

A COMPARISON OF PERCEPTIONS AMONG AMATEUR
AND PGA PROFESSIONAL GOLFERS TO
THE FIVE DESIGN PRINCIPLES OF
GOLF COURSE ARCHITECTURE

by

RYAN WOODARD JOHNSON

Presented to the Faculty of the Graduate School of
The University of Texas Arlington in Partial Fulfillment
of the Requirements
for the Degree of

MASTER OF LANDSCAPE ARCHITECTURE

THE UNIVERSITY OF TEXAS AT ARLINGTON

May 2010

Copyright © Ryan Woodard Johnson 2010

All rights reserved

ACKNOWLEDGEMENTS

First, I thank my wife Tiffany, who has been like a rock through this journey; there is honestly no way I could not have done this without her unending love and support, especially during those times I needed it most. Also, I want to thank my mother for her editing skills, but mostly for her steadfast encouragement. In addition, I thank my mother-in-law, Sheila, for her assistance and encouragement. I would like to thank all the individuals outside the university who have helped me through the thesis process and whose assistance was greatly appreciated: John, Trey, Jim C., Harold and Richard as well as all of the staff and members at TPC Craig Ranch.

To my professors: Dr. Taylor, thank you for acting as my committee chairperson; your advice, guidance, and good nature was always appreciated. Dr. Ozdil, thank you for guiding me through the last two studios and introducing me to the world of GIS and urban design. Professor Hopman, your teaching of design is something I value greatly. Professor Robinette, thank you for teaching me that designing is supposed to be fun and that there is no greater profession than landscape architecture. All of my other professors, John Fain, David Hocker, Bo Bass and Claude Thompson, I value the skills and knowledge you have taught me.

I would like to thank Mrs. Kelly Pugh for writing her remarkable thesis, *Straighter Is Not Always Better: The Relative Importance of the Five Design Principles of Golf Course Architecture* and opening the door for this research.

Last, I would like to thank all my classmates, especially those who started the program with me that hot August day in 2007 and are still here. I am sure I never told you guys, but you have inspired me with your creativity, work ethics, and dedication. It was a great pleasure to work with all of you, and I look forward to seeing your amazing accomplishments in landscape architecture and in life.

April 16, 2010

ABSTRACT

A COMPARISON OF PERCEPTIONS AMONG AMATEUR AND PGA PROFESSIONAL GOLFERS TO THE FIVE DESIGN PRINCIPLES OF GOLF COURSE ARCHITECTURE

Ryan Woodard Johnson

The University of Texas at Arlington, 2010

Supervising Professor: Pat D. Taylor

Golf was originally a game played primarily on landscapes not manipulated by humans. As the game has matured, humans have exerted increasing influence on the design of golf courses. As in art, golf course architecture has developed its own set of principles and its own set of elements. The elements are the tools the artist uses to create the painting, while the principles guide how he/she implements these elements (Lovett 1999). In the case of golf course architects, the land is the canvas while the greens, tees, fairways, roughs, hazards and contours are examples of the elements used on that canvas. The methods in which these elements are used constitute the principles of design (Shackelford 2003). The five design principles which have emerged are aesthetics, naturalness, playability, originality and strategy. These design principles merge to provide a playing field which players of differing skill levels can enjoy (Pugh 2003; Doak 1992).

There are, however, certain unknowns about the design of golf courses; one unknown is a clear understanding of how golfers of amateur status as well as those of PGA professional status perceive the five design principles of golf course architecture. For example, many golf course architects believe that scratch golfers perceive the design quality of a golf course purely on the design principle of strategy and that they dismiss elements of aesthetics (Doak 1992).

This research defines the five design principles of golf course architecture as described in literature and compares the differing perceptions among amateur and PGA professional golfers (Professional Golfers Association of America 2010) to elements within the five principles of golf course architecture, using in-depth interviewing as defined by Taylor and Bogdan (1998). The in-depth interviewing consists of questions regarding the design principles found on a specific set of golf holes, Holes One, Two and Three at TPC Craig Ranch in McKinney, Texas. The criteria for selecting these holes are determined by the researcher, a registered landscape architect who is also a member of the Golf Course Architects Society of America. Holes One, Two and Three are determined to possess elements of all the principles of golf course architecture which provide a solid foundation for informative discussion. Those interviewed in the study have experienced play on these holes; therefore, it is assumed that they hold a certain familiarity with the elements displayed on each. What is unknown is how these players perceive these elements as related to the five design principles.

The most effective methods in obtaining an understanding of how these two classes of golfers perceive the different elements within the five design principles is through qualitative research because “the data are descriptive and based on the perception of the interview subjects as stated in their own words” (Miller 2009; Taylor and Bogdan 1998, p.88). The primary means of data collection consists of open-ended interviews with subjects, both amateur and PGA professional players, regarding their experiences and perceptions of specific design elements within the given study site.

The interviews continue until sufficient data is collected to determine the differences in perceptions of amateur and PGA professional players to the five design principles of golf course

architecture. The research concludes with a summary of findings which will provide golf course architects with a better understanding of how they can implement certain design elements to elicit increased interest among golfers of both amateur and PGA professional status.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	iii
ABSTRACT	iv
LIST OF ILLUSTRATIONS	xi
LIST OF TABLES	xiii

Chapter	Page
---------	------

I. INTRODUCTION

1.1 Introduction	1
1.2 A Brief History of Golf Course Design.....	3
1.3 Influential Golf Course Architects.....	4
1.4 Research Objectives	6
1.5 Research Questions	7
1.6 Definition of Terms	7
1.7 Summary.....	11

II. LITERATURE REVIEW

2.1 Introduction	12
2.2 Five Principles of Golf Course Architecture	13
2.2 1 Aesthetics	13
2.2 2 Naturalness.....	15
2.2 3 Playability.....	17
2.2 4 Originality	19
2.2 5 Strategy	21

2.3 The Five Design Principles in Evidence at TPC Craig Ranch	23
2.3.1 Naturalness	23
2.3.2 Aesthetics	24
2.3.3 Playability	25
2.3.4 Originality	25
2.3.5 Strategy	26
2.4 Classification of Golfers	26
2.4.1 Amateur Golfer	27
2.4.2 PGA Professional	27
2.4.2.1 Head Golf Professional	30
2.4.2.2 Teaching Professional	30
2.4.2.3 Assistant Golf Professional	30
2.4.2.4 Touring Professional	30
2.5 Summary	29
III. RESEARCH METHODS	
3.1 Introduction	32
3.2 Approaches to Obtaining Reliable Data	34
3.3 Interview Participants	35
3.4 Selection of Specific Holes to Collect Data	35
3.4.1 Hole One Design Elements	36
3.4.1.1 Elements of Aesthetics	36
3.4.1.2 Elements of Naturalness	38
3.4.1.3 Elements of Playability	38
3.4.1.4 Elements of Strategy	38
3.4.1.5 Elements of Originality	39

3.4.2 Hole Two Design Elements.....	39
3.4.2.1 Elements of Aesthetics	39
3.4.2.2 Elements of Naturalness.....	39
3.4.2.3 Elements of Playability.....	41
3.4.2.4 Elements of Strategy.....	41
3.4.2.5 Elements of Originality	42
3.4.3 Hole Three Design Elements	42
3.4.3.1 Elements of Aesthetics	42
3.4.3.2 Elements of Naturalness.....	42
3.4.3.3 Elements of Playability.....	44
3.4.3.4 Elements of Strategy.....	44
3.4.3.5 Elements of Originality	45
3.5 Interview Questions	45
3.6. Challenges to Research.....	45
3.7 Method for Selecting Study Location	45
3.8 Predictable Outcomes.....	47
3.9 Summary.....	48
IV. RESULTS AND DISCUSSION	
4.1 Introduction	49
4.2 Recruiting Results	49
4.3 Interview Analysis	50
4.4 Themes from the Data	51
4.4.1 Aesthetics.....	51
4.4.1.1 “Natural elements” versus “man-made elements”	51
4.4.1.2 The search for elements which are unique.....	52

4.4.1.3 The importance of perspective (views)	52
4.4.2 Playability	51
4.4.2.1 Importance of turf selection	53
4.4.2.2 Distance	53
4.4.2.3 View from the tee	54
4.4.3 Naturalness	55
4.4.4 Originality	55
4.4.5 Strategy	56
4.4.5.1 The wind as design element	56
4.4.5.2 A noticeable enthusiasm toward strategy	56
4.5 Summary	57
V. CONCLUSION	
5.1 Introduction	58
5.2 Research Findings	58
5.3 A Comparison of Perceptions	59
5.4 Summary of Findings	62
5.5 Relevance to the Field of Landscape Architecture	63
5.6 Recommendations for Further Study	63
APPENDIX	
A. INTERVIEW QUESTIONS	65
B. SAMPLE EMAIL REQUESTING INTERVIEW	67
C. SAMPLE PHONE SCRIPT	69
REFERENCES	71
BIOGRAPHICAL INFORMATION	74

LIST OF ILLUSTRATIONS

Figure	Page
1.1 Aerial View of Chicago Golf Club, Wheaton, Illinois	4
2.1 Hole Six at Cypress Point	13
2.2 Hole Thirteen at Augusta National Golf Club.....	14
2.3 Hole Four at The Old Course at St. Andrews	15
2.4 Example of Naturalness	16
2.5 Example of Playability in Regards to Bunkers	
(a) ball lodged in bunker face,	
(b) ball lodged in bunker crevice	18
2.6 Example of Playability in Regards to Mounding	19
2.7 Hole Seventeen at TPC Sawgrass,	
Ponte Vedra Beach, Florida	20
2.8 Hole Thirteen at Black Diamond Ranch,	
Lecanto, Florida.....	21
2.9 Example of Strategic Design.....	22
2.10 Diagram, Hole Three at TPC Craig Ranch,	
McKinney, Texas.....	24
2.11 Hole Fifteen at TPC Craig Ranch,	
McKinney, Texas.....	24
2.12 Corten Steel Bridges at TPC Craig Ranch,	
McKinney, Texas.....	25
3.1 Hole One at TPC Craig Ranch, McKinney, Texas	
(a) tee box view,	
(b) diagram	37
3.2 Hole Two at TPC Craig Ranch, McKinney, Texas	
(a) tee box view,	
(b) diagram	40

3.3 Hole Three at TPC Craig Ranch, McKinney, Texas	
(a) tee box view,	
(b) diagram	43
4.1 Grounded Theory Approach	50

LIST OF TABLES

Table	Page
2.1 A Playing Ability Test, Scoring Table Example.....	29

CHAPTER I

INTRODUCTION

1.1 Introduction

*“The problem with most courses is that we pay too much attention to false idols of good design, such as length, difficulty, balance, and setting, and lose sight of the underlying principle that the best golf course is the one with the greatest variety in all facets of design”
(Doak 1992, p.42).*

This research defines the five design principles of golf course architecture as described in literature and compares the differing perceptions of amateur and PGA professional golfers (as defined by the Professional Golfers Association of America) to elements within the five principles of golf course architecture, using in-depth interviewing as defined by Taylor and Bogdan (1998). Lacking in the literature is an understanding of the comparable perceptions these two classes of golfers, amateur and PGA professional, have toward elements of aesthetics, naturalness, playability, strategy and originality—the five principles of golf course architecture. To clarify the term “perception” for the purpose of this study, “perception” is defined as “the action of taking possession, apprehension with the mind or senses” (Aque 2007, para. 2). This thesis compares and evaluates these differing perceptions between amateur and PGA professional golfers (as defined by the Professional Golfers Association of America) to elements within the five principles of golf course design through in-depth interviewing of PGA professionals and amateurs. The in-depth interviewing consists of questions regarding the design principles found on a specific set of golf holes at TPC Craig Ranch. The holes used for the research are Holes One, Two and Three at TPC Craig Ranch in McKinney, Texas. It is determined through consultation with a registered landscape architect and member of the Golf Course Architect Association of America that these holes provide sufficient evidence of elements reflecting the five design principles of golf course architecture.

The logic for limiting the interviews to discussion regarding these three holes is to provide a common ground for discussion between the researcher and the interview respondents.

As golf course architecture has emerged, five design principles have developed: aesthetics, naturalness, originality, strategy and playability (Pugh 2003; Doak 1992, p. 42). Each of these principles contains corresponding elements which are implemented by golf course architects. Golf course architecture is considered an art; elements such as greens, tees, fairways, rough, bunkers, water hazards and contours provide the architect his/her tools for design (Shackelford 2003, p.12). The manner in which he/she uses these elements is the basis for the principles of design (Lovett 1999). Mackenzie (1920) provides an example of using the elements in reference to bunkers: "The bank should have a considerable slope so that the ball always rolls to the middle" (p. 10). This design element of bunker shape and slope corresponds to the design principle of playability. Additionally, designers may implement two different types of grasses for the fairway and the rough; their subtle differences in color define the shape and contours of the hole (Jones 1993, p. 93). This design element of the rolling contours, in conjunction with the colors of the turf, lends to the aesthetics of the hole.

As the game grew, classes of players became more specifically defined as well. For example, in the early years of golf, the Royal and Ancient of St. Andrews (R and A) deemed professional golfers as "those who had played for prize money in open events, not from club and ball makers, those who had taught golf for money or caddies. Later additions to this list were course architects and green keepers and those who had played against a professional for money" (R & A 2010). It was not until the founding of the Professional Golfers Association of America (PGA 2010) in 1916 that a more defined set of criteria evolved in determining players who held the title of PGA professional. The United States Golf Association (USGA) now defines an amateur as "one who plays the game as a non-remunerative and non-profit-making sport and who does not receive remuneration for teaching golf or for other activities because of golf skill or reputation, except as provided in the rules" (USGA 2010).

This chapter also contains a basic account of the history of golf course design and the profile of the work and design philosophies among different golf course architects of the past and the present. These design philosophies further illustrate the evolution of the design principles golf course architectures have practiced since the conception of golf in fifteenth century Scotland.

