WAITING FOR THE FUN: AMBIENT STORYTELLING AS A MEANS TO SUPPORT GUEST SATISFACTION IN THEME PARK ATTRACTION QUEUES

By

BETH BURKHAARDT

A THESIS PRESENTED TO THE GRADUATE SCHOOL OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF INTERIOR DESIGN

UNIVERSITY OF FLORIDA

2013
To my parents for their unyielding faith, love, and support in me, and for giving me the courage to always dream bigger.
ACKNOWLEDGMENTS

There are many people to whom I would like to express my most sincere gratitude for the role they played in helping me reach this milestone. First I would like to thank my committee chair Candy Carmel-Gilfilen and my committee member Dr. Maruja Torres-Antonini. Thank you for encouraging my enthusiasm for the themed entertainment industry and joining me in exploring this topic of research. Your advice, guidance, and passion for learning have been an inspiration to me at every step of this process. I owe you my most sincere thanks for your time and contributions to this study. I could not have done this without your invaluable help.

I would like to thank my dear friends Marissa Cowan, Priya and Ojas Sampat, Lindsay Agnew, Arielle Rassel, Mary Carver, and Mike Schwalm for everything you've done to help me achieve this goal. This journey would not have been possible or nearly as much fun without all of your support and faith in me along the way. To my co-workers and mentors at Walt Disney Imagineering, especially Claire Wiley, Jennifer Sale, and Cathy Carver, thank you for offering me the encouragement I needed to balance my schoolwork with the opportunities you've given me at work. Please know how very much I appreciate your support and all that you have taught me.

I owe a debt of gratitude to my sisters, Stephanie, Catie, and Sarah. I am so truly blessed to have you in my life. You were such a huge help to me throughout this journey. Thank you to my brothers, Brookes and Christian, for being a constant reminder of why I love doing what I do. I'd also like to thank Walt Disney and all who love to dream for sparking my love of themed entertainment and for giving me the courage to always dream bigger.
I would like to thank my parents, Brookes and Cathy Burkhardt, for being the most supportive people in my life. Throughout every struggle you stood at my side, leading me closer to this achievement. I owe you a lifetime of thanks for the love and faith you have always shown me. No words could express how very much you mean to me. I'd also like to offer a special thank you to all of my family members, especially Marian Burkhardt and Thelma Bissett, who have prayed for me and supported this journey the past few years. Thank you George Bissett for being my biggest inspiration to never give up and keep moving forward, even in the most trying of times. Finally, and most importantly, I'd like to thank God for all of the blessings this journey has bestowed upon me.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>4</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>8</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>9</td>
</tr>
<tr>
<td>LIST OF ABBREVIATIONS</td>
<td>12</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>13</td>
</tr>
<tr>
<td>CHAPTER</td>
<td></td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>15</td>
</tr>
<tr>
<td>Purpose</td>
<td>17</td>
</tr>
<tr>
<td>Significance</td>
<td>18</td>
</tr>
<tr>
<td>Research Questions</td>
<td>19</td>
</tr>
<tr>
<td>Assumptions</td>
<td>19</td>
</tr>
<tr>
<td>Definitions</td>
<td>20</td>
</tr>
<tr>
<td>Conclusion</td>
<td>21</td>
</tr>
<tr>
<td>LITERATURE REVIEW</td>
<td>23</td>
</tr>
<tr>
<td>History of the Amusement Industry</td>
<td>24</td>
</tr>
<tr>
<td>&quot;E&quot; Tickets, FASTPASS®, and MyMagic+</td>
<td>30</td>
</tr>
<tr>
<td>Psychology of Queuing</td>
<td>33</td>
</tr>
<tr>
<td>Waiting Time Fillers and Environment</td>
<td>36</td>
</tr>
<tr>
<td>Queue Line Design</td>
<td>38</td>
</tr>
<tr>
<td>Trends in Queue Line Design</td>
<td>39</td>
</tr>
<tr>
<td>Flow Management</td>
<td>43</td>
</tr>
<tr>
<td>Summary of Literature Review</td>
<td>45</td>
</tr>
<tr>
<td>RESEARCH METHODS</td>
<td>47</td>
</tr>
<tr>
<td>Ethical Considerations</td>
<td>48</td>
</tr>
<tr>
<td>Rationale for Data Collection</td>
<td>49</td>
</tr>
<tr>
<td>Research Design</td>
<td>51</td>
</tr>
<tr>
<td>Case Selection</td>
<td>53</td>
</tr>
<tr>
<td>Participants</td>
<td>54</td>
</tr>
<tr>
<td>Research Setting</td>
<td>55</td>
</tr>
<tr>
<td>Test Track®</td>
<td>55</td>
</tr>
<tr>
<td>Harry Potter and the Forbidden Journey™</td>
<td>58</td>
</tr>
<tr>
<td>Data Collection</td>
<td>61</td>
</tr>
<tr>
<td>Preliminary Field Research</td>
<td>61</td>
</tr>
</tbody>
</table>

6
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot Study</td>
<td>62</td>
</tr>
<tr>
<td>Participant Observations</td>
<td>63</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>64</td>
</tr>
<tr>
<td>Limitations</td>
<td>65</td>
</tr>
<tr>
<td>Pictorial Essay of Research Setting</td>
<td>65</td>
</tr>
<tr>
<td>FINDINGS</td>
<td>80</td>
</tr>
<tr>
<td>Test Track®</td>
<td>80</td>
</tr>
<tr>
<td>Research Question One</td>
<td>80</td>
</tr>
<tr>
<td>Research Question Two</td>
<td>90</td>
</tr>
<tr>
<td>Harry Potter and the Forbidden Journey™</td>
<td>99</td>
</tr>
<tr>
<td>Research Question One</td>
<td>99</td>
</tr>
<tr>
<td>Research Question Two</td>
<td>107</td>
</tr>
<tr>
<td>Conclusion</td>
<td>114</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>116</td>
</tr>
<tr>
<td>Interactive Experiences at Test Track</td>
<td>118</td>
</tr>
<tr>
<td>Visual Storytelling at Harry Potter and the Forbidden Journey™</td>
<td>122</td>
</tr>
<tr>
<td>Noted Strengths and Weaknesses of the TT and HPFJ Queues</td>
<td>125</td>
</tr>
<tr>
<td>Creating a Positive Waiting Experience</td>
<td>127</td>
</tr>
<tr>
<td>Recommendations for Theme Park Queue Line Design</td>
<td>132</td>
</tr>
<tr>
<td>Recommendations for Future Research</td>
<td>135</td>
</tr>
<tr>
<td>Conclusion</td>
<td>136</td>
</tr>
<tr>
<td>APPENDIX</td>
<td></td>
</tr>
<tr>
<td>A  INSTITUTIONAL REVIEW BOARD PERMISSION</td>
<td>138</td>
</tr>
<tr>
<td>B  INFORMED CONSENT FORM</td>
<td>140</td>
</tr>
<tr>
<td>C  OBSERVATION FORMS</td>
<td>142</td>
</tr>
<tr>
<td>LIST OF REFERENCES</td>
<td>148</td>
</tr>
<tr>
<td>BIOGRAPHICAL SKETCH</td>
<td>152</td>
</tr>
<tr>
<td>Table</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2-1</td>
<td>Number of amusement parks and U.S. population (in millions).</td>
</tr>
<tr>
<td>2-2</td>
<td>Walt Disney World® Resort and Disneyland® park attendance, 1972-1989 (in millions).</td>
</tr>
<tr>
<td>2-3</td>
<td>Timeline of significant dates in amusement park history.</td>
</tr>
<tr>
<td>2-4</td>
<td>Top 10 U.S. amusement parks and theme parks based upon 2009-2010 attendance.</td>
</tr>
<tr>
<td>4-1</td>
<td>Assessment of physical qualities impacting guests' willingness to wait: Test Track®.</td>
</tr>
<tr>
<td>4-2</td>
<td>Select observations: visual storytelling in Test Track®.</td>
</tr>
<tr>
<td>4-3</td>
<td>Select observations: guest comments overheard at Test Track® during high wait times.</td>
</tr>
<tr>
<td>4-4</td>
<td>Assessment of guest behaviors impacting guests' engagement with environment: Test Track®.</td>
</tr>
<tr>
<td>4-5</td>
<td>Select observations: interactive experiences in Test Track®.</td>
</tr>
<tr>
<td>4-6</td>
<td>Perceived wait times: Test Track®.</td>
</tr>
<tr>
<td>4-7</td>
<td>Assessment of physical qualities impacting guests' willingness to wait: Harry Potter™.</td>
</tr>
<tr>
<td>4-8</td>
<td>Assessment of behavioral qualities impacting guests' engagement with environment: Harry Potter™.</td>
</tr>
<tr>
<td>4-9</td>
<td>Select observations: interactive experiences in Harry Potter™.</td>
</tr>
<tr>
<td>4-10</td>
<td>Perceived wait times: Harry Potter™.</td>
</tr>
<tr>
<td>4-11</td>
<td>Reproduction of Strengths and Weaknesses Chart developed by Participant 7 for the TT and HPFJ Queuing Environments.</td>
</tr>
<tr>
<td>5-1</td>
<td>Content Analysis: Strengths and Weaknesses of TT and HPFJ Queuing Environments.</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-1</td>
<td>Literature and Methods Map for Data Collection.</td>
<td>50</td>
</tr>
<tr>
<td>3-2</td>
<td>Physical and behavioral qualities observed by participants.</td>
<td>52</td>
</tr>
<tr>
<td>3-3</td>
<td>Map of Test Track® Presented by Chevrolet® in Future World within Epcot®.</td>
<td>56</td>
</tr>
<tr>
<td>3-4</td>
<td>Guests waiting to enter the Design Center begin the design process by drawing a line to create the basic form of a vehicle</td>
<td>57</td>
</tr>
<tr>
<td>3-5</td>
<td>Guests in the Test Track® Design Center create their own vehicles to test with the &quot;sim car&quot; in the attraction and for interactive post-show activities</td>
<td>58</td>
</tr>
<tr>
<td>3-6</td>
<td>Map of the Wizarding World or Harry Potter™ within Islands of Adventure®.</td>
<td>59</td>
</tr>
<tr>
<td>3-7</td>
<td>Hogwarts™ castle, the exterior of Harry Potter and the Forbidden Journey™ attraction.</td>
<td>60</td>
</tr>
<tr>
<td>3-8</td>
<td>The four design attributes in the Test Track® showroom part of the queue.</td>
<td>66</td>
</tr>
<tr>
<td>3-9</td>
<td>Concept vehicle on display in the Test Track® queue.</td>
<td>66</td>
</tr>
<tr>
<td>3-10</td>
<td>Switchback queue around concept vehicle and video screen describing concept for vehicles in the future</td>
<td>67</td>
</tr>
<tr>
<td>3-11</td>
<td>Graphics highlighting Chevrolet's design process.</td>
<td>67</td>
</tr>
<tr>
<td>3-12</td>
<td>Entry to Chevrolet® Design Center at Epcot®, which offers two interactive studios (A &amp; B) in which guests design their own custom vehicles</td>
<td>68</td>
</tr>
<tr>
<td>3-13</td>
<td>Guests enter Design Center and approach touch screen kiosks for designing custom vehicles.</td>
<td>68</td>
</tr>
<tr>
<td>3-14</td>
<td>Child begins the vehicle design process at the touch screen kiosks in the Design Center. A) Design begins with a curved line. B) Design attributes are added into the design, as well as playing with the aesthetics.</td>
<td>69</td>
</tr>
<tr>
<td>3-15</td>
<td>Guests of all ages collaborate in the Design Center.</td>
<td>70</td>
</tr>
<tr>
<td>3-16</td>
<td>Guests view final designs before proceeding to the ride.</td>
<td>70</td>
</tr>
<tr>
<td>3-17</td>
<td>Guests complete custom vehicle designs and are instructed to move to vehicle testing (the ride).</td>
<td>71</td>
</tr>
<tr>
<td>3-18</td>
<td>Guests scan their RFID cards before boarding the ride so their vehicles will be displayed throughout the ride experience</td>
<td>71</td>
</tr>
</tbody>
</table>
3-19 Guests board the Test Track® ride vehicles ................................................................. 72
3-20 Guests scan their RFID cards for post-show activities, such as creating commercials for their custom vehicle designs ................................................................. 72
3-21 Guests can watch their personalized commercials and then email them to share with friends .................................................................................................................. 73
3-22 After scanning RFID cards, guests can race vehicles on a projected light table with steering wheel stations .......................................................................................... 73
3-23 Entrance to Harry Potter and the Forbidden Journey™, with Hogwarts™ castle towering over the Wizarding World of Harry Potter™ ............................................. 74
3-24 Entrance to Harry Potter and the Forbidden Journey™ queue ............................................................................................................................................. 74
3-25 Entrance to Hogwarts™ castle and locker storage for the HPFJ queue ............. 75
3-26 Mirror of Erised, one of the Harry Potter™ movie elements .................................... 75
3-27 Dumbledore’s office with character projection and props from the movies ....... 76
3-28 Architectural details and interior finishes bring castle theming to life .......... 76
3-29 Guests photographing show elements in the defense against the dark arts classroom ...................................................................................................................... 77
3-30 Projections of Harry, Ron, and Hermione entertain guests in the defense against the dark arts classroom ............................................................................................ 77
3-31 Bulletin board leading to the Gryffindor™ common room part of the HPFJ queue showcases movie elements and props ............................................................................. 78
3-32 Gryffindor™ common room .......................................................................................... 78
3-33 Castle theming with stone archways leading to ride boarding in the room of requirement ......................................................................................................................... 79
3-34 Sorting hat audio-animatronic cautions guests about ride restrictions and health warnings before boarding the ride .................................................................................. 79
4-1 Distribution of responses for physical qualities at TT, n=166 ................................. 82
4-2 Distribution of responses for waiting time fillers at TT, n=45 ............................... 84
4-3 Distribution of responses for factors influencing authenticity at TT, n=15 .......... 88
4-4 Distribution of responses on guest behaviors at TT, n=203 .................................. 92
4-5 Distribution of responses for physical qualities at HPFJ ................................. 100
4-6 Distribution of responses on guest behaviors at HPFJ, n=218 ............................. 109
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMM</td>
<td>Capacity Management Model</td>
</tr>
<tr>
<td>FCFS</td>
<td>First come, first served</td>
</tr>
<tr>
<td>FIFO</td>
<td>First in, first out</td>
</tr>
<tr>
<td>FPM</td>
<td>Flow Pattern Model</td>
</tr>
<tr>
<td>HPFJ</td>
<td>Harry Potter and the Forbidden Journey™</td>
</tr>
<tr>
<td>LIFO</td>
<td>Last in, first out</td>
</tr>
<tr>
<td>MAWP</td>
<td>The Many Adventures of Winnie the Pooh</td>
</tr>
<tr>
<td>RCM</td>
<td>Ride Capacity Model</td>
</tr>
<tr>
<td>RFID</td>
<td>Radio Frequency Identification</td>
</tr>
<tr>
<td>RSP</td>
<td>Ride Selection Problem</td>
</tr>
<tr>
<td>SFMM</td>
<td>Six Flags® Magic Mountain</td>
</tr>
<tr>
<td>SIRO</td>
<td>Service in a random order</td>
</tr>
<tr>
<td>TT</td>
<td>Test Track® Presented by Chevrolet®</td>
</tr>
<tr>
<td>UC</td>
<td>Universal Creative</td>
</tr>
<tr>
<td>UO</td>
<td>Universal Orlando®</td>
</tr>
<tr>
<td>USH</td>
<td>Universal Studios Hollywood</td>
</tr>
<tr>
<td>WDI</td>
<td>Walt Disney Imagineering</td>
</tr>
<tr>
<td>WDW</td>
<td>Walt Disney World®</td>
</tr>
</tbody>
</table>
Abstract of Thesis Presented to the Graduate School of the University of Florida in Partial Fulfillment of the Requirements for the Degree of Master of Interior Design

WAITING FOR THE FUN: AMBIENT STORYTELLING AS A MEANS TO SUPPORT GUEST SATISFACTION IN THEME PARK ATTRACTION QUEUES

By

Beth Burkhardt

December 2013

Chair: Candy Carmel-Gilfilen
Major: Interior Design

Today, Central Florida is the undisputable world leader in tourism and theme park destinations. As attendance to these parks reached over 72 million in 2012, several parks have begun testing and implementing creative ways to improve the waiting experience, seeking to offset crowding for guests entering popular attractions. In this study, two theme park attraction queues were examined as a means of supporting guest satisfaction while waiting in line. In order to do so, two research questions were explored: 1) How does the physical design of a theme park attraction queue line impact guests' willingness to wait and contribute to a positive experience? (i.e. spatial layout, furnishings, theming, etc.), and 2) How do the behaviors of guests waiting in line seem to reflect their level of engagement and interest in their environment?

A characterization case study was chosen as the method of research in order to seek answers to the research questions through an in-depth examination of different types of theme park queuing environments. Ten participant observers collected data via systematic observations. Each observer documented features of the physical environment and guest behaviors at two attractions, Test Track® at Epcot® in Walt Disney World® and Harry Potter and the Forbidden Journey™ at Islands of Adventure®
in Universal Orlando®. Test Track® featured hands-on interactive experiences for guests waiting in line, while Harry Potter and the Forbidden Journey™ utilized ambient storytelling to bring the Harry Potter™ stories to life in an immersive environment. Each of these queues was a first-of-its-kind for their theme parks, respectively, so both attractions were significant precedents to study for future design recommendations.

The findings of the study suggest that Harry Potter and the Forbidden Journey™ and Test Track® were both perceived to be successful in providing a positive waiting experience for guests. Guests responded positively to the ambient storytelling environment that was highly immersive at Harry Potter and the Forbidden Journey™. This type of environment created a personal, emotional connection to the story. Test Track® and Harry Potter™ were both successful in establishing the queuing environment as 'scene one' of the attraction. The interactive touch screen experiences at Test Track® and the character interactions at Harry Potter™ were both perceived to be extremely well received by guests, allowing them to become a part of the overall story experienced. In sum, the results confirmed that by providing guests with different types of waiting time fillers, the overall perception of the wait can be positive, improving the overall guest satisfaction.
CHAPTER 1
INTRODUCTION

People of all ages visit theme parks for a chance to escape the routine of their everyday lives and to enter into a world of fantasy. Whether the environment takes guests back in time to learn about history, into a movie through storytelling and imagery, or forward to a glimpse of the future, each themed environment is developed to transcend everyday experiences and create an escape from reality. Building on creativity and through the use of the imagination, the theme park industry seeks to create fun, friendly, and safe environments for their guests to enjoy.

Theme parks, however, were not always a safe, fantasized refuge from the real world. The amusement industry began to flourish at the end of 19th century with the development of three amusement parks at Coney Island, New York. These parks focused on encountering the strange, ridiculous, or frightening in sideshows and other forms of entertainment. However, the amusement industry as we know it today emerged as Coney Island became a showcase of the machine age, constantly exploring new technologies to create thrills, frights, and strange encounters. Throughout the 20th century, as Americans experienced the Great Depression, prohibition, two world wars, and widespread personal suffering, the development of modern technology prompted a dramatic shift in what was sought after for leisure activity and pleasure. With the decline of traditional amusement parks, Americans saw the birth of theme parks as Walter Elias Disney revolutionized the industry with the opening of Disneyland® in California. Disney allowed a new generation to enjoy the amusement industry, making available to guests the experience of a fantasized American small town lifestyle in a set of lands that brought guests back to the innocence, fun, and safety of their childhood. The power of
imagination was showcased as a playground for all ages at Disneyland®. Two decades later, originally known as Disney's "Florida Project," Walt Disney World® was the first of several theme parks which sparked the industry's migration to Florida.

Today, Central Florida is the undisputable world leader in tourism and theme park destinations. As attendance to these parks reached over 72 million in 2012, several Central Florida theme parks, including those at the Walt Disney World® Resort, Universal Orlando® Resort, SeaWorld® Orlando, and Legoland® Florida were forced to create waiting lines, known as queues, to offset crowding for guests entering popular attractions (Jeffers & Rubin, 2013). Several of these parks have begun testing and implementing creative ways to improve the waiting experience, including interactive experiences that utilize new technology through video games, projectors, touch screens, and audio-animatronic figures. These are all different types of waiting that are being explored to distract guests from feeling negative effects while anticipating the attraction. In the past, typical waiting time fillers included televisions, ambient music, and propping. These queues were highly themed, focusing on visual storytelling to set the scene for the coming attraction. In addition, interactive queue lines have evolved into a new trend in theme park design, creating a more tangible experience that allows guests to have a more personal experience as they actively engage in their environment. Re-imagined and new queuing experiences at the Walt Disney World® Resort and Universal Orlando® offer both hands-on experiences and a variety of other more traditional waiting time fillers. This study examines how guests respond to different types of waiting by analyzing the queues of two leading attractions that utilize innovative strategies including visual storytelling and hands-on experiences.
Purpose

Queue lines have been examined in several professional disciplines to evaluate how customers respond to various types of waiting and how businesses can benefit from an understanding of the benefits of each type of queuing experience. In the field of psychology, queuing theory currently analyzes the process of waiting and suggests several factors that can either positively or negatively influence the waiting experience, including providing waiting time guarantees, waiting time fillers, or different types of queuing environments (Cope, Cope, & Davis, 2008; Dickinson, et al., 2005; Larson, 1987; Maister, 1985). From a business perspective, queue lines have been studied as a way to increase revenue and to manage the flow of guests, thus reducing crowding (Ahmadi, 1997). Theme park designers, such as the Walt Disney Imagineers, have offered a glimpse into their design process through books highlighting early concept sketches, storyboards, and model-making for generating ideas and concept development (Hench, 2008; Kurtti, 2008; Rafferty, K. & Gordon, B. 1996; Surrell, 2009). In theme parks throughout the country, attractions serve as the main draw for guests. Therefore, when there is an increase in the number of park guests, the demand tends to increase for the attractions, resulting in longer queues. This study observes how guests respond to the physical and social qualities of the queuing environment, and suggests how this experience contributes to the overall satisfaction of the attraction. This knowledge can inform designers of potential opportunities to keep customers engaged and satisfied by either shortening wait times or improving the waiting experience. Previous research on queuing reveals that studies have been completed in the fields of psychology, marketing, and business, but none have looked specifically at design and how the physical and social design qualities affect queuing or the process of waiting for
service. The purpose of this study is to build upon the current body of knowledge about queuing by extending psychology and business theories to design, an often overlooked factor in the research.

**Significance**

By understanding the spatial and creative development of queue lines, designers will be able to provide more positive waiting experiences that concurrently may serve as a preshow or first scene of the coming attraction. The need to investigate the design of queue lines in theme park attractions is particularly significant given that guests spend much of their time at theme parks waiting in line. Therefore, the quality of the overall guest experience will be impacted by the waiting environment. From a financial perspective, every minute spent waiting in line is time that guests are not spending money in retail stores on souvenirs or at restaurants and quick service food locations. From a psychology perspective, the waiting environment can directly impact how those waiting for service perceive both the waiting experience and their overall level of satisfaction with the service provided. The majority of the empirical literature on the design of queue lines has focused of the psychology of queuing, flow management, and the financial costs associated with consumers waiting for service. Additional research is needed to determine the impact that design characteristics can have on overall guest satisfaction in queues. Understanding the physical and social components to which guests respond while waiting in line will be beneficial for theme park operators, financial analysts, executive management, and design professionals. This study is therefore significant to professionals in the themed entertainment industry as the findings provide an opportunity to reexamine queue line design to place emphasis on improving guest satisfaction.
Research Questions

This study is based on the recent design trend to develop new hands-on experiences for guests waiting in lines to the most popular attractions, which extends psychology and business theories of queuing to design. This analysis will determine the specific design factors to which guests are predominately responding in interactive queuing environments. The objectives of this study, therefore, are (1) to explore how theme park guests waiting in line for an attraction respond to hands-on interactive environments and traditional waiting time fillers and (2) to evaluate which design variables positively influence the level of guest satisfaction. Given these objectives, the study will examine the following research questions:

1. How does the physical design of a theme park attraction queue line impact guests’ willingness to wait and contribute to a positive experience? (i.e. spatial layout, furnishings, theming, etc.);

2. How do the behaviors of guests waiting in line seem to reflect their level of engagement and interest in their environment?

