewalk *form*, regulations for *function* would ensure basic pedestrian needs are met, while allowing for creativity and flexibility in design. For example, streets could be required to safely accommodate users of all ages and abilities. How these needs are met may vary seasonally, or by location in a city or in a region. Guidelines could dictate the local feel of a space, reflecting the climate, culture, and ecosystem. Function-based policies would allow features that are not mandated, creating a flexible and creative environment. Incentives

could be used to encourage desirable features that are not mandated. Removing impediments to creative design would further encourage a spirit of creativity, locality, and playfulness in the urban environment.

Policy requirements should consider that the purpose of sidewalks cannot be only to connect two points, but they must also provide an attractive experience to the user. Otherwise, if other modes are easily available, as automobile use is in Canada, pedestrians will have little incentive to walk. If policies equally valued pedestrian experiences with vehicular ones, sidewalks could become more comfortable and enjoyable spaces.

5.3 Conclusion

How can play motivate pedestrian activity?

Urban play appeals to human intrinsic motivators, encouraging pedestrians to spend more time in a space, interact with their surroundings, and turn the next corner to discover what might be there. The type of play, design of the playful intervention, and the way it is implemented locally are each important to the success of the project.

Play motivates pedestrian activity in different ways. For example, we enjoy acting contrary to social convention (Kerr & Apter, 1991; Lefebvre, 1996), and play allows us to test ourselves and move or behave in atypical ways. Adaptations of well-known games, or those learned in childhood, are particularly attractive because they are easy and familiar to engage in. Unique sounds appeal to our innate curiosity, and temporarily remove us from an often mundane pedestrian experience. Chance, competition, cognitive challenge, cooperation, risk, simulation, and creative play also motivate us (Caillois, 1996; Galit, 2011; Kerr & Apter, 1991), and are not often found in pedestrian spaces.

Using space in these ways allows for an opportunity to escape, relax, reflect, and benefit from public social space (Cattell et al., 2008). Increasing social contact is particularly important in winter cities (Gehl, 1993; Mänty & Pressman, 1988), where we tend to spend a lot of time indoors in our homes, and also for seniors, who are at risk of loneliness as their spheres of interaction decrease. Although some people may be more motivated by one type of play than another, we have a good understanding of the basic principles that motivate human activity, and are well positioned to incorporate these factors into pedestrian landscapes.

How ludic interventions are designed is an essential component in determining their success or failure. The colour, theme, and general imageability of an intervention are pivotal for attracting users (Clemente, Ewing, Handy & Brownson, 2005). Playful interventions that are attractive to a wide range of users will naturally increase pedestrian activity in a space. In winter climates, materials and designs that strategically absorb or reflect heat, illuminate dark days, or provide a source of warmth are very attractive for pedestrians (Pressman, 1996). Many urban interventions "play" off of existing pedestrian infrastructure, altering paths, benches, and other common everyday materials and objects to reinvent pedestrian interactions with a space. The use of props to alter movement is one way to encourage a wider range of pedestrian activities (Stevens, 2006). Increasingly, designs intentionally incorporate scientific techniques like bio-mimicry or our ability to sense vibration to appeal to a wider range of the human experience. Experimentation and creativity in design are important for attracting users, creating a design that is innovative and unique, and tailoring a concept to its location.

The implementation of ludic interventions is the important third step for using play to motivate pedestrian activity. For example, installing a piece in an already busy location takes advantage of existing users and encourages them to increase their pedestrian activities. Playful interventions can also enliven underused spaces, attracting users to a previously unattractive spot. Interventions can reduce actual or perceived travel distance, which is one of the most influential factors affecting pedestrian activity (Brown et al., 2007; Ewing, 2009; Gehl, 1987; Mehta, 2008). Similarly, when users feel they can choose their own route, they gain a sense of environmental mastery (Center for Active Design, 2013; Pink, 2010; Ryff & Singer, 2008). This brings a sense of ownership to a space (Natrasony & Alexander, 2005), and all of these factors can increase pedestrian activity. Temporary or seasonal installations attract users by either surprising them with an added component to their environment, or by giving them a reoccurring activity to look forward to. Social media is an efficient and interactive way to advertise the location and installation of ludic interventions, and is increasingly incorporated directly into the design.