1.2 A Brief History of Golf Course Design

Golf began in the fifteenth century in the country of Scotland. In the beginning, golf courses were not designed formally but were laid out using natural features to determine each hole's location and the overall course. Stakes were then put in the ground to establish tees and greens (Hurdzan 2006, p. 4). "Pastimes resembling golf, with similar playing equipment, were pursued in Europe as early as the days of the Roman Empire, when the game of *paganica* was played. Other early European games resembling golf include *pall mall* in Italy, *chole* in Belgium and France and *kolven* in the Netherlands" (Graves and Cornish 1998, p. 3). These games resembled cricket or croquet more than golf because they involved getting a ball in between two posts rather than into a hole. It was not until the Scots incorporated putting a ball into a rabbit hole that many say golf was truly born. Graves and Cornish (1998) give credit to the wind and weather of the Scottish links and the Scottish way of life in the development of the game of golf (pp. 3-4). One example illustrates this idea:

The winds, often gale force, drove livestock to seek shelter behind hillocks, where they trampled grass into sandy scars that Scottish farmers called 'bunkers'; these added challenge and excitement for those hitting balls across the links. A few other characteristics of the Scottish links that affected the development of golf were the vegetation, brome and gorse, heather and coarse grasses interspersed with areas of grazed bent grass. The links land was also publicly owned allowing free play. The popularity of the game grew and in the mid-nineteenth century, the gutta perch ball or 'guttery' replaced the feathery; this in addition to the expansion of the British railway system made it possible for people from as far away as London to reach the Scottish

links to watch and play golf. Professional golfers became sought after to stake out courses and are considered to be the first golf course designers (Graves and Cornish 1998, pp. 3-4).

When golf first arrived in North America, builders used the stake method of the early designers in Scotland; the layouts often resulted in rigid and geometric lines. Even the greens were square in shape. However, there were designers with visions, such as Ross and Bendelow (both Scots) who were among the first designers to cross the Atlantic to design and plan golf courses. Park, also a Scot who



Figure 1.1 Aerial View of Chicago Golf Club (source: googlemaps.com)

journeyed to America to design courses, had a knack for manipulating the terrain to achieve just the right look and playing surface that he wanted. Courses from this early era of design in America remain in use today, and the geometric lines can still be seen (Graves and Cornish 2002, p. 23). For example, the image above shows Chicago Golf Club in Wheaton, Illinois, designed by MacDonald, a well-known golf course architect. The straight edges of the greens and tees are apparent. However, MacDonald began using the terrain to establish organic lines, a good example of the evolution of course design in North America in the early nineteen hundreds. American golfers began demanding golf courses that resembled those in the British Isles in response to this demand, and designers began producing American landmark courses (Cornish and Graves 2002, p.23)

1.3 Influential Golf Course Architects

To provide an understanding of the five design principles of golf course architecture and their emergence, the techniques of influential golf course architects of the past are outlined. In addition to the architects of the past, the styles and design philosophies of modern-day golf course architects also are outlined. The preceding sections include the link between the designs of modern-day golf course architects and architects of the past and how new ideas in golf course design have evolved.

Allan Robertson. Allan Robertson of St. Andrews, Scotland, was the earliest known golf course designer. His creation of the Road Hole at The Old Course at St. Andrews and his technique of widening fairways along with the incorporation of double greens at St. Andrews with the creation of the first ten-hole golf course at Barry Angus that eventually became Carnoustie are the reasons he is considered the world's first golf course architect. Robertson had several influential protégés; one in particular, Tom Morris, was a business partner in making "featheries," the first "bean bag like golf ball." Their partnership split after Robertson caught Morris playing the innovative "Gutta Percha," the newer, harder ball being used in place of the "feathery" in golf (Shackelford 2003, p. 18). Shackelford (2003) refers to this group of designers as being members of the natural school of design, stating, "They worked around what nature left behind; they never considered making major changes to the ground in order to accommodate golf, instead golf worked around all features even man-made elements such as wall, roads and ruins, just like it did at St. Andrews" (p. 32).

Dr. Alister Mackenzie. Dr. Alister Mackenzie was an influential golf course architect of the twentieth century. Originally a surgeon, he abandoned the practice of medicine for a career in golf course architecture. Shackelford states that "Mackenzie spearheaded the strategic school of design, combining natural looking courses that provided the golfer with options to debate, ultimately rewarding the more daring play carried out with skill" (Shackelford 2003, p. 38). His legacy includes Augusta National Golf Club (Augusta, Georgia) and Cypress Point (Pebble Beach, California) (WGV, 2009).

Robert Trent Jones. Robert Trent Jones, Sr., is said to have revolutionized golf course design in the twentieth century. His first masterpiece was the design of Peachtree Golf Club (Atlanta, Georgia) in which he collaborated with Bobby Jones. Jones veered away from the strategic school of design and, as Shackelford states, “created the concept of the heroic hole; he believed in holes that required dramatic heart-stopping decisions with grave consequences for miscues” (Shackelford 2003, p. 38). He is said to have invented the “risk reward” design topology, which is the concept of creating holes that are difficult pars and easy bogeys. Through the years he received criticism that his designs were too difficult for players. However, due to the increased skill necessary to play his designs, more than three dozen of his designs have hosted national and international championships.

Pete Dye. Pete Dye had no formal training in golf course design; however, he was influenced by the old design of the courses of the British Isles. Shackelford credits Dye for “ending the ‘freeway’ school of design which consisted of courses laid out a bit like freeways, ‘lifeless’ with no real concern for strategy just basic function; this lasted from the 1950’s to the early 1980’s. Dye, with his links, land inspired design, created thought provoking and original architecture integrating water, mounding and railroad ties” (Shackelford 2003, pp. 41-43). Pete Dye is credited with designing some of the most famous courses in the United States and throughout the world. These courses include TPC Sawgrass (Ponte Vedra Beach, Florida) and Crooked Stick (Carmel, Indiana).

Tom Doak. Tom Doak graduated with a degree in landscape architecture from Cornell University in 1982 and is considered one of the premier golf course architects currently in the industry. In his article “Minimalism Defined,” Doak (2010) states, “Since the opening of High Point in 1989, our work has been praised as the foundation of a new ‘minimalist movement.’ For the most part, minimalism is just good common sense, a refusal to let arbitrary design ideas outweigh the realities of the site. Instead of reshaping a severe slope, we try to figure out how to use it to make a golf hole interesting in golf course design.” He has completed various projects such as The Rawls Course (Lubbock, Texas), Black Forest at Wilderness Valley (Gaylord, Minnesota), and Pacific Dunes (Bandon, Oregon). Doak won Best New

Course of 2002 in *Golf Digest* for Pacific Dunes. Doak was heavily influenced by the design philosophy of Dr. Alister Mackenzie and Pete Dye (Doak 2009).

1.4 Research Objectives

The objective of the study is to compare how golfers of amateur status and of PGA professional status perceive the elements within the design principles of golf course architecture. Using in-depth, open-ended interview questioning, the research assesses differences and similarities among the perceptions. This information is then used to balance the design principles when designing golf courses and to provide a more appropriate design strategy that, in turn, provides a more enjoyable experience for all types of golfers. In addition, the information produced by this research enhances the teaching professional's understanding of how amateur golfers perceive these elements, potentially improving the methods of teaching the game of golf.

1.5 Research Questions

- 1 What are the perceptions among amateur golfers of the five design principles of golf course architecture?
- 2 What are the perceptions among PGA professional golfers of the five design principles of golf course architecture?
- 3 What design elements reflect the design principles of golf course architecture?
- 4 How do the perceptions among amateur and PGA professional golfers differ?
- 5 How can this research impact landscape architecture?

1.6 Definition of Terms

The following definitions are intended to supplement topics within the body of text:

Aesthetics. A branch of philosophy concerned with the beautiful in art and how it is experienced by the viewer (Laurer and Pentak 2000, p. 264).

American Society of Golf Course Architects (ASGCA). The oldest professional organization of golf course designers in America, ASGCA architects have designed, renovated and remodeled many of the

most famous and storied courses in golf. They are active in current projects, not only in the United States and Canada but also in Europe, Asia and beyond (ASGCA 2009).

Bogey golfer (female). A player who has a course handicap of approximately twenty-four on a course of standard difficulty. She can hit tee shots an average of 150 yards and reach a 280-yard hole in two shots (USGA 2010).

Bogey golfer (male). A player who has a course handicap of approximately twenty on a course of standard difficulty. He can hit tee shots an average of 200 yards and reach a 370-yard hole in two shots at sea level (USGA 2010).

Bunker. A hazard consisting of a prepared area of ground, often a hollow, from which turf or soil has been removed and replaced with sand or the like (USGA 2010).

Dog leg. An obvious bend right or left on a golf hole (Graves and Cornish 1998, p. 413).

Fairway. The refined area of turf grass starting in front of the tee and proceeding to the green (Graves and Cornish 1998, p. 414).

Golf. A game played with a small ball and a set of clubs, the object being to hit the ball into each of a series of holes with the smallest possible number of strokes; of uncertain origin but may have originated with a game called *chole*; is supposedly the Celtic word for "ball" and also may come from the Old Dutch or Old German word *kolb* or *kolven*, meaning "club" or "clubs" (Blakemore 2010).

Golf club. An organization of at least ten individual members that operates under by-laws with committees (including a handicap committee) to supervise golf activities, provide peer review, and maintain the integrity of the USGA Handicap System (see Compliance Checklist, Section 8-2m; Decision 2/7). A golf club must be licensed by the USGA® to utilize the USGA Handicap System. A club can obtain a license agreement directly from the USGA or through its membership in an authorized golf association that is already licensed by the USGA and that has

jurisdiction in the geographic area that includes the principal location of the golf club (USGA 2009).

Golf course. An area of land laid out for golf with a series of nine or eighteen holes, each including tee, fairway and putting green and often one or more natural or artificial hazard (Blakemore 2010).

Golf course architect. A member of the American Society of Golf Course Architects and is one who by virtue of his/her knowledge of the game, training, experience, vision and inherent ability is in all ways qualified to design and prepare specifications for a course of functional and aesthetic perfection (ASGCA 2009).

Green. All ground prepared for putting on a hole or defined as such by the Committee (Graves and Cornish 1998, p. 422).

Heroic school of design. A design style where a clear advantage is gained on the approach by making a significant carry from the tee (Doak 1992, p.69).

Landing area. The area of a golf hole where tee shots land; two landing areas are needed on par five holes (Graves and Cornish 1998, p. 419). A specific type of sandy soil that is created by the meeting of river and sea terrain. It is land the ocean “once covered, but thanks to the sea salt left behind, links became areas unsuitable for farming” (Shackelford 2003, p. 203).

Naturalness. That which is not produced or changed artificially (Pugh 2003; Davies 1992, p. 18).

Originality. The first form from which other forms are made or developed (Pugh 2003; Ward-Thomas 1976, p. 24).

Penal school of design. A design style where hazards are placed only to punish poor golf shots (Doak 1992, p. 66).

Perception. The action of taking possession, apprehension with the mind or senses; is what allows us to make sense of the world through the experience of our senses and the collection of data (Aque 2007).

Playability. The arrangement of a course to allow all players the chance to demonstrate skills regardless of their ability (Doak 1992, p.44).

Professional Golfers Association of America (PGA of America). The world's largest working sports organization comprised of 28,000 men and women golf professionals who are the recognized experts in growing, teaching, and managing the game of golf, while serving millions of people throughout its forty-one PGA sections nationwide (PGA 2010).

Public golf course. A golf course that is accessible for play to the general public (Blakemore 2009).

Royal and Ancient (R & A). Based in St. Andrews, Scotland, the R & A is golf's governing body and organizer of the Open Championship. The R & A is committed to working for golf and operates with the consent of 136 organizations from the amateur and professional game and on behalf of over thirty million golfers in 123 countries (R & A 2010).

Scratch golfer (female). A player who can play to a course handicap of zero on any and all rated golf courses. A female scratch golfer, for rating purposes, can hit tee shots an average of 210 yards and can reach a 400-yard hole in two shots at sea level (USGA 2010).

Scratch golfer (male). A player who can play to a course handicap of zero on any and all rated golf courses. A male scratch golfer, for rating purposes, can hit tee shots an average of 250 yards and can reach a 470-yard hole in two shots at sea level (USGA 2010).

Strategic. Golf design that provides alternate routes from tees to greens with the golfer benefitting from well placed shots (Graves and Cornish 1998, p. 427).

Strategic school of design. A design style that entails the green being heavily guarded on one side or tilted significantly so there is a distinct advantage to placing the drive in a certain part of the fairway (Doak 1992, p.66).

Tee. "The area on which tee markers are placed; was formerly know as the tee box" (Graves and Cornish 1998, p. 428).

United States Golf Association (USGA). The national governing body of golf for the U.S. and Mexico.

The USGA's most visible role is played out each season in conducting thirteen national championships, including the U.S. Open. The USGA also writes the Rules of Golf, conducts equipment testing, funds research for better turf and a better environment, maintains a handicap system, celebrates the history of the game, and administers an ongoing grants program (USGA 2009).

USGA course handicap. The USGA's mark that indicates the number of handicap strokes a player receives from a specific set of tees at the course being played to adjust the player's scoring ability to the level of scratch or zero-handicap golf. For a player with a plus course handicap, it is the number of handicap strokes a player gives to adjust the player's scoring ability to the level of scratch or zero-handicap golf (USGA 2009).

USGA handicap system. The USGA's mark that denotes the USGA's method of evaluating golf skills so that players of differing abilities can compete on an equitable basis (USGA 2009).

1.7 Summary

As golf course architecture has grown, five design principles have emerged as well. It was the design of early pioneers in golf course architecture as well as modern-day golf course architects who have established the principles of aesthetics, naturalness, strategy, playability and originality. In addition, the amateur golfer and the PGA professional golfer are better defined as the two primary classes of golfers. The thesis examines the differences in perception of these two classes of players in regards to the five design principles of golf course architecture.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

“A pleasurable golf course is not necessarily one that appeals at first sight, but rather one that grows on the player like good music, good painting, or good anything else. I also venture to suggest that a pleasurable course is synonymous with a good one. No course can give lasting pleasure unless it is a good test of golf. I also submit that no course can be really first rate unless it appeals to all classes of players”
(Mackenzie 1920; Shackelford 2003, p. 1).