Assumptions

This study entails several assumptions. First, it is assumed that Walt Disney World® and Universal Orlando® are the leaders among theme parks worldwide, and therefore make them the most beneficial place from which to collect data. This study further assumes that their practices set the design standards for the theme park industry. Finally, it is assumed that by centering on these two Central Florida theme park resorts, the insight gained through the examination of their queue lines may be applied to other theme parks.
Definitions

There are several terms used in this study that require clarification. They are defined as follows:

- **Queue Line.** In quantitative methods terminology, another name for a waiting line (Cope, Cope, & Davis, 2008, p. 14).

- **Queueing Theory.** The body of knowledge dealing with waiting lines (Cope, Cope, & Davis, 2008, p. 14).

- **Theme Park Design.** A three-dimensional storytelling art that places guests in the story environment (Hench, 2008, p. 67).

- **Socially Just Queue.** A queue is considered socially just when people obey the first in, first out (FIFO) method. A queue becomes socially unjust when this method is violated (Larson, 1987).

- **Slips and Skips.** Slips occur when someone enters a queue later, but receives service first. He who experiences a slip is victimized (skipped); he who skips gets a certain sense of satisfaction from his good fortune (Larson, 1987).

- **Nominal Capacity.** The number of operating units (cars, boats, trains, etc.), the number of seats per operating unit, its trip time, and loading and unloading time (Ahmadi, 1997, p. 2).

- **Staging.** Highlighting the most essential elements of a story through symbolism, representation, and sensory information (Hench, 2008, p. 39).

- **Imagineering.** The blending of creative imagination and technical know-how. The name combines imagination with engineering to describe what they do and who they are (Walt Disney Imagineering, 1996, p. 9, 11).

- **Imagineers.** The Walt Disney Company’s group of designers and developers responsible for dreaming up and implementing ideas and construction of Disney projects around the world. Imagineers include architects, engineers, interior designers, artists, set designers, graphic designers, and more (Walt Disney Imagineering, 1996, p. 11).

- **Preshows.** Developed by Walt Disney to acquaint guests with the experience that they are about to have, introducing a theme and mood that enhances the attraction (Hench, 2008, p. 32-34).

- **Postshows.** Developed by Walt Disney to enhance the exit from a show and to provide a place for a corporate sponsor to have a presence (Hench, 2008, p. 34).
• **HANDS-ON QUEMING EXPERIENCE.** A queuing environment that gives guests the ability to interact with the characters, story, or environment to become a participant in the story (Malmberg, 2010, p.40).

• **INTERACTIVE EXPERIENCE.** Any experience that provides guests with the opportunity to become an active participant in their environment taking place in real time through the use of technology, theming, or storytelling (Malmberg, 2010; Hench, 2008).

• **VISUAL STORYTELLING.** A three-dimensional representation of key scenes in a story that replicate the action and atmosphere of a film or experience; an interior visualization used to reinforce the experience of an attraction (Hench, 2008, p.39).

• **STANDARD QUEUE LINE.** An organized line of guests waiting to enter an attraction, often defined by rails or stanchions (Malmberg, 2010, p. 186).

• **WAITING TIME FILLER.** A distraction for customers waiting to receive service with the goal of eliminating wasted, empty time while waiting in line. By providing waiting time fillers, the perceived waiting time can be significantly decreased (Larson, 1987).

• **DARK RIDES.** An indoor staging technique used in some theme park attractions that illuminate only the most essential elements of the story by black light or incandescent theatrical light to help create the mood and tell the story (Hench, 2008, p. 39).

**Conclusion**

Design professionals in the theme park industry will gain insightful details on how to improve the overall guest experience by understanding how guests are positively and negatively impacted by their waiting environment. Theme park guests spend much of their day waiting in queue lines to experience the attractions. As a result of this, the quality of the waiting environment can greatly impact the overall experience of that attraction, or even on how the entire day's experience at the park is perceived. Observations of two different types of queuing environments located at Walt Disney World® and Universal Orlando® were examined to gain a better understanding of the types of queuing environments and waiting time fillers to which guests respond most
positively. The end product of this study is a detailed analysis of the physical and behavioral features associated with the two queuing environments from which data was gathered. Examination of these queues reveals the types of waiting environments theme park industry professionals should seek to develop in the future to create a positive waiting experience for guests.
CHAPTER 2
LITERATURE REVIEW

The review of the literature examines the current research on queue lines in the fields of psychology and business, establishing how these theories can be extended to design research for theme park attractions. This begins with an examination of how the amusement industry has evolved over time, gives background on queue line theory from multiple viewpoints, and establishes current trends in queuing. Adams (1991), Burns (1991), and Cross (2006) have considered how Coney Island’s rise and fall with the amusement park boom in the early 1900s led to the ultimate arrival of today’s thriving theme park industry. Although queue line design was not an important issue in the early days of the industry, queue lines have evolved into a necessary component to maintain successful operations in theme parks around the United States today. To better understand the process of queuing, or waiting for service, the studies by Larson (1987) in the field of psychology have created a better understanding of why queues form, how to lessen the negative impacts of waiting for service, and how they can impact the levels of satisfaction with a service, product, or experience. Antonides (2002), Brady (2001), Kumar (1997), Mann (1969), Milman (2009), and Zhou (2003) have also offered contributions to this body of knowledge in the field of psychology. Literature has uncovered new and innovative types of waiting environments which are currently being explored in theme parks, including placemaking, which allows for complete immersion in a story, and hands-on interactive elements. Each of these approaches to designing queue lines offers a unique opportunity for creating a new type of waiting that can be fun, or at the very least, a more pleasant experience. This chapter will conclude by discussing ways theme parks are beginning to establish queue lines in
theme park attractions that aim to contribute to, rather than hinder, the overall experience of an attraction. These improved experiences are being made possible by creating interactive or entertaining queuing experiences through the use of projections, touch screens, motion sensors, and high levels of detail in the overall visual theming of queuing environments.

**History of the Amusement Industry**

Coney Island housed the most well-known amusement parks in American history, establishing the first three successful amusement parks in the United States: Steeplechase Park, Luna Park, and Dreamland. Coney Island is located southeast of Manhattan. In the late 1800s, Coney Island welcomed visitors from not only the working class, but a mixed group of people and genders, each with varying interests and ideas for escaping reality. This seaside resort offered a combination of new, indulgent experiences and exotic, frightening shows. Adams (1991) described the dynamic at Coney Island as a "juxtaposition of mechanical amusement devices with an atmosphere of illusion and chaos" (p. 41).

In 1897, George C. Tilyou opened Steeplechase Park, the first amusement park for mass entertainment at Coney Island. The experiences created at Steeplechase aimed to thrill and amuse guests. Adams (1991) noted that "Steeplechase Park was designed to sweep away restraints and propel the crowds into extroverted intense activity" (p. 43). Gambling, mass consumption, and the use of new technology sparked this sudden interest in a more stimulating environment. By 1895, Coney Island had become the most extravagant playground in the country. Coney Island offered visitors a glimpse of the future in many small ways, while allowing adults to indulge in play and behave more like children (Adams, 1991; Burns, 1991; Cross, 2006).
In 1903, Frederic Thompson and Skip Dundy built the second park at Coney Island, Luna Park. This million-dollar amusement park abandoned all restraint and convention, showcasing ornamental architectural forms, a sea lion park, rides and attractions, as well as displaying over 250,000 lights. In fact, Luna Park had the created "the greatest concentration of electric power ever attempted" (Adams, 1991, 47-48) at that time. The success of Luna Park was great, with Thompson and Dundy recovering their entire initial investment within four months of the park’s opening. By the beginning of the twentieth century, all of America knew what Coney Island was and what it represented. It offered an escape from the fast paced city of Manhattan and celebrated play as an absolute necessity for the working class. Burns (1991) describes the impact of Coney Island on American culture:

> It is blatant. It is cheap. It is the apotheosis of the ridiculous. But it is something more. It is like Niagara Falls or the Grand Canyon or Yellowstone Park. It is a national playground, and not to have seen it is not to have seen your own country.

In 1904, Dreamland became the third enclosed amusement park to open at Coney Island. William H. Reynolds and several other investment partners saw Dreamland as an opportunity to cash in on the success of Steeplechase Park and Luna Park. According to Adams (1991), "Reynolds and his partners attempted to create an amusement park with a veneer of culture" (p. 52). This 3.5 million-dollar park showcased white classic-styled buildings with one million lights, aimed to dwarf the 250,000 lights of the neighboring Luna Park. Dreamland, however, did not see the success that was expected of it. The more refined cultural design approach was not received well by guests expecting the chaotic yet fun environments Coney Island had promised in the past.
Steeplechase Park, Luna Park, and Dreamland, the three great amusement parks of Coney Island, "turned the machines of industry into instruments of play" (Burns, 1991). The amusement parks at Coney Island offered forms of entertainment ranging from dioramas, fireworks, music shows, and dance halls, to freak shows and even peep shows (Cross, 2006). Coney Island offered a powerful playground for adults that carried Americans away from the Victorian age and into the modern world. As the world changed, a changing demographic brought a new set of needs from the crowds visiting the parks. Visitors longed to experience new thrills offered from rides, simulated shows, frightening sights, and strange encounters.

In the 1950s, Disney paved the way for a new type of family entertainment experience to emerge from all the chaos of the cheap and dirty traditional amusement parks. One key attribute that helped boost Disney's momentum in the transition from the traditional amusement industry into the modernized entertainment world of theme parks was that Disney never sought out to claim they were the leaders in the field. They were able to achieve this, although they refrained from touting themselves as being the place to experience the most thrilling, the most innovative, or the most advanced theme park. Guests came to experience Disney for exactly what it was- a family friendly themed environment. Disney chose to eliminate the marketing technique that Coney Island had used for so many years, advertising themselves as the greatest experiences on earth. Disney found that if these claims were never made, then the company did not have to live up to the expectations of housing the biggest or newest attraction in the industry. Financial strains during the Great Depression and prohibition had an immense impact on the amusement park industry, as made evident by Coney Island's sharp decline in
the 1920s. Table 2-1 shows the severe impact of the Depression on the amusement park industry, as the number of parks in the U.S. in 1935 was less than a quarter of the number of parks in 1920.

Table 2-1. Number of amusement parks and U.S. population (in millions).

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of parks</th>
<th>Receipts</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920</td>
<td>1800-2000</td>
<td>na</td>
<td>106.0</td>
</tr>
<tr>
<td>1935</td>
<td>303</td>
<td>9.0</td>
<td>127.3</td>
</tr>
<tr>
<td>1939</td>
<td>245</td>
<td>10.1</td>
<td>130.9</td>
</tr>
<tr>
<td>1948</td>
<td>368</td>
<td>38.7</td>
<td>146.6</td>
</tr>
<tr>
<td>1954</td>
<td>400 (est.)</td>
<td>--</td>
<td>162.4</td>
</tr>
<tr>
<td>1958</td>
<td>650 (est.)</td>
<td>--</td>
<td>174.1</td>
</tr>
<tr>
<td>1963</td>
<td>997</td>
<td>105.9</td>
<td>189.2</td>
</tr>
<tr>
<td>1967</td>
<td>786</td>
<td>174.1</td>
<td>198.7</td>
</tr>
</tbody>
</table>

Adapted from Adams (1991, p.67)

Coney Island's decline began as soon as it stopped being able to produce the newest machinery and attractions. Cross (2006) explains that "Coney [Island] had flourished on novelty, but in doing so it eventually made itself obsolete. Caught between the jaws of corporate disinterest and down-market crowds, it no longer had the resources to deliver innovation" (p.639). Another significant contribution to Coney Island's decline was that visitors often did not return for more than a day trip to experience the new thrills or shows offered in the parks. There was no emotional connection to a taller or faster attraction.

Today, Disney is known as a leader in the theme park industry for innovation and technology both in its form and its function as a company. As opposed to Coney Island, Disney had brought to life classic characters and attractions from beloved fairytales in one's childhood. Walt Disney had designed Disneyland to serve as a place for all generations to play together in a way that combined "nostalgia and 'timeless' cuteness. Rides and other attractions did not get 'old' because oldsters expected to return to their
pasts at Disneyland and visual cues throughout the park reinforced this romantic feeling about a fantasy past" (Cross, 2006, p.641). It is this emotional attachment, the personal identity and nostalgia that sets Disney apart from other theme parks in the industry and has been the main contribution to its success throughout the years. Table 2-2 illustrates the continued increase in park attendance from 1972-1989 at the Disney Parks in the California and Florida resorts.

Table 2-2. Walt Disney World® Resort and Disneyland® park attendance, 1972-1989 (in millions).

<table>
<thead>
<tr>
<th>Year</th>
<th>Walt Disney World® Resort</th>
<th>Disneyland® park</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>10.7</td>
<td>9.6</td>
</tr>
<tr>
<td>1974</td>
<td>10.8</td>
<td>9.7</td>
</tr>
<tr>
<td>1976</td>
<td>13.1</td>
<td>10.2</td>
</tr>
<tr>
<td>1978</td>
<td>14.1</td>
<td>10.7</td>
</tr>
<tr>
<td>1980</td>
<td>13.8</td>
<td>11.5</td>
</tr>
<tr>
<td>1981</td>
<td>13.2</td>
<td>11.3</td>
</tr>
<tr>
<td>1982</td>
<td>12.6</td>
<td>10.4</td>
</tr>
<tr>
<td>1983</td>
<td>22.7</td>
<td>10.0</td>
</tr>
<tr>
<td>1984</td>
<td>21.2</td>
<td>9.9</td>
</tr>
<tr>
<td>1985</td>
<td>21.7</td>
<td>11.8</td>
</tr>
<tr>
<td>1986</td>
<td>24.1</td>
<td>12.5</td>
</tr>
<tr>
<td>1987</td>
<td>26.0</td>
<td>13.5</td>
</tr>
<tr>
<td>1988</td>
<td>25.1</td>
<td>13.0</td>
</tr>
<tr>
<td>1989*</td>
<td>30.0</td>
<td>14.4</td>
</tr>
</tbody>
</table>

*First full year for EPCOT Center
+Disney-MGM Studios theme park opens in Spring

Since Disneyland's inception, guests have referred to the entertainment sought after at the Disney parks as creating a sense of escapism from the real world, a break from the hustle and bustle of everyday stressors. The Walt Disney Company’s group of designers and developers responsible for dreaming up and implementing ideas and construction of Disney projects around the world are called Imagineers. These designers include architects, engineers, interior designers, artists, set designers,
graphic designers, and more (Walt Disney Imagineering, 1996, p. 11). John Hench, a Walt Disney Imagineer, took offense to this perception of Disneyland® as a place for escapism, responding that "there was never a Main Street like this. But it reminds you of some things about yourself. What we are selling is not escapism, but reassurance."

Another Walt Disney Imagineer, Marty Sklar, furthered Hench's discussion on what the two have coined the "architecture of reassurance," stating that "a visit to Disneyland® reassures us that things will be okay. Here, everything works, places can be clean, people can be nice, and the pace of the world feels right." (M. Sklar, personal communication, September 2013). Table 2-3 highlights some of the significant dates in amusement park history, as America saw the birth of the modern theme parks.

Table 2-3. Timeline of significant dates in amusement park history.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1870</td>
<td>The first boardwalk in the United States is built along the coast at Atlantic City in New Jersey</td>
</tr>
<tr>
<td>1884</td>
<td>Switchback Railway coaster is built at Coney Island, becoming the first Roller Coaster in the United States</td>
</tr>
<tr>
<td>1893</td>
<td>The first Ferris Wheel is built by George Washington Gale Ferris at the World's Columbian Exposition in Chicago</td>
</tr>
<tr>
<td>1895</td>
<td>Sea Lion Park, the first enclosed amusement park, opens at Coney Island</td>
</tr>
<tr>
<td>1897</td>
<td>Steeplechase Park opens at Coney Island</td>
</tr>
<tr>
<td>1903</td>
<td>Luna Park opens at Coney Island</td>
</tr>
<tr>
<td>1904</td>
<td>Premature Baby Incubators, created by Dr. Martin Couney, are first displayed as a sideshow in Luna Park at Coney Island</td>
</tr>
<tr>
<td>1904</td>
<td>Dreamland Park opens at Coney Island</td>
</tr>
<tr>
<td>1911</td>
<td>A large fire destroys Dreamland Park and most of Coney Island</td>
</tr>
<tr>
<td>1920</td>
<td>New York subway system is extended to reach Coney Island</td>
</tr>
<tr>
<td>1935</td>
<td>U.S. Bureau of the Census begins publishing data on amusement parks as a distinct business category</td>
</tr>
<tr>
<td>1955</td>
<td>Disneyland® Park opens in Anaheim, California, sparking the transition from traditional amusement parks to modernized theme parks</td>
</tr>
<tr>
<td>1956</td>
<td>New Jersey Supreme Court enacts antigambling laws, contributing to the decline of most of the traditional parks in the 50s</td>
</tr>
<tr>
<td>1961</td>
<td>Six Flags® over Texas opens, becoming the first successful non-Disney theme park</td>
</tr>
<tr>
<td>1964</td>
<td>Universal Studios® Tour opens in Hollywood, California</td>
</tr>
<tr>
<td>1971</td>
<td>Walt Disney World® Resort opens near Orlando, Florida</td>
</tr>
<tr>
<td>Year</td>
<td>Event</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>1982</td>
<td>EPCOT Center opens in Walt Disney World® Resort near Orlando, Florida</td>
</tr>
<tr>
<td>1982</td>
<td>Ticket books were done away with at the Disney Parks,</td>
</tr>
<tr>
<td>1983</td>
<td>Disney made the first giant leap to expanding internationally with American theme parks with the opening of Tokyo Disneyland® in Japan</td>
</tr>
<tr>
<td>1989</td>
<td>Disney-MGM Studios theme park opens in Walt Disney World® Resort near Orlando, Florida</td>
</tr>
<tr>
<td>1990</td>
<td>Universal Studios® Florida resort opens near Orlando, Florida</td>
</tr>
<tr>
<td>1998</td>
<td>Disney’s Animal Kingdom® theme park opens in Walt Disney World® Resort near Orlando, Florida</td>
</tr>
<tr>
<td>2010</td>
<td>The Wizarding World of Harry Potter™ opens in Islands of Adventure® theme park near Orlando, Florida, sparking a new trend of creating more immersive, interactive experiences</td>
</tr>
<tr>
<td>2012</td>
<td>First phases of Storybook Circus and Fantasyland Forest open as re-imagined immersive and more interactive experiences within Magic Kingdom® theme park at the Walt Disney World® Resort near Orlando, Florida</td>
</tr>
<tr>
<td>2012</td>
<td>Test Track® Presented by Chevrolet® re-opens in Epcot® at the Walt Disney World® Resort with a whole new re-imagined experience, including an interactive design center in the queue line and post show activities that allow guests to test their own vehicle designs</td>
</tr>
</tbody>
</table>

As the experiences offered at Disney parks have evolved over time, so too have the need for queues to experience the attractions. Designers eventually found that in an effort to provide guests with waiting time fillers, they could begin telling the story of the coming attraction. Hench (2008) explains that pre-show queues were developed by Walt Disney to acquaint guests with the experience that they are about to have, introducing a theme and mood that enhances the attraction (p. 32-34). Emotional attachment, personal identity, and nostalgia play an important role in telling the story of an attraction and encouraging return visits from guests in theme parks. These were the fundamental ideas that lead Disney to thrive.

"E" Tickets, FASTPASS®, and MyMagic+

When Disneyland® first opened, the cost of admission provided each guest with a ticket book upon entering the park, and which served as ride vouchers for the
attractions. Cope, Cope, and Davis (2008) offer an explanation of the original ticket book system.

The ticket books included a predetermined distribution of tickets categorized as A, B, C, D or E rides, where the E-rated rides were the most popular. Original plans for the ticket books were to limit the number of each type of ticket that a guest received, so demand would be spread across the various levels of attractions (p. 15).

Each ticket book contained A, B, C, D, and E tickets. The letter designated the level of popularity or intensity of the attraction. E tickets were required for the attractions with the most public demand. As Disneyland® opened new attractions, ticket prices increased to compensate for the cost of the new rides. To balance the raised admission ticket prices, an increased number of E tickets were distributed to guests. By adding new attractions and increasing the number of E tickets distributed simultaneously, the flow management at the park did not improve, as the demand for E tickets increased with new ticket opportunities.

In an effort to create a positive guest experience at the parks, the first testing of FASTPASS® was implemented in the parks at Walt Disney World® in 1998 to reduce the time guests spend waiting in line. FASTPASS® is a queuing reservation system that gives guests the opportunity to use the FASTPASS® tickets at select attractions within an hour window of time of their designated reservation. This allows guests to return to ride with little to no wait. Survey results of the system found that they caused guests to spend less time waiting in lines, to spend more money on food and merchandise, and to experience more attractions than in the past (Cope, Cope, & Cope, 2008).

By definition, their virtual queue waiting strategy recognizes that guests can be freed from physically standing in line. By being placed in a virtual queue, guests are then able to engage in other productive and enjoyable activities until their time to be served arrives. The new process eliminated both the
actual wait, as well as the perception of having to wait for service (Cope, Cope, & Cope, 2008, p. 16).

The survey results also suggested that guests respond well to the FASTPASS® system, as it offered them a choice. Guests may either 1) obtain a FASTPASS® ticket and return to the attraction at a later time or 2) wait in the traditional standby line. "The attraction allows them [guests] the opportunity to see two attractions during the same time they would have previously been able to see only one attraction" (Cope, Cope, & Cope, 2008, p. 17).

Another ticketing system, MyMagic+ is currently being tested as a new method that expands upon the FASTPASS® system at Disney parks. This system offers guests a new experience that allows them to create a personalized vacation system, encompassing attraction admission, and hotel and restaurant reservations. FASTPASS® opportunities will be linked to MagicBands, Disney’s new radio frequency identification (RFID) wristbands, allowing guests to schedule times to ride their favorite attractions before they ever step foot in a Disney park. Tom Staggs, Chairman of Walt Disney Parks and Resorts, explained the new MyMagic+ system at the Walt Disney World resort as a several month rollout of new experiences that will give Disney theme park guests the opportunity to personalize their vacations.

Linking the entire MyMagic+ experience together is an innovative piece of technology we developed called the MagicBand. Worn on the wrist, it will serve as a guest’s room key, theme park ticket, access to FastPass+ selections, PhotoPass card and optional payment account all rolled into one. We’ve began testing certain aspects of MyMagic+ in Florida last month and the early reactions we’ve gotten have been fantastic.

The aim of MyMagic+ is to positively increase the overall guest experience. MyMagic+ is designed to allow guests to book guaranteed ride times for shows and attractions before arriving at the parks. Guests will, therefore, be guaranteed to
experience their "must do" attractions or "must see" shows, while also allowing for more
time with one another throughout their day at the park.

