Alternatively Designed Golf Courses: Improving Accessibility for Novice and Intermediate Golfers

by

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ABSTRACT

Alternatively Designed Golf Courses: Improving Accessibility for Novice and Intermediate Golfers

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University of Guelph, 2014

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The majority of golfers are at a novice or intermediate skill level, but most golf courses are designed for experts. Golf course architects and golf experts were interviewed to gain professional insight on golf course design principles and golfer demographic trends. Fifteen novice and intermediate golfers were interviewed, and their preferences and displeasures of golf course design were obtained. It was found that too many forced carries and difficult water-hazards deter golfers from the game. Most golf courses are too long and do not have appropriately located tee decks. Deep bunkers and greens surrounded by rough are also highly difficult design elements. A golf course with a more interesting and variable layout accommodating all skill levels is more likely to succeed than a course of high difficulty and increased length. The recommendations provide guidance for future golf course design and renovation opportunities.
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Chapter 1.0 – Introduction

1.1 – The Rise of Canadian and American Golf Course Architecture

The first records of golf date back to the 15th century however, the first golf courses in Canada and the United States did not appear until 1873 and 1888, respectively (Cornish and Graves 1998, Hewson 2001, Holmes 2013). The “father of American golf course architecture” and the man credited with coining the term “golf course architect”, Charles Blair Macdonald, studied at St. Andrews University in Scotland (Cornish and Graves 1998, GCA 2001). Macdonald studied The Old Course at St. Andrews and transferred his knowledge of design to his own creations in the United States beginning in the 1890’s (Cornish and Graves 1998). The 1920’s marked the “Golden Age” of golf course architecture (GCA 2001). The combination of ideal sites for golf courses, low real estate costs, and available funds propelled the number of golf courses from less than 750 in 1917 to over 6000 in 1930 in the United States (Cornish and Graves 1998, PBS 2012). A lull in golf course openings occurred between 1930 and 1950 due to the Great Depression and World War II (Cornish and Graves 1998). After the Second World War, there was another boom in golf course architecture. Up until then, natural landforms dictated the general layout of golf holes, but new earth-moving technologies allowed architects to shape and move soil to easily mimic their own theories of design (Doak 1992). By 2005, the number of golf courses in the United States exceeded 16,000 and there were over 2,000 courses in Canada (Beesley 2010, NGF 2013).
1.2 – The Driving Forces Behind the Popularity of Golf

The number of golf courses in Canada and the United States increased immensely during the 1900’s because the popularity of the sport was also increasing. Low-stress exercise, values associated with the sport, social aspects, business deals, and the relaxing setting were the prominent driving forces behind the growth of the golfing population.

1.2.1 – A Physical Activity for People of all Ages

Unlike the majority of sports, golf is not physically demanding. The sport provides an outlet for young children, seniors, and all ages in between to experience light exercise in an outdoor environment. People who take up golf are investing in a sport that they will be able to play well into their old age. American College of Sports Medicine (2003) states that regular exercise in the form of walking or jogging lowers the risk of developing heart disease, adult-onset type 2 diabetes, and osteoporosis. The average distance walked over 18 holes of golf is five miles, or approximately 12,500 steps, which is over the recommended 10,000 steps per day. (Bumgardner 2013, Hardman and Stensel 2003, Kaspriske 2009).

1.2.2 – The Values Connected to the Game of Golf

Golf is a game that has copious rules and regulations to abide by during a round of golf. Within the official rulebook, there is even a section on etiquette and advised course behavior (RCGA 2011). In conjunction with learning the rules of golf and how to conduct oneself on the golf course, a golfer acquires necessary values
that also apply to life off the course (The First Tee 2012). “The First Tee is an international youth development organization that introduces the game of golf and its inherent values to young people” (The First Tee 2012). The “Nine Core Values” that The First Tee imparts on its youth are: honesty, integrity, sportsmanship, respect, confidence, responsibility, perseverance, courtesy, and judgment. These are all positive values connected to the game of golf (The First Tee 2012).