All of these factors are playful ways to increase pedestrian activity. Incorporating even one of the strategies from the typology is a step towards this. With play being an innate part of our being, as Huizinga (1950) suggests in *Homo Ludens*, it is important that we use play to motivate and increase pedestrian activity in our public spaces.

What examples exist internationally of play elements in the pedestrian environment?

The 27 cases examined show there is a wide range of play elements in pedestrian environments. Each case is unique in design and use of materials, with many

incorporating well-known or recycled materials into the structure. Some required little or no adjustments to the existing pedestrian infrastructure, and many are low-cost and easy to create. The range of designs and play tactics of the cases examined is very diverse, ranging from pop culture video media to revitalizing traditional games. The examples also range in duration, from permanent installations to temporary, seasonal, and touring exhibits. Many different motivators were used as well, such as cooperation, creativity, people-watching, performance, chance, and competition. It is also common that interventions are applied directly to pedestrian pathways. An unexpected area of intervention was for bicycles, where two cases were found to enliven designated bicycle paths. In researching the examined cases, it has become clear many more examples of urban play exist beyond the 27 designs described in this document (Section 4.3).

How do the examples of urban play compare to literature on motivating pedestrian activity, pedestrians in winter cities, and research on play in the city?

The examined cases of urban play were consistent with what was found in literature on motivating pedestrian activity and on play in the city. Matching the typology tags with the examined cases shows that most examples of urban play incorporate several principles of play and pedestrian motivations into their design. However, few instances of urban play were found to directly accommodate winter conditions. Examining the design elements of the cases highlights several elements not discussed in the literature. Most prevalent is the process of creation and promotion of the play elements. Notably, many designs are the result of interdisciplinary collaboration, and incorporate scientific understandings of human behaviour. It is also interesting that many cases "play" off of

existing infrastructure, and use common, low cost, well-known, and/or recycled materials in their design.

Although there is a lot of overlap between the literature and examples of urban play, specific ludic interventions have generally not been researched or tested by academics. There is an obvious need to connect the current status of urban play with our growing understanding of pedestrian space and environmental psychology.

What can Canadian planners learn about encouraging urban play as a pedestrian motivator for local environments?

Encouraging urban play as a pedestrian motivator involves several processes and understandings that would likely benefit the profession as a whole. Creating healthy, safe, and enjoyable pedestrian space requires interdisciplinary collaboration. Many ludic interventions are the results of diverse backgrounds converging around a mutual objective and vision of creating a fun, unique, and dynamic addition to the pedestrian landscape. Extrapolating from this, it is logical that to support ludic cities, planners would benefit from working in interdisciplinary groups as well. The many types discovered in ludic cities enforces the concept of flexible urban policy and design, allowing for temporary and creative uses to ebb and flow as they are created and enjoyed. Flexible urban policy allows entire cities to be played with, testing strategies for unique locals and circumstances. A unique circumstance often forgotten is the wind, ice, snow, and cool temperatures that come with northern urban center. Although the literature on winter cities offers a wealth of suggestions on enhancing pedestrian areas during winter months,

these suggestions are not realized in the real world. Planners are in a good position to translate winter city needs to the policies and programs that could support them.

Conclusion

This research has shown ludic interventions do not have to be expensive or complicated to encourage pedestrian activity. When supported by basic principles like connectivity, safety, and shelter, even the most basic interventions can have a large impact on pedestrian activity. An important condition, however, is for planners to not ignore the implementation of ludic design. While transferrable to some degree, ludic interventions seem to flourish best when they are tailored to local culture, climate, and urban needs.

As innate as play is to human wellbeing, ludic cities should be to city planning. At the juncture of academic research on walkability, winter city design, and ludic cities, with artists' and innovators' playful urban interventions, is a place for city planners to promote an interdisciplinary and flexible approach to urban design to encourage urban play. It is clear a lot is known of human motivators, pedestrian motivators, and playful motivators, and there is a desire to increase walkability by both city builders and city users alike. Connecting these desires with how we encourage cities to grow and become 'places' rather than just 'spaces' is necessary to creating healthy, safe, and fun urban spheres.