**Psychology of Queuing**

Psychologists have explored human behavior in queues in everyday activities
such as waiting in line at the grocery store, restaurants, airport check-ins, or retail
spaces. The theory of queuing has become a valuable component in understanding
how people respond to waiting in various environments, an understanding of which has
proven advantageous in the development of theme park queues as well. In the field of
psychology, queuing theory refers to the literature on waiting lines and examines the
psychological influences people experience while waiting for a service. This is quite
unlike than the queuing theory expression used for operations research, which is a
mathematical approach that involves creating a model to predict wait times based on
the length of a queue. For this study, the research on queuing theory refers to the
psychology of queuing, examining how people respond to their waiting environment.

According to Cope et al. (2008), "in quantitative methods terminology, a waiting
line is also known as a queue, and the body of knowledge dealing with waiting lines is
known as queuing theory" (p. 14). It is this body of knowledge that social scientists
study to identify the psychological aspects that influence the queuing experience. The
psychology research conducted by Antonides (2002), Brady (2001), Kumar (1997),
Larson (1987), Mann (1969), Milman (2009), and Zhou (2003) shape the fundamental
concepts for evaluating queuing theory, customers' reactions to waiting times, and more
clearly define queuing terminology and general concepts.

Metters (2006) identified two basic rules for explaining why waiting lines form: (1)
waiting lines form when the total workload is less than total occupancy, and (2) waiting
lines are not linearly related to capacity. Several researchers have found that oftentimes it is best to develop a way of managing the perception of a wait, rather than focusing on the wait itself (Dickinson, et al., 2005; Larson, 1987; Maister, 1985). Maister (1985) and Larson (1987) have studied how waiting perception can influence the customer satisfaction levels of waits. Dickinson, et al. (2005) organized a set of six basic concepts that surfaced in their research as the most prevalent factors affecting wait perception:

1. Unoccupied time feels longer than occupied time.
2. Anxious, sad, and angry waits feel longer than relaxed ones.
3. Waits of uncertain length feel longer than certain ones.
4. Unexplained waits feel longer than explained waits.
5. Uncomfortable waits feel longer than comfortable waits.
6. Unfair waits feel longer than fair ones.

Additional research has found that the perception of time passage can also vary due to several other factors, such as body temperature, busyness, and mood (Hoagland, 1996; LeClerc, Schmitt, & Dube, 1995; Houston, Bettencourt, & Wegner, 1998; Pruyn & Smidts, 1998).

Larson (1987) states that a queue is considered socially just when people obey the first in, first out (FIFO) method. A queue, therefore, becomes socially unjust when this method is violated. Sometimes, essentially the fear of social injustice can influence the waiting time for a queue. An analysis of different types of queues in fast food restaurants serves as an example of this theory. A fast food industry report (Larson, 1987) showed that customer satisfaction levels were seen to be higher in Wendy's restaurants, which use a single queue line, than in other fast food restaurants, such as McDonald's and Burger King, which have multiple queues. The justification for this can be the fear of social injustice. Although offering multiple queues can allow for quicker service, by entering a single queue, customers can be guaranteed to receive social
justice with the FCFS method. Queuing theorists, those who dedicate their studies to queuing theory and the psychology of queuing, have come to accept the idea that in general, the most socially just queue discipline is the first come, first served (FCFS) method. They also have agreed that the most socially just system discipline is the first in, first out (FIFO) method. Larson (1987) also explains "slips" and "skips" as measurements of social injustice in queues. Slips occur when a person enters a queue after another person, but receives service first. The second person to enter the queue slipped ahead of the first person. The first person was skipped by the second person to enter the queue. To further clarify this concept, Larson (1987) explains that the first person, who experienced the slip becomes victimized by the second. On the contrary, the second person to enter the queue, who is able to skip ahead, is often satisfied with the quicker service.

With the demand for constant improvements, new attractions, and re-imagined experiences, return theme park guests are always looking to experience both the newest experiences and the classic attractions from their memories. Queue lines often develop in attractions where the demand is high. Therefore, in order to improve these queues, it is essential to understand which physical, psychological, and ambient factors draw people to an attraction. Operations research has shown that the demand for an attraction usually varies according to three main factors: (1) how new the attraction is, (2) the time of year, and (3) how popular the attraction is. To maximize customer satisfaction, operations research teams in theme parks analyze the rides per capita. Rides per capita equals the number of rides experienced per person and is used to analyze the number of people in the park compared to the actual number of people
experiencing the rides. Theme park operators aim to keep the rides per capita number as high as possible. When this number is low, this means guests are spending more time waiting in line than actually experiencing the attractions in the park. By understanding which attractions will draw in the most people and knowing the peak times of the year, designers can focus on creating an enhanced waiting experience to accommodate their guests’ needs.

**Waiting Time Fillers and Environment**

Queue lines often provide their occupants with waiting time fillers, which are designed with the goal of eliminating "wasted" time waiting in line. By providing attraction rides with waiting time fillers, such as music, art, or television, the perceived waiting time can be significantly decreased, therefore improving the perceived waiting time. For example, waiting for an elevator to arrive on one’s floor is considered a queuing experience. Elevator lobbies in high-rise office buildings and hotels often use floor-to-ceiling mirrors adjacent to the elevators, so that those waiting are provided with a space to adjust their ties, fiddle with their hair, and touch up their lipstick. These self-induced waiting time fillers have been seen to turn this empty waiting time into a more positive experience, while decreasing the perceived waiting time (Ackoff, 1987; Larson, 1987). Restaurants also have queues of customers waiting to be seated at a table. Many restaurants try to alleviate negative waiting experiences by providing rooms or spaces designated as bars or cocktail lounges (Larson, 1987). In these spaces, customers waiting may sit, stand, or gather to buy drinks and converse with one another. The sociability decreases the perceived waiting time as well. Although the waiting time does not change, the perceived waiting time seems shorter, creating a
more positive waiting experience. Pagers or announcements are also often used to provide an efficient reservation systems for restaurant customers waiting for service.

Pruyn and Smith (1998) conducted a study analyzing how people waiting for service perceive their waiting time. Interestingly, their results suggested that when television was the only form of entertainment provided, the perceived waiting time actually seemed to be longer than the actual waiting time. However, studies by Antonides (2002), Carson (2004), Larson (1987), and Tom, Burns, and Zeng (1997) found music to have the opposite effect on those waiting for service. A study by Carson (2004) illustrated a connection between musical entertainment and a lower perceived waiting time. Findings indicated that the majority of the people surveyed waiting in lines with musical entertainment perceived the waiting times to be much shorter than those without it. In these cases, the negative effect of perceived duration on wait evaluation was often reduced significantly (Tom, Burns, & Zeng, 1997; Carson, 2004; Antonides, 2002). For example, the Manhattan Savings Bank in New York City found a way to make waiting in a busy space a more pleasurable experience. During peak hours, which occurred on weekdays at lunchtime, the bank began offering live entertainment to make the queuing environment more pleasurable for their customers. The bank hired concert pianists to play music near the queue line for the bank tellers. Customers of the Manhattan Savings Bank began to view this waiting time as a positive and entertaining experience. In fact, the musical entertainment became so popular, people began wanting to wait longer for service (Larson, 1987). As the Manhattan Savings Bank example has shown, music can not only shorten the perceived waiting time, but also
enhance the overall experience. Carson (2004) found that at Walt Disney World® (WDW), music functions in at least three specific capacities:

1. Music links current Disney experiences to (often romanticized) experiences of the past through nostalgia.
2. Music defines the boundaries which separate "same" from "other" in terms of both geography and identity.
3. Music serves as an index for the "Disney Experience" in general- built upon modes of identity and nostalgia.

Several factors that influence the perceived quality of the service environment were identified by Brady and Cronin (2001). Through open-ended surveys, data was collected from 1133 respondents from several service environments, including restaurants, amusement parks, and hair salons. These surveys identified factors that influenced participants' perceived service quality. Three primary dimensions were identified for rating service quality perceptions: (1) service interaction quality, (2) physical environment quality, and (3) outcome quality. Brady and Cronin (2001) further identified nine sub-dimensions of these service quality perceptions as the following: (1) attitude, (2) behavior, (3) expertise, (4) ambient conditions, (5) design, (6) social factors, (7) waiting time, (8) tangibles, and (9) valence. Tangible elements were commonly listed as major influences for the customer's overall perception of service outcome quality.

**Queue Line Design**

In themed environments, the attention to detail and authenticity becomes an important piece of the staging or visual storytelling (Hench, 2008; Kurtt, 2008). Place identity and attachment dually serve to create visual storytelling in theme park design, as well as serves as a method for generating repeat guests each year. Hench (2008) defines place identity in themed environments as "the distinguishing characteristics of a
form that allow us to recognize its identity” (p. 3). The attachment, or strong emotional tie, to a place facilitates how guests make decisions about when and what to experience. As noted by Cross (2006), Disney creates emotional attachments by bringing to life childhood fairytales in the form of buildings, attractions, shows, and even meet-and-greet characters. Table 2-4 shows the Top 10 U.S. amusement parks and theme parks from 2009-2010 in terms of attendance, the top six all being Disney Parks. This seems to suggest the value of Disney’s strategy, which centers on sense of place.

Table 2-4. Top 10 U.S. amusement parks and theme parks based upon 2009-2010 attendance.

<table>
<thead>
<tr>
<th>Name of park</th>
<th>Attendance</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Magic Kingdom® at Walt Disney World®</td>
<td>16,972,000</td>
<td>-1.5%</td>
</tr>
<tr>
<td>Lake Buena Vista, FL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Disneyland®</td>
<td>15,980,000</td>
<td>0.5%</td>
</tr>
<tr>
<td>Anaheim, CA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Epcot® at Walt Disney World®</td>
<td>10,825,000</td>
<td>-1.5%</td>
</tr>
<tr>
<td>Lake Buena Vista, FL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Disney’s Animal Kingdom® at Walt Disney World®</td>
<td>9,686,000</td>
<td>1.0%</td>
</tr>
<tr>
<td>Lake Buena Vista, FL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Disney’s Hollywood Studios™ at Walt Disney World®</td>
<td>9,603,000</td>
<td>-1.0%</td>
</tr>
<tr>
<td>Lake Buena Vista, FL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Disney’s California Adventure®</td>
<td>6,278,000</td>
<td>3.0%</td>
</tr>
<tr>
<td>Anaheim, CA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Islands of Adventure® at Universal Orlando®</td>
<td>5,949,000</td>
<td>30.2%</td>
</tr>
<tr>
<td>Orlando, FL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Universal Studios® at Universal Orlando®</td>
<td>5,925,000</td>
<td>6.1%</td>
</tr>
<tr>
<td>Orlando, FL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. SeaWorld® Florida</td>
<td>5,100,000</td>
<td>-12.1%</td>
</tr>
<tr>
<td>Orlando, FL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Universal Studios® Hollywood</td>
<td>5,040,000</td>
<td>26.0%</td>
</tr>
<tr>
<td>Universal City, CA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


**Trends in Queue Line Design**

In creating themed environments, designers strive to provide guests with the appropriate sensory information to make the story environment convincing. Hench (2008) describes how WDI uses the concept of staging to communicate identity through visual storytelling at three levels: symbolism, representation, and sensory information:
We show guests what we want them to see and when, through staging. Some of our best staging is in Fantasyland "dark rides" at Disneyland, where we illuminate only the most essential elements of the story. Peter Pan's Flight closely follows the story line of the film; it is a representation of the animated feature. But guests also experience the most compelling motif of the story, flying, which is symbolic of the themes of adventure and daring in the story as a whole. Each scene also reveals the story from the guests' vantage point as they fly through the attraction; their sensory experience parallels that of the characters. (p. 38-39)

To accomplish this goal, there are several different types of queue lines seen within theme parks. They include traditional weaving back and forth ("switchback") queues; queues with waiting time fillers such as music, art, and television; queues that offer hands-on experiences while waiting; and reservation systems through virtual queuing opportunities.

Hench (2008) describes the findings of WDI queue line analyses:

The long single-file line does not have the inherent sociability of the switchback-style line. We found, however, that if we added a story element to it, we could make it into a preshow. The Indiana Jones Adventure at Disneyland has one of the best queues we have ever designed. It offers both story elements of the single-line preshow together with an occasional, sociability-inducing switchback. It introduces story elements with a clear sense of progression, reinforcing the ride itself. The queue makes guests feel that they are already part of the experience as they approach the boarding area. (p. 32)

The spatial layout is therefore an essential element in developing flow patterns and queue line designs for theme park attractions. Evaluating the spatial layout of theme park queues, Hench (2008) found:

In designing the line for the Submarine Voyage at Disneyland, I learned that the queue can be very valuable when it folds back and forth so that guests face each other as they move through it. In such lines, guests talk to one another, creating a friendly environment; the line experience is more interesting when it affords opportunities to meet people. A drinking fountain at the end one of the turns of a line also makes guests more comfortable. (p. 32)
In recent years, a trend in queuing has been to create more interactive or entertaining queuing experiences. Imagineers at WDI have re-imagined queue line designs for several attractions at the Magic Kingdom® park in the last few years, including Space Mountain®, The Many Adventures of Winnie the Pooh, Haunted Mansion®, and Dumbo the Flying Elephant®. In 2010, designers first introduced an interactive video game themed waiting experience for the attraction Space Mountain®. While waiting in line, guests can play at video game stations as they move through the queue. Several other attractions at Disney have since had their queues re-imagined to include interactive elements. The Many Adventures of Winnie the Pooh (MAWP), another attraction at Disney’s Magic Kingdom®, adapted the queue line to include interactive play spaces for children, which hands-on interactive experiences like stepping on animal tracks makes gophers pop out of holes, turning dials pops balls into the air, drumming on vegetables creates music, knocking on the door from an oversized storybook page actually creates the sounds, and moving bees lets them travel with you in line through a series of honeycombs. Technology is also implemented towards the end of the queue, with projections used to create flowing "hunny walls", which can be moved and disrupted by touching the digital screens.

Another example includes the recently renovated queue for Haunted Mansion®, which introduced a new decision opportunity for guests by affording them with the choice of taking the graveyard "fun line" or by offering a usually shorter traditional FCFS waiting line. Guests who choose the graveyard path experience an interactive queue, which is meant to begin the story through hands-on spooky sights, tangibles, and sounds that relate to the storyline inside the attraction. This is the first queue to offer
guests with the decision to wait longer with entertainment or shorter in the less exciting, but more "socially just" queue.

Finally, two all new queuing environments were introduced with the phased opening of Storybook Circus and New Fantasyland in the summer and fall of 2012 at Disney's Magic Kingdom®. The Dumbo the Flying Elephant (DFE) attraction opened in Storybook Circus in the summer of 2012. During this queuing experience, guests are ushered inside a large, air-conditioned "big top" circus tent, where they check in with a "ringleader" cast member. The vibrant new color scheme of reds, blues, purple, gold, and yellow create a playful, inviting setting as cast members dressed as ringleaders help entertain guests experiencing the DFE attraction. Guests are assigned circus ticket themed pager devices, staying true to the storyline of Dumbo for this attraction. As guests are waiting for their turn to take flight on Dumbo, they can explore an indoor playground themed around the circus story scene in Dumbo. This type of queue is the first of its kind for WDW.

In the fall of 2012, Under the Sea: Journey of the Little Mermaid opened in New Fantasyland. The entrance to the attraction features shipwrecks, waterfalls, and Ariel's "gadgets and gizmos a plenty" (found human objects from the film). In the queue for this attraction, guests interact with projected crabs inside of the shipwreck pieces found within the themed rockwork. The crabs come in and out of sight carrying several hidden treasures from the shipwrecks in the queue. Guests then instruct the crabs whether or not the objects belong with the rest of the found treasures by pointing at them, making it an interactive experience. This queue also offers guests the opportunity to see an audio-animatronic character—Scuttle, Ariel's seagull friend who serves as the narrator.
on the attraction. This queue therefore introduces the story of the film, and serves as the first scene in the attraction.

Universal Creative (UC), the Universal Studios’ equivalent to WDI, has created an innovative visual storytelling queue for one of their most recent attractions, Harry Potter and the Forbidden Journey™ (HPFJ). The queue line for HPFJ uses animatronics, projectors, and other special effects to simulate characters speaking to guests, snow falling on guests, moving pictures that talk and shift, and other "magical enchantments" suggesting details from the Harry Potter™ movie franchise and book series. An important detail to note about this queue is that an additional line is offered for guests not yet large enough to experience the attraction itself to walk into the castle and explore the queuing environment. In this case, from a design perspective, visual storytelling is the most important aspect of the queue.

As seen with both WDI and UC, designers are continually developing queuing environments as pre-shows to the coming attractions. From a business standpoint, this additional funding must be allotted for these queue lines. Research by Ahmadi (1997), Taylor (1994), Whitt (1999) has suggested that delays in service can impact guest satisfaction and the perceived level of service. Ahmadi’s research on flow management has offered a better understanding of how to control the way guests move through a space, therefore increasing ride capacities and reducing crowding throughout the park.

**Flow Management**

As previously considered by Larson (1987), waiting can sometimes be seen as a characteristic of or contribute to the theme park experience. Ahmadi (1997) analyzed park operations at Six Flags® Magic Mountain (SFMM), a theme park located in southern California, to generate newer, more effective strategies for managing the flow
patterns of visitors in the park as well as managing ride capacities. The park is well known for its thrill rides and roller coasters, but also offers a variety of other attractions and activities, such as a dolphin show, high diving team, stunt show, arcades, gift shops, and food and beverage services. At SFMM, and all theme parks for that matter, park operations must consider the types of visitors they bring in each day to best cater to their entertainment preferences on thrills, waiting, and arrival patterns. For the analysis of SFMM flow patterns and ride capacities, Ahmadi (1997) classified theme park visitors into three main groups: (1) younger visitors, especially teenagers, (2) family visitors, and (3) senior citizens (p. 2). Another classification used by Ahmadi (1997) offers three categories for types of rides: (1) group rides, (2) continuous rides, and (3) individual rides (p. 2). Ride capacities are a main consideration for theme park operations to manage effectively, as they directly impact waiting times, therefore contributing to the overall customer satisfaction levels. A ride’s nominal capacity is defined as "the number of operating units (cars, boats, trains, etc.), the number of seats per operating unit, its trip time, and loading and unloading time" (Ahmadi, 1997, p. 2). Park management teams have the ability to alter ride capacities in response to higher or lower levels of attendance as well as a response to varying queue lengths through the theme park. Ride capacities can be altered by adding or subtracting the number of operating units, speeding up a rides trip time, or more efficiently filling all operating units. Some theme parks have now implemented "single rider" lines for high demand attractions. By making sure each seat is filled for each unit, the overall ride capacity becomes more efficient, the overall wait time is reduced, and less waiting time usually generates more satisfied guests. Most theme parks that have added single rider lines to
the queuing areas of high demand attractions have seen positive results in terms of both ride capacity (with regard to flow management) and increased levels of guest satisfaction. Ahmadi (1997) identifies four main characteristics for the analysis and management of theme park operations: (1) the experience is not homogenous, and therefore may includes thrill rides, arcade games, and food and beverages; (2) customer preferences are not uniform; (3) park attendance level fluctuates according to the season, day of the week, and time of day; (4) customer perceptions about delay times and queues play an important role in their evaluation of the overall park's operations (p. 1).

Summary of Literature Review

The amusement industry, currently referred to as the themed entertainment industry, has evolved tremendously in the last century due to changes in demographics, modern technologies, and entertainment demands. These changes have been documented in the literature and have been addressed by several theme parks in the Central Florida area. Disney has been at the forefront of developing new ways of enhancing the queuing experience, integrating and pushing for these new changes with the introduction of FASTPASS® technology, interactive and immersive queues, and the most current testing of the MyMagic+ technology. Design professionals in the themed entertainment industry have studied the importance of maintaining authenticity and creating nostalgia through stories and music, which often contribute to the overall concept of staging or visual storytelling seen so often in theme parks today. Current studies on the psychology of queuing and the notion of queuing theory in the field of psychology served as a strong starting point for developing a better understanding of how guests are impacted when they must wait for service. Previous research has
examined the emotional and physical effects queuing environments have on those waiting in line. Results indicate that when customers are provided with waiting time fillers, the perceived waiting time can decrease while the level of guest satisfaction can increase. Additional studies in the field of business have examined the impact of creating flow patterns to minimize and manage crowding in theme parks, while at the same time increasing revenue. From a business perspective, every second guests spend waiting in line is that much time they are not spending money on food or merchandise. Chapter 3 discusses how this review of the literature formed the means to develop observation forms for studying the physical environment and behaviors of guests waiting in line at two theme park attractions. The literature influenced the type of information participants in the study were asked to observe and record while waiting in the queue lines with other guests.
CHAPTER 3
RESEARCH METHODS

This study explores how theme park guests respond to the queuing environment while waiting in line to experience attractions at Walt Disney World® and Universal Orlando® theme parks. This multiple-case descriptive case study utilized a pilot study to test the method of data collection before involving all 10 participant observers in the study. The two attractions selected for investigation characterize two different types of waiting experiences. The queue for the first attraction integrates hands-on interactive technology into the waiting experience, while the second attraction offers guests with a more visual storytelling queuing environment. In-depth research and a substantial design analysis of the current conditions in the two queuing environments led to the construction of observation forms to be used by the participant observers. These observation forms were based on design characteristics that could potentially influence the overall guest experience. After the pilot study proved a successful approach to examining the two queuing environments, 10 participant observers gathering qualitative data through systematic. The observations focused on documenting how guests responded to the physical environment and the behaviors of guests while waiting in line at two theme park attractions in Central Florida: Test Track® Presented by Chevrolet® (TT), and Harry Potter and the Forbidden Journey™ (HPFJ).

The data was analyzed using content analysis, which documented all of the responses to the physical and behavioral qualities listed on the observation forms. Physical qualities on the forms included theming, architectural details, interiors finishes, props, artwork, and other specific details of the built environment. Behavioral qualities analyzed how guests responded to and interacted with the physical environment and
one another. Since visual storytelling was a main consideration in both attractions, each participant was asked to document the storyline of the attraction, as well as list any story-related links between the queue line and the attraction. The researcher used content analysis to arrive at the overall findings from this data by determining the major themes that emerged among responses from participants. The relative importance among these issues was then determined by analyzing the frequency with which these themes were mentioned by participants. These findings will provide theme park professional with rich qualitative data that will pave the way for theme park designers to develop interior queuing environments that can potentially improve guest satisfaction.

**Ethical Considerations**

Before contacting research participants, the researcher applied for permission through the University of Florida’s Institutional Review Board (IRB) to conduct a study that uses human subjects. The approvals from IRB can be found in Appendix A. All participants in the study were asked to sign a consent form before participation. There was no obligation for any participants to take part in this study. Participants were informed of their right to withdraw from the study at any time without consequence and did not have to answer any questions they did not want to answer. Each participant received a free single-day admission into the two theme parks being observed as compensation for their time and contributions to the study. Participants were not asked to give their name or contact information. Any personal demographic information requested was only used to compare the answers among participants. The participants’ responses remained anonymous and were only associated to an assigned code number. Code number information was used for all data analysis. Participants’ actual names were not mentioned in any report.
Rationale for Data Collection

This study associates previous research in the fields of psychology and business to design as it applies to theme park facilities. The psychology research conducted by Antonides (2002), Brady (2001), Kumar (1997), Larson (1987), Mann (1969), Milman (2009), and Zhou (2003) shape the fundamental concepts for evaluating queuing theory, customers' reactions to waiting times, and more clearly define queuing terminology and general concepts. From a business perspective, the research studies conducted by Ahmadi (1997), Cope (2008), Guo (2007), Hassin (1997), Rajaram (2003), and Whitt (1999) each analyze different approaches to organization, flow management, reducing spending, and increasing profitability in theme parks. Authors Bukatman (1991), Carson (2004), Cornell (2003), Correa de Jesus (1994), Hench (2008), Jeffers (2004), Kurtti (2008), Rafferty (1996), and Veness (2009) evaluate design concepts in themed environments such as wayfinding, the emotional effects of color on a space, visual storytelling, sense of place, and space planning. Figure 3-1 illustrates how the review of the literature influenced the method used for data collection, the overarching topics for discussion, and the types of users being observed.