This chapter describes the principles of golf course architecture which Doak (1992) describes as aesthetics, naturalness, strategy, playability and originality (p. 42). In addition, examples of corresponding design elements that fit respectively into the design principles are described. Some examples of these elements are the addition of colorful plant material as an element of aesthetics, the positioning of bunkers and water hazards to create a decision-making process, otherwise known as strategy. Other examples include the use of natural elements such as creeks and clearings to illustrate the principle of naturalness or the small hummocks and railroad ties that Dye uses as his signature or the originality of his designs. One last example is the use of contouring and bunker profile to ensure the ball rolls to the middle of the bunker, creating a fair lie, demonstrating the principle of playability. These elements and principles are further described within this chapter.

In the literature about golf course architecture, the term “golfer,” otherwise known as “one who plays golf,” is generically used to describe a range of players (Davies 1992, p.76). Mackenzie (1920) specifically refers to a golfer of less skill as a “beginner, or long handicap player,” and a golfer of a high level of skill as an “expert golfer” (p. 11). Terms which lack grounding such as these can be found throughout the literature. This study better defines the classifications of the golfing population as found in

literature and, in so doing, enables golfers to be evaluated from the perspectives of both categories of players.

The current system for measuring a player's ability is the USGA handicap system. This system, as stated previously, is directly related to the golfer's scoring and fails to take into account other factors such as the intensity of involvement, the frequency of play, and the seriousness of participation in the game. For the purpose of this research, players are classified in a simpler format, amateur and PGA professional. The following sections provide grounded definitions and methods of classifying golfers as either PGA professional or amateur as categorized by the PGA of America and USGA.

2.2 Five Design Principles of Golf Course Architecture

2.2.1 Aesthetics

Aesthetics can be defined as “a branch of philosophy concerned with the beautiful in art and how it is experienced by the viewer” (Laurer and Pentak 2000, p. 264). Mackenzie (1920) states, “It may at first appear unreasonable that the question of aesthetics should enter into golf course design; however,



Figure 2.1 Hole Six at Cypress Point (source: www.golfcoursegurus.com)

on deeper analysis, it becomes clear that the great courses, and in detail all the famous holes and greens, are fascinating to the golfer by reason of their shape, their situation and the character of their molding. When these elements obey the fundamental laws of balance, of harmony and of fine proportion,

they give rise to the call of beauty” (p. 7). Golf course architects use actual and artificial materials, scaling from the size of a person to the expanse of a golf course. They may employ water (in pools, streams or fountains), color, plants, reflection, seasonal variance, stonework, fragrance, variance-viewing expansion, exterior lighting or repetition as aesthetics (aesthetics 2004). Examples of aesthetic elements are seen in Figure 2.1 (on the preceding page); the attractive bunkers, the towering Monterey pines, the white sand



Figure 2.2 Hole Thirteen at Augusta (source: www.pgatour.com)

contrasting with the green turf and the collage of colors in the native grasses are all elements of aesthetics (Miller and Shackelford 2001, p. 179). Another example of the aesthetic elements is seen in Figure 2.2 (above) at Mackenzie-designed Augusta National. The colorful azaleas, the subtle contouring of the green, the flashed white sand of the bunker against the dark green turf and the glistening of the creek all lend to the aesthetics of the golf hole (Miller and Shackelford 2001, p. 58). Doak’s take on aesthetics refers to The Old Course at St. Andrews and the overall character of a golf course. Doak believes that character is an element of aesthetics, stating how “The Old Course at St. Andrews draws its character from the town, where it begins and ends, whose major buildings serve as landmarks in choosing a line of play.” He continues to say “the greatest courses do not simply fall back on the natural beauty of the property, but are designed to enhance the beauty of the property by directing the golfer

around the property to see it in all its aspects and by adding elements that blend into the landscape while helping to focus the golfer's view.” Figure 2.3 (below) shows The Old Course at St. Andrew's Hole Eighteen. Hawtree (1983) outlines a few elements of aesthetics that designers use, such as planting trees to hide external distractions and the use of vistas for a background perspective (p.56). Golf courses rank among some of the most beautiful landscape creations. The precise grooming and perfection of the gently rolling contours incorporated with magnificent trees, flowering shrubs together with light, shade, and colors and the textures present a striking effect for the eyes (Cornish and Graves 1998, p.33). “One of the most attractive aspects of the game for the average golfer is the beauty of the surroundings; in fact, when he is playing poorly, it may be the consolation which brings him back” (Doak 1992 p.36).

2.2.2 *Naturalness*

Robert Trent Jones, Sr., illustrates naturalness, one of golf's supreme characteristics, in the following statement: “Golf has a playing field like no other in the world. Mountaineers, hunters, fisherman, trekkers, cyclist, and scuba divers may command the most extensive locales in which to



Figure 2.3 Hole Four The Old Course at St. Andrews (source: www.golfscotland.com)

pursue their challenges, but among the games that require a formal playing field, golf offers an unusual combination of rigid specifications mixed with sometimes wild and unpredictable irregularities of nature”

(Jones 1993, p. 3). Naturalness is described by Shackelford (2003) in regards to the routing of a golf course as “the way an architect initially takes advantage of the natural canvas he is given” (p. 7). Doak (1992) explains that “the golf course architect’s primary task is to route the eighteen holes to take the greatest advantage of a property’s natural assets” (p. 23). This corresponds directly with the design principle of naturalness. Mackenzie (1920) also describes naturalness as a way “to imitate the beauties of nature so closely as to make his work indistinguishable from nature itself” (p. 7). Once more, The Old Course at St. Andrews is a trademark on this principle due to its natural beauty and the minimal amount of influence and interference man has had on it. In fact, Mackenzie (1920) states that “the finest courses in existence are the natural ones; such courses as St. Andrews and the championship courses generally are admitted to provide a fine test of golf. It is by virtue of their natural formations that they do so” (p.7). Shackelford (2003) refers to the natural school of design stating, “Whether intentional or not, the early designers were bona fide minimalists. They worked around what nature left behind. They never considered making major changes to the ground in order to accommodate golf. Instead, the golf worked

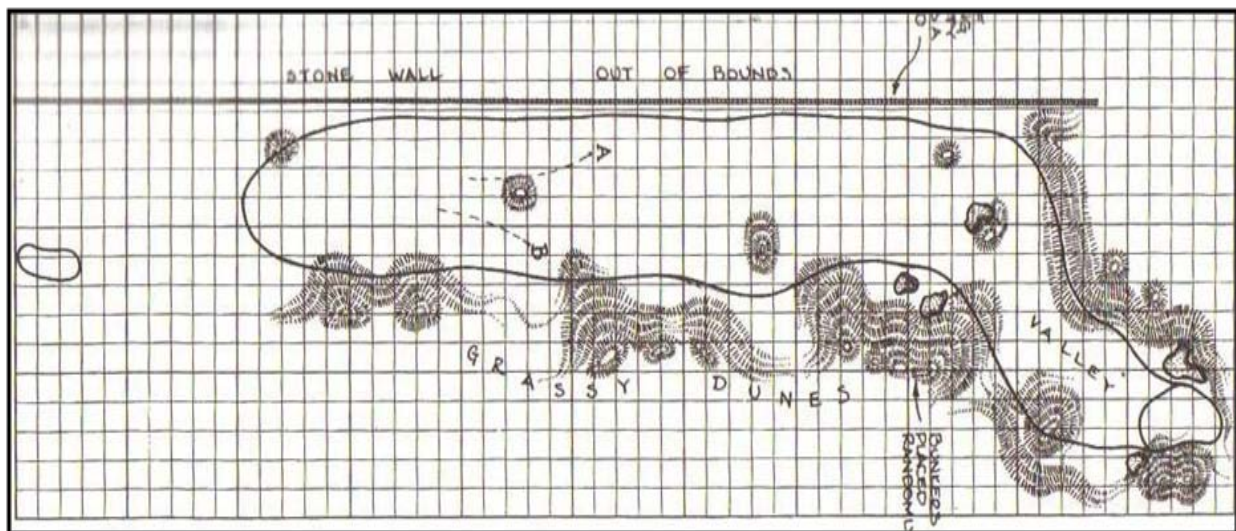


Figure 2.4 Example of Naturalness (source *Grounds for Golf*, p. 33)

around all features, even man-made elements, such as walls, roads, and ruins, just like golf did at St.

Andrews” (p. 32). To further illustrate this point Shackelford refers again to the early figures of golf course design like Allan Robertson and Tom Morris, who were previously mentioned, stating, “When Allan Robertson and Tom Morris were commissioned to create new golf courses outside of St. Andrews, whether by ingenuity or lack of man power, they allowed the natural or existing features to influence the design. Without any predecessors to refer to, there were not ‘rules’ for designing a course, so they simply placed holes around whatever existed” (Shackelford 2003, p. 47). Figure 2.4 (on the preceding page) illustrates appropriately the naturalness of a golf hole. Elements such as the random bunker placement and the fairway are routed through the mounds; in addition, the stone wall on the left serves as an out-of-bounds marker. This hole creates an exciting experience, making good use of the existing elements with little alteration, thus, making this hole an ideal celebration of the design principle of naturalness.

2.2.3 Playability

Shackelford (2003) describes playability (in its most basic form) as a hole that is as “fun for the average player and just as challenging for them to try outmaneuvering as it is for the excellent golfer” (p. 91). Purely speaking, this means that a golf course is fair for all who want to challenge it. This challenge is often an objective of most golf course architects; however, in many cases, the hazards are placed to reduce difficulty, or removed all together, for fear of penalizing the average-to-low frequency golfer. This, in Shackelford’s (2003) opinion, results in an unchallenging and boring layout (p. 91).

Hurdzan (2006) refers to playability in terms of fairness, stating, “Unfair holes are long forced carries, tee locations that don’t allow the golfer who hits a good drive to see around a dogleg, and landing zones that are too small or do not allow for a reasonable margin of error” (p. 38). He goes on to state that “golfers don’t mind being fairly challenged and failing, but they usually dislike holes that ask more of them than they can deliver even with their good shots” (p. 38).

The playability of a golf course can also be a direct result of certain maintenance practices; for instance, mowing turf too low or not manicuring it properly can create “unplayable” lies or impromptu

movements of the golf ball, thus resulting in unfair play. These playability issues can also be a direct result of the design of the golf course. A few elements of playability illustrated by Mackenzie (1920) are the issues of mole hills or small hummocks. When using hazards such as these, Mackenzie states that “a mowing machine must pass over them easily” (p. 10). Also, when referring to bunkers, Mackenzie (1920) states, “The bank should have a considerable slope so that the ball always rolls to the middle” (p. 10). This concept contradicts the current construction of most bunkers which often create unplayable lies underneath the lip of the bunker. Figure 2.5 a and 2.5.b (below) demonstrate elements of playability



(a)



(b)

Figure 2.5 Examples of Playability with (a) ball lodged in bunker face, and (b) ball lodged in bunker crevice
(source *Golf Course Design*, p. 117)

regarding bunkers. Figure 2.5.a shows a concave bunker that is designed for the ball to roll to the center of the hazard; however, due to poor raking techniques, the ball has lodged in the face, creating an unfair lie. Figure 2.5.b shows a poorly designed bunker in which, no matter how the sand is raked, the ball always has the potential to come to rest near the bunker crevice. For example, if careful consideration is given to the slope of the mounding on greens and fairways, the result can be penalizing shots that are not intended by the golf course architect. If the turf is not maintained at the proper height, impromptu rolls of the golf ball can occur, thus resulting in unfair or undesired lies. This is seen in Figure 2.6 (below) “The most common criticisms leveled at a golf course are that some difficult hole is ‘unfair. Fairness, too, is in the eye of the beholder” (Doak 1992, p. 49).

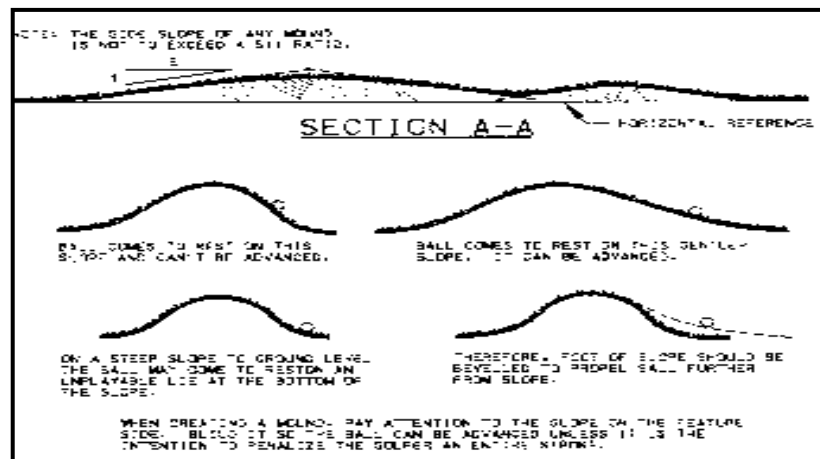


Figure 2.6 Examples of Playability in Regards to Mounding
(source: *Golf Course Design*, p.103)

2.2.4 Originality

Every designer illustrates his/her original ideas in each of his/her designs. These details provide each course with the designer's signature (Shackleford 2003, p. 205). Pugh (2003), Ward and Thomas (1976) define originality as the first form from which other forms are made or developed (p. 24).

For example, Jones's son, Jones II (2003), references Spyglass Hill (Monterey, California), "My father's work is known for long 'runway' tees, fairways that extend from tee to green framed with large bunkers and expansive contoured, elevated greens" (p. 253). These are elements that were first seen in Jones's work, which lend to their originality.