1.2.3 – The Social Side to Golf

During the boom of golf course architecture in the early 1900’s, private country clubs were most prevalent in the United States (Kirsch 2009). Private golf clubs catered to wealthy, upper-class citizens who could afford to pay the initiation and annual fees to become a member at the course (Kirsch 2009). However, there was a dramatic increase in middle-class men and women with an increase in disposable income and leisure time, and changing attitudes about work and recreation (Kirsch 2009). This class of people sparked the need for semi-public and municipal golf courses that allowed pay-as-you-play green fees (Kirsch 2009). Although the number of private clubs greatly outnumbered the amount of public courses in 1930, as of 2013, 75% of all golf courses in the United States were open to the public (Kirsch 2009, NGF 2013). These numbers reflect Canadian golfer statistics in 2012, where 84% of golfers were public players and 16% of golfers were members at a club (NAGA 2012).

The variances in the privacy of golf courses allow the majority of golfers to find their niche when choosing a course to play. Members of private clubs can play
unlimited golf at that particular golf course (Rowland 2009). They also have access to amenities such as gyms, lockers, golf club storage, dining options, and sometimes pools and tennis courts (Rowland 2009). An avid golfer is likely to save money by joining a club because the cost of an annual membership is less than the total amount of green fees they would pay at public courses during the year (Rowland 2009). Playing the same golf course year round increases the possibility of growing one's social circle (Rowland 2009).

Daily-fee and municipal golf courses operate the same way; golfers pay a one-time rate to play the course, the only difference is that a municipal course is owned by a municipality, city, or state and a daily-fee course is privately owned (Kelley 2010). Both types of courses attract golfers who wish to play multiple golf courses in a season rather than just one, as well as those who do not play golf very often and a membership is not worth the money. Golfers can choose to play a public course with one to three people they know (the maximum amount of golfers that can play together is four), or golfers can show up to a public course and play with strangers (Kelley 2010, RCGA 2011).

Semi-private golf courses allow people to purchase a membership to the course and also allow daily-fee golf to be played (Kelley 2010). These types of courses share the characteristics of private clubs and public courses (Kelley 2010).

1.2.4 – Business and Golf

By the turn of the 20th century, golf had quickly caught the attention of wealthy groups and was immediately welcomed into high society (Ceron-Anaya
Golf allowed the upper class to display their large amounts of economic and social capital to other businessmen in the form of expensive equipment and exclusive access to private clubs (Ceron-Anaya 2010). Golf was and still is appealing to businessmen because the sport promotes relaxation, which in turn allows friendly interaction and presents the opportunity to “form closer social ties, as people unwind and show their emotions” (Ceron-Anaya 2010).

1.2.5 – Relaxation or Recreation on a Golf Course

One major difference between golf and other sports is that a golfer dictates what they wish to receive out of the game, and those wishes can vary from one day to the next. Some golfers play golf to compete against others, or against their previous personal bests (Wible 2010). Other golfers play golf to be outside for an extended amount of time and enjoy the elements and scenery (Wible 2010). Peck (1999) believes that the main points to golf are soul learning and growth, not score.

1.3 – Problems with the Current State of Golf in Canada and the United States

1.3.1 – Canadian Golf Statistics

In September 2012, the National Allied Golf Association released the Canadian Golf Consumer Behaviour Study. The following approximate statistics are findings from the study. Of the 5.7 million golfers in Canada, 18% of them are leaving the game and 18% of them are entering the game. Currently there is no growth in the golfing population in Canada. Less than 26% of Canadian golfers play the majority of rounds of golf each year, the remaining 4.2 million golfers are fringe
golfers that play occasionally or infrequently. 70% percent of Canadian golfers are male and 30% are female. Lastly, 17% of Canadian golfers took up golf between the age of 6 and 11, and 23% of golfers took up the game between the age of 12 and 17. However, only 7% of golfers have a child that plays golf between the age of 6 and 11, and 9% of golfers have a child that plays golf between the age of 12 and 17. There are no statistics on children of non-golfers who play golf.

1.3.2 – American Golf Statistics

As of 2003, there were roughly 29.5 million golfers in the United States, which accounted for approximately 52% of golfers worldwide (GRG 2003, NGF 2013). The National Golf Foundation is the most trusted source of information and insights on the business of golf; the NGF compiled the following approximate, statistics. From 2005 to 2013, the number of golfers in the United States has dropped from 30 million to 25.3 million golfers. The number of golf course facilities has also dropped from 16,052 in 2005 to 15,619 at the beginning of 2013. In 2012, there were 13.5 golf course openings compared to 154.5 golf course closures.