Drawing upon this current body of knowledge, the analysis of the design of two theme park queues utilized systematic and casual observations as methods for collecting data. Studies by Larson (1987) and Maister (1985) have analyzed how altering the perception of waiting can influence the levels of customer satisfaction while waiting. Therefore, the hypothesis was that guests would be willing to wait longer in queue lines offering waiting time fillers, such as visual storytelling elements or hands-on, interactive activities. Similarly, it is hypothesized that the perceived wait would seem shorter in queues with an interactive or visual storytelling queuing environment.
Studies by Antonides (2002), Carson (2004), Larson (1987), and Tom, Burns, and Zeng (1997) found that music offered while waiting in line created a more positive waiting experience than lines without music. Since the visual storytelling queue for this study offers music from the movie score while waiting, it is appropriate to propose that guests would positively associate the music to nostalgic attachment to the movie. This could impact their perception of a more positive waiting experience. It was further hypothesized that guests waiting in a queue line with visual storytelling elements would
respond to the physical environment, paying closer attention to architectural, creative, and story-based details around them.

**Research Design**

This study is a characterization of the queue lines of the TT and HPFJ attractions exploring how the physical environments of a queue line can impact the overall guest experience. To best answer the research questions for this study, qualitative research was selected as a preferred research approach. Qualitative research offers a richness of data and better understanding of subtle differences that cannot be attained through quantitative data. This study consists of a multiple-case descriptive case study. Case studies, a type of qualitative research, allow in-depth exploration of issues from the perspective of those affected by it. Case studies draw their strength by collecting data from multiple sources which are then triangulated to identify congruent information. In this study this method of research supports the use of multiple and different observers. Yin (2014) describes using a linear-analytic structure for descriptive case studies. With this structure, multiple subtopics may be explored in an attempt to characterize different types of queuing environments. Using a multiple-case descriptive case study as a method of research, the data may potentially reinforce the validity of the study. These findings can be seen as applicable to other queue lines with similar environmental qualities, and design recommendations will be suggested to create successful waiting environments which may increase guest satisfaction.

The purpose of this study is to characterize successful strategies for current trends in theme park design. In order to characterize these queuing environments, the physical environments were explored to determine how they could impact the overall guest experience. The criteria used for this characterization were established in three
categories which include the overall storyline of the queue line and attraction, the physical features in the queue, and the behaviors of guests waiting in line. Figure 3-7 illustrates how these elements were broken down in the observation forms.

Figure 3-2. Physical and behavioral qualities observed by participants.
The observation forms used by participant observers are illustrated in Appendix C, with a more detailed listing of the categories observed in the study. These criteria was established through preliminary field research by the researcher and by referencing key themes presented in the literature by Ahmadi (1997), Brady and Cronin (2001), Hench (2008), and Larson (1987). Each of the theories currently established by these researchers in the fields of psychology and business were used to inform the construct of the observation forms in an attempt to extend these theories to design.

Unfortunately, it was not possible to get approvals from The Walt Disney Company® and Universal Studios® to collect data using surveys or other instruments that may impact the overall guest experience at their theme parks. Even if other approaches had been taken with Disney's and Universal's approvals, the data may have been skewed since participants would be trying to enjoy their parks visits rather than giving information on the experience. The data collection method used in this case study was participant observation. As elaborated below, the participants (observers) were selected to represent a diversity of perspectives. The data collected through these means was subject to a simple content analysis to extract triangulated emergent themes and to establish their relative importance based on recurrence.

Case Selection

The two attractions selected for research, Test Track® Presented by Chevrolet® (TT) at WDW and Harry Potter and the Forbidden Journey™ (HPFJ) at UO, represent two different types of queue lines. These attractions provided new technology and a new approach to queuing environments at their respective locations. WDW and UO are both leaders in the theme park industry, so their newest attractions served as a starting point for observing new guest experiences. TT was selected to test the success of
including hands-on, interactive activities for guests waiting in line. Referencing the research by Larson (1987) on waiting time fillers as method to reduce perceived wait times and increase customer satisfaction, this concept was a key component in the design of TT. HPFJ was selected to test the use of visual storytelling in an immersive story-based queuing environment. Research by Cross (2006) and Hench (2008) suggested the importance of sensory information and emotional attachment in telling a story. These details are present in the HPFJ queuing environment. The two attractions were also selected as cases for investigation because they each offer visual storytelling and interactive elements, but they are experienced by guests in different ways.

**Participants**

For this study, 10 participant observers collected data via systematic observations in two theme park attraction queue lines. Each of the participants, further referred to as observers, participated voluntarily and anonymously. The data obtained from the observations was gathered to gain feedback on guests’ perceptions of the waiting environments for TT and HPFJ. With thousands of guests visiting the Epcot® and IOA parks each day, it would not be possible to contact each person individually for this study. Rather, the observers for the study characterize a typical group of guests that would visit a theme park and experience attractions such as TT and HPFJ. Guests visit these theme parks from all over the world, with all different age ranges, interests, backgrounds, and group sizes. Therefore, it was important that participants in this study reflect a wide range of guests that might experience these attractions, to reflect a typical guest audience. It is the diversity of the participant observers that lends strength to the findings. In this case, the study population represents all theme park guests that experience the TT and HPFJ attractions. Kumar (2005) describes samples as the
"process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group) (p.164). The 10 observers that participated in the study represent a sample of the population. Each participant observer offers a unique perspective for analyzing the current queuing environments. The different observers bring in their own assumptions and preferences and thus, even if involuntarily, offer a depth of information from their observations. The findings of this study therefore require triangulation for analysis. Involving 10 observers allows for the opportunity to make comparisons among the data collected, triangulating the findings to avoid any bias. For instance, the data collected from observations on the physical environment can be used to link findings associated with specific details on architectural elements, such as millwork, space planning, and adjacencies.

Research Setting

Two theme park attraction queue lines represent the context and site for gathering data for this study. Both queue lines are located in theme parks in Orlando, Florida. The first location is an attraction located in Epcot® at the WDW resort: Test Track® Presented by Chevrolet® (TT).

Test Track®

Placed in Future World, one of the two areas within Epcot®, Test Track® opened in its original form on March 17, 1999, at that time sponsored by General Motors®. The attraction closed in April of 2012 to be re-imagined to include a more interactive experience that parallels Chevrolet's current design process. This new experience opened on December 6, 2012. The queue line experience at TT is unique and relevant to this study, as it allows guests the opportunity to engage in interactive activities that
introduce the overall concept of the attraction, becoming an important part of the whole ride experience. When guests first enter the TT show building, they are introduced to the four key attributes that Chevrolet® designers use when developing new concept vehicles: capability, efficiency, responsiveness, and power. After this introduction to


Chevrolet's design process, guests are ushered into the Design Center, where they are given the opportunity to create their own concept vehicles. By swiping their personal RFID cards at the kiosks inside the Design Center, guests are able to customize the shape, color, size, graphics, wheels, engines, spoilers, and more on their own concept vehicles. After guests complete their designs, riders swipe their RFID cards again before boarding the attraction. The ride vehicle then serves as a sim car testing the
performance of the custom designs through a series of assessments on the test track. Upon exiting the attraction, guests can continue the experience with more interactive experiences in a space showcasing both the guests’ own custom designs and the capabilities of the Chevrolet® brand. In the post-show, the RFID cards can be used to see how the concept vehicles performed against one another and the sim car, to create commercials for the concept vehicles, and to test drive the vehicles on digitally projected driving tables.

Figure 3-4. Guests waiting to enter the Design Center begin the design process by drawing a line to create the basic form of a vehicle. Source: http://preschoolears.com/blog/test-trackredesigned/screenkids/
Figure 3-5. Guests in the Test Track® Design Center create their own vehicles to test with the "sim car" in the attraction and for interactive post-show activities. Source: http://www.mlive.com/auto/index.ssf/2012/12/video_experience_chevys_newly.html

TT offers guests the option of both a traditional standby-line and a FASTPASS® line. Since the FASTPASS® option bypasses most of the Design Center activities, cast members provide these guests with a quicker, simpler version of the experience.

Harry Potter and the Forbidden Journey™

The second location is an attraction located within the Islands of Adventure® park at the UO resort, Harry Potter and the Forbidden Journey™ (HPFJ). This attraction is placed within Hogwarts™ castle in The Wizarding World of Harry Potter™, one of the "islands" within the park.
For this attraction, guests have the opportunity to choose between three different queue lines upon entering the castle: a traditional FCFS queue, a single riders queue, and a "castle tour" walkthrough queue. The interior of the castle has become an attraction in and of itself. The castle tour offers Harry Potter™ enthused guests the opportunity to walk through the "School of Witchcraft and Wizardry." This was created to ensure that all guests would have the opportunity to view the interior of the castle, regardless of their desire or ability to experience the end attraction. In this case, it is quite evident how
important the design of the queue line becomes in telling a piece of the story, serving as a preshow to the attraction. To create "magical enchantments" that occur on the tour of Hogwarts™ castle, the queue line for HPFJ uses animatronics, projectors, and other special effects to simulate characters speaking to guests, snow falling on guests, moving pictures that talk and shift, and other magical encounters and spells that tell the story of Harry Potter™.

Figure 3-7. Hogwarts™ castle, the exterior of Harry Potter and the Forbidden Journey™ attraction. (Photo courtesy of Sarah Burkhardt)

Since each of the two attractions being analyzed are bringing to life beloved storylines, characters, and nostalgia, it was important for designers to stay consistent in terms of both their form and their identity. Test Track® and Harry Potter and the Forbidden Journey™ were each designed in such a way that is meant to honor character integrity, while immersing guests in the story idea. Hench (2008) noted that "Walt [Disney] knew that if details are missing or incorrect, guests won't believe the
story, and that if one detail contradicts another, guests will feel let down or deceived" (p. 78). TT and HPFJ are each an example of queues that offer immersive queuing experiences. Noted differences between the two include the fact that TT provides guests with a more hands-on interactive queuing environment, while HPFJ offers waiting time fillers through technologically advanced visual storytelling elements. Each of these queues was a first-of-its-kind for their theme parks, respectively, so both attractions are significant precedents to study for future design recommendations.

Data Collection

Preliminary Field Research

As a first step towards data collection for this study, the researcher conducted multiple site visits to each of the two attractions being examined for this study. These visits were important to assess how guests moved through the queue lines, the types of waiting environments they move through, and the types of waiting lines, waiting time fillers, and experiences made available to guests while they wait. The researcher created a pictorial essay at the end of this chapter, with Figures 3-8 through 3-34 providing a walk-through documentation of the waiting line environments and experiences as seen through the eyes of a guest experiencing each of the two attractions. In accordance with the review of the literature, this field research led to the development of the observation forms used by participants in the study. The queue for TT has three queue line options for guests to experience the attraction: a traditional standby queue that follows Larson's FIFO method, a single rider line that allows guests to have shorter waits by filling in any open seats in the ride vehicles, and FASTPASS® tickets, which reserve time slots for guests to return to ride the attraction with little to no wait at a later time in the day. The HPFJ queue has two queue line options: a traditional
standby queue that follows the FIFO method or a line called the "castle tour," which allows guests to walk through the Hogwarts™ castle but not ride the attraction at the end. Based on these varying conditions between the two attractions, observation forms were developed to allow participants to observe and record data while waiting in the standby queue lines at each attraction. Further, space was provided for all participant observers to comment on the other types of queuing experiences available at each attraction. The observation forms used for data collection can be found in Appendix C.

Pilot Study

To begin data collection, a pilot study was conducted to confirm the use of the proposed observation forms for use by the participant observers. Yin (2014) defines a pilot case study as "a preliminary case study aimed at developing, testing, and or refining the planned research questions and procedures that will be later used in the formal case study" (p. 240). One of the participant observers volunteered to participate in this pilot study. First, the researcher reviewed the observation forms with the participant observer to ensure he/she understood all of the terminology and the type of information being requested. When briefing the participant observer, the main concern was to explain that all he/she was not to comment on his/her own perceptions of how well the queues were designed or how the experiences made him/her feel. Rather, the participant observer was asked to observe the physical qualities of the queues and the behaviors of guests waiting in line. The participant observer in the pilot study conducted casual observations of how theme park guests experienced the waiting environments at each attraction, documenting how they engaged their environment and one another while waiting. The pilot study participant observer was also asked to carefully document
physical qualities observed in the queue, noting design considerations such as lighting, acoustics, and materiality.

**Participant Observations**

After the successful completion of the pilot study, qualitative data was collected by all 10 of the participant observers. Similar to the pilot study, each participant observer was asked to conduct two observations of user behaviors in theme park attractions (rides) in Central Florida. The observers carefully examined two attraction waiting lines, each one from a different theme park: Epcot® at WDW and Islands of Adventure® at UO. In an effort to have the data collected around the same times of day, participants were asked to observe each attraction on the same day, beginning with TT at Epcot® and then going to HPFJ at Islands of Adventure®. All participant observers were briefed in the same way as was conducted in the pilot study. In addition to noting what observers did see in their immediate surroundings, they were also asked to note anything they had expected to see, but did not see naturally occurring (Sommer & Sommer, 2002). All observations occurred in as natural of a setting as possible so participants could take notes in an unobtrusive manner, reflecting the method all participant observers in the study would be participating in the queuing environment with guests. Given that guests of all ages frequent theme parks, participant observers would also be asked to note the behaviors of different age groups' response to the different types of queuing environments and to pay attention to non-verbal cues in the environment as well.

After waiting in the standby line and documenting their observations, participant observers were asked to ride the attraction and reflect on how guests seemed to respond to the wait's observed impact on the overall experience. Upon completion of
the queuing experience and riding the attraction, the observers were asked to note any suggestions for improving the queues in terms of place attachment and flow management, while also seeking to limit feelings of crowding, "empty time," and "slips and skips" in line. These observations examined how guests responded to the physical qualities of the queuing environment. The goal of these systematic observations was to suggest ways for evolving current design solutions and allowing for new improvements

**Data Analysis**

The information provided by participant observers in the observation forms was analyzed to extract emerging themes and recurrences. Observations from each of the ten participants—pertaining to the visual storytelling and physical qualities of the queue environment, as well as guest behaviors—were collected into a matrix for ease of visualization. The data was canvased for congruent and recurring information, allowing identification of emergent themes. Occurrences, individual instances in which a theme-related issue was raised by a participant, were counted and recorded as an indicator of the relative importance among the different themes. The most important themes captured from this matrix were referenced back to the literature to examine specific links to the findings. Finally, any additional notes made by participant observers on their own perceptions of the waiting experiences were examined in greater detail and triangulated with the findings. As a result of this data analysis, it was possible to draw the strengths and weaknesses of each queue line as observed by participants. Chapters 4 and 5 illustrate the findings of the study, discuss the significance of the findings, and propose new questions and design considerations for future research.
Limitations

Several assumptions underlie this study. First, it is assumed that each participant conducted his or her observations during normal operating conditions as requested. Second, this study focuses specifically on theme parks in the WDW resort and UO area. It is therefore assumed that participants represent a range of typical theme park guests whose perceptions capture diverse viewpoints on the other guests’ behaviors and satisfaction with the queuing environment.

The limited the number of participants is also a limitation of this study. Ten participants conducted systematic observations to test the guest queuing experience at two Orlando theme park attractions. Although the sample size was small, the observers gathered rich in-depth qualitative data that contributed to the study’s findings. This exploratory study attempts a first examination of this issue, about which there appears to be no literature. A sample size of 10 participants allows an adequate first approximation to the issue. For greater validity and reliability, however, the study should eventually be repeated with a larger observer pool. The study additionally acknowledges as a limitation of this study that tendencies to choose interactive environments or visual storytelling over one another could depend mostly on the individual experiencing the queue and his or her personal opinion of what is entertaining to them. Future research might be well served by taking into account personality characteristics that may impact observer preferences.

Pictorial Essay of Research Setting

Figures 3-8 - 3-22 create a pictorial essay of the overall queuing environment and experiences at Test Track® Presented by Chevrolet® in Epcot® at the Walt Disney World® Resort.
Figure 3-8. The four design attributes in the Test Track® showroom part of the queue. (Photograph courtesy of author, Beth Burkhardt)

Figure 3-9. Concept vehicle on display in the Test Track® queue. (Photograph courtesy of author, Beth Burkhardt)
Figure 3-10. Switchback queue around concept vehicle and video screen describing concept for vehicles in the future. (Photograph courtesy of author, Beth Burkhardt)

Figure 3-11. Graphics highlighting Chevrolet's design process. (Photograph courtesy of author, Beth Burkhardt)
Figure 3-12. Entry to Chevrolet® Design Center at Epcot®, which offers two interactive studios (A & B) in which guests design their own custom vehicles. (Photograph courtesy of author, Beth Burkhardt)

Figure 3-13. Guests enter Design Center and approach touch screen kiosks for designing custom vehicles. (Photograph courtesy of author, Beth Burkhardt)
Figure 3-14. Child begins the vehicle design process at the touch screen kiosks in the Design Center. A) Design begins with a curved line. B) Design attributes are added into the design, as well as playing with the aesthetics. (Photographs courtesy of author, Beth Burkhardt)
Figure 3-15. Guests of all ages collaborate in the Design Center. (Photograph courtesy of author, Beth Burkhardt)

Figure 3-16. Guests view final designs before proceeding to the ride. (Photograph courtesy of author, Beth Burkhardt)
Figure 3-17. Guests complete custom vehicle designs and are instructed to move to vehicle testing (the ride). (Photograph courtesy of author, Beth Burkhardt)

Figure 3-18. Guests scan their RFID cards before boarding the ride so their vehicles will be displayed throughout the ride experience. (Photograph courtesy of author, Beth Burkhardt)
Figure 3-19. Guests board the Test Track® ride vehicles. (Photograph courtesy of author, Beth Burkhardt)

Figure 3-20. Guests scan their RFID cards for post-show activities, such as creating commercials for their custom vehicle designs. (Photograph courtesy of author, Beth Burkhardt)
Figure 3-21. Guests can watch their personalized commercials and then email them to share with friends. (Photograph courtesy of author, Beth Burkhardt)

Figure 3-22. After scanning RFID cards, guests can race vehicles on a projected light table with steering wheel stations. (Photograph courtesy of author, Beth Burkhardt)
Figures 3-23 - 3-34 create a pictorial essay of the overall queuing environment and experiences at Harry Potter and the Forbidden Journey™ in Islands of Adventure® at the Universal Orlando® Resort.

Figure 3-23. Entrance to Harry Potter and the Forbidden Journey™, with Hogwarts™ castle towering over the Wizarding World of Harry Potter™. (Photograph courtesy of author, Beth Burkhardt)

Figure 3-24. Entrance to Harry Potter and the Forbidden Journey™ queue. (Photograph courtesy of author, Beth Burkhardt)
Figure 3-25. Entrance to Hogwarts™ castle and locker storage for the HPFJ queue. (Photograph courtesy of author, Beth Burkhardt)

Figure 3-26. Mirror of Erised, one of the Harry Potter™ movie elements. (Photograph courtesy of author, Beth Burkhardt)
Figure 3-27. Dumbledore's office with character projection and props from the movies. (Photograph courtesy of author, Beth Burkhardt)

Figure 3-28. Architectural details and interior finishes bring castle theming to life. (Photograph courtesy of author, Beth Burkhardt)
Figure 3-29. Guests photographing show elements in the defense against the dark arts classroom. (Photograph courtesy of author, Beth Burkhardt)

Figure 3-30. Projections of Harry, Ron, and Hermione entertain guests in the defense against the dark arts classroom. (Photograph courtesy of author, Beth Burkhardt)
Figure 3-31. Bulletin board leading to the Gryffindor™ common room part of the HPFJ queue showcases movie elements and props. (Photograph courtesy of author, Beth Burkhardt)

Figure 3-32. Gryffindor™ common room. (Photograph courtesy of author, Beth Burkhardt)
Figure 3-33. Castle theming with stone archways leading to ride boarding in the room of requirement. (Photograph courtesy of author, Beth Burkhardt)

Figure 3-34. Sorting hat audio-animatronic cautions guests about ride restrictions and health warnings before boarding the ride. (Photograph courtesy of author, Beth Burkhardt)
CHAPTER 4
FINDINGS

This chapter examines how guests respond to visual storytelling and interactive designs in the TT and HPFJ queue lines. The research from this study focused on answering two operational research questions:

1. How does the physical design of a theme park attraction queue line impact guests' willingness to wait and contribute to a positive experience? (i.e. spatial layout, furnishings, theming, etc.)

2. How do the behaviors of guests waiting in line reflect their engagement and interest in their environment?

In answering these questions, this chapter reviews the findings of ten voluntary participants, who each documented the observed physical qualities of two queue lines at attractions at Epcot® in WDW and Islands of Adventure® at UO, as well as observed queue guest behaviors. The data collected from participant observers is presented as it pertains to answering these questions, seeking to explore how theme park guests waiting in line for an attraction respond to hands-on interactive environments versus traditional waiting time fillers and to evaluate which design variables positively influence the level of guest satisfaction.

Test Track®

Research Question One

This research question seeks to determine the way participant observers perceived the physical environment of the two queuing experiences impacting guests' eagerness or reluctance to wait in line for the attractions. Observations pertained to the physical environment surrounding the waiting lines for the attractions. The items on which observers recorded data at TT and HPFJ refer to physical features and qualities of the attraction's built environment. These include theming, architectural elements,
interior finishes and materials, props, artwork, projections, animatronics, graphics, television, music, technology, characters in the story, special effects, lighting, noise level, temperature, indoor or outdoor environment, and cleanliness. Refer to Figure 3-7.

Table 4-1 serves as an assessment of the main themes at TT that were perceived to impact guests’ willingness to wait in line to experience the attraction.

Table 4-1. Assessment of physical qualities impacting guests' willingness to wait: Test Track®.

<table>
<thead>
<tr>
<th>Themes emerging from content analysis</th>
<th>Physical qualities listed by observers</th>
<th>Occurrences by observers (n=166)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiting time fillers</td>
<td>Use of technology to illustrate design concepts with hands-on activities involving touch screen monitors</td>
<td>45</td>
</tr>
<tr>
<td>Visual storytelling</td>
<td>Physical environment brings story to life</td>
<td>24</td>
</tr>
<tr>
<td>Environmental comfort</td>
<td>Physical qualities such as temperature, lighting, noise levels, and cleanliness impact the guest level of comfort</td>
<td>21</td>
</tr>
<tr>
<td>Authenticity</td>
<td>Architectural elements, interior finishes, special effects, and props relating directly to the story create a sense of authenticity to the overall story of the attraction</td>
<td>15</td>
</tr>
<tr>
<td>Branding</td>
<td>Showcasing the capabilities of the Chevrolet® brand quality as a company identity and marketing technique to create place identity</td>
<td>15</td>
</tr>
<tr>
<td>Televisions</td>
<td>Television screens and displays all modern shapes and sizes to fit overall futuristic theme of the environment</td>
<td>11</td>
</tr>
<tr>
<td>Show lighting</td>
<td>High light levels with blue accent lighting along graphics, architectural design lines, and throughout the space</td>
<td>9</td>
</tr>
<tr>
<td>Graphics</td>
<td>Modern graphic design carries overall theme through all signage, displays, and screens</td>
<td>9</td>
</tr>
<tr>
<td>Music</td>
<td>Futuristic musical score to create instrumental atmospheric music to inspire creativity</td>
<td>9</td>
</tr>
<tr>
<td>Characters in the story</td>
<td>Chevrolet® designers serve as characters telling the story of the attraction</td>
<td>8</td>
</tr>
</tbody>
</table>

*Occurrences refer to the number of times participants noted observations

*Number of participants=10
The highest rated items included waiting time fillers (45 occurrences), visual storytelling (24 occurrences), environmental comfort (21 occurrences), authenticity (15 occurrences), and branding (15 occurrences). In addition, Figure 4-1 illustrates the percentages of all physical environment theme occurrences. The level of impact these five themes have on the guest experience is explored in more detail below.