Another example cited by Jones (2003) is Pete Dye's use of wooden planks and railroad ties as a decorative feature for bunkers and the use of contrasting turf grasses to create "visual excitement" (p. 255). These featured railroad ties can be seen in Figure 2.7 (below), retaining Hole Seventeen green at TPC Sawgrass and can also be seen throughout the work of Pete Dye, lending to the originality of the courses he designs. In fact, another aspect of originality that can be seen in Figure 2.7 is the incorporation of the island green, an element of originality incorporated by Dye. One additional example of an original design element is in architect Tom Fazio's design where he incorporates "large putting surfaces broken up by significant contour" (Jones 2003, p. 261). This can be seen in Figure 2.8 (on the following page), the dramatic contours, creating essentially two tiers. Elements such as these lend themselves to the originality of a golf course.



Figure 2.7 Hole Seventeen at TPC Sawgrass
(source www.golf.com, 2010)



Figure 2.8 Hole Thirteen at Black Diamond Ranch
(source: *Golf by Design*, p. 261)

2.2.5 Strategy

Strategy refers to design that stirs a thinking response from the player rather than merely punishing bad shots (Davies 1992, p. 164). In reference to design that elicits decision making, Doak outlines three distinct schools of design pertaining to golf course architecture: the penal school, the strategic school, and the heroic school.

The penal school of design is a style whose main purpose is to penalize poor shots, for example, placing bunkers in front of tees to punish topped drives (Doak 1992, p.66). This style of design is not practiced regularly as it has been determined to penalize beginner players with little effect on more advanced golfers. Shackelford's (2003) opinion on the penal school style course is that "the absence of interesting thought is required to play such courses" (p. 36).

The strategic school is the second school of design and one of principal interest because it is the most widely used by golf course architects (Doak 1992, p.66). "The essence of this style is for the green to be heavily defended on one side or tilted significantly, so there is a distinct advantage to placing the

drive in a certain part of the fairway” (Doak 1992, p. 66). Shackelford (2003) references this design school by stating that “for the interactive side of golf course design to work, the architect has to put forth hazards and greens that stir [the golfer’s] mind to envision interesting shots. Or the designer must give the shrewd player a chance to outsmart by knowing, as Kenny Rogers wrote, ‘when to hold ‘em and when to fold ‘em’ ” (p. 4). “The architect’s goal is to present options for the player to debate, ultimately rewarding the more daring plays carried out with skill. The penalties in the strategic design are more subtle for the less courageous or poorly planned attack, which is why strategic designs are more fun and playable for golfers of all levels” (Shackelford 2003, p. 38). Doak (1992) explains the third school of design, the heroic school, as “an offshoot of the strategic style. This style gives great rewards to the player who is willing or able to make long carries from the tee. These courses are normally laid out in diagonal fashion so that each player can carry a portion of the hazards laid out (p. 69). The reason many golf course architects no longer use this type of design style is because most advanced players can accurately gauge the range of their tee shot, taking out of play the hazards in the hole.

Shackelford (2003) mentions the design style of Robert Trent Jones, Sr., when referencing design, stating that “he believed in holes that required dramatic, heart-stopping decisions with grave consequences for miscues” (p. 39). Methods for designing a golf course requiring strategic decisions are

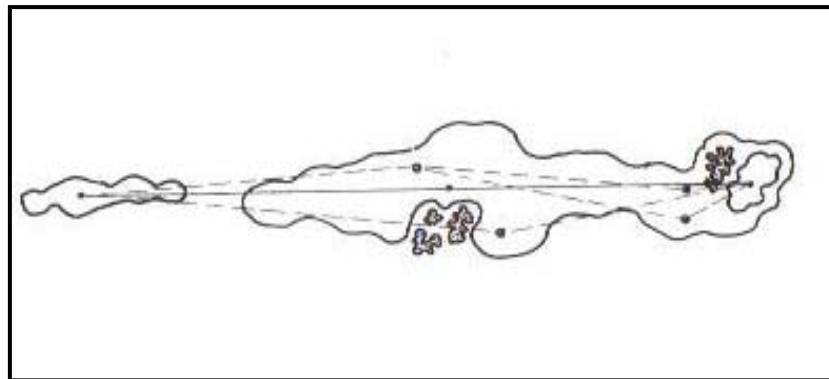


Figure 2.9 Example of Strategic Design
(source: *Golf Course Design*, p. 25)

infinite; however, it is valuable to illustrate a few examples. For instance, Figure 2.9 (on the preceding page) shows a hole designed to elicit a strategic decision from the player. The bunker placed on the left side of the green makes the golfer think that if he/she places his/her tee shot over the fairway bunkers, he/she will have a better second shot to the green; inversely, if he/she plays it safe and hits his/her tee shot to the left side of the fairway bunkers, he/she will have a more difficult second shot to the green. This is a prime example of strategy; the player is forced to make a risk-decision, but the risk is not of great consequence.

“There is no necessity for artificial barriers. Play does not have to be systematically controlled. An opposite principle is involved. This principle is freedom. And by freedom we compel the golfer to control himself, that is to say, his instincts. If he judges his skill is great enough, he will of his own accord go for a strategic hazard to gain an advantage just as the tennis player will go for the sidelines of the court” (Shackelford 2003, p. 36).

2.3 The Five Design Principles in Evidence at TPC Craig Ranch

2.3.1 Naturalness

This is displayed in the landscape of TPC Craig Ranch on many holes. In fact, the Rowlett Creek serves as the main guide to the routing of the golf course. This is similar to the way Tom Morris and Alan Robertson laid out courses in Scotland; they let the natural features of the landscape determine the design. As stated in Chapter 1 in reference to golf’s first designers, “They worked around what nature left behind. They never considered making major changes to the ground in order to accommodate golf. Instead, the golf worked around all features, even man-made elements such as walls, roads and ruins just like golf did at St. Andrews” (Shackelford 2003, p. 32). This statement illustrates how Weiskopf designed TPC Craig Ranch around Rowlett Creek. Figure 2.10 (on the following page) depicts the “naturalness” of TPC Craig Ranch’s Hole Three.

2.3.2 Aesthetics

Cornish and Graves (1998) provide a sound example of aesthetic elements within a golf course when they state, "Beauty is further increased by dramatically designed greens, tees, bunkers and ponds. A green, sculptured and raised above fairway level set among trees and guarded by white sand, is



Figure 2.10 Diagram, Hole Three at TPC Craig Ranch
(source: www.tpcraigRanch.com, 2010)

brehtaking in its eye appeal" (p. 33). Figure 2.11 (below) illustrates these exact features, almost ironically, further proving that TPC Craig Ranch holds elements of the design principal aesthetics.



Figure 2.11 Hole Fifteen at TPC Craig Ranch
(Source:www.tpcraigRanch, 2010)

2.3.3 Playability

TPC exemplifies playability in its layout, maintenance program and contouring of greens, tees and fairways. A primary goal for any architect is never to have a blind second shot. Mackenzie (1920) states, "A blind tee shot may be forgiven, or a full shot to the green on a seaside course, when the greens can usually be located accurately by the position of the surrounding hummocks, but an approach shot should never be blind, as this prevents an expert player, except by a fluke, from placing his approach so near the hole that he gets down in one putt." The TPC Craig Ranch exhibits no blind shot into greens; this, however, is only one example of the playability this course exudes. Another example is the careful consideration of the contouring of greens and fairways. Additionally, the mowing equipment is carefully maintained and operated by a trained staff to achieve precise and appropriate cuts on the different playing surfaces. In fact, these cutting heights are adjusted to the precision of one two-hundredth of an inch. Additionally, the mowing equipment is sharpened daily to achieve the architect's intended height of cut.

2.3.4 Originality

The originality of TPC Craig Ranch is evident throughout. The primary feature considered by the researcher to exhibit elements of originality is the designer's use of corten steel on all of the bridges and metalwork as seen in Figure 2.12 (below). Weiskopf incorporated many other additional features into



Figure 2.12 Corten Steel Bridges at TPC Craig Ranch (Source: Kingrealty.com 2010)

TPC Craig Ranch; one in particular that is inherent in all of Weiskopf's work is the inclusion of a drivable par four. This is displayed on Hole Fourteen, a par four that is 264 yards with water on the left and a large multi-tiered green. In reference to this original design concept, Weiskopf states, "One key element in providing a memorable experience to players is a potentially drivable par four; the concept came to me while competing at the Open Championship at St. Andrew in 1970. Similar to a reachable par five, the risk-reward is the same" (www.weiskopfdesigns.com 2010).

2.3.5 Strategy

Each golf hole at TPC Craig Ranch contains elements of strategy. The most appropriate way to describe this would be to provide a hole description as described by the TPC Craig Ranch in referring to Hole Fourteen: "Rowlett Creek, trees, bunkers and a lake all come into play on this exciting 330-yard potentially drivable par-4 hole. Drives must be placed in the fairway relative to the day's pin placement to gain the best angle of attack for a short approach. Drives trying to reach the green must avoid the lake on the left and bunkers left and right. The large green features four distinctive levels, putting a premium on putting skills in order to birdie the hole" (TPCCraigRanch.com 2010). All of the features described in the above statement allude to decisions a golfer must face when challenging Hole Fourteen, which serves as an example of the strategic design of the golf course.

In summary, each of these factors—location, accessibility and the presence of elements of all five design principles—makes TPC Craig Ranch a viable candidate to perform the data collection. As presented in the above text, TPC Craig Ranch provides a location where a golfer will encounter elements from each of the five design principles.

2.4 Classification of Golfers

The most common method of classifying players is by their skill level. Skill level is most commonly measured by the USGA handicap system which denotes the organization's method of evaluating golf skills so that players of differing abilities can compete on an equitable basis (USGA 2009).

For the purpose of this research, golfers are categorized by the broader terms of amateur and PGA professional.

2.4.1 Amateur Golfer

According to the USGA, an amateur golfer is “one who plays the game as a non-remunerative and non-profit-making sport and who does not receive remuneration for teaching golf or for other activities because of golf skill or reputation, except as provided in the rules” (USGA 2010). Amateurs have different levels of skill, and the USGA measures the amateur’s ability according to the USGA handicap system. This system is the USGA’s mark that denotes the USGA’s method of evaluating golf skills so that players of differing abilities can compete on an equitable basis (USGA 2009). Each golf course has a handicap, which is determined by the number of handicap strokes a player receives from a specific set of tees to adjust the player’s scoring ability to the level of scratch or zero-handicap golf. For a player with a plus course handicap, it is the number of handicap strokes a player gives to adjust the player’s scoring ability to the level of scratch or zero-handicap golf (USGA 2009). Amateur golfers have a larger range of skill levels, and they play golf for recreational purposes.

2.4.2 PGA Professional Golfer

In the early years of golf, professional golfers were considered to be “those who had played for prize money in open events, not from club and ball makers, and those who had taught golf for money or caddies. Later additions to this list were course architects and green keepers and those who had played against a professional for money” (R and A 2010). As the game evolved, and with the founding of the Professional Golfer Association of America, a more specific set of criteria was developed. The term “PGA professional” is used for the study because the PGA of America is one of golf’s four major governing bodies, and several requirements must be met to achieve PGA membership. PGA of America (2010) describes the requirements as follows: “Those following the apprentice pathway are not considered PGA apprentices until they satisfy all requirements at the Qualifying Level and register as an apprentice. To

register as a PGA apprentice, participants must pass the PGA Playing Ability Test, pass the Qualifying Test, and be eligibly employed at a PGA Recognized Golf Facility. Level One courses will not be made available through the PGA Knowledge Center until individuals register as PGA apprentices. Apprentices must maintain eligible employment throughout the PGA, PGM Program.

At each level of the PGA, PGM Program, a series of pre-seminar courses exist which includes reading assignments, learning activities, and self-check quizzes. Apprentices must complete all pre-seminar courses at a given level before attending a week of seminars at the PGA Education Center in Port St. Lucie, FL. With a few exceptions, each instructor-led seminar corresponds with a pre-seminar course and expands on the course material with discussions, instructional videos and group exercises. Each course also includes work experience activities designed to take the lessons from the course material and apply them to on-the-job situations at the facility where the apprentice works. All work experience activities at a given level must be submitted to the PGA and approved before registering for the knowledge tests covering the courses of the level. These knowledge tests are comprised of multiple-choice and true-false questions and are administered through a network of national testing centers. Apprentices must pass all knowledge tests at a given level before moving on to the next level. Upon completion of Levels One, Two and Three of the PGA PGM Program and other program and membership requirements, apprentices are elected to PGA membership” (PGA 2010).

One of the following must be completed within the two years prior to the registration date in the PGA Professional Golf Management Program:

- a. Pass the thirty-six hole Player's Ability Test (PAT) or
- b. Attempt the PAT at least once within the two years prior to registering into the PGA PGM Program.

Within that time frame, shoot one eighteen-hole score in a PAT that is equal to or less than the PAT target score for eighteen holes, plus five strokes.

Note: Each PAT score has a validity date of two years. (See the chart on the following page.)

Table 2.1 A Playing Ability Test, Scoring Table Example

36-Hole PAT Target Score	18-Hole Target Score	Target Score to Register as an Apprentice
Course Rating for 36 holes + 15	(36 PAT Score/2)	(36 PAT Score/2) + 5
151	75.5	80
152	76.0	81
153	76.5	81
154	77.0	82
155	77.5	82
156	78.0	83
157	78.5	83
158	79.0	84
159	79.5	84
160	80.0	85
161	80.5	85
162	81.0	86
163	81.5	86
164	82.0	87
165	82.5	87

The thirty-six hole PAT remains valid during the Acceptable Progress period. An individual who enters the PGA Professional Golf Management Program after achieving only Option B above must pass

the thirty-six hole PAT prior to registering for the Level Three Checkpoint. In order to pass the thirty-six hole PAT, he must achieve a thirty-six hole score within fifteen shots of the course rating. For example, if the course rating is seventy-two, the target score for the thirty-six holes would be 159 ($72 \times 2 = 144 + 15 = 159$). This competition is normally conducted in one day (PGA 2010).

For the purpose of this study, the individuals are placed into four categories of membership as outlined by the Professional Golfers Association of America.