References

Adkins, A., Dill, J., Luhr, G., & Neal, M. (2012). Unpacking walkability: Testing the influence of urban design features on perceptions of walking environment attractiveness. *Journal of Urban Design, 17*(4), 499-510.

American Planning Association. (2011). Multigenerational planning: Using smart growth and universal design to link the needs of children and the aging population. *Family-friendly communities briefing papers 02.* Retrieved from http://www.planning.org/research/family/briefingpapers/pdf/multigenerational.pdf

Bailey, K.D. (1994). *Typologies and taxonomies.* Thousand Oaks, California: Sage Publications.

Baran, P.K., Rodriguez, D.A., & Khattak, A.J. (2008). Space syntax and walking in a new urbanist and suburban neighborhood. *Journal of Urban Design, 13*(1), 5-28.

Bronikowska, M. (2011). Traditional games park - An inspiring educational playground for all or utopia in modern urban agglomeration? *Polish Journal of Sport and Tourism, (18)*4, 319-323.

Brown, B.B., Werner, C.M., Amburgey, J.W., & Szalay, C. (2007). Walkable route perceptions and physical features: Converging evidence for en route walking experiences. *Environment and Behavior, 39*(1), 34-61.

Burchfield, R.A., Fitzhugh, E.C., & Bassett, D.R. (2012). The association of trail use with weather-related factors on an urban greenway. *Journal of Physical Activity & Health, 9*(2), 188-197.

Burnham, S. (2010). The call and response of street art and the city. *City, 14*(1-2), 137-153.

Burnham, S. (2014). Urban play. Retrieved from http://scottburnham.com/urban-play/

Buro Sant en Co. (2010). Roombeek The Brook. *Buro Sant en Co Landscape Architects: Projects.* Retrieved from http://english.santenco.nl/index.php?page=roombeek-2&foto=Foto_5

Buro Sant en Co. (2010). Roombeek The Brook. *Projects.* Retrieved from http://english.santenco.nl/index.php?page=roombeek-2&foto=Foto_6

Caillois, R. (1961). *Man, play and games.* Translated by M. Barash. New York: Free Press of Gelncoe.

Carver, H. (1975). *Compassionate landscape.* Toronto: University of Toronto Press.

Carver, A., Timperio, A., Hesketh, K., & Crawford, D. (2010). Are children and adolescents less active if parents restrict their physical activity an active transport due to perceived risk? *Social Science & Medicine, 70*(11), 1799-1805.

Cattell, V., Dines, N., Gesler, W., & Curtis, S. (2008). Mingling, observing, and lingering: Everyday public spaces and their implications for well-being and social relations. *Health & Place, 14,* 544-561.

Center for Active Design. (2010). *Active design guidelines: Promoting physical activity and health in design.* New York: New York.

Center for Active Design. (2013). *Active design: Shaping the sidewalk experience.* New York: City of New York.

Cevero, R., & Knockelman, K. (1997). Travel demand and the 3Ds. *Transportation Research Part D – Transportation and Environment, 2*(3), 199-219.

Changemakers. (2014). The play exchange: Share your ideas for a healthier Canada. Retrieved from: http://www.changemakers.com/playexchange

Chicago Architecture. (2014). Cloud Gate. *Info.* Retrieved from http://www.chicagoarchitecture.info/Building/636/Cloud-Gate.php

Chong, G.H., Brandt, R., & Martin, M.W. (2010). *Design informed: Driving innovation with evidence-based design.* Hoboken, NJ: John Wiley & Sons, Inc.

City of Edmonton. (2012). *For the love of winter: Strategy for transforming Edmonton into a world-leading winter city.* Retrieved online from http://www.edmonton.ca/city_government/documents/COE-WinterCity-Love-Winter-Summary-Report.pdf

Clemente, O., Ewing, R., Handy, S.L., & Brownson, R. (2005). *Measuring urban design qualities: An illustrated field manual.* Princeton, NJ: Robert Wood Johnson Foundation.

Coleman, P. (2000). Lessons from Lapland. *Winter Cities*, *9*(2), 3-4.

Coleman, P. (2001). Pedestrian mobility in winter. *Winter Cities, 20*(1), 10-13.