**Waiting time fillers.** As illustrated in Figure 4-1, waiting time fillers were the highest cited reoccurring physical environment theme in the TT queuing environment with 45 occurrences (27%).

![Distribution of responses for physical qualities at TT, n=166](image)

Figure 4-1. Distribution of responses for physical qualities at TT, n=166
Larson (1987) defined waiting time fillers as distractions for customers waiting to receive service with the goal of eliminating wasted, empty time while waiting in line. Guests waiting in line at TT were provided with time fillers while waiting to experience the attraction. The use of technology as a waiting time filler in the TT queue was the most reoccurring theme generated from the observations. Seven participants noted that this queue was comprised of two main parts: 1) a traditional visual storytelling walkthrough that explains the vehicle design process used by Chevrolet® designers and highlights four key design attributes; and 2) an interactive hands-on experience that prompts guests to design their own vehicles to later test with the 'sim car' which is based on the four attributes from the first part of the queue. Participant 1 noted that in the first part of the queue guests seemed more anxious to get to the ride, while in the second part of the queue guests seemed to be having so much fun that they forgot they were in line. All ten participant observers noted that guests that had seemed uninterested in the first part of the queue seemed engaged in part two.

Figure 4-2 shows the distribution of responses for each type of waiting time filler noted by participant observers. In the visual storytelling part of the queue line, the most popular waiting time filler, with 13 occurrences (29% of all waiting time filler occurrences), was a vehicle speed form with video projections that explained the early stages of concept development. Sketches by Chevrolet® designers and ideas presented by children were displayed on the speed form and narrated with voiceovers and video screens. Several participant observers noted that this was their favorite non-interactive part of the queue for themselves and other guests waiting in line.
Participant2: Kids really seemed to react the most to the projected car in the queue, especially when it showed sketches and designs developed by other children.

Participant8: My favorite part of the queue was a video of kids and designers talking about their ideal car design and their ideas were projected onto a car.

Distribution of responses for waiting time fillers at TT, n=45

![Pie chart showing distribution of responses for waiting time fillers at TT, n=45]

Touch screen kiosks: 58%
Projections on speed form: 29%
Videos: 13%

Figure 4-2. Distribution of responses for waiting time fillers at TT, n=45

As indicated above in Figure 4-2, the touch screen kiosks in the design center were found to be the most engaging waiting time fillers for all ages of guests waiting in line with 26 occurrences (58%).

Reflecting on the overall experience, participant 9 suggested improvements to the current waiting time fillers provided in the TT queue.

The visual storytelling seems great at first but guests seem to lose interest quickly, especially as the video loop is too short to sustain the length of time guests are in the space. Either there needs to be longer video loops or
more interactivity- even more touch screens would help. Ideally, kinetic and hands-on experiences are the best.

Visual storytelling. Although most participant observers noted the high level of technology-driven design details in the Test Track® queue, visual storytelling was the second most observed theme emerging from the queuing experience data with 24 occurrences (15%). All ten participants described the physical design of the queue experience as "futuristic" with "modern design" details and noted story elements as impacting the guest experience. However, participant observers had mixed findings in regard to their observations of the visual storytelling elements at TT. Four participants observed getting bored with the visual storytelling elements over time, while four other participants observed elements serving as a positive factor in the wait experience. Participant 2 commented on the link between the visual storytelling elements in the queue and the ride itself.

Guests seemed very interested in the visual storytelling elements offered in the line. The technology presented options for the guests on their ride. Even though they are not physically riding in the cars they designed, there was some excitement to see how the cars would perform with the four major test presented throughout the queue (power, capability, responsiveness, efficiency).

Participant 6 perceived the experience quite differently. He/she observed many guests seeming uninterested in the visual storytelling elements in the queue.

The guests looked interested in the visual storytelling elements at first, but then were talking and looking at their phones because the majority of the wait didn’t have anything interactive. Nobody was really looking at the TV screens all that much.

Table 4-2 highlights details perceived by participant observers on the physical environment’s contribution to the overall story of the attraction.
Table 4-2. Select observations: visual storytelling in Test Track®.

<table>
<thead>
<tr>
<th>Observer</th>
<th>TT physical environment: visual storytelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 2</td>
<td>&quot;You're designing a vehicle and testing its performance on a test track for power, capability, responsiveness, efficiency. The story takes you through the experience of hypothetically design a vehicle for the future. The ride immerses you in a futuristic world.&quot;</td>
</tr>
<tr>
<td>Participant 4</td>
<td>&quot;The attraction takes you through an interactive process where you view prototype cars of the future, then design your own car, and then take your design on a test run. Your design is rated compared to other designs.&quot;</td>
</tr>
<tr>
<td>Participant 5</td>
<td>&quot;The queue line seemed to be very well polished and put together. The whole atmosphere with the music, displays, and props made it look very interesting and futuristic. The attraction continued on with the story of designing your car. After you designed your car, the ride allowed you to test it in the four areas to focus on: power, efficiency, capability, and responsiveness.&quot;</td>
</tr>
<tr>
<td>Participant 6</td>
<td>&quot;The four elements- capability, efficiency, power, and responsiveness- were introduced in line and followed up in your own design and then tested on the actual ride. Chevrolet was featured the whole duration.&quot;</td>
</tr>
<tr>
<td>Participant 8</td>
<td>&quot;The story is that you are entering the Chevrolet Design Studio at Epcot, learning about the designing and creating of vehicles, creating your own vehicle and then testing the vehicle. The ride is a continuation of the queue. Also, following the attraction, the story continues in a large vehicle showroom.&quot;</td>
</tr>
<tr>
<td>Participant 9</td>
<td>&quot;The queue speaks to what goes into the design of a vehicle, then lets the guest participate in the design. The ride then tests that design against a &quot;sim car,&quot; which feels a bit more generic.&quot;</td>
</tr>
</tbody>
</table>

Environmental comfort. Participant observers documented 21 occurrences (13%) where environmental comfort impacted the guest experience in the queue line at TT. Further, the perceived level of environmental comfort seemed to have a direct link to the amount of time guests were waiting in line to experience the attraction.

Observations conducted with waiting times of 45 minutes or less reflected a positive guest experience, with many people commenting on how nice it felt to be in air conditioning indoors (9 occurrences), how clean the space was for a theme park (7 occurrences), and bright lighting for viewing all of the vehicle displays and technology throughout the space (6 occurrences). The general consensus among participant
observers watching guests at peak times with longer wait times was that over time the environment became uncomfortable. Several factors were attributed to this, including a lack of designated places to rest or sit in line (12 occurrences), a very slow moving pace (8 occurrences), a moderate to loud noise level (4 occurrences), and short video and audio loops (3 occurrences). Four participant observers documented guests sitting on the floor in the queue or leaning against railings, often complaining about the slow movement of the line. Some guests experiencing high wait times, and most with young children left the line once it become relatively stagnant. Table 4-3 lists several guest comments overheard by participant observers during high wait times.

Table 4-3. Select observations: guest comments overheard at Test Track® during high wait times.

<table>
<thead>
<tr>
<th>Wait time</th>
<th>Guest comments in line</th>
<th>Observed guest</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 minutes</td>
<td>&quot;I just wish we were on the ride already.&quot;</td>
<td>Young girl</td>
</tr>
<tr>
<td>45 minutes</td>
<td>&quot;Is the wait actually going to be as long as it shows posted?&quot;</td>
<td>Adult male and female</td>
</tr>
<tr>
<td>80 minutes</td>
<td>&quot;We've been waiting too long.&quot;</td>
<td>Young adult woman</td>
</tr>
<tr>
<td>80 minutes</td>
<td>We'll never get to the end of this line.&quot;</td>
<td>Young boy</td>
</tr>
<tr>
<td>80 minutes</td>
<td>&quot;I don't mind waiting, just not when it's a dead stop like this.&quot;</td>
<td>Adult woman</td>
</tr>
</tbody>
</table>

**Authenticity.** As a part of visual storytelling, the authenticity of the queuing environment emerged as a main theme among observations, with 15 occurrences (9%). Observers noted that guests perceived the story of the TT queuing experience as a visit to a vehicle factory or testing facility. The most common physical qualities participant observers documented as creating a sense of authenticity with the design concept were graphics and artwork (7 occurrences), interior finishes and materials (4 occurrences), and lighting (4 occurrences). Figure 4-3 further illustrates the distribution of physical qualities impacting the perceived level of authenticity.
Eight participant observers noted that "everything about the experience felt very high-tech." Special effects using projectors, lasers, fog, and black lighting enhanced these physical qualities with a "futuristic" sense of authenticity. The props used throughout the TT queue were real vehicles, concept cars, and vehicle parts. Participant 4 perceived the overall design as inspiring creativity and immersing guests with the design experience Chevrolet® designers use when developing new vehicle concepts.

As you wait in the line you are immersed in design info about car design-speed, agility, power, etc. The theme is consistent throughout. The initial wait line walks you through models on display. They look like nothing ever seen before- new concept designs. The posters on the wall describe elements to design a car. So when you enter the design studio you know what to do and have been inspired to be creative. The architectural elements in the showroom design showcases were futuristic, well lit, colorful, and eye catching.

**Branding.** The fifth theme emerging from the data on the physical qualities was branding with 15 occurrences (9%). In storytelling environments, place identity often allows for another level of connection to a story or theme. In TT, guests saw the concept
of identity in the form of Chevrolet's company branding showcased throughout the experience with artwork and graphics displaying the design process, videos of Chevrolet® designers, and Chevrolet® logos on vehicles. Chevrolet® used branding techniques throughout the queuing environment, on the ride vehicles, during the ride, and post-show in a vehicle showroom. Guests could even purchase Chevrolet® vehicles in the post-show room if they so desired. Three observers documented this finding. Participant 2 noted that the queue felt "more like an automotive museum" than a traditional waiting line. Participant 4 commented on her perceptions of the queuing experience at TT:

[The queue] makes me wonder if we could go to a Chevrolet showroom one day soon and design our own personal car and order one to our own specifications right from the computer. That would be awesome! I overheard a boy (approximately 10-12 years old) say that he wanted to get a Chevrolet when he gets a car; they're cool. So the queue was good marking info for the sponsor.

Participant 7's perception of the way Chevrolet's branding impacted the overall experience was not quite as positive. "TT felt more like a Chevrolet® commercial, which gave guests less of an emotional connection to the story."

In accordance with these findings, seven of the participant observers did note Chevrolet's branding as impacting the guest experience. Although most guests seemed very interested with the aesthetics of the queue upon entering the space, most of the observations concurred with participant 7's note on the absence of an emotional connection to the story. Five participant observers perceived guests as apparently not being strongly connected to the story, attributing those findings to TT being designed to represent a brand rather than a familiar story. At TT, seven participant observers noticed that guests gradually became disinterested in the physical qualities when the
guest flow pace in the queue was reduced. According to participant 6, "at first everyone was really interested, taking pictures and pointing, but after about ten minutes everyone was either talking or on their phones."

**Research Question Two**

This question addresses perceived behaviors of guests waiting in line at the TT queuing experience. Observations pertained to the actions of guests and how they appeared to respond to the physical environment and to others while waiting. The items on which observers recorded data at TT included flow/pace of the waiting line, interactive elements, guest participation, opportunities to rest or sit, talking in line, guest' interest in the environment, guests' response to visual elements, guests' response to interactive elements, perceived wait times, and the perceived level of satisfaction by children waiting in line, as referenced in Figure 3-7.

Table 4-4 serves as an assessment of the main themes that emerged from a content analysis of the guest behaviors at TT.

<table>
<thead>
<tr>
<th>Themes emerging from content analysis</th>
<th>Guest behaviors listed by observers</th>
<th>Occurrences by observers (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive experiences</td>
<td>An experience that provides guests with the opportunity to become an active participant in their environment taking place in real time through the use of technology, theming, or storytelling.</td>
<td>70</td>
</tr>
<tr>
<td>Guest Participation</td>
<td>The level of engagement guests have in their environment or in activities with the queue or other guests waiting in line.</td>
<td>55</td>
</tr>
<tr>
<td>Guest age and gender</td>
<td>The level of engagement and preferences for interactivity were perceived by participant observers as being varied among different ages and genders of guests.</td>
<td>26</td>
</tr>
</tbody>
</table>
Table 4-4. Continued.

<table>
<thead>
<tr>
<th>Themes emerging from content analysis</th>
<th>Guest behaviors listed by observers</th>
<th>Occurrences by observers (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived wait times</td>
<td>The time guests believe the actual wait time feels like it takes to reach the attraction.</td>
<td>16</td>
</tr>
<tr>
<td>Flow/pace of queue</td>
<td>The speed or movement of guests throughout the queue.</td>
<td>15</td>
</tr>
<tr>
<td>Talking in line</td>
<td>Guests observed talking in line among one another about the queuing experience and the attraction</td>
<td>12</td>
</tr>
<tr>
<td>Opportunities to rest/sit</td>
<td>Guests observed sitting in areas not designed for resting in the queue while waiting</td>
<td>9</td>
</tr>
</tbody>
</table>

*Occurrences refer to the number of times participants noted observations
*Number of participants=10

The highest rated themes emerging in regard to guest behavior included interactive experiences (70 occurrences), guest participation (55 occurrences), guest age and gender (26 occurrences), perceived wait time (16 occurrences), and the flow/pace of the queue (15 occurrences). Figure 4-4 illustrates the percentages of all theme occurrences for guest behaviors at TT. The level of impact these five themes have on the guest experience is explored in more detail below.

**Interactive experiences.** As Figure 4-4 suggests, out of the total number of guest behaviors observed, 70 occurrences (35%) identified interactive experiences as impacting the queuing environment at TT. An interactive experience was defined as any experience that provides guests with the opportunity to become an active participant in their environment taking placing in real time through the use of technology, theming, or visual storytelling (Malmberg, 2010; Hench, 2008). The TT queue used technology throughout the entire experience, with the use of projectors, televisions, touch screens, and Radio Frequency Identification (RFID) cards. In TT, guests had the opportunity to design their own vehicles with RFID cards in the Epcot® Design Center. The RFID
cards allow guests to bring their vehicle designs on the ride with them to see how their vehicle compares to other guests’ designs in four different performance areas: 1) power, 2) efficiency 3) responsiveness, and 4) capability. Participant observers noted that guests were excited to continue to use their vehicle designs with their RFID cards for post-show activities, including the ability to make a commercial for their vehicle, "test drive" their vehicle on a projected racing table, and take photos with different backdrops and Chevrolet® vehicles in the post-show showroom. Table 4-5 illustrates how participant observers perceived guests responding to these interactive experiences at TT. Findings indicate that interactive experiences were positively received by guests.
Table 4-5. Select observations: interactive experiences in Test Track®.

<table>
<thead>
<tr>
<th>Observer</th>
<th>TT interactive experiences and technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 2</td>
<td>&quot;In the Design Center, every member in each group seemed involved with designing cars on the touch screens. People were engaged in the team decision making process of it. The technology presented options for the guests on their ride. Even though they are not physically riding in the cars they designed, there was some excitement to see how the cars would perform with the four major tests presented throughout the queue (power, capability, responsiveness, efficiency).&quot;</td>
</tr>
<tr>
<td>Participant 4</td>
<td>&quot;The wait line and the attraction are totally related because the design you create comes up visually when you scan your key card at 2-3 areas during the attraction. After the ride you can continue the interactivity with your own design by making a commercial with your car and email it to yourself or anyone else. This is the most interactive attraction/ride I've ever been on.&quot;</td>
</tr>
<tr>
<td>Participant 5</td>
<td>&quot;There was a large projected screen when you walk inside and several smaller screens throughout showing the process of designing cars. A lot of technology was used so that intrigued the guests; however, after looking at it for a little while there wasn't much to in line since it was repetitive on the screens. The interactive part seemed to be everyone's favorite part so it may be better if there were more interactive parts in the beginning of the queue.&quot;</td>
</tr>
<tr>
<td>Participant 6</td>
<td>&quot;The line becomes interactive when you design your own car (in the last room of waiting). You are given a card to scan at a computer. You then use touch screens to design your custom car and scan the card right before you get on the ride. Your cars are ranked on the four elements during the ride.&quot;</td>
</tr>
<tr>
<td>Participant 8</td>
<td>&quot;My favorite part was a video of kids and designers talking about their ideal car design. Their ideas were projected onto a car.&quot;</td>
</tr>
<tr>
<td>Participant 9</td>
<td>&quot;The whole experience has a very &quot;high tech&quot; feel. There were projections on a car body and within the ride. Some special effects included lasers, fog, and black lighting Demo interactive screens before the Design Center were touched by guests, but not necessarily understood. The video loop is too short to sustain the length of time the guests are in the space. Either the videos need longer loops or they need more interactivity- even more touch screens would help. Ideally, kinetic and hands-on experiences are the best.&quot;</td>
</tr>
</tbody>
</table>

**Guest participation.** As illustrated in chapter 3 with the pictorial essay, the hands-on touch screen experiences provided in the TT queue line are highly interactive. Guest participation with the interactive screens and RFID card games was the second
highest ranking theme observed with 55 occurrences (27%). The TT queue allowed guests to feel like a vehicle designer incorporating new knowledge they learn about the design process. In addition, guests were able to and then create their own design based on the four attributes explored in the first part of the queue, which relied heavily upon visual storytelling components. All ten participant observers noted guests’ participation in the design center part of the queue. In the first part of the queue, two participant observers noted that guests were much quieter, commenting on the props, graphics, and visual displays. However, three participant observers noted that the guest interest in their first part of the queue was initially high but then faded with time. Once guests were in the design center with the hands-on interactive opportunities, guests of all ages seemed excited to participate. As captured below, four participant observers noted guest participation in the design center part of the queue.

Participant2: The interactive design center excited and involved all guests. Even guests that were not into the car displays were amazed by the technology and the decision making process.

Participant3: Guests were not really interested in the [design] elements to much extent until they reached the interactive elements. All guests seemed very much engaged at the computer kiosks.

Participant4: Every guest at every age can participate and appeared to want to. I noticed excitement by children and adults.

Participant5: The guests seemed to really like designing their own cars in the interactive part of the line. They were very engaged in the screen.

**Guest age and gender.** The third highest reoccurring theme in the data perceived as influencing guests behavior was the age and gender of guests with 26 occurrences (13%). Although TT requires a minimum height for the safety of all guests riding the attraction, it can be experienced by all ages. Participant observers were therefore asked to comment on the behaviors of guests of all ages. Seven participant
observers noted children as being either bored or disinterested in the first part of the TT queue. Participant 10 reinforced this finding, noting that "children seemed somewhat disengaged until the design studio, where they could design a vehicle." All ten participants perceived guests of all ages as enjoying the design center part of the queue. Participant 2 commented that the design center encouraged full participation from guests, noting that "even parents with kids were involved in the design decisions. Each member in each party had something to say about design input." Key findings on the observations of children waiting in line are highlighted below. Children were observed as becoming more engaged when they saw the projected car with children's designs showcased and then again in the design studio than in the first part of the queue. Participant observers noted children becoming disengaged quickly in the parts of the queue that did not have an emotional connection to the story or offer hands-on waiting time fillers.

Participant 2: Children seemed to be the most excited about this queue. Boys seemed interested in how fast a car could go while girls concentrated on aesthetics. One of the spots children were more engaged than adults was the car projection. It seemed like they [the children] were amazed by the storytelling of how cars are designed and made.

Participant 4: After designing their cars they [children] seemed to be very proud of their creations, showing off their designs, saying "look at mine!"

Participant 9: Kids seemed to be more interested in the physical elements. I saw many looking bored, playing on their phone, or talking with family members until they reached the design studio. They were highly interactive in the design studio.

The gender of guests was also perceived as influencing the overall guest satisfaction with the waiting environment. In the first part of the queue, participants 2 and 7 noted the differences in regard to male and female guests waiting in line. In general, they found that young boys and men seemed to be more interested in the
design components and components of the vehicles on display in comparison with females. Participant observers noted that young boys commented on wanting to create fast, powerful vehicles in the design studio. On the other hand, young girls were overheard talking about how "weird" all of the concept cars looked, and how they wanted to design better looking cars.

**Perceived wait times.** The findings showed that 16 occurrences (8%) attributed perceived wait time as the fourth highest theme in regard to guest behavior. Although all ten participant observers documented guests enjoying the interactive parts of the queue, they noted the first part of the queue seemed to drag on for guests that several participants thought the line felt longer than the actual wait time experienced. This was not the case for all participant observers. Four found the waiting time fillers of visual storytelling and interactive experiences to reduce the perceived wait time in comparison with the actual wait experienced. Table 4-7 illustrates these findings, noting the posted, actual, and perceived wait times each participant observer experienced. Although these findings are based on the perceptions of the participant observers, not the guests waiting in line, the findings are still relevant to the study since the participant observers were waiting in line with the guests, observing their interactions with the environment and recording the time guests spent waiting in line in relation to the posted wait times. The comments overheard by guests in line reinforced the participant observers’ findings in terms of perceived wait times. The perceived wait times listed in Table 4-6 were impacted by the overall wait time experienced by guests. Guest comments overheard in line suggested that posted wait times and waiting time fillers influenced the perceived wait time as well. Although participant 7 had a five minute less wait than the posted time
Table 4-6. Perceived wait times: Test Track®.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Posted wait time</th>
<th>Actual wait time</th>
<th>Variation from posted to actual wait time</th>
<th>Perceived wait time</th>
<th>Variation from actual to perceived wait time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50</td>
<td>45</td>
<td>-5</td>
<td>30</td>
<td>-15</td>
</tr>
<tr>
<td>2</td>
<td>50</td>
<td>45</td>
<td>-5</td>
<td>30</td>
<td>-15</td>
</tr>
<tr>
<td>3</td>
<td>70</td>
<td>80</td>
<td>+10</td>
<td>90</td>
<td>+10</td>
</tr>
<tr>
<td>4</td>
<td>45</td>
<td>15</td>
<td>-30</td>
<td>5</td>
<td>-10</td>
</tr>
<tr>
<td>5</td>
<td>70</td>
<td>80</td>
<td>+10</td>
<td>90</td>
<td>+10</td>
</tr>
<tr>
<td>6</td>
<td>60</td>
<td>80</td>
<td>+20</td>
<td>80</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>50</td>
<td>45</td>
<td>-5</td>
<td>60</td>
<td>+15</td>
</tr>
<tr>
<td>8</td>
<td>70</td>
<td>80</td>
<td>+10</td>
<td>100</td>
<td>+20</td>
</tr>
<tr>
<td>9</td>
<td>50</td>
<td>60</td>
<td>+10</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>50</td>
<td>60</td>
<td>+10</td>
<td>50</td>
<td>-10</td>
</tr>
</tbody>
</table>

*All wait times represent the number of minutes.

had suggested, he still perceived the wait to be 10 minutes longer than the posted time. The four participant observers that experienced the longest waits had much longer perceived wait times than those with shorter actual waiting times. Three of the participant observers that experienced longer waits noted the high number of guests using FASTPASS® tickets that by-pass the standby queue being observed for this study. This was an important note for participant observers to document, because the use of FASTPASS® tickets can contribute to longer waits for guests waiting in the standby queue when a ride is re-starting after being shut down for some time (as was this case) or if many guests with FASTPASS® tickets arrive at the same time within their allotted time frame to return. Two participant observers noted guests getting annoyed with the number of FASTPASS® guests inserted in front of them in line.