2.4.2.1 Head Golf Professional

An individual whose primary employment is: (1) the ownership and operation of a golf shop at a PGA Recognized Golf Facility or (2) the supervision and direction of the golf shop and supervision of teaching at a "PGA Recognized Golf Facility" (PGA 2010).

2.4.2.2 Teaching Professional

An individual employed at PGA-recognized golf facilities, PGA-recognized golf schools, and PGA-recognized indoor facilities as either golf instructors, supervisors of golf instructors, or individuals who instruct PGA professionals how to teach (PGA 2010).

2.4.2.3 Assistant Golf Professional

An individual who is primarily employed at a PGA-recognized golf facility and spends at least 50% of the time working on club repair, merchandising, handicapping records, inventory control, and bookkeeping and tournament operations (PGA 2010).

2.4.2.4 Touring Professional

Players Exempt PGA Tour, Champions Tour, Nationwide Tour, LPGA Tour and Futures Tour Players (PGA 2010).

2.5 Summary

This chapter describes the principles of golf course architecture as described by Doak as well as examples of corresponding design elements in the literature. These principles have evolved over the history of golf course architecture to create the courses that are present today and courses to be built in

the future. In addition, definitions for PGA professionals and amateur golfers are established as well as the qualifications set forth by the PGA of America for achieving PGA membership. It is determined that these two classifications are the whole of the golfing community. The defining of the principles and the classification of golfers and the differing ways these two classes perceive the principles provide the foundation for this study.

CHAPTER III

RESEARCH METHODS

3.1 Introduction

The purpose of the study is to determine the perceptions about the five design principles held by golfers of amateur status and those of PGA professional status. The hypothesis for the study is that PGA professional golfers have differing perceptions than amateur golfers regarding the elements which reflect the five design principles of golf course architecture. Specifically, the PGA professional's perception is geared more toward the playability and strategic aspects of the design. Inversely, the amateur golfer's perceptions are geared toward elements that do not reflect the player's skill, those being aesthetics, originality and naturalness.

To compare differences in the perceptions of amateur and PGA professionals, in-depth interviews of amateur golfers and PGA professionals who have experienced play on Holes One, Two and Three of TPC Craig Ranch are used. In-depth interview serves as the means to elicit discussion regarding the principles of golf course design, which, in turn, is analyzed to determine perceptions of amateur and PGA professional golfers in regards to the five design principles of golf course architecture. In developing the research strategies for this study, it is assumed that the initial reactions of golfers may be directly related to their play on a given day, which could enable fleeting personal emotions to interfere with data collection. For this reason, participant observation and on-site interviewing are not used. Because, as time passes and emotions lessen, the golfer forgets the impact the design had on his/her personal game, better enabling him/her to reflect on the design elements of the course. For example, if the golfer is faced with a deep bunker or a risk-reward scenario, it is difficult for him/her to separate personal thoughts from

the design of the course. The more time the golfer is away from the hole, the more he/she is reminded of its design content, thus making it the time to analyze the design elements (Shackelford 1992 p. 194).

Taylor and Bogdan (1998) refer to in-depth interviewing as “repeated face-to-face encounters between the researcher and informants directed toward understanding informants’ perspectives on their lives, experiences, or situations as expressed in their own words” (p. 88). In-depth, open-ended interviewing with PGA professionals employed by TPC Craig Ranch as well as PGA professionals employed by other courses is the primary method of acquiring data for this study; that same method is practiced on amateurs. It is used to determine how the golfers perceive elements of design regarding Holes One, Two and Three at Craig Ranch.

The reason for selecting only three holes is primarily to base the interview questions on gaining common ground between the researcher and the interview participants. In other words, both parties are familiar with the location. The three holes selected provide sufficient examples of elements that reflect the design principles of golf course architecture according to Kemp, a licensed landscape architect and member of the Golf Course Architects Society of America; in so doing, these holes provide a sound foundation for discussion between golfers and the interviewer. In addition, after evaluating all holes at TPC Craig Ranch, it is determined that Holes One, Two, and Three provide an acceptable foundation to elicit discussion regarding the five design principles of golf course architecture. In addition, time constraints present the main practical concern about the research. Limiting the discussion to only three holes provides sufficient data to form a grounded theory and also keeps the transcription and analysis process to a manageable level (Taylor and Bogdan 1998, p. 90).

The basis for this study emerged from Pugh’s recommendations for further study (2001). Her recommendation states, “Survey different golf courses of diverse qualities to determine particular differences among social classes (public, private, and semi-private), and determine if the type of course played influences the golfer’s outlook on design principles” (pp. 39-40). Though this is not the precise purpose of this study, Pugh’s suggestion reinforces the purpose of the study. Primarily, social classes

have been omitted from the study and, as stated previously, the classes of interest are amateur and PGA professional golfers as defined by the PGA of America and the USGA. In addition, rather than determining if the type of course played influences the golfer's outlook, the elements within Holes One, Two, and Three at TPC Craig Ranch serve as the study site because these holes provide sound representation of the five design principles of golf course architecture.

Factors which provide inconsistent data include unsuitable site selections, poorly worded survey questions and the inability to survey a diverse subject population. The challenges of this study are defined in this chapter. In addition, the methods for obtaining reliable data which can be analyzed and compared regarding the ways amateur golfers and PGA professionals respond to the different design principles are discussed in this chapter.

3.2 Approaches to Obtaining Reliable Data

In-depth interviews consisting of open-ended questions provide the most appropriate method of data gathering in order to achieve reliable outcomes in determining how the five design principles of golf course architecture are perceived by the different classes of golfers. These questions, explained in detail below, provoke deeper thought from the subject being interviewed. Once the subjects respond to the primary interview questions, follow-up questions are asked to further determine how they perceive the design elements. The questioner asks the subjects what the elements are for the respective design principles: aesthetics, naturalness, strategy, playability and originality. During the interviews, no definitions were provided to the subjects so as to not direct their responses. It is through their description of these elements that their perceptions of the five design principles of golf course architecture become apparent (P.D.Taylor, personal communications, February 26, 2010). The in-depth interviews are as defined by Taylor and Bogdan (1998), "flexible and dynamic ... nondirective, unstructured, non-standardized and open-ended modeled after a conversation between two equals rather than a formal question-answer exchange" (p. 88).

3.3 Interview Participants

The pool of potential interview participants from the class of amateur golfer consists of the private members of TPC Craig Ranch. A group email was sent to the members requesting their participation in an interview regarding the design principles of golf course architecture. Due to privacy policies set forth by TPC Craig Ranch, the emails requesting participation were not directly sent from the researcher to the perspective interview participants. Instead, the email was sent to the management staff at TPC Craig Ranch; from there, it was forwarded to all of the members at TPC Craig Ranch. This provided a pool of approximately three hundred potential interview subjects in the class of amateur golfer.

An additional technique used to gather subjects is the “snowball technique,” which is described by Taylor and Bogdan (1998) as starting with one person to win his/her trust and then asking him/her to introduce you to others. It continues stating that it is usually best to start with the most prestigious person in the group you want to study (p. 32). For the study the top people in each group were the head golf professional at TPC Craig Ranch (amateur golfers) and the President of the North Texas Professional Golfers Association (professional golfers).

The list of participants for the interviews from the class of PGA professional was constructed from a public email list derived from the North Texas Professional Golfers Association (NTPGA). The email list can be found at <http://www.ntpga.com/>. This list provides a pool of approximately one hundred potential interview subjects in the PGA professional class.

Once the interviews were conducted, they were transcribed by transcriptionists who are personal contacts of the researcher and sent back as Microsoft Word documents. No personal data of the interview participants is sent to these individuals, and once the recordings were transcribed, the audio files were destroyed.

3.4 Selection of Specific Holes to Collect Data

For purposes of this study, specific holes at TPC Craig Ranch are critically analyzed by the researcher and a licensed design professional. Kemp, a licensed landscape architect and member of the

Golf Course Architecture Association of America, assists the researcher in determining the elements that fit respectively within the design principles of golf course architecture. Certain holes of TPC Craig Ranch, are determined by the researcher and Kemp (personal communication, March 26, 2010) to contain design elements of the five principles of golf course architecture which are observed, compared, and outlined in this section. The holes selected for this observation sites are Holes One, Two and Three. After evaluating all holes at TPC Craig Ranch, it is determined that Holes One, Two and Three provide an acceptable foundation to elicit discussion regarding the five design principles of golf course architecture. In addition, the practical constraint concerning the research includes time constraints in completing the research. Limiting the discussion to only three holes provides sufficient data to form a grounded theory and keeps the transcription and analysis process to a manageable level (Taylor and Bogdan 1998, p. 90).

3.4.1 Hole One Design Elements

3.4.1.1 Elements of Aesthetics

- White limestone banks contrasting with the vibrant green color of the turf.
- Contours of the greens.
- Graceful shape of the bunkers.
- White color of the Cusi-White sand in the bunkers, contrasting with the green color of the turf.
- Subtle undulations of the turf in the fairways and the rough.
- Elevated greens complex.
- Contrasting colors of the lime green Zoysia fairways and the dark green Bermuda roughs.
- Water from the Rowlett Creek dividing the tee and the fairway serves as visual feature and as an audible feature.
- Elevated tees providing a picturesque view of the hole.
- Graceful lines of the different heights of cut from fairway to intermediate cut then up to the primary rough line and then the last level the tall rough.

- Mowing patterns
- The trees surrounding the hole provide the effect of seclusion.



(a)



(b)

Figure 3.1 Hole One at TPC Craig Ranch,
(a) tee box view, and (b) diagram
(Source tprccraig ranch.com, 2010)

3.4.1.2 Elements of Naturalness

- Routing of the fairway alongside Rowlett Creek.

- Native trees which form the backdrop of the greens complex.
- Tertiary creek which separates the greens complex with the landing zone.
- Native grasses and plants that line the banks of the Rowlett Creek and the tertiary creek, separating the greens complex with the landing zone.

3.4.1.3 Elements of Playability

- Subtle contouring of the fairway mounds, providing golfer a fair lie if tee shot is placed in the fairway.
- Slope of bunker and compaction of sand on bunker faces enable the ball to roll to the bottom portion of the bunker.
- Incorporation of Zoysia turf in the fairways to ensure that a tee shot placed in the fairway is never buried but is always standing up ensuring the golfer can make clean contact of the golf ball from a fairway lie.
- The green is visible from the landing area.
- Green complex is mowed at appropriate heights.
- Landing zone for the fairway is minimally graded to ensure a fairly flat lie.
- Use of fine texture bent grass for green's putting surface.
- Visibility of all hazards from tee to green.
- Low cut collars around the green.
- The bowled collection areas surrounding the greens allow slightly misplayed shots not to deflect dramatically.

3.4.1.4 Elements of Strategy

- Tertiary creek is approximately 280 yards from the players' tees, creating a potential hazard for a long tee shot.
- Bunkers guarding the left side of the fairway and the Rowlett Creek border the fairway to the right; when placing a tee shot, the golfer must decide what type of shot will provide the best

- results. The positioning of the bunker on the left side of the fairway is there to deter the player from hitting it close by; however, the angle of the green is easiest to attack from that location.
- The green slopes right to left and is guarded on the left side by two bunkers; this initiates a decision process from the golfer as to the type of shot will be most appropriate to get to the green.

3.4.1.5 Elements of Originality

- Material used in the infrastructure is corten steel.
- The use of drastic elevation changes from tee to green.
- The rise and fall effect of the mounding surrounding the bunkers.

3.4.2 *Hole Two Design Elements*

3.4.2.1 Elements of Aesthetics

- White color of the Cusi-White sand in the bunkers contrasting with the green color of the turf.
- Contrasting colors of the lime green Zoysia fairways and the dark green Bermuda roughs.
- Subtle undulations of the turf in the fairways and the rough.
- Mounding of dark green Bermuda contrasting the soft light green color of the bent grass turf of the greens.
- Contrasting colors of the lime green Zoysia fairways and the dark green Bermuda roughs.
- Eastern Red Cedars form backdrop of the green while muffling traffic noise from highway.

3.4.2.2 Elements of Naturalness

- Hole is routed between two natural tree lines.
- Tees are positioned so that a natural tertiary creek which connects to Rowlett Creek and runs perpendicular through the fairway is not in the landing zone.

3.4.2.3 Elements of Playability

- Subtle contouring of the fairway mounds provide golfer a fair lie if tee shot is placed in the fairway.
- Slope of bunker and compaction of sand on bunker faces enable the ball to roll to the bottom portion of the bunker.
- Incorporation of Zoysia turf in the fairways to ensure that a tee shot placed in the fairway is never buried but is always standing up, ensuring the golfer can make clean contact of the golf ball from a fairway lie.
- The green is visible from the landing area.
- Green complex is mowed at appropriate heights.
- Landing zone for the fairway is minimally graded to ensure a fairly flat lie.
- Use of fine texture bent grass for green's putting surface.
- The large size of the green.
- The low mowed collars surrounding the greens.
- The bowled collection areas surrounding the greens allow slightly misplayed shots not to deflect dramatically.

3.4.2.4 Elements of Strategy

- Green is elevated and has mounding on all sides with collection areas surrounding to the right, back left and back right making the type of approach shot played by the golfer crucial.
- Deep rough lines the left side of the fairway evoking a decision of the type of tee shot the golfer wants to hit.
- Angle of the green suggests that the best approach angle is from the left side of the fairway.

3.4.2.5 Elements of Originality

- The use of an existing fence row to create a separation of the practice facility and the golf hole; this fence row also serves as the out of bounds marker for the hole.
- The rise and fall effect of the mounding surrounding the bunkers.

3.4.3 Hole Three Design Elements

3.4.3.1 Elements of Aesthetics

- White color of the Cusi-White sand in the bunkers contrasting with the green color of the turf.
- Contrasting colors of the lime green Zoysia fairways and the dark green Bermuda roughs.
- Subtle undulations of the turf in the fairways and the rough.
- Mounding of dark green Bermuda contrasting the soft light green color of the bent grass turf of the greens.
- Contrasting colors of the lime green Zoysia fairways and the dark green Bermuda roughs.
- White limestone banks contrasting with the vibrant green color of the turf.
- Water from the tertiary creek dividing the tee and the fairway serves as visual feature and as an audible feature.
- Elevation of the greens complex with a backdrop of trees creates a picturesque view.
- Dramatic mounding on the green is visually pleasing.
- Core ten steel bridge over the Rowlett Creek.
- Dramatic fairway elevation changes sweeping from right to left.