1.3.3 – The Main Causes of the Decrease in the Golfing Population

The overwhelming reasons why the popularity of golf has decreased for nearly a decade is that golf costs too much to play, it takes too long to play, and it is too difficult of a sport (Crabtree 2011). A 2005 NGF study found that the median green fee in the United States was $40, and the average green fee for courses built after 1990 was $60.55 (Rose 2012). Joining a private club in Canada costs a golfer
on average $10,000 in initiation fees and $3,000 annually for a run-of-the-mill golf facility (Robinson 2012). The average time it takes to play an 18-hole round of golf is approximately 4 hours (McCoy 2012). Adding the time it takes to commute to and from the course, to check in, and warm-up, the time commitment to play golf is quite severe. Naturally, if a golfer wishes to accelerate the process of getting better at golf, they have to spend time practicing as well.

1.4 – Thesis Focus

The focus of this research project is on the third main cause for the decrease in the popularity of golf: the difficulty of the sport.

1.4.1 – How Difficult is Golf?

The most straightforward explanation to this question is to examine what golfers usually score when they play golf. The average par for an 18-hole regulation golf course is 72 (Peck 1999). The NGF’s Golf Consumer Profile (2013) found that 95% of adult golfers in the United States score 80 or higher and that 45% of golfers score 100 or higher. The complete results can be seen in Table 1. The theory that has arisen from these statistics is that golf courses are tailored too much towards expert golfers rather than novice and intermediate golfers.

<table>
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<tr>
<th>Average Score</th>
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<tr>
<td>Under 80</td>
<td>5%</td>
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<tr>
<td>80-89</td>
<td>21%</td>
</tr>
<tr>
<td>90-99</td>
<td>29%</td>
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<tr>
<td>100-109</td>
<td>24%</td>
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<td>110-119</td>
<td>10%</td>
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<tr>
<td>120 and over</td>
<td>11%</td>
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1.4.2 – Goals and Objectives

The goal of this research paper is to identify ways in which golf courses can be better designed for novice and intermediate golfers.

The objectives for this study are as follows:

- Identify how current golf course architects are designing for novice and intermediate golfers.
- Identify golf course design features and aspects of golf that novice and intermediate golfers like and dislike.
- Identify trends in golf.
- Obtain professional insight on the necessary elements of future golf course designs.
- Identify design features for golf courses to accommodate novice and intermediate golfers.
Chapter 2.0 – Methods

The best technique to gain information on current design principles, attitudes of novice and intermediate golfers pertaining to golf, and future trends in golf and golf course architecture was to ask people directly. Interviews and open-ended survey questionnaires were utilized for the majority of the data collection in this study. Small amounts of vital data also came from the literature on the topics of innovation in golf, and precedents in other sports. The method of grounded theory was used to analyze the qualitative data collected, which is “the attempt to derive theories from an analysis of the patterns, themes, and common categories discovered in observational data” (Babbie 2007, p296). Grounded theory was chosen so there could be a structured process of data interpretation and the necessary measures would be taken to increase the accuracy of the final conclusions.

2.1 – Selecting Respondents and Informants

Respondents and informants are two different things when it comes to social research. Babbie (2007, p186) states “respondents are people who provide information about themselves, allowing the researcher to construct a composite picture of the group those respondents represent”. Whereas an informant is “someone who is well versed in the social phenomenon that [the researcher] wish[es] to study and who is willing to tell you what he or she knows about it.” (Babbie 2007, p186). Practicing golf course architects and a variety of intermediate
and novice golfers served as respondents during the data collection process because they could provide personal information with regards to the questions at hand. Directors of golf and operations, notable golf columnists, a leader in golf business solutions and analytics, and a golf entrepreneur and co-founder of a golf course served as informants during the data collection process. Lastly, a specialized golf consultant played the role of both a respondent and an informant.

2.2 – Respondent Interviews and Questionnaires

2.2.1 – Golf Course Architects

Four Canadian golf course architects participated in the study. Opportunistic sampling was used to select the first architect, Cam Tyers (Christensen and Johnson 2010). Cam has been a golf course architect for over 15 years, he was the lead designer of Turnberry Golf Course in Brampton, which was alternatively designed to have sixteen par-3 holes and two par-4 holes due to land constraints, and he worked alongside Doug Carrick for a number of years working on such projects as Magna Golf Club, Angus Glen North, Bigwin Island, and Eagles Nest.

Snowball sampling was used to select the remaining three architects, whereby Cam suggested contacting Doug Carrick, Ian Andrew, and Steve Vanderploeg, all of whom agreed to participate in the study (Babbie 2007).