As Table 4-6 suggests, TT does offer posted wait times so guests have a general idea of how long they will be waiting in line. Participant 7 noticed several people turning away from the attraction once they saw the long posted wait time. Six other participant observers noticed long posted wait times impacting whether guests entered the standby
queue line. Many guests were observed choosing to get FASTPASS® tickets so they could return at a later time. Three participant observers noted that when their observations were conducted, all FASTPASS® tickets had been distributed for the day, so guests had to either wait in the standby line, get in the single rider line to fill any available seats, or come back to try for a shorter time later in the day.

**Flow/pace of queue.** Fifteen occurrences (7%) attributed the flow or speed of guest movement through the queue as contributing to the experience while waiting. The observations documenting guest flow in the TT queue varied amongst participants, relative to the wait time experienced. The five participant observers that experienced the longest waits noted sporadic peaks of movement, or a very slow pace in the beginning of the queue. Four of the participants actually noted guests sitting on the floor since the line was moving so slowly. Five participants, each with the lowest wait times experienced, observed a moderate pace of guests in line. Participant 4 was the only participant to experience a very short wait time for TT, which may have contributed to her perceived overwhelmingly positive observations of guests in the queue. He/she commented that some guests were stopping to read more about the design attributes because the pace was too fast to take in all of the details. Participant 4 shared his/her experience on the flow of the queue line below.

I had no waiting even though the outside standby sign said 45 minutes. I walked at an even pace reading and taking in what I saw. I never really had to stop unless I wanted to. Other guests were stopping along the way taking time to read and take photos of the displays. The video presentation caught the attention of people walking by, but the line moved too fast to see it all.
Harry Potter and the Forbidden Journey™

Research Question One

The first research question explores how the physical design of a theme park attraction queue line can impact guests' willingness to wait and contributes to a positive experience. In answering research question one, the content analysis of HPFJ found several reoccurring themes among observations by participant observers in the queue. Table 4-7 identifies the main themes at HPFJ that were perceived to impact guests' willingness to wait in line to experience the attraction.

Table 4-7. Assessment of physical qualities impacting guests' willingness to wait: Harry Potter™.

<table>
<thead>
<tr>
<th>Themes emerging from content analysis</th>
<th>Physical qualities listed by observers</th>
<th>Occurrences by observers (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placemaking</td>
<td>Set in and around Hogwarts™ Castle, the Harry Potter™ queuing experience brought the movies and books to life in a completely immersive environment</td>
<td>72</td>
</tr>
<tr>
<td>Visual storytelling</td>
<td>Physical environment brings story to life</td>
<td>63</td>
</tr>
<tr>
<td>Authenticity</td>
<td>Architectural elements, interior finishes, special effects, and props relating directly to the story create a sense of authenticity to the overall story of the attraction</td>
<td>59</td>
</tr>
<tr>
<td>Identity</td>
<td>Personal attachment to the Harry Potter™ movies, books, and characters gave instant feelings of attachment and nostalgia, creating an emotional connection to the story</td>
<td>54</td>
</tr>
<tr>
<td>Environmental comfort</td>
<td>Physical qualities such as temperature, lighting, noise levels, and cleanliness impact the guest level of comfort in the physical environment.</td>
<td>47</td>
</tr>
<tr>
<td>Characters in the story</td>
<td>Main characters from the Harry Potter™ movies and books (Harry, Ron, Hermione, and Professor Dumbledore™) were projected in classrooms in the queue, which was perceived as an exciting feature to bring the story to life.</td>
<td>34</td>
</tr>
<tr>
<td>Show lighting</td>
<td>Natural lighting outdoors; very dark light levels in castle appropriate to theming of environment</td>
<td>12</td>
</tr>
</tbody>
</table>
Table 4-7. Continued.

<table>
<thead>
<tr>
<th>Themes emerging from content analysis</th>
<th>Physical qualities listed by observers</th>
<th>Occurrences by observers (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music from movies</td>
<td>Musical scores from the Harry Potter™ movies sparked instant recognition from fans of the franchise.</td>
<td>11</td>
</tr>
</tbody>
</table>

*Occurrences refer to the number of times participants noted observations
*Number of participants=10

The highest rated items included placemaking (72 occurrences), visual storytelling (63 occurrences), authenticity (59 occurrences), identity (54 occurrences), and environmental comfort (47 occurrences). In addition, Figure 4-5 illustrates the percentages of all physical environment theme occurrences. The level of impact these five themes have on the guest experience is explored in more detail below.

![Distribution of responses for physical qualities in HPFJ, n=352](image)

Figure 4-5. Distribution of responses for physical qualities at HPFJ
Placemaking. The content analysis of HPFJ identified placemaking as the highest ranking theme with 63 occurrences (18%). Placemaking refers to the creation of an entirely immersive environment that brings a story to life in three dimensions to place guests within a story environment (Hench, 2008). Placemaking is the ultimate form of visual storytelling, as it takes the level of detailing and depth of immersion further than a traditional storyline. Placemaking was designed as an important aspect within the HPFJ queue, with the queue serving as the pre-show to the ride. Participant observers for this study were aware of the strong story in HPFJ, as made evident by their observations on guest experiences walking through the castle, who were staged to explore the environment as "muggles" visiting the Hogwarts™ school.

Participant1: Walking through Hogwarts Castle. Enter through the dungeon and make way up through the castle, observing and listening to spirits of people who were once in the castle. Along the way we listen to a boring lecture from which Harry and his friends rescue us by taking us to a quidditch match. Mirrors at the entrance to the room of requirement is just like in the movies. The sorting hat cautions us right before the ride about riding with health conditions.

Participant4: It is supposed to feel like you're visiting the real Hogwarts Castle from Harry Potter. The outside line is like you're going through the greenhouse, then enter Hogwarts Castle and go through different rooms that relate to the movies. There are many props and visual effects from the Harry Potter movies.

Participant5: I think the ride is meant for you to experience life at Hogwarts and go through some of the journeys that Harry and the crew went through. The line first starts out in the greenhouse and then takes you through some of the challenges that Harry went through while at Hogwarts (such as "dementors", dragon, and spiders in the woods).

Participant6: The attraction tries to follow the "Harry Potter" series of books with characters and visuals that mimic the books and of course the movies. It takes you through a "tour of the castle" to set the scene and then the ride takes you on the grounds of Hogwarts.

Participant8: The story brought guests into the world of Harry Potter as if they were visitors to Hogwarts.
**Visual storytelling.** Visual storytelling was the second highest ranking theme emerging from the content analysis of HPFJ with 63 occurrences (18%). The strong sense of visual storytelling in the queue was further made evident when participants were asked to describe any story related links between the waiting line and the attraction. As participants 5 and 8 suggest, the waiting line was perceived to be scene one of the attraction, and serve to together the overall storyline. All ten participant observers noted the connection between the queue and the attraction. Participant observers noted guests as observing Harry Potter™ story elements, as well as making connections to the overall story through the queue and the ride. Five of these comments are highlighted below.

Participant 2: You wind your way through the greenhouse and castle until you get to Dumbledore’s office, where he ushers you on to the Defense against the Dark Arts room. Here you are supposed to watch Professor Binns until you are moved to the Gryffindor Common Room before the sorting hat warns you of what’s coming ahead.

Participant 3: Both have elements of Harry Potter movies and stories.

Participant 5: Most of the waiting line is in the Hogwarts Castle and that’s where the ride starts and finishes. It was like we had the background story and tour of the castle in the line and the ride took you on the actual journey.

Participant 6: The three main characters (Harry, Ron, and Hermione). Being set in and around the castle, it seems the "story" is meant to make you feel like you’re experiencing a day in the life of a student. The characters and castle are shown again on the ride.

Participant 8: The attraction is a continuation of the story of the waiting line. The story picks up where the line ends.

**Authenticity.** The authenticity of the story environment was the third highest ranking theme at HFJ with 59 occurrences (17%). All ten participant observers noted that guests seemed impressed by the high level of detailing related to the movies and books from the Harry Potter™ franchise and described the environment as being
"authentic," "just like the Harry Potter movies," and "like you're visiting the real Hogwarts Castle from Harry Potter." Participant 7 added to this, noting "the 'line' for the ride is a 'tour' of the castle on muggle day. Characters welcome you 'muggles' to the castle. Signs throughout the castle refer to muggles." Four of the participant observers noted guests responding to the graphics that allowed "no muggles" past a certain point. Guests in line pointed, laughed, and commented on liking that even the signage throughout the castle remained authentic to the Harry Potter™ story. In this case, "muggles" refers to "non-magic" guests visiting the castle. Characters from the Harry Potter™ stories were seen throughout the castle, adding to guests' excitement in several of the classroom spaces guests move through in the queue. The talking portraits in the queue were seen as one of the most impressive aspects of the queue, staying true to the storyline and bringing it to life. Six of the participant observers commented on the authenticity of the talking portraits and the character projections.

Participant1: The entrance to the Room of Requirement is just like in the movies.

Participant3: There were several animated paintings from the Harry Potter movies. That was a nice touch; very realistic. Those were the best animated pictures I have seen on any attraction.

Participant4: All of the guests really enjoyed recognizing the characters and elements from the movies. There was a talking animatronic sorting hat and many projections of characters from the movies.

Participant6: The speaker locations for the artwork and moving pictures that talk to guests made it sound like the voices were really coming from where the visual was. The interior finishes and materials were plastered walls and floors that seemed very heavy-duty, worn, and authentic. The rooms were very decorated and authentic.

Participant7: Guests were very interested in the inside portion [of the queue]. They seemed to respond well looking around, getting excited about the environment that connects to the movies. Everyone loved the portraits that speak to the guests. They took lots of pictures of the characters and some got out of line to take photos of the props from the movies.
Participant 8: There was at least one projection in every main room. People stopped to take pictures at every projection. The main characters of the story added to the story of the queue. There was a sorting hat animatronic at the end of the line. You couldn't really hear it, but it looked authentic from the movie.

**Identity.** The sense of attachment or identity with the story established in the HPFJ queue contributed to a more positive overall experience, as made evident by 54 occurrences (15%). By having such a strong emotional connection to the Harry Potter™ storyline, a strong place identity was established in the HPFJ attraction. Although three participant observers inferred that guests who had read the Harry Potter™ books responded differently to the environment than those who had not, each of the ten observers perceived all guests as being familiar with the overall story of Harry Potter™. Participant 2 commented on how guests' level of identity with Harry Potter™ impacted their experience in the queue and on the attraction.

I think the storytelling of the ride really depends on how familiar the guest is with the original concept. In this case, if you saw the Harry Potter movies, you [the guest] seemed to pay attention and observe more than others who were just enjoying the overall atmosphere.

Other participant observers recognized guests' level of attachment to the story, commenting that you could tell who had seen the movies or read the books based on their interest in all of the props throughout the queue and visual effects from the movie. Participant 1 believed that guests who connected to the identity of the story could relate to the visuals the best.

Eight participant observers noted the guests' response to the character projections throughout the queue as being the biggest emotional connection to the story. All ten participant observers documented guests commenting on recognizing and loving the opportunity to see characters "come to life" in the projections throughout the
queue. They all heard guests talking about the main characters from the story, such as Professor Dumbledore™ (seen projected in his office) and Harry, Ron, and Hermione (seen projected in the defense against the dark arts classroom). The talking portraits brought the four founders of the different houses at Hogwarts to life as Godric Gryffindor™, Helga Hufflepuff™, Rowena Ravenclaw™, and Salazar Slytherin™ spoke to each other and argued amongst them as to who might be "the next great wizard" at Hogwarts™. Eight of the participant observers noted that guests were really excited to see these characters in the portraits and felt a stronger sense of connection or identity to their comments once they heard that the characters in the portraits were speaking directly about the guests in line. Participant observers noted guests' responding to any character references throughout the queue as adding to the overall identity of the story and perceived satisfaction with the physical environment.

**Environmental comfort.** Participant observers documented 47 occurrences (13%) where environmental comfort was perceived as impacting the guest experience in the HPFJ queue. Several factors in the physical environment impacted the level of comfort guests felt while waiting, including temperature (14 occurrences), noise levels (12 occurrences), and lighting (11 occurrences). Four participant observers commented on temperature, noting the intense heat in the outdoor greenhouse part of the HPFJ queue. All ten participant observers considered the temperature inside the castle to be cool and comfortable. Participant observers conducting their observations on a nice, cooler day all noted that guests enjoyed having some of the queue outdoors and believed it was "a nice way to break up the wait." Participant 4 noted "the outside was pleasant because the weather was perfect and the children could climb on the railing."
Otherwise it might have felt longer.” Participant observers observing guests on a hot day noted ceiling fans not in operation, locations of water fountains, and being excited to get inside to castle to “cool down.” All of the participant observers suggested providing air conditioning inside the greenhouse or providing more opportunities for guests to sit or get water.

Noise levels inside the greenhouse were described as being much louder than inside the castle, despite the greenhouse being outdoors and the castle having smaller spaces for guests to move through. Many participants suggested this was due to not providing enough waiting time fillers in the outdoor part of the queue. Participant 2 noticed that in the greenhouse, guests didn’t seem very interested in the physical environment, but rather were talking amongst themselves or busy playing with their phones. Participant 2 noted that once inside the castle, the guests who had been talking a lot outside about any topic, shifted their conversations to talking about the visuals and props throughout the queue. Noise levels were perceived as significantly lower for all participant observers once inside the castle. Three of the participant observers noted difficulty hearing some of the character projections and the sorting hat audio-animatronic because of the noise levels inside the castle. However, they still noted that the outdoor part of the queue had been much noisier without any distractions for guests to observe or interact with while waiting.

The lighting in the castle was perceived by all ten participant observers as being "appropriate to the theme" of the environment. All ten participant observers noted that the lighting was very dim inside the castle, but only one thought that the lighting could have been brighter and still kept with the theme. Overall, guests didn't seem to mind the
transition from the bright natural lighting of the greenhouse to the dark lighting inside the castle. Both lighting conditions were perceived as appropriate to the placemaking of the environment. Additionally, three participant observers commented on the location of lockers at the entrance of the queue as being too small and crowded a space, noting that several guests appeared uncomfortable when using this facility.

**Research Question Two**

The second research question for this study explored how the behaviors of guests waiting in line reflect their engagement and interest in their environment. In answering research question two, Table 4-8 illustrates the reoccurring themes among participant observers in the HPFJ queue.

**Table 4-8. Assessment of behavioral qualities impacting guests’ engagement with environment: Harry Potter™.**

<table>
<thead>
<tr>
<th>Themes emerging from content analysis</th>
<th>Behavioral qualities listed by observers</th>
<th>Occurrences by observers (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive experiences</td>
<td>An experience that provides guests with the opportunity to become an active participant in their environment taking place in real time through the use of technology, theming, or storytelling.</td>
<td>52</td>
</tr>
<tr>
<td>Guest participation</td>
<td>The level of engagement guests have in their environment or in activities with the queue or other guests waiting in line.</td>
<td>36</td>
</tr>
<tr>
<td>Flow/pace of queue</td>
<td>The speed or movement of guests throughout the queue.</td>
<td>27</td>
</tr>
<tr>
<td>Perceived wait times</td>
<td>The time guests believe the actual wait time feels like it takes to reach the attraction.</td>
<td>26</td>
</tr>
<tr>
<td>Guest age and gender</td>
<td>The level of engagement and preferences for interactivity were perceived by participant observers as being varied among different ages and genders of guests.</td>
<td>24</td>
</tr>
<tr>
<td>Talking in line</td>
<td>Guests observed talking in line among one another about the queuing experience and the attraction.</td>
<td>19</td>
</tr>
</tbody>
</table>
Table 4-8. Continued.

<table>
<thead>
<tr>
<th>Themes emerging from content analysis</th>
<th>Behavioral qualities listed by observers</th>
<th>Occurrences by observers (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photography</td>
<td>Guests photographing physical environment, especially the details related to the characters or movie elements.</td>
<td>15</td>
</tr>
<tr>
<td>Children climbing</td>
<td>Children climbing along railings and walls outside in the greenhouse</td>
<td>12</td>
</tr>
<tr>
<td>Opportunities to rest/sit</td>
<td>Guests observed sitting or leaning in areas not designed for resting in the queue while waiting</td>
<td>7</td>
</tr>
</tbody>
</table>

*Occurrences refer to the number of times participants noted observations
*Number of participants=10

The highest rated themes emerging on guest behavior were the same as at TT, and included interactive experiences (52 occurrences), guest participation (36 occurrences), the flow/pace of the queue (27 occurrences), perceived wait time (26 occurrences), and guest age and gender (24 occurrences). Figure 4-6 illustrates the percentages of all theme occurrences for guest behaviors at HPFJ.

**Interactive experiences.** As illustrated by Table 4-8 and Figure 4-6, the highest cited guest behavior was engagement in interactive experiences with 52 occurrences (24%). During the observations, seven participant observers noted that although there were not necessarily hands-on interactive experiences in the HPFJ queue like in TT, the queue did offer many waiting time fillers that were perceived by some guests as being interactive. As guests move through the queue, they were seen interacting with their environment by photographing details, reaching and pointing out story elements from the movies, and touching the props and snow that fall over guests in one room of the queue. Table 4-9 highlights these findings in detail, referencing notes made by participant observers.
Figure 4-6. Distribution of responses on guest behaviors at HPFJ, n=218

Table 4-9. Select observations: interactive experiences in Harry Potter™.

<table>
<thead>
<tr>
<th>Observer</th>
<th>HPFJ interactive experiences and technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 2</td>
<td>&quot;There are no intentional hands-on features but guests touched props and paintings to see how some of the interactive technology and sculptures were made.&quot;</td>
</tr>
<tr>
<td>Participant 3</td>
<td>&quot;Harry Potter has the best animated pictures I have ever seen on any attraction. Several of the paintings were animated. That was a nice touch- very realistic. There weren't really any interactive parts. There were animated pictures, projected images and an animatronic Sorting Hat, but nothing for the people in the queue to participate back.&quot;</td>
</tr>
<tr>
<td>Participant 5</td>
<td>&quot;In one of the rooms there was snow that fell from the ceiling when the characters cast a spell. I noticed that the people (especially the children) liked reaching up and grabbing the snow. It would get in people's hair and some of the older guests were trying to take it out. It seemed like an appropriate part of the line to have a hands-on element because it was near the middle/end of the line when children get antsy.&quot;</td>
</tr>
</tbody>
</table>
Table 4-9. Continued

<table>
<thead>
<tr>
<th>Observer</th>
<th>HPFJ interactive experiences and technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 6</td>
<td>&quot;The most stimulating physical qualities to me were the characters that spoke. The speaker locations always made it sound like voices were really coming from where the visual was (moving portraits and character projections).&quot;</td>
</tr>
<tr>
<td>Participant 7</td>
<td>&quot;All of the surfaces are well sculpted and tactile and everyone touches everything within reach, thus &quot;interacting&quot; with the environment. But there are no games or objects you touch to illicit a reaction. Technology included an animatronic Sorting Hat, talking portraits, and lockers for storage that scan fingerprints for access.&quot;</td>
</tr>
<tr>
<td>Participant 9</td>
<td>&quot;There was a Sorting Hat animatronic at the end of the line. It was difficult to hear, but it looked authentic from the movie. Lights, sounds, and the story for the projections all synced together for special effects, like snow falling, lightening, and thunder. There was at least one projection in every main room. People stopped to take pictures at every projection. Projections of the main characters of the story added to the story of the queue.&quot;</td>
</tr>
</tbody>
</table>

All ten participant observers commented on guests reacting to the special effects in the defense against the dark arts classroom. The character projections "cast a spell" that allows guests to feel as if magical enchantments have made it snow in the room.

Guests were observed jumping and reaching for the "snow," thus interacting with their environment, as they excitedly responded to this special effect. The character projections, animated talking portraits, and special effects were all perceived as interactive experiences, even though they weren't necessarily hands-on activities. By immersing guests within the Wizarding World of Harry Potter™ story environment, guests waiting in the queue were perceived by participant observers to be interacting with one another as "muggles" on a "tour of Hogwarts Castle."

**Guest participation.** Guest participation was noted as the second highest theme in regard to guest behavior with 36 occurrences (17%). As previously discussed, the HPFJ queue offers several visual storytelling elements and interactive experiences for guests to observe while waiting in line. All ten participant observers commented on the
high interest guests showed in the physical environment. Guests were observed scrutinizing the details and talking amongst themselves about the design of the space. They were observed stopping at different places within the castle that had props or details related to the Harry Potter™ movies and trying to touch many of the props throughout the queue. The character projections often caused guests to stop the line to listen to what the characters were saying. Some guests would even allow other guests to pass by them so they could stay longer to watch the characters and hear what they were saying. Participant observers perceived guests as participating in their environment through the use of photography. Six participant observers noted many guests photographing the scenery, characters, and one another in the space. Participant 5 noted that there was "not much for guests to do, but they were able to watch the projections and view different parts of the castle." Several guests looked excited to see the sorting hat at the end of the queue, but as four participant observers noted, the audio was difficult to hear and guests moved quickly past it, excited to get on the ride.

**Flow/pace of queue.** Twenty seven occurrences (12%) attributed the speed with which guests moved through the queue as impacting the overall guest experience. The flow or pace of the HPFJ queue was observed as moving "too quickly" inside the castle for guests to enjoy the whole experience. This was noted by all ten participant observers, as they observed guests trying to stop in line at different points in the queue and by comments overheard by guests. They noted that in the first part of the queue in the greenhouse, guests seemed to move at a moderate pace. Several guests observed appeared bored, too hot, or distracted by phones and conversations rather than
observing the physical environment of the queue. As guests approached the castle, guests became visibly excited to be getting closer to the interior environment.

Participant 2 noted the escalation in music volume from the Harry Potter™ movie score heard right outside the entrance to the castle. He/she perceived the familiar music as impacting the sudden increase in the guests' excitement before entering the castle.

Guests were observed by five participant observers as trying to slow down in the castle to observe all the details, but oftentimes the guests were forced to move through the space so as not to slow down the flow of the line. Two participant observers noted guests letting others pass them in line so they could explore the details inside the castle more slowly and take additional photographs. Several observations by participant observers commented directly on their perceptions of the design elements they believed contributed to the guest experience moving through the queue.

Participant 2: It helped that the [queue] line moved from room to room. It looked like the guests stayed active in observing because they weren't just stuck in one space.

Participant 3: I noticed that the line moved much slower outside when there were no special effects. Inside the line moved too quickly to appreciate the story being told by the pictures and projections.

Participant 4: The outside and inside waits were both flowing in a constant forward motion. The weather outside was nice, but the outside part couldn't have been much longer without anything to do or guests might have gotten bored. Inside guests always had something to look at, so they never looked bored. Guests were constantly moving in a slow walk.

Participant 6: Sometimes people were walking too fast [inside the castle]. Also, if you did want to take your time to look and listen, the people behind you want to just keep moving.

**Perceived wait times.** With 26 occurrences (12%) noted, the perceived wait times for the HPFJ queue brought about overwhelmingly positive results. All ten participant observers perceived the wait time to be less than the actual wait
experienced. Five participant observers perceived the wait to be ten minutes less than the actual wait, and four perceived it to be fifteen minutes less than the actual wait.

Table 4-10 illustrates these findings, noting the posted, actual, and perceived wait times each participant observer experienced.