3.4.3.2 Elements of Naturalness

- Routing of the fairway alongside Rowlett Creek with a native tree line bordering it to the right.
- Rowlett Creek also forms a natural separation of fairway and the greens complex.

- Native area which forms the out-of-bounds to the left and back side of the greens complex.
- Tertiary creek separates the tee complex from the fairway.



(a)



(b)

Figure 3.4 Hole Three at TPC Craig Ranch,
(a) tee box view, and (b) diagram
(Source: tprccraig ranch.com, 2010)

3.4.3.3 Elements of Playability

- Subtle contouring of the fairway mounds provide golfer a fair lie if tee shot is placed in the fairway.
- Slope of bunker and compaction of sand on bunker faces enable the ball to roll to the bottom portion of the bunker.
- Incorporation of Zoysia turf in the fairways to ensure that a tee shot placed in the fairway is never buried but is always standing up ensuring the golfer can make clean contact of the golf ball from a fairway lie.
- The green is visible from the landing area.
- Green complex is mowed at appropriate heights.
- Landing zone for the fairway is minimally graded to ensure a fairly flat lie.
- Use of fine texture bent grass for green's putting surface.
- Fairway is concave; therefore, it won't reject a slightly misplayed shot.
- The bowled collection areas surrounding the greens allow slightly misplayed shots not to deflect dramatically.

3.4.3.4 Elements of Strategy

- The right-to-left dogleg shape of the hole provides the golfer with a decision to attempt to place his tee shot on the green or take the safer route and hit his or her tee shot in the fairway.
- The fairway slopes left to right making the type of tee shot hit by the golfer crucial.
- Bunkers are on the left side of the fairway just in front of the landing zone, creating even further decisions the golfer must make prior to hitting his or her tee shot.
- The green is extremely undulating making the placement of the approach shot critical.

3.4.3.5 Elements of Originality

- Material used in the infrastructure is corten steel.
- The use of drastic elevation changes from tee to green.

3.5 Interview Questions

1. What are the elements of aesthetics on these golf holes?
2. What are the elements of playability on these golf holes?
3. What are the elements of naturalness on these golf holes?
4. What are the elements of originality on these golf holes?
5. What are the strategic elements of these holes?

3.6 Challenges to Research

Challenges to research include the difficulty in obtaining a diverse interview group and finding a venue that displays elements from all the different design principles previously discussed. Additionally, the venue must be accessible to the researcher and the subjects. Another challenge of this research is to produce an interview template which provides an adequate range of questions to determine which design principles impact the experience of each golfer. In addition, minimizing the number of questions to retain the attention of each subject is crucial to the integrity of the responses.

The varying subclasses within the two focus groups are of concern to the integrity of the research. Plainly stated, not all amateurs are of less skill than those considered PGA professionals by the Professional Golfers Association of America.

In addition, the exposure to the research site can have an impact on the results derived from the interviewing. For example, if the subject is inexperienced with TPC Craig Ranch, he/she may elicit responses that are not apparent to a subject more experienced with this course.

3.7 Method for Selecting Study Location

Taylor and Bogdan (1998) state, "A good qualitative study combines an in-depth understanding of the particular setting investigated with general theoretical insights that transcend that particular type of

setting” (p. 26). Methods for selecting the research location relied on several factors; primarily, the course had to be accessible to the researcher, meaning the management staff is willing to cooperate with the execution of the study. Additionally, the site had to represent each of the five design principles of golf course architecture.

For this research, it is determined that TPC Craig Ranch in McKinney, Texas, is the most viable candidate. Other appropriate sites for this research include Preston Trails, Dallas National, The Vaquero Club, and Ridgeview Ranch, all of which are located within the Dallas/Fort Worth Metroplex. The reasons Craig Ranch is selected as the site to host this research is as follows:

Location: TPC Craig Ranch is located at 8000 Collin McKinney, McKinney, TX 75070. This location serves the research because it is of close proximity to the researcher, which allows for supplementary interviewing and participatory observation if necessary.

Accessibility: The researcher has past employment experience with the PGA Tour, which is the operator of TPC Craig Ranch. Personal and professional relationships with the management staff at TPC Craig Ranch provide the researcher and the chosen subjects with access to the site.

Design: TPC Craig Ranch was designed by Tom Weiskopf and is considered by *Golf Digest* magazine as one of the top private courses in the United States. The course description taken from the official website of TPC Craig Ranch is as follows:

Designed by PGA TOUR Legend and world-renowned golf course designer Tom Weiskopf with PGA TOUR player consultant D.A. Weibring, the *TPC Craig Ranch* sits on 233 acres of rolling terrain routed along the beautiful white-limestone based Rowlett Creek. A few of the signature holes at the TPC Craig Ranch include the par-four Hole Fourteen, which at 330 yards is Weiskopf's traditional drivable par-four and the par-four Hole Thirteen that demands a 290 yard carry off the tee from the PGA TOUR tees and stretches to 512 yards. At 7,438 yards, a Course Rating of 77.0 and a Slope Rating of 152 from the PGA TOUR tees, the TPC Craig Ranch qualifies as one of the most challenging courses in the state of Texas and ranks high on

the national scale. However, with generous fairways, sizeable greens and five sets of tees, the TPC Craig Ranch possesses the ability to challenge the best players on TOUR and yet still provide an enjoyable and rewarding round for golfers of all skill levels (tpccraig ranch.com 2010).

3.8 Predictable Outcomes

This section states the researcher's predicted outcomes of the interviewing techniques described in the section. Doak (1992) states in regard to aesthetics that "scratch golfers who look upon each round of golf as an examination of skill, suggest that the aesthetics of the course make no difference to the game, and that any course should be judged based purely on its strategic merits ... one of the most attractive aspects of the game for the average golfer is the beauty of the surroundings; in fact, when he is playing poorly, it may be the only consolation which brings him back" (p. 35). This being said, the elements of the design principles that impinge on the outcome of a golfer's playing round, or his/her score, are perceived more favorably by the golfers of PGA professional status. The principles are that of playability and strategy. It is assumed that PGA professionals have a more vested interest in the overall game of golf than those of amateur status. The foundation for this assumption is grounded by the characteristics set forth by the PGA of America regarding PGA professionals. "PGA professionals have successfully managed golf operations and have been 'the recognized teachers of the game' for more than 90 years."

"PGA Professionals dedicate their careers to managing, teaching, and growing the game of golf, complete three years of professional training to achieve PGA membership, have the opportunity to enhance their skills and knowledge through the PGA Certified Professional Program, have proven playing ability and are the most qualified to teach the game and make it more enjoyable for all golfers. The PGA professional knows the game and has the business and professional skills necessary to successfully manage your business while making the game more enjoyable for your customers" (PGA 2010). The manner in which the PGA professional golfer perceives the design principles is to be determined. It is expected that when the PGA professional golfer is asked the question "What are the strategic elements of

these holes?” the professional will provide detailed answers related to the greens and the layout of hazards, and he/she will offer a methodological approach in achieving the best score by outlining several of the elements of strategy. These responses presumably illustrate his/her perceptions toward the elements of strategy and playability.

Inversely, it is assumed that the amateur golfer has a less vested interest in the overall game of golf than that of the PGA professional. The skill level of the amateur is not necessarily less than that of a PGA professional; however, golf is not a means of income—it is a leisure pursuit. It is the argument of the researcher that the individuals studied in the amateur class will display a more accurate perception to the elements of the golf course that reside in the principles of naturalness, aesthetics, and originality. For example, when the amateur is approached with the same question regarding his/her strategy on the given holes, he/she will answer with a less detailed and less methodical approach about how he/she strategized the playing of the golf hole. This is not implying the amateur golfer has not strategized or has no perception regarding these design elements; it is merely assumed that he/she is more indifferent to these features.

3.9 Summary

The purpose of the study is to determine the perceptions about the five design principles held by golfers of amateur status as well as those of PGA professional status. The hypothesis for the study is that PGA professional golfers have differing perceptions than amateur golfers regarding the elements which reflect the five design principles of golf course architecture. Specifically, the PGA professional's perception is geared more toward the playability and strategic aspects of the design. Inversely, the amateur golfer's perceptions are geared toward elements that do not reflect the player's skill, those being aesthetics, originality and naturalness. The most appropriate method for measuring the perceptions of amateur and PGA professional golfers is through qualitative research. In-depth interviewing is the means to gather data. The pool of participants of this study is gathered from the member list at TPC Craig Ranch and PGA professionals from the North Texas Chapter of the Professional Golfers Association of America.

CHAPTER IV

RESULTS AND DISCUSSION

4.1 Introduction

Interviews were conducted with amateur and PGA professional golfers who have experienced golf play at TPC Craig Ranch in McKinney, Texas, in order to establish their perceptions of the five design principles of golf course architecture: aesthetics, naturalness, playability, strategy and originality. The interviews were transcribed and analyzed according to the grounded theory approach (Taylor and Bogdan 1992). The data show that there are subtle differences in the perceptions of PGA professionals and amateur golfers to the five design principles.

4.2 Recruiting Results

As stated in Chapter III, the method for recruiting interview participants in the amateur category was through email sent to the management staff at TPC Craig Ranch, who then forwarded it to the members and staff at TPC Craig Ranch. The method for recruiting interview participants in the PGA professional category was through contacting members of the Northern Texas Professional Golfers Association via a public email list on their chapter website. The third method for recruiting was the snowball technique (Taylor and Bogdan 1998).

The number of respondents from the email list sent to members and staff of Craig Ranch yielded six respondents. The emails sent to members of the NTPGA yielded one respondent. The most successful method for attaining participants for both categories was the snowball technique. This technique rendered eight interview participants, three amateurs and five PGA professionals.

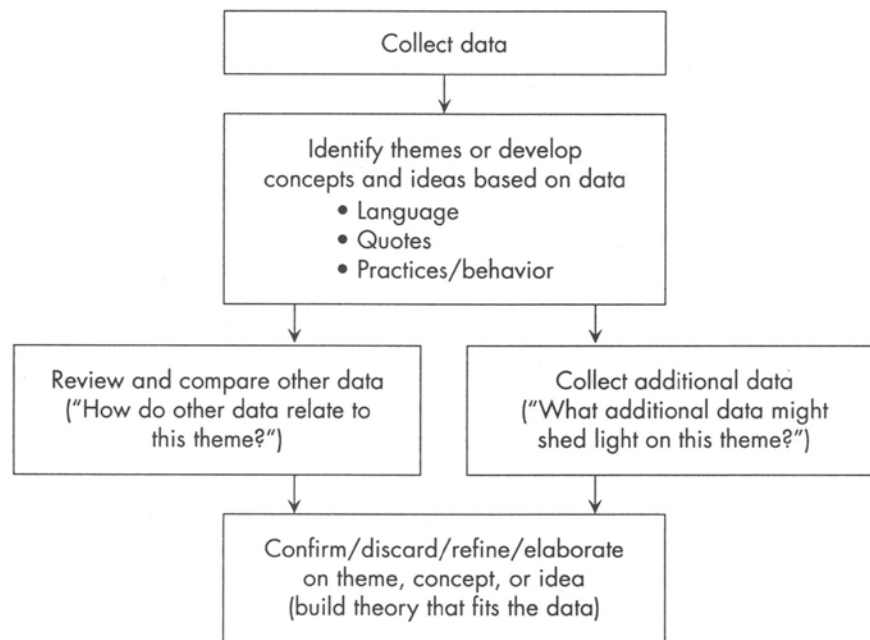


Figure 4.1 Grounded Theory Approach
(source: Introduction to Qualitative Research Methods, p.138)

4.3 Interview Analysis

The interviews were conducted both in person and via telephone and recorded using an RCA digital voice recorder. The audio files were then transcribed by the researcher and volunteer transcriptionists with whom the researcher has personal relationships. Once the interviews were transcribed, they were analyzed using the grounded theory approach (Taylor and Bogdan 1998). The grounded theory approach discovers theories, concepts, hypothesis, and propositions directly from data rather than from priori assumptions. In grounded theory, researchers do not seek to prove their theories but merely demonstrate plausible support for these theories. The process for analyzing data using the grounded theory approach is to collect data and identify themes or concepts based on data obtained in

the interview. This is derived from the researcher's examination of language, quotes, or behaviors. From these observations, the researcher collects additional data that may produce new themes. In addition, he/she reviews other data to determine how it relates to the themes derived from the earlier data collection. Once additional data is collected, the researcher confirms the themes and discards irrelevant data and builds a theory that fits (Taylor and Bogdan 1998, p. 137). This process is illustrated in Figure 4.1 (on the preceding page). Upon analysis of the individual interviews, the researcher compared the themes found in the PGA professional interview data and the amateur interview data respectively

4.4 Themes from the Data

Through analysis of the interview transcript, themes emerged which relate to the five design principles of golf course architecture. They are as follows:

4.4.1 Aesthetics

4.4.1.1 "Natural elements" versus "man-made" elements

In discussions regarding aesthetics, the primary elements mentioned were natural elements or elements which existed on-site prior to the construction of the golf course including the Rowlett Creek, which is experienced on Holes One and Three but not on Two or the groves of trees that frame the holes. In addition to the natural elements, the respondents overwhelmingly mentioned specific elements that appear as if they existed in nature, such as the areas that are planted with sahara bermuda and are made to look as if they exist there naturally. Respondents made statements such as "the white limestone banks are very clean, appealing to the eye" or "they provide natural beauty." Some even mentioned "the ducks and geese or varmints that seem to be around the creek" (Respondent A4). In reference to aesthetics, many respondents dismissed Hole Two altogether because the creek does not appear on it. Respondent A6 stated, regarding Hole Two, "Other than the jungle on the right-hand side and the one big tree, nothing aesthetic about the hole exists." Another respondent remarked, "Without the creek, the course would dry-up and blow away It's all about the creek" (Respondent A4). Because the elements these respondents listed were mainly natural elements, the researcher then asked if there were any man-made

elements that they considered elements of aesthetics. Many respondents suggested the large corten steel bridges as being elements of aesthetics. Respondent A2 commented, "They are meant to be seen ... they are going to catch your eye"; another stated that "the large bridges, steel construction ... are appealing to the eye (Respondent P2). Others simply declared, "No, nothing man-made is aesthetics" (A2), or "I can't really think of anything man-made" (Respondent A7). "Other than the creek and trees, elements of aesthetics? No, not really ... I think these holes were based on natural features, but other than that, I don't believe there's a whole lot else" (Respondent A3). Few respondents mentioned any of the built elements such as greens or the graceful lines of the bunkers.