Culjat, B. & Erskine, R. (1983). Climate Responsive Social Space: a Scandinavian Perspective. *Environments, 15*(2), 13-22.

Daily Tous les Jours. (2014). 21 Balançoires. Retrieved from http://www.dailytouslesjours.com/project/21-balancoires/ Images by and used with permission by Olivier Blouin, www.olivierblouin.com

De Boer, J. (2 January 2013). When the sidewalk becomes a waterbed. *Pop Up City: Interventions.* Retrieved from http://popupcity.net/when-the-sidewalk-becomes-a-waterbed/

De Boer, J. (25 December 2012). Please switch off bench when leaving. *Pop Up City: Interventions.* Retrieved from http://popupcity.net/please-switch-off-bench-when-leaving/

De Montigny, L., Ling, R., & Zacharias, J. (2012). The effects of weather on walking rates in nine cities. *Environment and Behavior, 44*(6), 821-840.

Deming, M.E., & Swaffield, S. (2011). *Landscape architecture research: Inquiry, strategy, design*. Hoboken, NJ: Wiley-Blackwell.

Designboom. (2014). Public furniture interventions by Thor ter Kulve. *Design.* Retrieved from http://www.designboom.com/design/public-furniture-interventions-by-thor-ter-kulve/

Dewar, R. (1993). Older pedestrians in winter. *Winter Cities* December- January, 7-8.

Dezeen. (30 November 2008). Moving forest by NL Architects. *Magazine.* Retrieved from http://www.dezeen.com/2008/11/30/moving-forest-by-nl-architects/

Du Toit, L.J. & Mouton, J. (2013). A typology for social research in the built environment. *International Journal of Social Research in the Built Environment, 16*(2), 125-139.

Dunin-Woyseth, H. (1990). Genius loci: Planning and the winter dimension. *Town Planning Review* 61(3), 341-365.

Elkind, D. (2007). *The power of play: How spontaneous imaginative activities lead to happier, healthier children.* Cambridge, MA: De Capo Press

Employment and Social Development Canada. (2014). Urbanization. *Canadians in Context- Geographic Distribution.* Retrieved from http://www4.hrsdc.gc.ca/.3ndic.1t.4r@-eng.jsp?iid=34

Evans, G.W. (2003). The built environment and mental health. *Journal of Urban Health, 80*(4), 536-555.

Ewing, R. (2009). *Pedestrian and transit-friendly design*. Washington, DC: Urban Land Institute/American Planning Association.

Experimental Design. (2014). Droog Event 2: Urban Play. Retrieved from http://www.experimentadesign.pt/2008/en/0202.html

Farrell, P. (2011). Writing a built environment dissertation: Practical guidance and examples. Hoboken, NJ: Wiley-Blackwell.

Forsyth, A. (2007). Innovation in urban design: Does research help? *Journal of Urban Design, 12*(3), 461-473.

Forsyth, A., Hearst, M., Oakes, J.M., & Schmitz, K.H. (2008). Design and destination: Factors influencing walking and total physical activity. *Urban Studies, 45*(9), 1973-1996.

Forsyth, A., Oakes, J.M., Schmitz, K.H., & Hearst, M. (2007). Does residential density increase walking and other physical activity? *Urban Studies, 44*(4), 679-697.

Francis, J., Wood, L.J., Knuiman, M., & Giles-Corti, B. (2012). Open space attributes and mental health in Perth, Western Australia. *Social Science and Medicine, 74*(10), 1570- 1577.

Franck, K., & Stevens, Q. (2007). *Loose space: Possibility and diversity in urban life.* London: Routledge.

Furuto, A. (27 June 2013). 'In Orbit' Installation / Tomas Saraceno. *Arch Daily.* Retrieved from http://www.archdaily.com/394622/in-orbit-installation-tomas-saraceno/

Galit, N. (2011). The fun culture in seniors' online communities. *Gerontologist, 51*(2), 226-237.

Gehl, J. (1993). A good city all seasons. *Winter Cities* December- January, 15-19.

Gehl, L. (1987). *Life between buildings: Using public space.* New York: Van Nostrand Reinhold.

Gray, D.E. (2009). *Doing research in the real world.* Thousand Oaks, California: Sage Publications.