Table 4-10. Perceived wait times: Harry Potter™.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Posted wait time</th>
<th>Actual wait time</th>
<th>Variation from posted to actual wait time</th>
<th>Perceived wait time</th>
<th>Variation from actual to perceived wait time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30</td>
<td>30</td>
<td>0</td>
<td>15</td>
<td>-15</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
<td>30</td>
<td>0</td>
<td>15</td>
<td>-15</td>
</tr>
<tr>
<td>3</td>
<td>60</td>
<td>50</td>
<td>-10</td>
<td>45</td>
<td>-5</td>
</tr>
<tr>
<td>4</td>
<td>60</td>
<td>50</td>
<td>-10</td>
<td>40</td>
<td>-10</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td>25</td>
<td>+5</td>
<td>15</td>
<td>-10</td>
</tr>
<tr>
<td>6</td>
<td>20</td>
<td>25</td>
<td>+5</td>
<td>15</td>
<td>-10</td>
</tr>
<tr>
<td>7</td>
<td>30</td>
<td>30</td>
<td>0</td>
<td>15</td>
<td>-15</td>
</tr>
<tr>
<td>8</td>
<td>20</td>
<td>25</td>
<td>+5</td>
<td>15</td>
<td>-10</td>
</tr>
<tr>
<td>9</td>
<td>45</td>
<td>45</td>
<td>0</td>
<td>30</td>
<td>-15</td>
</tr>
<tr>
<td>10</td>
<td>45</td>
<td>45</td>
<td>0</td>
<td>35</td>
<td>-10</td>
</tr>
</tbody>
</table>

*All wait times represent the number of minutes.

As Table 4-10 suggests, the HPFJ had posted wait times. All ten participant observers noted that long posted wait times did not seem to have an impact on the number of guests getting in line for the attraction. Two participant observers overheard guests commenting on how short the wait was for being "the best ride at this park." As noted above with placemaking and visual storytelling, guests riding HPFJ are immersed in an environment that creates an immediate emotional connection to the story. Guests were even overheard complaining that the flow of the queue moved "too quickly" through the castle. Several of the participant observers concurred with this finding, stating that the time in the castle seemed to go by too fast to see all of the details in the queue and to hear the characters speak.
**Guest age and gender.** Twenty four occurrences (11%) of observed guest behavior attributed age or gender as contributing to the experience in the queuing environment at HPFJ. All ten participant observers perceived guests of all ages enjoying the environment in the HPFJ queue, believing the familiarity of the storyline to be a contributing factor in the overall perceptions and positive response to the waiting environment. Only one participant observer noted a difference in the behavior of male and female guests, in this case pertaining specifically to children. This participant observer noted that male children were observed climbing and sitting on railing, while female children seemed more interested in the visual elements. In general, the participant observers seemed to report similar observations on guest behavior pertaining to all genders and ages. A few notes were documented on the observations of children in the queue.

Participant2: Children in line seemed amazed in awe with the atmosphere. Moving from room to room piqued their interest with all the new scenery.

Participant4: In observing children in line, all they want to do is climb the entire time. If every wait line could have strong, safe railings, platforms, elevated platforms and walkways, the children could stay constantly entertained.

Three other participant observers noted children climbing on railings while waiting in the greenhouse part of the queue, accounting for 12 occurrences (5%) in the behavioral data collected.

**Conclusion**

This chapter analyzed the data gathered from participant observers at TT and HPFJ. The findings of each queuing environment observed were explored in detail, highlighting reoccurring themes that emerged within the data. According to the observations from ten participant observers, the interactive experiences offered in the
TT queue and the visual storytelling queuing environment at HPFJ were found to contribute to positive waiting experiences. At TT guests really enjoyed the hands-on interactive elements, especially since they carried through the entire experience of the attraction; however, the Chevrolet® branding did not have the same emotional connection the Harry Potter™ franchise brought to life with HPFJ. Waiting time fillers, attachment to the story, and the completely immersive physical environment at HPFJ was perceived to have shorter waits than were actually experienced, and guests found this queue to be an essential part of the overall story of the attraction.
CHAPTER 5
DISCUSSION

The purpose of this study was to observe how guests respond to the physical features and social qualities of two queuing environments and suggest how these experiences can contribute to an enhanced waiting experiences for theme park guests. A review of the literature found research in psychology that explained why waiting lines form and examined the psychological aspects that influence the queuing experience. Business studies were also uncovered that examined how queue lines can impact crowd control, the amount of financial revenue generated, and the flow management of guests in theme parks. However, the review of literature found very little empirical research on queue lines from a design perspective, as the majority of research was published in trade journals and marketing books. To fill this void, this current study sought to extend psychology and business theories of queuing to design.

Previous research on queue lines attributes waiting time fillers to creating an enhanced waiting experience than waiting environments that do not offer these distractions from waiting (Antonides, 2002; Carson, 2004; Larson, 1987; and Tom, Burns, and Zeng, 1997). Psychology theories on queuing suggest that by providing waiting time fillers, the perceived waiting time can be significantly decreased. As Hench (2008) and Rafferty & Gordon (1996) suggest, theme park designers found that by providing guests with visual storytelling elements, they could begin telling the story of the coming attraction. Hench (2008) explained the original concept for pre-show queues, now often referred to as the "scene one" of an attraction. These waiting experiences were developed by Walt Disney to acquaint guests with the experience that they are about to have, introducing the theme and mood of the story to enhance the
attraction. The study showed that visual storytelling elements at both TT and HPFJ utilized this approach to create a pre-show for guests. Each of these queuing environments features waiting time fillers to introduce the mood and theme of the attraction.

At TT, participant observers noted the show lighting, music, interior finishes, and use of color as adding to the physical environment. Participant observers perceived guests in the TT queue as being immersed in a vehicle showroom or industrial facility. As real Chevrolet® designers told the story of how to design a vehicle through videos, graphics, and special effects, guests learned to feature four design attributes in the creation of their own custom vehicle in the interactive design center. The queue served as a part of the overall story of the attraction, with guests actively participating in the process of designing vehicles. In the design center, guests used RFID cards to design vehicles, a feature of the queue that carried through to the attraction and even to the post-show activities after the ride.

The waiting experience at HPFJ was also identified as scene one for the attraction. Participant observers documented how immersive the overall experience was and suggested it made guests feel like part of the story. Emotional attachment, personal identity, and nostalgia played an important role in telling the story at HPFJ. Participant observers noted the strong emotional connection to this attraction. The virtue of this approach resides in that, as found by Hench (2008) and Rafferty & Gordon (1996), attractions that offer a strong emotional tie to a story, and therefore develop a sense of attachment to the characters or storyline, encourage return visits from guests in theme parks.
Other research conducted by Brady and Cronin (2001) identified nine sub-dimensions of service quality perception, which included: (1) attitude, (2) behavior, (3) expertise, (4) ambient conditions, (5) design, (6) social factors, (7) waiting time, (8) tangibles, and (9) valence. Brady and Cronin found tangible elements to be commonly listed as major influences for the customer's overall perception of service outcome quality. TT's use of tangible elements in the interactive design center further exemplified these findings. Guests were perceived by participant observers as becoming more engaged in the environment once they were provided with a tangible token of their experience. In HPFJ, two participant observers documented guests trying to touch as many details in the physical environment as was possible to reach. In accordance with Brady and Cronin's findings on service quality perceptions, participant observers noted several factors as influencing the overall environmental comfort for the guest experience at TT and HPFJ. These included guest behavior, ambient conditions, the design of the physical environment, actual and perceived waiting times, and environmental comfort. The following two sections further discuss the design elements that contributed to the perceived success of the interactive experiences provided at TT and the visual storytelling environment guests were immersed within at HPFJ.

**Interactive Experiences at Test Track**

TT used visual storytelling to set the scene for the attraction, but relied heavily on the use of technology and creating a hands-on interactive experience for guests. Throughout their observations, all ten participant observers noted both positive and negative elements within the queuing environment. Nine participant observers noted that although the interactive experiences in the TT queue were an exciting waiting time filler to distract guests from the negative effects of waiting, the visual storytelling
elements in this queue were not as well as received as the interactive features. This
could be due to TT representing a brand rather than a classic, familiar story.
Referencing this observation, participant 7 noted that in the parts of the queue at TT
that were not interactive, the environment felt more like a Chevrolet® commercial than a
story environment. However, in describing the storyline of TT, participant 7 did conclude
that the overall storyline was apparent and initially well received. In TT, visual
storytelling successfully established the storyline of the attraction and set the scene for
interactive experiences. However, as guests spent more time in the first part of the
queue which offered visual storytelling waiting time fillers including color, light, music,
televisions, and props, the novelty of the experience faded. Seven participant observers
documented guests yawning, playing on their phones, or engaging in personal
conversations not pertaining to the physical environment or attraction after spending
more than 10 minutes in this first part of the TT queue. Additionally, participant
observers noted that in general the first part of the queue was not as well received as
the second part, which offered the hands-on interactive features. Although guests
appeared to be initially impressed with the physical environment, by not having an
emotional connection to the story, it was easier for guests to become disengaged with
the environment over time. These observations are illustrated by the following quotes.

Participant 1: There were two parts to the line. The first part was more traditional where
people were just anxious to get to the ride, while the second part was
more interactive and made people forget they were in a line.

Participant 2: The car projection was definitely the attention getter in the display part of
the queue. Children seemed interested in the storytelling and the changing
images on the car.

Participant 3: It is important to note that guests were not interested in design elements
to much extent until they reached the interactive elements. Guests were
not very interested in the first couple of interactive screens (except for the kids), but all guests were very much engaged at the computer kiosks.

Participant 5: Some of the guests watched the screens a lot, but most of them seemed to lose interest after watching for about five minutes. The boys seemed more interested with the hanging cars and videos and girls tended to look bored or be on their phones.

As participants 1, 3, and 5 suggested, the first part of the attraction did not offer the same amount of excitement or sense of attachment to the story that is offered in other queuing environments based on beloved stories or characters. Participant 2 further illustrates this point by showing how the part of the TT queue that offered a personal, more emotional connection to real designers and children was by far the most well received part of the TT visual storytelling.

The findings also illustrated that one of the most successful qualities about the overall experience at TT is that repeat guests have the opportunity to experience something new every time they wait in line and ride the attraction. The experience offered at TT is different than most theme park attractions, as the story for the attraction not only begins in the queue line, but is carried through the attraction, and even after the ride with post-show activities. Projections introduce guests to the theming and story of the experience and are used in several different applications throughout the queue. By having interactive experiences that guests control, the take away can be a different guest experience each time. Not only can the queuing experience be different, but the participation outcome from guests is also varied. Guests in TT customize their own queue and ride experiences based on the vehicles they design in the design center. By understanding the design attributes—power, efficiency, responsiveness, and capability, which are showcased throughout the visual storytelling part of the queue, guests learn how to design. If guests wish their car had performed better in terms of power, on the
next visit they can design a vehicle with a higher power rating. If a guest wishes the aesthetics of his/her design were different, he/she can change the color, add decals, or stretch the body shape when designing a vehicle another time. Since the guests actively participate in the overall experience, they develop a personal connection with the end result and outcome of the rankings. Participant 2 observed guests calling out design attributes or colors they wanted to be sure their car had included in it. Participant 1 overheard children in line making the design center experience a competition for the highest ranking and coolest looking car. Participant 4 furthered these findings:

I heard several children say they had been on it [TT] before and wanted to add more power so it would go the fastest. Your design gets scored and they loved seeing if their design won. The first time riders seemed engaged in learning what to do next every step of the way. My line went fast so there was never anyone bored or tired acting. After designing their cars they seemed to be proud of their creations, usually saying "look at mine."

Participant 10 observed that the majority of the children waiting in line during his 60 minute wait seemed somewhat disengaged until they reached the design studio where guests design vehicles. Participant 9 furthered this observation, noting that the children waiting in line often looked bored until they reached the interactive parts of the queue. Several kids were observed asking parents to play on their cell phones or talking to others in line. All 10 participants noted that children became very engaged in the interactive design studio, where they had the opportunity to design their vehicles based on the four attributes shown throughout the queue.

Interestingly, one group of guests had their screen in the design center stop working while in the middle of designing their vehicle. The participant observer noted them being visibly upset, like a part of the ride experience had been lost. This finding
suggests that guests were invested in the pre-show aspect of this attraction as if it were a main component to the overall experience.

**Visual Storytelling at Harry Potter and the Forbidden Journey**

At HPFJ, all ten participant observers recognized the overwhelmingly positive perceptions of the guest experience to be attributed to the strong sense of story that was created and brought to life. As illustrated by Table 4-4 and Figure 4-4 in Chapter 4, out of all data collected on the physical environment at HPFJ, 248 occurrences (71%) attributed placemaking, visual storytelling, authenticity, and identity as impacting the overall guest experience. All four of these themes suggest ways of creating an immersive environment for guests to feel as if they are stepping into the real Wizarding World of Harry Potter™. Participant observers commented on how these themes associated with visual storytelling in HPFJ were perceived and enjoyed by guests waiting in line, with several highlighted below. Guests were perceived by participant observers as being fully immersed in the Harry Potter™ story environment, which allowed guests to become a part of the story at HPFJ, offering a personal connection to the story in the queue and on the attraction.

Participant1: Guests seemed to be equally interested in the visual storytelling elements (Harry Potter character projections and props related to movies) as the interactive elements (snow falling on guests).

Participant2: [Hogwarts] castle was very familiar and made you feel like you were really part of the story. Seeing elements from the movie immersed you more in the story of the ride/queue.

Participant8: [Guests] loved the authenticity to the story. Both Harry Potter fans and non Harry Potter fans loved all the details. All ages enjoyed the presentation.

Participant10: The Harry Potter queue let guests become a part of the story. Everyone felt a connection to the story being completely immersed in the rooms inside the castle. Since there were so many people pointing out all of the
little details, even those who weren’t as familiar with Harry Potter could enjoy the overall experience.

In order to successfully achieve a sense of place in the castle and understand the overall story of the attraction, it was important to set the scene in the queue line. In many classic Disney attractions depicting fairytales and adventures, there is a strong sense of attachment or emotional connection to the story. The same strategy is applied at HPFJ, where a strong emotional connection is created by immersing guests in the environment of the attraction. The beloved Harry Potter™ characters and stories are brought to life in the HPFJ queue where they further create an emotional connection to the storyline of the attraction. By identifying guests as “muggles” in the signage throughout the castle and in interactions with Universal team members (cast members and ride attendants), guests personally identify with the storyline of the attraction as they themselves became a character in the story of this attraction.

Five participant observers perceived the time in the castle as too fast to see all of the details in the queue. Additionally, observed guests actually wanted the queue to move slower inside the castle so that they could see more of the physical design and watch the special effects. Some were observed letting other guests pass by, so they could take additional photographs or experience the pre-show. By creating this highly themed immersive experience, guests were observed to establish a strong connection between the queue and the attraction. As participant 6 noted, the queue "takes you through a 'tour of the castle' to set the scene" for the ride. The queue is therefore perceived by many guests as a piece of the overall story and experience. In several instances, guests seemed to perceive the wait time as only the time spent outdoors in the greenhouse part of the queue. Once guests entered the castle, the wait seemed to
be seen more like a part of the attraction, and the negative effects of waiting transitioned to positive interactions with the environment. However, the preference to having both indoor and outdoor parts of the queue was varied. The responses seemed to have a direct relationship with the weather experienced on the day observations were conducted. On hot days, the outdoor portion of the queue was perceived as a negative experience, while on cooler days, guests were perceived as enjoying the opportunity to be outdoors for part of the queue. However, all 10 participants noted shorter perceived wait times than those actually experienced.

Further, authenticity became an extension of placemaking and visual storytelling in the HPFJ queue. Without maintaining the authenticity of the props and visual elements throughout the space, the concept of placemaking and visual storytelling would have been lost. At HPFJ, the attraction uses visual storytelling to bring the story to life, while the entire Wizarding World of Harry Potter™ uses placemaking to create a fully immersive environment. Participant 5 commented on the attention to detail and maintaining authenticity in the physical environment of the HPFJ queue line:

I thought this ride was built very well. As a Harry Potter fan, I was impressed with how accurate and detailed the interior and exterior of the castle was. It seemed very sturdy but had "worn out" looking finishes that really added to the look of the castle. Even if I hadn't seen the movies or read the books, I think I would have been able to understand the story and know exactly what Hogwarts was like.

Participant 5’s comments are precisely what visual storytelling and placemaking is all about: telling a story that guests can easily understand by creating a completely immersive environment. The most important note in regards to placemaking this participant made was that regardless of if guests had any prior knowledge of the story of the attraction, they would still be able to understand the story because it brought it all to
life in such an immersive, convincing way. The heavily themed architectural forms and finishes, the props, music, characters, lighting, interactive features, and graphics throughout the queue brought together an authentic environment that created ambient storytelling. Hench (2008) further explained the importance of details in themed environments.

The details corroborate every story point, immersing guests in the story idea. Walt knew that if details are missing or incorrect, guests won't believe in the story, and that if one detail contradicts another, guests will feel let down or even deceived. This is why he insisted that even details that some designers thought no guest would notice - such as the replicated period doorknobs on Main Street, U.S.A. - were important (p. 78).

**Noted Strengths and Weaknesses of the TT and HPFJ Queues**

The observations at both TT and HPFJ suggested physical features and ensuing guest behaviors in the queues as influencing the overall satisfaction of these two queuing experiences. These attractions were not meant to be compared against one another for the purposes of this study; however two participant observers offered their own personal opinions as to which features made the two queues successful, as well as their assessment that one type of queuing environment was perceived as more successful than the other.

In terms of ambient storytelling, according to participant 5, the HPFJ queue was much more successful in achieving a clear story and sense of place than the TT queue. Participant 7 concurred that the visual storytelling in the HPFJ queue was perceived as being more successful than at TT. However, he additionally considered the use of technology in HPFJ to be more successful than in TT. This was due to the fact that in TT when a touch screen stops working, the design center experience is destroyed. In HPFJ, conversely, technology is simply used to enhance the visual storytelling.
elements. In HPFJ, technology is not essential in telling the story or creating an engaging environment. The theming of the physical environment immerses guests in the story with or without the added magical enchantments operating throughout the castle.

Upon experiencing both attractions, participant 7 perceived guests responding more positively to the Harry Potter™ queue in comparison to Test Track®:

Now that I can compare the two [attractions], I feel like the guests I observed seemed more excited and engaged in the Harry Potter queue because it connected to subject matter that they were already familiar with and had an emotional connection with.

Table 4-11 is a transcription of a chart developed by participant 7, suggesting the strengths and weaknesses of both queue lines, based on his perceptions of the waiting environments. Participant 7 found that one of the biggest strengths at HPFJ was that although it used technology throughout the experience, it was not reliant upon it to tell the story. Participant 7 also considered the emotional connection to the Harry Potter™ stories to be a main strength of the queuing environment. At TT, Participant 7 commented on the futuristic design of the interior environment, also noting that it was nice having an all indoor queue. However, a major weakness he perceived at TT was that the overall story began to feel "more like a Chevy commercial with less of an emotional connection." Participant 7's saw the technology at TT to be both its greatest strength and weakness. He perceived guests as responding very positively to the interactive elements in the design center, but saw the experience as relying too heavily on the technology to tell the story. The biggest concern with technology being used in telling the story was that "if a computer breaks down, the guests' queuing experience is
destroyed.” This is a notable concern as the queuing experience carries through the entire ride experience and the post show experiences.

Table 4-11. Reproduction of Strengths and Weaknesses Chart developed by Participant 7 for the TT and HPFJ Queuing Environments.

<table>
<thead>
<tr>
<th>Harry Potter™ Strengths</th>
<th>Weaknesses</th>
<th>Test Track® Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familiar story- instant emotional connection</td>
<td>Half of queue is outdoors in &quot;greenhouse&quot; environment, which makes it feel hotter</td>
<td>Great design inside- beautiful to look at</td>
<td>Design feels, cold and sterile</td>
</tr>
<tr>
<td>Not overly reliant on technology to tell the story. If something breaks, guests possibly might notice if it's their first time. The overall experience would not be affected. Inside portion of the queue whizzes by because of all the detail and story elements</td>
<td></td>
<td>Entire queue is air conditioned</td>
<td>Overall story feels more like a Chevy commercial with less of an emotional connection</td>
</tr>
<tr>
<td>Familiar subject matter (Chevrolet® brand)</td>
<td></td>
<td></td>
<td>Relies too heavily on technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If a computer breaks down, the guests’ queuing experience is destroyed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Queue experience ties directly into portion of the attraction, which wasn’t functioning properly. This offsets the potential coolness of the queue and overall experience</td>
<td></td>
</tr>
</tbody>
</table>

Creating a Positive Waiting Experience

In both the TT and HPFJ queues, visual storytelling and interactive experiences contributed to the overall experiences of the attractions. As several participant observers noted, the queues introduced the stories of the attraction and served as the pre-show, introducing the theming, characters, and overall concepts. Several physical
and social qualities about the two queuing environments were noted by participant observers as contributing to an enhanced waiting experience. See Figure 3-7 or reference Appendix C, the observation forms used by participant observers, for the qualities that were examined by participant observers. The physical environment in both attractions was perceived to contribute to a positive waiting experience. Each queue established a sense of place identity and visual storytelling with a three dimensional representation of the story being told. Rafferty and Gordon (1996) detail how the idea of staging and visual storytelling was first developed by Walt Disney and his team of Imagineers from the film industry, focusing on simplicity and authenticity of the story environment.

When it came time to enter the three-dimensional world of entertainment, he [Walt Disney] brought the things he learned from film making to creating parks. A motion picture director has the luxury of creating an optical target-by placing action and focus or color. In a theme park, however, the viewer is not just an observer, but a participant. The imagery is not confined to the parameters of a movie screen, and the participant is bombarded with visual overload. The key to making this work is for each element to mesh with the story.

The stories in TT and HPFJ were brought to life in the theming, architectural and interior finishes, spatial layout, lighting, music, and use of technology and special effects. The behaviors of guests within the environment reinforced their relationship with the environment, creating a more positive waiting experience. Guests responded to the interactive, hands-on capabilities in TT, while identifying with the characters and story details (props and special effects) at HPFJ.

The themes that emerged in the first and second research questions further illustrate the elements that contribute to an enhanced waiting experiences. In the physical environment, participant observers found the following five qualities as
contributing to an enhanced waiting experience: 1) visual storytelling or placemaking elements, 2) details that add to or maintain authenticity within a story environment, 3) waiting time fillers, 4) branding or place identity, and 5) factors influencing environmental comfort, such as temperature, lighting, and noise levels. Participant observers also found several observed experiences that could positively influence the waiting experience for guests, which included providing interactive, hands-on activities or opportunities for guests to participate in or become part of the story. The vehicle design process in the design center at TT provided interactive activities for guests, while the character projections and storyline of the HPFJ queue let guests become a part of the story as they walked through the space. In each of these queues, participant observers perceived the waiting time fillers provided in the physical environment and the guest involvement with the environment as contributing to an overall more positive waiting experience than traditional standby queues that do not offer such elements for guests waiting in line. The results indicate that each of these queuing environments is successful in its own way. Table 5-1 illustrates the strengths and weaknesses of each queuing environment as observed and perceived by participant observers. Tangible elements, identified by Brady and Cronin (2001) as one of nine sub-dimensions of service quality perception, were commonly listed as major influences for the customer’s overall perception of service outcome quality, a theme commonly recorded among participant observers in both the TT and HPFJ queues as positively influencing the guest experience while waiting. As the table suggests, the opportunity to use FASTPASS® tickets at TT served as both a potential strength and a potential weakness to the overall queuing experience. Although FASTPASS® allows guests who visit TT at
peak times or with long waits to return to the attraction at a later reserved time, the FASTPASS® option can also result in longer waits for guests who chose to wait in the standby line. Furthermore, there is only a select number of tickets available for the day, so during the peak seasons, there is not always the guarantee that a time will be available at which to return later in the day. On the other hand, HPFJ does not offer any type of express passes for guests to bypass the standby line. At peak times, this can be seen as a weakness; however, in general, not offering express tickets contributes to steady flow of movement throughout the queue. Perceived wait times was one of the highest ranking themes emerging at HPFJ from the content analysis as contributing to a positive waiting experience with 26 occurrences (12%). This further confirms the findings of Ahmadi (1997) on flow management and Brady and Cronin (2001) on minimizing perceived wait times. Ahmadi (1997) found that theme parks could see an increase in revenue by limiting the amount of time guests spend waiting in line. Brady and Cronin (2001) found that when the perceived wait time is minimized, the overall guest satisfaction and perception of service quality may increase.