4.4.1.2 The search for elements which are unique

It is apparent that in one interview the respondent perceived elements of aesthetics as needing some type of unusual characteristics; Respondent P5 replied, "There's nothing that really 'wows' you, nothing that you would say 'wow that's pretty.'" In reference to the mounding on Hole One, Respondent P4 states, "It just gives it something different, some features that wouldn't normally be there ... it adds to the hole." Respondent A1 states, "The square tee boxes are a unique element ... a nice change of pace from the norm," and another respondent refers to "one big pecan tree" in a setting that is littered with other trees.

4.4.1.3 The importance of perspective (views)

In discussing aesthetics, it became apparent that a major theme regarding elements of aesthetics was the different views of the course. On several occasions, the respondents mentioned that Hole One is much more enjoyable from the back tees, which are elevated. One respondent indicated, "From the back tees, I think it's a beautiful hole; you hit down a shoot between the trees on your left I think from these tees, it's a beautiful hole; from the players and club tees down below ... I don't think it's as pretty a hole. I don't think there is any dimension to it" (Respondent A7). Another respondent mentioned that because of his ability, he plays the forward set of tees on every hole, but on Hole One he likes to play the back tees: "I like to play from the tournament tees (back set) because of the aesthetics, the beauty of the hole from

there” (Respondent A6). Another respondent observed, “The topography adds to the aesthetics for me, especially on hole number one with the view from the tournament tee ... the hole is much more beautiful, aesthetically pleasing, from the tournament tees” (Respondent A4).

4.4.2 Playability

4.4.2.1 Importance of turf selection

One of the key themes that emerged in discussion on the topic of playability was the type of turf and the characteristics of the turf grasses as compared to others on which the respondents have played. One respondent stated, “I think zoysia makes a nice turf; I prefer to play 419 ... but I think the ball sits up a little more” (Respondent P5). Respondent P1 makes a similar statement, “I’d say, the fairways being zoysia, the ball sits up a little bit”; then when asked if he thinks that the fairways would be an element of aesthetics, he responded “Yeah ... well, the types of grasses used” (Respondent P1). This trend continued through many of the interviews. Respondent P2 responded, when asked what the elements of playability are on these golf holes, “The grasses used, I think bent grass is the best putting surface, zoysia ... the way the ball sits up; it’s a very clean surface to play off of, and then the Bermuda in the rough is penal. You don’t have to keep it very long to be penal; it’s a great grass” (Respondent P2). Another saw “playability as ball roll, you know, the types of turf used” (Respondent A2). Respondent P6 commented, in reference to the playing surface on the green, stating, “The grass has a tendency not to be very ‘grainy,’ ” and when asked to describe “grainy,” he answered, “The grain actually pushes the ball left or right” (Respondent P6). “Playability, the grasses used, I think bent grass is the best putting surface ... ” (Respondent P2).

4.4.2.2 Distance

These three terms, “turf,” “distance” and “view from the tee,” were placed in one theme category because it was apparent through the interviewing process that these terms seemed to branch together in many cases. Respondent A3 stated, “Playability wise, you’ve got a lot of different distances ... you have medium distances, and a really long hole followed up by something that is drivable.” He continued, “The

designer went out of his way to make the fairways wider to appeal to a greater number of people” (Respondent A3). Another respondent referred to the fairways as “generous” and when asked to elaborate, he continued, “They are fairly wide” (Respondent P5). Respondent A6 observed, in reference to Holes One and Three being shorter than Hole Two even though there are many more hazards present, “As far as playability ... the length makes it easier than number two hole; two is the number one handicap hole. But there is less trouble.” And another seemed to confirm, “If you are able to hit it long enough . . . you are going to get down the slope and pick up yardage” (Respondent A2). The amateurs who were interviewed seemed to display a certain amount of frustration in regards to distance, indicated, for example, in the response by Respondent A2, “The length makes them easier ... [in reference to Holes One and Three]. The number two hole is the number one handicap hole but there’s less trouble ” Respondent A6 also states in reference to the length from the upper tees on Hole One, “The difference is I’m sixty eight years old! It’s difficult for me to play....”

4.4.2.3 View from the tee

A recurring theme regarding the principle of playability was the view from the tee; many respondents expressed that from the tee, they wanted to know what lay ahead of them. Respondent P5 remarked, “There are no tricks; there’s no really blind tee shots,...but you can see where you are aiming.” When asked to elaborate on “tricks,” he explained, “Well, I think it is disconcerting when you stand on a tee box, and you have no idea what kind of shot shape you need to hit or where the fairway is or where it runs out or how much it doglegs. Like on Holes One, Two and Three, you pretty much know where you need to hit it and how far.” Another respondent referred to this as “gimmicky,” adding, “I have played a lot of desert golf in my day and you see a lot of holes ... where you tee off straight up hill and you can’t see the fairway and then it’s wide after that.” He quickly continued, referring to Hole Eighteen at Pebble Beach, “The water is on your left side; that is natural, but teeing off, you go straight uphill where you can’t see the fairway and then landing in the stuff; I just think that is kind of tricked up”(Respondent P4).

4.4.3 Naturalness

Throughout discussion regarding naturalness, no major themes arose; most of the interview participants in the amateur and professional classes spoke of the Rowlett Creek and how the golf course is routed along its banks. For example, Respondents A7 and P2 indicated, “The creek, is the naturalness” (Respondent A7) and “the use of the creek and then in some cases the use of the natural terrain” (Respondent P2). Some spoke of how the golf course seemed to blend into the natural landscape. For example, “I think of native, untouched, the shape of the hole seems to blend in naturally to the native landscape” (Respondent A1). Many made statements regarding the existing trees, such as “There’s a lot of original trees there; they didn’t have to bring in a bunch of smaller ones” (Respondent P1). Some made reference to how much dirt was moved to build the golf course. For example, Respondent P5 said, “I assume they moved a lot of dirt to build the golf course, but it doesn’t feel like they did; it feels like it was there.” Also, in regards to the naturalness, several made statements such as, “When I think of natural, I think of untouched,” or “They’ve just gone with what they got” (Respondent A4).

4.4.4 Originality

In discussions regarding the principles of originality, many respondents seemed perplexed and searched their memory diligently to try to form a response as to what elements might reflect the principle of originality. The common theme regarding originality was that it had to be of a certain standard or it had to be something that they only had witnessed at Craig Ranch. Some made responses similar to that of Respondent A3 when he stated, “Originality? Boy, I don’t know; originality is tough. I have played a lot of golf, so to be original, it has to be something pretty oddball.” Others completely dismissed it saying, “I can’t think of any super original design element on that golf course ... as far as originality, it’s pretty vanilla; the golf course could be plugged into any geographic location in the world and pretty much look the same ... minus one design element, the creek” (Respondent A3). Many respondents considered the Rowlett Creek the predominant element of originality. Respondent A4 remarked, “God, I’ve played so many golf courses; you’ve got to really press hard to find original; ... again I just keep coming back to that

creek. I think it is such a major driving force in the development of that course.” Another element many respondents regarded as an element of originality was Hole Three in its entirety. Respondent A8 declared, “Well, I love hole number three”; he then continued to mention the various options of shots and how the fairway rolls down and crosses the creek. Respondent P2 had a similar perception of originality: “I think hole number three sticks out the most; I don’t recall playing a hole that is designed like that in all the courses I’ve seen ... the hole can play totally different; you can play it left, right, as a drivable par four.”

4.4.5 Strategy

4.4.5.1 The wind as design element

Through discussions regarding the principle of strategy, one of the common themes that arose was the idea that the wind served as an element of design regarding strategy. For example, Respondent P1 commented, “It all depends on how the wind is blowing, which direction it is coming out of,” or as Respondent P4 explained, “On number three, the strategy is developed by the wind strength and the direction of the wind.” Respondent A5 remarked, “Like I said, the wind is the biggest defense out there; when the wind is blowing, that is the biggest defense. You’ve got to learn to use the wind and play the wind.”

4.4.5.2 A noticeable enthusiasm toward strategy

In discussion regarding the principle of strategy, many respondents tended to offer their own opinions of how they personally played the course. It is the first design principle where the Rowlett Creek was not the primary feature discussed. Respondents mentioned numerous elements; in fact, they tended to walk the interviewer through the hole, shot by shot. In response to the question regarding strategy, the respondents in each class overwhelmingly delivered the most descriptive responses. Respondent P2 expressed his thoughts regarding strategy: “On the first hole, you have to hit a good shot to get it into the fairway because you have the big bunker on the left and it sits right out there in front of you ... so you have the bunker left, the creek right ... if it’s a south wind, you’ve got to hit a good drive on the first hole. If

there's no wind, you probably don't need to hit driver because you have that small creek that runs right in front of the green." Most responses were similar to the one above. This category elicited the most excitement from the respondents, which led to the trend of their desiring to offer more information regarding strategic elements.

4.5 Summary

The transcriptions of the interviews with amateur and PGA professional golfers were analyzed using the grounded theory approach (Taylor and Bogdan 1998). The data collected from the interviews with amateur and PGA professional golfers yielded many themes regarding the similarities in perceptions of the two classes of golfers. The data also showed that, though subtle, there were, in fact, differences in the perceptions of amateur and PGA professionals to the five design principles of golf course architecture.

CHAPTER V

CONCLUSION

5.1 Introduction

This chapter discusses the findings derived from the in-depth interviews regarding the perception among amateur and PGA professional golfers to the five design principles of golf course architecture and how those findings address the primary research questions.

1. What are the perceptions among PGA professional golfers of the five design principles of golf course architecture?
2. What are the perceptions among amateur golfers of the five design principles of golf course architecture?
3. How do the perceptions among amateur and PGA professional golfers to the five design principles of golf course architecture differ?
4. What design elements reflect the design principles of golf course architecture?
5. How can this research impact landscape architecture?

5.2 Research Findings

It is worth mentioning that the interviews among the PGA professionals and amateurs yielded remarkably similar responses; however, through analyzing the themes outlined in Chapter IV, there were many items addressed that provided insight into the way these two classes of golfers perceive the elements that correspond to the design principles of golf course architecture.

5.3 A Comparison of Perceptions

In analyzing the interview transcripts of the respondents in both the amateur and PGA professional categories, several themes emerged; the findings discussed in this section are the conclusions derived from the themes evident in the interviews of amateur and PGA professional golfers. It is appropriate to mention that collectively the interviews in both categories were remarkably similar; however, through careful and in-depth analysis there were differences in the perceptions which surfaced.

What are the perceptions among PGA professional golfers of the five design principles of golf course architecture?

The PGA professional tends to perceive the strategy and playability in greater detail than the amateur. This can be inferred because the PGA professional provided much more detailed discussion as a whole on these elements. For example, as discussed in Chapter IV, one respondent in the PGA professional category mentioned the “grain” of the turf on the greens and how the ball sits up on the zoysia turf. Many PGA professionals made comments such as Respondent P5 when he discussed the Hole Three green: “You definitely need to hit it at the right part of that green wherever the pin is on that given day because if you don’t you will get a tough putt.” Such statements were more evident when speaking with the PGA professionals, thus indicating that because of their high level of involvement in the game of golf, they perceive the elements of these principles, overall, in greater detail than the amateur golfers.

Their connection to the strategic merits of golf may interfere, to a degree, with their overall golfing experience. In the interviews with PGA professionals, though they did mention many of the same elements of aesthetics, they did not relate them to the experience as closely as many of the amateurs. In fact, in many cases the respondents trailed off and began speaking of playing strategies. For example, Respondent P5 began his response to the question regarding the principle of aesthetics by stating, “Obviously, you have the creek running to the right of the tee box on number one; you hit over the same creek from the back tees, so from the eye it looks good.” In the same paragraph he went on to state,

“That’s what I like about Craig Ranch is that there is plenty of room to drive the golf ball even though there are bunkers on the left.” Another respondent in the PGA professional category stated, “The trees on one and two kind of frame the hole and on three the creek determines how you play the hole.” Respondent P2 first referenced the bridges on Hole Three as an element of aesthetics then went on to state, “Honestly, I don’t like to see bridges in the view of the shot ...I like to see cart paths hidden, anything man-made basically hidden from play.” One respondent in the PGA professional category stated, “As far as the creek on the right and stuff like that, everything is manicured very nicely and ties in well Aesthetics is not a big priority for me, but everything looks nice” (Respondent P5). When asked to elaborate on this, he replied, “I think I take into consideration playability more than flowers and how pretty the scenery is.”

What are the perceptions among amateur golfers of the five design principles of golf course architecture?

It is inferred that the amateur exhibits a more positive perception toward elements of aesthetics. They seem to have a more well-rounded overall experience. In the interviews regarding the design principle of aesthetics, the respondents in the class of amateur tended to elaborate more on the elements of aesthetics and to discuss more their experiences with regards to these elements. In some cases they discussed ways that they maneuvered around the course to enjoy better perspectives. One respondent mentioned that because of his ability, he plays the forward sets of tees on every hole, but on Hole One he likes to play the back tees because “[he likes] to play from the tournament tees (back set) because of the aesthetics, the beauty of the hole from there” (Respondent A6). Some discussed animals they have experienced on the course: “I love seeing hawks, and I’ve even seen a pair of coyotes running down Hole Five” (Respondent A6). One respondent referred to a “second shot not being as pretty a view as the first shot” (Respondent A7). Statements such as these imply that their experiences may be more well-rounded than that of the PGA professional.