Health, G.W., Brownson, R.C., Kruger, J., Miles, R., Powell, K.E., Ramsey, L.T. (2006). The effectiveness of urban design and land uses and transport policies and practices to increase physical activity: A systematic review. *Journal of Physical Activity and Health, 3*(Supplement 1), S55-S76.

Hendricks, B.E. (2001). *Designing for play.* Burlington, VT: Ashgate.

Hickey, M. (25 August, 2010). Oregon bike lane gets Mario Kart treatment. *CNET: Tech Culture.* Retrieved from http://www.cnet.com/news/oregon-bike-lane-gets-mario-kart-treatment/

Hide & Seek. (2012). 99 Tiny Games. Retrieved from http://hideandseek.net/projects/99-tiny-games/

HIK Ontwerpers. (2014a). Entrée Station Overvecht. Retrieved from http://www.hik-ontwerpers.nl/projecten/entree-station-overvecht/

HIK Ontwerpers. (2014b). Vision. Retrieved from http://www.hik-ontwerpers.nl/vision/

HIK Ontwerpers. (2008). Zet die knop om! Retrieved from http://www.hik-ontwerpers.nl/projecten/zet-die-knop-om/

Hoppes, S., Wilcox, T., & Graham, G. (2001). Meanings of play for older adults. *Physical & Occupational Therapy in Geriatrics, 18,* 57-68.

Hrobonova, E., Breeze, E., & Fletcher, A.E. (2011). Higher levels and intensity of physical activity are associated with reduced mortality among community dwelling older people. *Journal of Aging Research, (2011)*, *2-12.*

Huizinga, J. (1950). *Homo ludens: A study of the play-element in culture.* Boston, MA: Beacon Press.

Jacobs, J. (1961). *The death and life of great American cities*. New York: Vintage.

Jerram, L. (2014). Park and slide. *Life art.* Retrieved from http://www.lukejerram.com/projects/urban_slide

Kahn, E.B., Ramsey, L.T., Brownson, R.C., Heath, G.W., Howze, E.H., Powell, K.E., Stone, E.J., Rajab, M.W., & Corso, P. (2002). The effectiveness of interventions to increase physical activity. *American Journal of Preventive Medicine, 22*(4), Supplement 1, 73-107.

Karl, K.A., & Peluchette, J. (2006). Does workplace fun buffer the impact of emotional exhaustion on job dissatisfaction? An applied study of health care workers. *Journal of Behavioral and Applied Management, 7,* 128-141.

Kerr, J. H. & Apter, M.J. (1991). A*dult play.* Amsterdam: Swets & Seitlinger.

Lefaivre, L. & Döll, H. (2007). *Ground-up city: Play as a design tool.* Rotterdam: 010 Publishers

Lefebvre, H. (1996). *Writings on cities.* Translated and edited by E. Kofman & E. Lebas, Hobooken, NJ: Blackwell.

Li, S. (1994). User's behaviour of small urban spaces in winter and marginal seasons. *Architecture and Behaviour, 10,* 95-109.

Lynch, K. (1960). *The image of the city.* Cambridge, MA: MIT Press.

Madanipour, A. (1999). Why are the design and development of public spaces significant for cities? *Environment and Planning B: Planning and Design, 26,* 879-891.

Mänty, J. & Pressman, N. [Eds.](1988). *Cities Designed for Winter.* Helsinki: Building Book Ltd.

Mehta, V. (2008). Walkable streets: Pedestrian behavior, perceptions and attitudes. *Journal of Urbanism, 1*(3), 217-245.

Millward, H., Spinney, J., & Scott, D. (2013). Active-transport walking behavior: Destinations, durations, distances. *Journal of Transport Geography, 28,* 101-110.

Montgomery, C. (2013). *Happy City: Transforming our lives through urban design.* Toronto: Doubleday.

Nathan, A., Pereira, G., Foster, S., Hooper, P., Saarloos, D., & Giles-Corti, B. (2012). Access to neighbourhood commercial destinations and associations with walking in older Australians. *Journal of Science and Medicine in Sport, 15*(S1), S46.

Natrasony, S.M., & Alexander, D. (2005). The rise of modernism and the decline of place: the case of the Surrey City Centre, Canada. *Planning Perspectives, 20*(4), 413-433.