The use of new technology in TT and HPFJ was seen as a strength in both queuing environments. At TT, the design center creates a hands-on interactive experience that is personalized for each guest. The technology is integrated into the ride and in continues in the post-show, creating a cohesive overall experience. At HPFJ, technology allows for special effects such as moving portraits and character projections to serve as magic enchantments throughout Hogwarts™ castle. At TT, however, technology could also become a weakness if there are errors in the system or a computer breaks down while a guest is in the design center part of the queue. If there is
an error with the technology at TT, a part of the queuing experience is lost. At HPFJ, however, technology is used in a way that adds to the overall experience, but is not a necessary component in telling the overall story.

Table 5-1. Content Analysis: Strengths and Weaknesses of TT and HPFJ Queuing Environments.

<table>
<thead>
<tr>
<th>Test Track® Strengths</th>
<th>Weaknesses</th>
<th>Harry Potter and the Forbidden Journey™ Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASTPASS® tickets are available for guests to experience the attraction at a later time with a shorter wait.</td>
<td>The FASTPASS® option for this attraction can result in longer waits for guests in the standby line.</td>
<td>Steady flow of movement throughout the queue.</td>
<td>No opportunities to bypass standby line with express passes.</td>
</tr>
<tr>
<td>Single rider line offers quicker line to fill in any available seats.</td>
<td>No designated areas to rest or sit when flow stops due to guests returning with FASTPASS® tickets.</td>
<td>The queue inside the castle is perceived more as a part of the story than a traditional waiting line.</td>
<td>Part of the queue is outdoors. Many guests complained of the heat during long waits.</td>
</tr>
<tr>
<td>The Design Center interactive touch screens (where guests design their own vehicles) offer an entertaining distraction from waiting that is perceived as fun for all ages.</td>
<td>When the touch screens aren't working properly, a part of the experience is lost.</td>
<td>Castle tour line allows guests not wanting to ride the attraction to see the interior environment of the castle.</td>
<td>Some of the characters were difficult to hear due to noise from guests talking in line.</td>
</tr>
<tr>
<td>Design Center touch screens create a collaborative experience for guests to engage in with the other people in their group.</td>
<td>Technology glitches in the queue negatively impact the ride experience and post-show activities as well.</td>
<td>Single rider line offers quicker line to fill in any available seats.</td>
<td>Flow inside castle is sometimes too quick to take in all of the details.</td>
</tr>
<tr>
<td>Repeat guests can have a new experience every time they design their own vehicle and see how they rank on the ride.</td>
<td>Branding creates very little emotional connection to the story.</td>
<td>Technology is used in a way that enhances the visual elements, but does not rely on it to tell the story. If the projections or moving portraits are not operating, the rest of the environment is so heavily themed that the experience and overall story is not lost.</td>
<td>Children climbing on walls a lot outdoors. The walls were not designed for this, and are therefore not the safest place for kids to be climbing.</td>
</tr>
<tr>
<td>The queue offers a personalized experience that continues on the ride and in the post-show activities.</td>
<td>Video loops are too short for long waits. Guests see the videos repeat, creating longer perceived wait times.</td>
<td>Low light levels.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Visual elements do not keep guests engaged for more than a few minutes.</td>
<td></td>
<td>Guests with bags are required to use lockers to store their belongings. The locker rooms are dark and often very crowded. Whichever guest places the personal items in the locker must be there to retrieve them as well.</td>
</tr>
</tbody>
</table>
Table 5-1. Continued.

<table>
<thead>
<tr>
<th>Test Track® Strengths</th>
<th>Weaknesses</th>
<th>Harry Potter and the Forbidden Journey™ Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placemaking, visual storytelling, and authenticity create a completely immersive experience. Guests are perceived as feeling as if they are inside the real Hogwarts™ castle.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional connection to the story due to familiar storyline and a sense of identity and attachment to the characters.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Details from the Harry Potter™ books and movies in the physical environment allow guests to notice new details around them the whole time they are moving through the queue.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engages several of the guests’ senses with special effects, music, sights, and tactile finishes throughout the queue.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music adds to the excitement of entering the castle, as it is easily recognized as the movie score.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Recommendations for Theme Park Queue Line Design**

Based on the findings of this study, the following are general design recommendations that can be adopted to improve the waiting experience for guests waiting in theme park queue lines:

1. *Create an immersive experience that transports guests to the time and place of the story environment.*
It is recommended that a strong sense of place identity be achieved with queue lines. Hench (2008) suggested that place identity allows guests to feel a sense of nostalgia and personal connection to a story environment, which leads to more positive experiences. Findings from this study further indicate that guests respond more positively to waiting experiences that evoke emotion and human interaction through storytelling, characters, nostalgia, and attachment than those without a strong story or identity. All equipment, special effects, interior finishes, and structures should be themed in a way that is appropriate to the theme of the attraction and does not take guests away from the time and place of the story environment.

2. **Provide waiting time fillers that are appropriate for the story being told and that add to the overall experience of the attraction.**

It is recommended that waiting time fillers be added to all types of queues to minimize boredom in line and provide guests with a personal experience to distract them from the passage of time. Research by Carson (2004) and Larson (1987) on queuing theory indicated that by providing customers with distractions to minimize the negative effects of waiting, the overall waiting experience can be improved, contributing to an overall more positive experience. This study echoed these findings, suggesting that by providing waiting time fillers for theme park guests, the perceived wait time can be minimized. Strategies include providing video loops, musical scores, and interactive games that are long enough so as not be repeated while guests wait, but short enough that guests understand the concept and overall story for the experience. Waiting time fillers should not only be appropriate to the physical environment, but be created in a way that adds to the overall experience, rather than seeming like an out of touch distraction that takes guests away from the story.

3. **Allow the queue line to become scene one for the coming attraction.**

The queue should be designed as the first scene of the attraction. In doing so, the waiting environment becomes an essential part of the story experience, thus reducing the negative effects of waiting and creating another opportunity for design. Hench (2008) describes how developing a preshow with the queue “acquaints guests with the experience they are about to have, introducing a theme and mood that enhances the attraction” (p. 32-34). The findings from this study further confirmed this theory, as participant observers noted that at both queues observed, the waiting lines not only introduced the story, but enhanced the overall story and experience. Further, the perceived wait time decreases when the queuing environment sets the scene and becomes an essential part of the story. Guests perceive this as the first scene which must be experienced, thus turning a negative waiting experience into a positive part of the story.

4. **Design integrated seating areas or places to rest in queue lines.**
It is recommended that designers consider specifically the guests theme parks entertain, including young children, families, etc., and therefore provide opportunities for them to sit or rest throughout the queue. Research by Brady and Cronin (2001) examined several factors impacting perceived service quality, including physical environment quality, ambient conditions, and waiting time. Guests of all ages, with varying physical conditions and disabilities, come to experience the attractions at theme parks. In order to provide opportunities for these guests to rest during long waits, it is recommended that designers incorporate seating areas themed to the story environment. This way guests are provided with areas to rest in a way that does not detract from the overall experience or physical environment.

5. **Create areas in line that allow children to climb or be entertained in a safe way.**

Since many children waiting in line at theme parks have shorter attention spans than the adults with them, it is recommended that designers create opportunities for children to be entertained. One recommendation for achieving this would be to create safe play structures or small climbing walls integrated into the design throughout the queue. The observations of several participant observers found that children wanted to climb on the railings and rockwork in the queue while waiting in line. By providing children with a safe climbing environment, this could become a positive design feature in the queuing environment for children. This would provide children with the opportunity to keep moving and playing while waiting, which could ultimately shorten their perceived waiting times and provide for a more positive experience. A second recommendation would be to provide waiting time fillers that are appropriate for children to engage in, such as providing interactive or visual "scavenger hunt" type games in the queue. This would provide all guests with the opportunity to take in additional story elements in the environment and collaborate in a way that adds to the experience, while distracting them from the passage of time.

6. **Maintain a constant, steady flow throughout the waiting environment.**

To minimize the perceived wait times experienced by guests, it is recommended that theme park operators and designers collaborate to develop waiting experiences that allow for a steady flow of movement for guests while waiting. This can be achieved by regulating the number of guests using reservation systems to enter the front of the line at once or by having those guests bypass the standby line in a way that is not visible to standby guests waiting in the longer line. The research by Dickinson, et al. (2005) established six basic concepts as contributing to wait perception. Their queuing research suggested that 1) unoccupied time feels longer than occupied time; 2) anxious, sad, and angry waits feel longer than relaxed ones; 3) waits of uncertain length feel longer than certain ones; 4) unexplained waits feel longer than explained waits; 5) uncomfortable waits feel longer than comfortable waits; and 6) unfair waits feel longer than fair ones. Research by Ahmadi (1997) has examined and confirmed the important of flow management in theme parks for managing capacity and flow. The data gathered from this study supports these findings, and suggests that a line needs to continually keep moving forward so that guests feel
that they are making progress. A line that is stagnant is perceived to be much longer than one that moves continually, even if it is barely moving at all.

**Recommendations for Future Research**

This study serves as a springboard for future research in the field of queue line design and in turn the influence of the overall waiting experience for theme park guests. Building on exploratory findings from this study, future research is warranted via replication and expansion of the sample size to further verify findings. By increasing the sample size, the depth of information would allow for a more wide range of findings that could seek to address the specific needs of different target groups, (i.e. age ranges, gender, group sizes, etc.) and therefore identify more commonalities or outliers found in the data collected. Second, it is recommended that future research be conducted in a way that examines the physical environment and guest behaviors in theme park queues through the use of both qualitative and quantitative data. Third, if possible, direct coordination with theme park operators of the attractions examined would allow for less constrained sample sizes and methods of gathering data. In this study, theme park operators could not grant access to work directly with guests to ascertain the physical features and hands-on experiences of the environments that guests preferred. Working directly with theme park guests would allow for a larger sample size and more direct feedback about the queuing environments. Fourth, since this study examined two different types of queues (visual storytelling and interactive), future studies might benefit from comparing two or more attractions with similar characteristics in order to further test which design factors lead to more positive experiences in each type of waiting environment. For example, two different studies could be conducted, with one study examining different types of visual storytelling queues, while another examines two or
more interactive queues. Finally, since this study concludes with design
recommendations to improve the waiting experience for theme park guests, it is
recommended that future research be conducted in a queuing environment that
implements these design recommendations to ascertain if these factors improve the
waiting experience and ultimately the level of guest satisfaction.

Conclusion

This study assessed theme park queue lines in terms of the physical features
and guest behaviors in two types of queuing environments. Test Track® characterized a
type of queue with hands-on interactive waiting time fillers that allowed for a
personalized experience for guests. The highest ranking themes in the content analysis
for TT were the interactive experiences and waiting time fillers. Harry Potter and the
Forbidden Journey™ characterized a queue with ambient storytelling features seen
throughout the physical environment of the queue, bringing to life to Wizarding World of
Harry Potter™. The highest ranking themes for HPFJ included placemaking and
interactive experiences. Although each of these queues characterized a specific type of
waiting environment, participant observers noted the strong presence of ambient
storytelling and interactive experiences at both attractions.

The assessment of the findings by participant observers led to the conclusion
that visual storytelling and placemaking can contribute to a positive waiting experience
because of the emotional connection and identity created. When a story environment is
brought to life in a completely immersive environment, guests are able to interact with
their environment, becoming characters within the built environment. Visual storytelling
elements were perceived as a successful type of queuing environment when details
created a sense of identity or attachment to a story and when the environment
maintained authenticity in its theming and design elements. Interactive experiences were found to be a successful way to bring guests of all ages together, cooperating as a team to problem solve and design details with one another.

The purpose of this study was to build upon the current body of knowledge about queuing by extending psychology and business theories to design. The knowledge gained from this case study formulated design recommendations for theme park professionals and suggested furthering this knowledge to promote future research on theme park queuing environments. The ambient storytelling and interactive queuing environments examined in this study proved successful in several ways: 1) they each provided waiting time fillers that distracted guests from the negative effects of waiting; 2) they each became an essential part of the overall storyline of the attractions; and 3) they led to perceived guest satisfaction with the overall experiences.
APPENDIX A
INSTITUTIONAL REVIEW BOARD PERMISSION

DATE: April 15, 2013

TO: Beth Burkhardt
   242 Fiddlers Point Drive
   St. Augustine, FL 32080

FROM: Ira S. Fischler, PhD; Chair
       University of Florida
       Institutional Review Board 02

SUBJECT: Approval of Protocol #2013-U-0408
        Waiting for the Fun: Designing Interactive Queuing Experiences to
        Influence the Guest Satisfaction of Theme Park Attractions

SPONSOR: None

I am pleased to advise you that the University of Florida Institutional Review Board has
recommended approval of this protocol. Based on its review, the UFRIRB determined that this
research presents no more than minimal risk to participants. Your protocol was approved as
an expedited study under category 7: Research on individual or group characteristics or
behavior (including, but not limited to, research on perception, cognition, motivation,
identity, language, communication, cultural beliefs or practices, and social behavior) or
research employing survey, interview, oral history, focus group, program evaluation, human
factors evaluation, or quality assurance methodologies.

Given this status, it is essential that you obtain signed documentation of informed consent
from each participant. Enclosed is the dated, IRB-approved informed consent to be used when
recruiting participants for the research. If you wish to make any changes to this protocol,
including the need to increase the number of participants authorized, you must disclose your
plans before you implement them so that the Board can assess their impact on your protocol.
In addition, you must report to the Board any unexpected complications that affect your
participants.

It is essential that each of your participants sign a copy of your approved informed
consent that bears the IRB approval stamp and expiration date.

This approval is valid through April 13, 2014. If you have not completed the study prior to
this date, please telephone our office (392-0433) and we will discuss the renewal process with
you. Additionally, should you complete the study on or before the expiration date, please
submit the study closure report to our office. The form can be located at
http://irb.ufl.edu/irb02/Continuing_Review.html. It is important that you keep your
Department Chair informed about the status of this research protocol.

ISF:dl

An Equal Opportunity Institution
Confidentiality:
Your identity will be kept confidential to the extent provided by law.

Voluntary Participation:
Your participation in this study is completely voluntary. You are under no obligation to participate.

Right to withdraw from the study:
You have the right to withdraw from the study at any time without consequence. You do not have to answer any questions that you do not want to answer.

Whom to contact if you have any questions about the study, please contact:
Beth Burkhardt, Graduate Student, Department of Interior Design
Architecture Building, Gainesville, FL 32611, phone 904-669-1654

Candy Carmel-Gilfillen, Assistant Professor & Undergraduate Coordinator, Department of Interior Design, 348 Architecture Building, P.O. Box 115705, Gainesville, FL 32611, phone 352-392-0252 x340

Maruja Torres-Antonini, Associate Professor & Graduate Coordinator, Department of Interior Design, 334 Architecture Building, P.O. Box 115701, Gainesville, FL 32611, phone 352-392-0252 x335

Whom to contact about your rights as a research participant in the study:
IRB02 Office, Box 112250, University of Florida, Gainesville, FL 32611-2250, phone 392-0433.

Agreement:
I have read the procedure described above. I voluntarily agree to participate in the procedure and I have received a copy of this description.

Participant: ___________________________ Date: ___________________________
Principal Investigator: Beth Burkhardt Date: ___________________________
Designing interactive queuing experiences to influence the guest satisfaction of theme park attractions

Purpose of the research study:
This study explores how guests respond to the physical attributes of a theme park attraction waiting environment, and therefore aims to identify how this can contribute to the overall satisfaction. The purpose of the study is to determine which physical and social qualities about the waiting environment can make waiting a positive experience. The study also aims to analyze how theme park guests respond to different types of waiting environments (interactive, visual storytelling, etc.).

What you will be asked to do in the study:
You will be asked to conduct four (4) observations of user behaviors in theme park attractions (rides) in Central Florida. You will be asked to observe two (2) attraction waiting lines, each one from a different theme park. The attractions to be observed will be selected for you. You will be given the same observation forms to complete for each attraction with assigned tasks to observe and thoughts to consider while waiting in line for an attraction. You will be asked to complete an observation form for each attraction since each ride identified in this study offers a traditional waiting line, as well as a faster, express option. After waiting in line and noting your observations, you will be asked to ride the attraction and reflect on the wait's observed impact on the overall experience. You will be asked to observe each attraction at the same time of day within the same week.

Time Required:
Approximately 3-6 hours. Time required will depend upon wait times at the theme park at the time observations are conducted. The two attractions will be observed twice each, so be prepared to wait between 30 minutes to an hour and a half for the traditional waiting line experience for each attraction. Faster, express options should only take about a half hour to complete each attraction. Please allow up to an additional hour to fill in any remaining data on the observation forms upon experiencing the attractions.

Risks and Benefits:
There are no expected risks or benefits associated with the study. However, the two attractions observed and experienced may simulate dramatic aerobatics, with the ride vehicle suddenly accelerating, stopping, turning, climbing, and dropping. If you have any concerns about your physical condition or ability to participate on some rides, you should not volunteer to participate in this part of our study.

Compensation:
You will receive free entry into the theme park where the observations take place for the day.
Confidentiality:  
Your identity will be kept confidential to the extent provided by law.

Voluntary Participation:  
Your participation in this study is completely voluntary. You are under no obligation to participate.

Right to withdraw from the study:  
You have the right to withdraw from the study at any time without consequence. You do not have to answer any questions that you do not want to answer.

Whom to contact if you have any questions about the study, please contact:  
Beth Burkhardt, Graduate Student, Department of Interior Design  
Architecture Building, Gainesville, FL 32611, phone 904-669-1654

Candy Carmel-Gilfilen, Assistant Professor & Undergraduate Coordinator, Department of Interior Design, 348 Architecture Building, P.O. Box 115705, Gainesville, FL 32611, phone 352-392-0252 x340

Maruja Torres-Antonini, Associate Professor & Graduate Coordinator, Department of Interior Design, 334 Architecture Building, P.O. Box 115701, Gainesville, FL 32611, phone 352-392-0252 x335

Whom to contact about your rights as a research participant in the study:  
IRB02 Office, Box 112250, University of Florida, Gainesville, FL 32611-2250, phone 392-0433.

Agreement:  
I have read the procedure described above. I voluntarily agree to participate in the procedure and I have received a copy of this description.

Participant: _______________________________ Date: ________________

Principal Investigator: Beth Burkhardt Date: ________________
APPENDIX C
OBSERVATION FORMS

BEHAVIORAL and PHYSICAL OBSERVATIONS

Code Number: ___________________________
Date (MM/DD/YY): ______________________
Observed Time: ____________ | ____________

DEMOGRAPHICAL INFORMATION:

Gender: Male  Female
Age: 18-24  25-30  31-40  41-50  51+
Country of Origin: __________________________
Highest Level of Education:
Some high school  High school graduate
Some college  College graduate  Some post graduate work  Post graduate degree
Occupation: __________________________
Hobbies/Interests: __________________________

PHYSICAL LOCATION:

Resort: Walt Disney World  Universal Orlando
Theme Park: Islands of Adventure  EPCOT
Attraction: Test Track presented by Chevrolet  Harry Potter and the Forbidden Journey

PHYSICAL QUALITIES:

Posted Wait Time: ___________________________
Actual Wait Time: ___________________________
Perceived Wait Time: ___________________________
Type of Queue Line: Standby line  FASTPASS  Castle Tour
Interactive  Visual Storytelling  Both
Indoor  Outdoor

What do you think is the overall story of the attraction?
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
Which story related links do you see between the waiting line and the attraction?
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

142
Which elements of the waiting line are hands-on or interactive for guests?
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

What is the time period and setting for the story of the attraction?
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

PHYSICAL QUALITIES: This section is for you to comment directly on the physical environment of the waiting line. The physical environment refers to the external surroundings and conditions in which the waiting line for the attraction exists. Please pay attention to the details around you, the sounds you hear, and the visual effects you see (the overall theming, props, materials, etc.) in the spaces you occupy while moving through the line. The following list identifies key attributes to pay attention to and make note of in terms of the physical qualities of the waiting environment. Please record any details that you believe contribute to the overall experience of the wait or end attraction.

Theming:
_____________________________________________________________________________________

Architectural Elements:
_____________________________________________________________________________________

Interior Finishes and Materials:
_____________________________________________________________________________________

Props:
_____________________________________________________________________________________

Artwork:
_____________________________________________________________________________________
NOTES ON PHYSICAL OBSERVATIONS:

BEHAVIORAL QUALITIES: This section is for you to comment directly on the behaviors of guests you observe in the waiting line. Please pay attention to the actions of guests, such as the speed with which they move through the waiting line, the level of participation with hands-on activities or interest in visual elements, and the different types of reactions between children and adults waiting in line. The following list identifies key attributes to pay attention to and make note of in terms of the behavioral qualities of the waiting environment. Please record any details that you believe contribute to the overall experience of the wait or end attraction.

Flow/Pace of waiting line:

Interactive Elements:

Guest participation:

Opportunities to rest/sit:

Talking in line:

Guests’ interest in environment:
Guests’ response to visual elements:
_____________________________________________________________________________________
_____________________________________________________________________________________

Guests’ response to interactive elements:
_____________________________________________________________________________________
_____________________________________________________________________________________

How do you perceive posted wait times impacting the number of guests entering the line?
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

How did the guests involve with the interactive elements offered in the waiting line?
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

How would you describe the guests’ level of interest with the visual storytelling elements offered in line?
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Which comments were overheard on queue experience overheard from guests waiting in line?
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
What is your perceived level of satisfaction experienced by children waiting in line (the details they observe, what they say to others in line, their level of interactions with hands-on experiences, etc.):
_________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________ 
________________________________________________________
_____________________________________________________________________________________
SKETCHES/DIAGRAMS/NOTES: Please use any additional space to sketch or describe any additional qualities of the wait that you thought contributed to the overall satisfaction of the attraction. Please note both the physical and behavioral qualities you observed, as the study aims to identify (1) how guests respond to their environment while waiting in line for the attraction and (2) which type of waiting environment guests prefer (visual storytelling or interactive).

Thank you for your participation in this study!
LIST OF REFERENCES


BIOGRAPHICAL SKETCH

Beth Burkhardt was born and raised in St. Augustine, FL, the oldest of six children. In 2007, she graduated with honors from the University of Florida with a Bachelor of Design, majoring in architecture. After a few years of exploring other career paths in education, entertainment, and graphic design, she found her true passion for interior design. She journeyed back to the University of Florida, where she began pursuing her Master of Interior Design degree. Her love of themed entertainment intensified at this time as she began researching new interactive queuing experiences being offered at some of the Disney theme parks. This sparked her interest in the topic, as she began to question whether guests would respond more to queues centered around storytelling or these new interactive experiences being offered. Upon completion of her primary coursework for her master's degree, Beth began an internship with her "dream job" at Walt Disney Imagineering (WDI). She interned with WDI for a year while working on her thesis long-distance with her committee chair and member. Beth currently works at WDI as a contractor. Upon completion of her master's degree she hopes to continue working as a design professional in the theme park industry, specifically at WDI. She plans to pursue licensure as an interior designer and hopes to become a wife, mother, and mentor to other young professionals in the themed entertainment industry.