In addition, the amateurs seemed to perceive the elements of playability and strategy as levels of difficulty especially in regards to the length of the hole. This may interfere with their overall experience. In Chapter IV, their discussions included thoughts such as “the length makes them easier ... [in reference to Holes One and Three]; the number two hole is the number one handicap hole but there’s less trouble ” (Respondent A2) and “The difference is I’m sixty eight years old! It’s difficult for me to play ...” (Respondent A6). A certain amount of frustration exists in the tone of the respondents, indicating that the length and difficulty of the golf hole can interfere with the overall experience of the amateur golfer.

How do the perceptions among amateur and PGA professional golfers to the five design principles of golf course architecture differ?

It should be noted that the overall perceptions among both classes of golfers are similar. The differences in the perceptions are deduced through the results of the first two research questions. In response to this question, the similarities are discussed. The elements of strategy evoked the greatest amount of enthusiasm among both classes of golfer. In discussion regarding the elements of strategy, the lengths of the responses were greater and the enthusiasm and excitement in describing the elements more apparent in both classes of golfer.

The perception of both classes of golfer toward the elements of aesthetics as natural elements and disregard toward the man-made elements of the golf course is apparent. In interviewing the respondents in both classes of golfer, rarely were any of the man-made elements of the golf course discussed. Most respondents mentioned only the natural elements of the golf course, i.e., the Rowlett Creek and trees, etc. When asked if they considered any of the man-made elements aesthetic, most either failed to mention anything or mentioned the large corten steel bridges. This lack of acknowledgement could possibly be due to the success of the designer at blending the golf course features into the natural environment, or it may be because the course is constructed of natural materials, such as soil, turf, etc., and many people simply do not perceive these elements as man-made.

5.4 Summary of Findings

Through the analysis of the interviews and the presentation of the themes listed, certain theories can be proposed. This section provides discussion on the researcher's theories.

Both amateur and PGA professionals obviously experience a certain level of enjoyment in playing the game of golf. It is apparent through this research that even though the exact purpose for incorporating the constructed elements of the golf course—the bunkers, the greens, the rolling fairways—into the design can only be explained by the golf course architect, they may have been placed on the course to create visual appeal or to create a strategic element. However, there is little acknowledgement to any of these elements as an element of aesthetics. The elements that the respondents considered aesthetic were those that pertained to nature, such as the creek, the trees, etc.

It can be inferred from this research that the PGA professional collectively consumes himself/herself with playing the game on a certain level, which is most often greater than that of the amateur. The findings in this research suggest that their concern with the strategic elements of the course may interfere with their overall experience of the golf course as a whole. Though the PGA professional recognizes these elements as elements of aesthetics, he/she seems to bypass to a certain degree the enjoyment that the golf course architect has intended for the users to enjoy.

It seems that the amateurs exhibit a more positive perception toward elements of aesthetics, and they appear to have a more well-rounded overall experience. Their experiences seem to blend all facets of design more so than the PGA professional. However, the difficulty in regard to the length of certain holes may interfere to a degree with their overall golfing experience.

As stated previously, the question regarding the strategic principles of design yielded the lengthiest responses. In addition to the length of these responses, the respondents in each class exhibited an excitement that could not be seen when they were discussing the other principles of design. It may be a strong assertion, but this observation can imply that the strategic elements play the highest role in the overall golfing experience for both classes of players.

5.5 Relevance to the Field of Landscape Architecture

There are one hundred eighty seven members in the American Society of Golf Course Architects; the primary area of study for golf course architects is landscape architecture (ASGCA 2010). Also, in the United States of America, there are approximately twenty eight million golfers (Kass 2007) and twenty eight thousand of them are PGA professionals (PGA 2010); that means that less than one tenth of a percent of all golfers are PGA professionals. Though this statistic seems to abate the validity or impact this thesis may have, this study should serve as a reminder to golf course architects as to who is playing their courses and how the elements that they implement are perceived. During the golf course design process, PGA professionals are many times consulted to determine specific design elements, primarily elements of strategy and playability. The landscape architect who has an understanding of the design principles, however, serves as the voice of amateur golfers, who are actually the primary users of most golf courses. The findings in this study should be considered by landscape architects who want to specialize in the design of golf courses because it provides greater insight into how different classes of golfers, in particular PGA professionals and amateurs, perceive the elements that correspond to the five design principles of golf course architecture. The findings of this thesis, however, can be used in many facets of design, from parks to community spaces. One of the most important themes derived from this study is that the designer, be it a landscape architect, architect, or golf course architect, must carefully analyze how the users of the designs perceive the design elements that are implemented within them.

5.6 Recommendations for Further Study

The following are recommendations for further study that have been derived from the findings of this study:

1. Analyze the design relationship between the golf course architect and the professional consultant in the design process of golf courses.
2. Analyze the relationship between golfers of differing economic classes to the five design principles of golf course architecture.

3. Compare the differing perceptions among female and male golfers to the five design principles of golf course architecture.
4. Analyze and compare the differing perceptions of golfers to the five design principles of golf course architecture on courses which are routed throughout neighborhoods and golf courses that have no visible homes.

APPENDIX A
INTERVIEW QUESTION

INTERVIEW QUESTIONS

1. Are you a member of the Professional Golfers Association of America?
2. Have you experienced play on golf Holes One, Two and Three at TPC Craig Ranch in McKinney, Texas?
3. What are the elements of aesthetics on these golf holes?
4. What are the elements of playability on these golf holes?
5. What are the elements of naturalness on these golf holes?
6. What are the elements of originality on these golf holes?
7. What are the strategic elements of these holes?

APPENDIX B

SAMPLE EMAIL REQUESTING INTERVIEW

EMAIL SAMPLE REQUESTING INTERVIEW

Dear Mr. / Mrs. John Doe:

I am a graduate student at The University of Texas at Arlington. I am currently working on my thesis entitled "A Comparison of Perceptions among Amateur and PGA Professional Golfers to the Five Design Principles of Golf Course Architecture." I have always been interested in golf courses and golf course architecture, and, in fact, I previously served as an assistant superintendent at TPC Craig Ranch before I decided to continue my education and enter the field of landscape architecture.

I would like to request your participation in my thesis research via a telephone interview. The study is important in improving design techniques for golf course architects so they can provide facilities that can better be enjoyed by all classes of golfers. The interview will take approximately 60 minutes of your time. I will be available to conduct the interview at your convenience.

If you would like to participate, please reply to either of the email addresses or call one of the phone numbers listed below to schedule the interview.

Please don't hesitate to call or email me with any questions. Thank you for your consideration; your support is greatly appreciated.

Sincerely,

Ryan W. Johnson
Graduate Student
Program in Landscape Architecture
The University of Texas at Arlington

Phone: (480) 516-1773 (cell)
(972) 547-9994 (home)

Email: rwjohnson7@yahoo.com

APPENDIX C
SAMPLE PHONE SCRIPT

SAMPLE PHONE SCRIPT

Hello Mr. / Mrs. John Doe,

My name is Ryan Johnson; I am a graduate student at The University of Texas at Arlington. You are being asked to participate in a research study. Your participation is voluntary. Please ask questions if there is anything you don't understand.

The study is entitled "A Comparison of Perceptions among Amateur and PGA Professional Golfers to the Five Design Principles of Golf Course Architecture." The purpose of this study is to obtain a clear understanding of how golfers of amateur status as well as those of professional status perceive the corresponding elements within the design principles.

The interview will take approximately 60 minutes. The interview will be recorded using a RCA VR5220 digital recorder. The digital recordings will be sent to Verbalink.com, a transcription service based out of Santa Monica, California, for transcription. Your name will not be used in any transcriptions; all persons interviewed will be alphabetically coded. You may withdraw from this study at any time.

Confidentiality

If, in the unlikely event, it becomes necessary for the Institutional Review Board to review your research record, then The University of Texas at Arlington will protect the confidentiality of those records to the extent permitted by law. Your research records will not be released without your consent unless required by law or a court order. The data resulting from your participation may be made available to other researchers in the future for research purposes not detailed within this consent form. In these cases, the data will contain no identifying information that could associate you with it or with your participation in any study.

Questions about this research or your rights as a research subject may be directed to Pat D. Taylor at (817) 272-2801. You may contact Chairperson of UT Arlington Institution Review Board at (817) 272-3723 in the event of a research related injury to the subject.

Do you agree to participate in this research study? .

Time:

Date:

REFERENCES

- Aesthetics*. (2004). Retrieved from
<http://neohumanism.org/a/ae/aesthetics.html#Aesthetics%20in%20Landscape%20Design>
- Alister MacKenzie. *World golf hall of fame*. (2009). *www.wgv.com*. Retrieved from
<http://www.wgv.com/hof/member.php?member=1078>
- American society of golf architects*. (2009). *www.asgca.org*. Retrieved from
http://www.asgca.org/index.php?option=com_content&view=article&id=47&Itemid=2
- Aque, C. (2007). Perception. *University of Chicago: Theories of Media*. Retrieved from
<http://humanities.uchicago.edu/faculty/mitchell/glossary2004/perceptionperceivability.htm>
- Blakemore, Mark. (2009). *www.pgaprofessional.com*. Retrieved from
http://www.pgaprofessional.com/golf_glossary/p.html
- Davies, P. (1992). *A historical dictionary of golfing terms from 1500 to the present*. Lincoln, NE: University of Nebraska Press.
- Doak, T. (1992). *The anatomy of a golf course*. Short Hills, NJ: Burford Books.
- Doak, T. (2009). *Www.doakgolf.com*. Retrieved from http://www.doakgolf.com/tom_bio.asp
- Doak, T. (2010, January 23). *Minimalism defined*. Retrieved from
http://www.renaissancegolf.com/thoughts/minimalism_defined/
- Graves, R, & Cornish, G. (1998). *Golf course design*. New York: John Wiley & Sons, Inc..
- Hawtree, F. (1983). *The golf course: Planning, design, construction and maintenance*. New York: E. and F.N. Spon.
- Hurdzan, M.J. (2006). *Golf course architecture: evolutions in design, construction, and restoration technology*. Hoboken, NJ: John Wiley & Sons, Inc.

- Jones, R. (1993). *Golf by design: how to lower your score by reading the features of a course*. New York: Brown and Company.
- Kass, J. (Producer). (2007). *The wire: Your daily golf transaction newsletter*. Retrieved from <http://www.golfbusinesswire.com/releases/116473/>
- Lauer, D., and Pentak, S. (1979). *Design basics*. Orlando, FL: Harcourt Brace and Company.
- Lovett, J. (1999). *John Lovett watercolor and mixed media artist*. Retrieved from <http://www.johnlovett.com/test.htm>
- Mackenzie, A. (1920). *Golf course architecture*. LaVergne, TN: General Books.
- Miller, W. (2009). An examination of the role of landscape architects in the No Child Left Inside Movement. Thesis retrieved February 25, 2010, from Proquest Learning.
- "Pete Dye." *Dye designs*. (2009). Retrieved from <http://dyedesigns.com/golf/dye-family-2/pete-dye/>
- Professional Golfer Association of America, PGA. (2003-2009). *Professional Golfers Association of America*. Retrieved from <http://www.pga.com/pgaofoamerica/classifications>
- Professional Golfer Association of America, PGA. (2003-2009). *Professional Golfers Association of America*. Retrieved from <http://pgajobfinder.pgalinks.com/helpwanted/empcenter/pgaandyou/pro.cfm?ctc=1667>
- Pugh, K. (2003). Straighter is not always better: The relative importance of five design principles of golf course architecture. Retrieved February 17, 2010, from Proquest Learning.
- Shackelford, G. (2003). *Grounds for golf: The history and fundamentals of golf course design*. New York: Thomas Dunne Books.
- Taylor, S, & Bogdan, R. (1998). *Introduction to qualitative research methods*. New York: John Wiley & Sons, Inc..
- Thawley, M. (2000). *Techniques for improving established golf courses: restoration, renovation and redesign*. In M Livingston (Ed.), Ann Arbor: Bell and Howell Information and Learning Company.

The Royal and Ancient, St. Andrews, R and A. (2010). *Royal and Ancient, St. Andrews*. Retrieved from <http://www.randa.org/home/TheR%2526A>

TPC Craig Ranch. (2010). *www.tpccraigranch.com*. Retrieved from <http://www.tpccraigranch.com/default.aspx?p=CourseTourDefault&ssid=38960>

United States Golf Association, USGA. (2009). *www.usga.net*. Retrieved from http://www.usga.org/playing/handicaps/getting_a_handicap/definition_golf_club.html

United States Golf Association, USGA. (2009). *United States Golfers Association*. Retrieved from <http://www.usga.org/Rule-Books/Rules-of-Amateur-Status/Decision-06/>

Weiskopf, T. (2010). *Tom Weiskopf designs*. Retrieved from <http://www.weiskopfdesigns.com/>

BIOGRAPHICAL INFORMATION

Ryan Johnson is a Masters of Landscape Architecture candidate for Spring 2010 and is currently employed by M. M. Moore Construction Company, INC., where he is a designer and draftsman on large-scale residential landscape design projects. Ryan received his bachelor's degree from Texas Tech University in Horticultural Sciences with emphasis on turf grass. While at Texas Tech University, Ryan worked on the construction of The Rawl's Course. Upon graduating from Texas Tech University, he worked for the PGA Tour as an Assistant Superintendent at the Tournament Players Club at Scottsdale in Scottsdale, Arizona. From there, he became an Assistant Superintendent at Tournament Players Club at Craig Ranch. During his career in golf course maintenance, Ryan has worked several PGA Tour events including the FBR Open in Scottsdale, the Zurich Classic of New Orleans, and the United States Women's Open Sectional Qualifiers at Craig Ranch. Ryan is an avid golfer and has always held an interest in golf course design.