NL Architects. (2006). Das Netz. *Projects.* Retrieved from http://www.nlarchitects.nl/projects/

NL Architects. (2008). Boom Bench. *Projects.* Retrieved from http://www.nlarchitects.nl/projects/

Oh.No.Sumo. (2012). Stairway Cinema. Retrieved from http://ohnosumo.com/tagged/Stairway-Cinema

Open Source Urbanism. (2013). Retrieved from https://opensourceurbanism.wordpress.com/tag/open-source-urbanism/

Ory, M., Hoffman, M.K., Hawkins, M., Sanner, B., & Mockenhaupt, R. (2003). Challenging aging stereotypes: Strategies for creating a more active society. *American Journal of Preventative Medicine, 25,* 164-171.

Owens, P.M. (1993). Neighborhood form and pedestrian life: Taking a closer look. *Landscape and Urban Planning, 26,* 115-135.

Painter, K. (1996). The influence of street lighting improvements on crime, fear and pedestrian street use, after dark. *Landscape and Urban Planning, 35*(2-3), 193-201.

Papov, G. (2014). Whoopdeedoo Vancouver. Retrieved from http://www.gregpapove.com/Whoopdeedoo-Vancouver

Parra, D.C., Gomez, L.F., Fleischer, N.L., & Pinzon, J.P. (2010). Built environment characteristics and perceived active park use among older adults: Results from a multilevel study in Bogota. *Health & Place, 16*(6), 1174-1181.

Pink, D. (2010). "The surprising science of motivation." Lecture. 5 February 2010. www.ted.com. August 2009. Retrieved August 12 2013.

Play England. (2008). Managing risk in play provision: A position statement. [Electronic document]. Retrieved from http://www.playengland.org.uk/media/120462/managing-risk-play-safety-forum.pdf

Polis. (2012). Open-source urban design. *A collaborative blog about cities around the world.* Retrieved from http://www.thepolisblog.org/2012/08/open-source-urban-design.html

Pressman, N. (1993). Bioclimatic Design: Thoughts on successful winter city architecture. *Winter Cities, 11*(1), 28-29.

Pressman, N. (1999). *Living in harmony with Winter.* Winter Cities Forum 1999, Prince George, BC.

Pressman, N. (2000). Comfortable Multi-Seasonal Communities: Current practices. W*inter Cities, 19*(1), 15-19.

Pressman, N. & Luttgen, A. (2000). Embracing Winter in City Design. *Winter Cities, 19*(3), 16-20.

Pressman, N.E.P. (1996). Sustainable winter cities: Future directions for planning, policy and design. *Atmospheric Environment, 30*(3), 521-529.

Public Health Agency of Canada. (2012). Physical activity tips for older adults (65 years and older). Retrieved from http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/pa-ap/08paap-eng.php .

Raum. (2010). La Ville Molle, Bourges (18). *Expérimentation.* Retrieved from http://www.raum.fr/index.php/experimentation/installations/la-ville-molle-bourges-18/

Red Swing Project. (2014). *About.* Retrieved from www.redswingproject.org

Renzetti, E. (2013, November 23). Life of solitude: A loneliness crisis is looming. *The Globe and Mail,* retrieved online from http://www.theglobeandmail.com/life/life-of-solitude-a-loneliness-crisis-is-looming/article15573187/?page=3

Ridgers, N.D., Stratton, G., Fairclough, S.J., & Twisk, J.W.R. (2007). Long-term effects of playground markings and physical structures on children's recess physical activity levels. *Preventative Medicine, 44,* 393-397.

Rosso, A.L., Auchincloss, A.H., & Michael, Y.L. (2011). The urban built environment and mobility in older adults: A comprehensive review. *Journal of Aging Research,* (2011), 1-10.

Ryff, C. D., & Singer, B. (2008). Know thyself and become what you are: A eudaimonic approach to psychological well-being. *Journal of Happiness Studies, 9*(1), 13-39.

Ryser, L., & Halseth, G. (2008). Institutional barriers to incorporating climate responsive design in commercial redevelopment. *Environment and Planning B, 35*(1), 34-55.

Sans Façon. (2014). Limelight: Saturday night. Retrieved from http://limelightontour.blogspot.ca

Schiller, F. (1920). *The Aesthetic Letters.* Boston: Little Brown.

Semenza, J. (2003). The intersection of urban planning, art, and public health: The Sunnyside piazza. *American Journal of Public Health, 93*(9), 1439.

Shackell, A., Butler, N., Doyle, P., & Ball, D. (2008). Design for play: A guide to creating successful play spaces. *Play England.* Retrieved from http://www.playengland.org.uk/media/70684/design-for-play.pdf

Shimoda, Y. & Mizuno, M. (1996). Evaluation of the thermal environment in an outdoor pedestrian space. *Atmospheric Environment, 30*(3), 497-505.

SoulPancake (2013). Take a seat- Make a friend? *YouTube.* Retrieved from https://www.youtube.com/watch?v=HfHV4-N2LxQ#t=27

Stake, R.E. (1995). *The art of case study research.* Thousand Oaks CA: Sage.

Stanoff, H. (1991). *Visual research methods in design.* New York: Van Nostrand Reinhold.

Steadman, I. (3 August, 2012). London's pavements to play host to 99 Tiny Games. *Wired (Culture). Ret*rieved from http://www.wired.co.uk/news/archive/2012-08/03/99-tiny-games

Steinsvik, R.M. (2004). Playgrounds in kindergartens schools and residential areas. Paper presented at Winter Cities International 2004 "Challenging winter frontiers", Anchorage, Alaska. Retrieved from http://www.wintercities.com/Resources/playgrounds.pdf

Stevens, Q. (2004). Urban escapades: Play in Melbourne's public spaces. In L. Lees (Ed.), *The Emancipatory City: Paradoxes and possibilities* (pp. 139-157). Thousand Oaks, California: Sage Publications.

Stevens, Q. (2006). The shape of urban experience: a reevaluation of Lynch's five elements. *Environment and Planning B: Planning and Design, 33,* 803-823.

Stevens, Q. (2007). *The ludic city: Exploring the potential of public spaces.* London: Routledge.

Stewart, J.B. (2013, March 15). Looking for a lesson in Google's perks. *The New York Times.* Retrieved from http://www.nytimes.com/2013/03/16/business/at-google-a-place-to-work-and-play.html?pagewanted=2&_r=1

Straschnow, J., & Nygaard, G. (2014). Off-ground. Retrieved from www.off-ground.com

Street Plans Collaborative. (2012). Tactical urbanism 2: Short-term action, long-term change. Retrieved from http://issuu.com/streetplanscollaborative/docs/tactical_urbanism_vol_2_final?e=4528751/2585800

Sugiyama, T., & Thompson, C.W. (2007). Older people's health, outdoor activity and supportiveness of neighbourhood environments. *Landscape and Urban Planning, 83,* 168-175.

Suminski, R. R., Poston, W.S.C., Petosa, R.L., Stevens, E., & Katezenmoyer, L.M. (2005). Features of the neighbourhood environment and walking by US adults. *American Journal of Preventative Medicine, 28*(2), 149-155.

Sumukadas, D., Witham, M., Struthers, A., & McMurdo, M. (2009) Day length and weather conditions profoundly affect physical activity levels in older functionally impaired people. *Journal of Epidemiology & Community Health, 63*(4), 305.

Sutherland, S. (1998, December 7). Cold comfort: Making the very best of Calgary's wintry reality. *Calgary Herald,* page 2.

Sutton-Smith, B. (2001). *The ambiguity of play*. Cambridge, Mass.: Harvard University Press.

Talen, E. (2012). Reform (Chapter 6). In *City rules: How regulations affect urban form* (pp. 175 – 200). Washington, DC: Island Press.

Tartakovsky, M. (2012). The importance of play for adults. *Psych Central.* Retrieved from http://psychcentral.com/blog/archives/2012/11/15/the-importance-of-play-for-adults/

Ter Kulve, T. (2012). *Graduation 2012.* Photographs by Florestan Korp. Retrieved from http://www.thorterkulve.nl Images used with permission by Thor ter Kulve.

Tews, M.J., Michel, J.W., & Bartlett, A.L. (2012). The fundamental role of workplace fun in applicant attraction. *Journal of Leadership & Organizational Studies, 19,* 103-111.

The Fun Theory. (2009). *The Fun Theory [dot] com.* (A Volkswagen Initiative). Retrieved April 2013 from www.thefuntheory.com

The Fun Theory. (2009a). Piano Staircase. Retrieved from www.thefuntheory.com/piano-staircase

The Fun Theory. (2009b). Pinball Exercise Machine. Retrieved from http://www.thefuntheory.com/2009/11/11/pinball-exercise-machine

The National Institute for Play. (2009). What is the National Institute for Play? *About Us.* Retrieved from http://www.nifplay.org/about_us.html

The Wa. (2011). Playground. Retrieved from http://www.the-wabsite.com/works/2011/playground/

Thomson, S. (9 December 2013). Formlessfinder summons architecture from sand at Design Miami. *Architizer.* Retrieved from http://architizer.com/blog/formless-finder-miami/
Toronto: Doubleday.

Van Dyck, D., De Meester, F., Cardon, G., Deforche, B., & De Bourdeauhuij, I. (2012). Built environment factors and active transport in Belgium: What about adults and adolescents living in the same neighborhoods? *Journal of Science and Medicine in Sport, 15,* (S1), 273.

Warming Huts. (2014). Sonus Loci. *Installations.* Retrieved from http://www.warminghuts.com/installations

Weather Network. (2014). Statistics. Retrieved from http://www.theweathernetwork.com/forecasts/statistics/

Wiles, J.L., Allen, R.E.S., Palmer, A.J., Hayman, K.J., Keeling, S., Kerse, N. (2009). Older people and their social spaces: A study of well-being and attachment to place in Aotearoa New Zealand. *Social Science and Medicine, 68*(4), 664-671.

Winnipeg in Motion. (2014). Adults. Retrieved from http://www.winnipeginmotion.ca/adults/

Yin, R.K. (2003). *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage.

Zeisel, J. (2006). *Inquiry by design: Tools for environment-behavior research.* New York, NY: W.W. Norton & Company.

Zeisel, J. (1984). *Inquiry by design: Tools for environment-behavior research.* Cambridge: Cambridge University Press.

Zisiadis, G. (2012a). Pulse of the city- Turning Heartbeats into music. *Vimeo.* Retrieved from http://vimeo.com/74476899

Zisiadis, G. (2012b). Pulse of the city. *Work.* Retrieved from http://www.georgezisiadis.com/#/pulse-of-the-city/

APPENDIX:

A: COPYRIGHT PERMISSION REQUEST SAMPLE LETTER

COPYRIGHT PERMISSION REQUEST FOR IMAGE

Attention: Permissions Manager

I am requesting permission to include in my graduate thesis the following photograph(s):

1. <<Exceprt Authors>>. (<<year >>). <<Excerpt Title>>. *<<Publication/Media Title>>*. *<<Publication/Media Author>>*. <<ISBN/ISSN/Web address>>.

My thesis, entitled Plan for a Playful City: A Typology of Ludic Ways to Increase Physical Activity is part of the requirements needed to graduate from the Faculty of Graduate Studies at the University of Manitoba.

My thesis will be available in paper format from the University of Manitoba Libraries. It will also be posted electronically and will be accessible for free to a worldwide audience from the University of Manitoba's digital repository called MSpace located at http://mspace.lib.umanitoba.ca/index.jsp and from Library and Archives Canada's Theses Portal located at http://www.collectionscanada.gc.ca/thesescanada/index-e.html.

I do not expect any commercial profits from my thesis.

Content from this thesis may also be presented at conferences.

Please reply to confirm if you are the copyright owner of the works and if permission is granted to include them in my thesis. A citation and permission statement will appear with the work.

If you do not control the copyright on the above-mentioned works, I would appreciate any contact information you can provide regarding the proper rights holder.

Thank you for your consideration. If you require further information, please don't hesitate to contact me.

Gabrielle Donoff, Masters of City Planning Candidate
Department of City Planning, Faculty of Architecture, University of Manitoba, Canada

Email: donoffg@myumanitoba.ca
Phone: 204-997-3509