Doug Carrick has been in the golf course design business for over 27 years. Practicing primarily in Canada, he has also completed and collaborated on projects in Scotland, Austria, Hungary, and South Korea.

Ian Andrew worked for Doug Carrick for over 10 years, and has been
practicing on his own for the past 8 years. He specializes in golf course renovations, and has worked alongside PGA Tour player, Canadian Mike Weir on two projects (Thompson 2008). Ian’s business is quickly expanding into the Northeastern states of the United States in New York, New Jersey, and Pennsylvania.

Steve Vanderploeg has been working with Doug Carrick at Carrick Design Inc. for nearly 17 years. He has collaborated on projects such as Humber Valley River Course, The Carrick at Loch Lomond, Predator Ridge, and St. Georges Golf and Country Club renovations.

Each golf course architect was given the same five-question questionnaire. Cam Tyers received an additional three questions directed towards his work at Turnberry Golf Course. The open-ended questions, which can be found in the Appendix, covered general project goals, design principles, how they design for novice and intermediate golfers, and the role they will play in the future to help grow the golfing population.

2.2.2 – Novice and Intermediate Golfers

Fifteen novice and intermediate golfers participated in the study. Six of the participants were interviewed at The Toronto Golf & Travel Show and The Docks Driving Range in Toronto. It was determined that these two locations would provide the best opportunity to interview a golfer with the appropriate skill level, given the fact that the data collection period occurred during the winter and no local golf courses were open. At each venue, participants were approached using the next-
to-pass sampling method (Brown and Lynn 2002). After the first respondent had been contacted and completed the interview, the next person to walk by at the Toronto Golf Show, or at the driving range, was asked to complete an interview. The nine remaining respondents were contacted through snowball sampling. An intermediate golfer that was surveyed was acquainted with multiple other novice and intermediate golfers who agreed to partake in the study.

The respondents were asked two closed-ended and four open-ended questions regarding their average score on 18-holes, how often they play golf during the golf season, why they play golf, their likes and dislikes with respect to design elements on the courses they have played, and their opinion of what they would change in golf. The survey questions can be found in the Appendix as well as the certification of ethical acceptability of research involving human participants.

2.3 – Informant Interviews and Questionnaires

2.3.1 – Directors of Golf and Operations

Two directors of golf and operations participated in the study. The main duties of a director of golf and operations is to “operate at both a tactical and strategic level, managing and continuously developing all aspects of the golf business” at their course (PGA 2012, p16). They also play a large role in overseeing the care and maintenance of physical assets, and the development of customer based programs such as tournaments and social events (PGA 2012). Cam Tyers suggested that Jamie Trenholme of Eagles Nest Golf Club would be a useful informant, and opportunistically, Steve Bryant of Cutten Fields Golf Club also
agreed to participate in the study. Eagles Nest is a semi-private golf course and Cutten Fields is a private club. Both informants each have over 10 years of experience in the golf management industry.

The informants were asked six open-ended questions regarding who they thought golf courses are best suited for, what design features have received positive and negative feedback from customers, the appeal of golf to novice and intermediate golfers, what type of golfers their course attracts, and how they would change golf to revitalize the golfing population.

2.3.2 – Golf Columnists

Two golf columnists participated in the study. Purposive sampling, “in which the units to be observed are selected on the basis of the researcher’s judgment about which ones will be the most useful”, was used to select Lorne Rubenstein as an informant during the data collection (Babbie 2007, p184). Lorne is “Canada’s pre-eminent golf writer”, writing for The Globe and Mail for 32 years (Rubenstein 2010, pviii). Cam Tyers suggested Robert Thompson would also provide useful information on the topic. Robert has written for the National Post since 2003, he is a regular contributor to Score Magazine, and a columnist for Ontario Golf Magazine (Thompson 2006). He is also a course rater for Ontario Golf, Score, and Golf Digest Magazines (Thompson 2006).

The informants were asked six open-ended questions regarding reasons for course closures, what a course needs in order to succeed, what golf courses could be doing to appeal more to novice and intermediate golfers, design elements that
are the most fun and most frustrating to play, and their outlook on the future of golf course architecture.

2.3.3 – Stephen Johnston

Cam Tyers suggested that Stephen Johnston would be a useful source of information for the study. Stephen is the founding Principal of Global Golf Advisors, a company that specializes in operational analysis and financial solutions for golf businesses (GGA 2011). He has also completed large golf-related valuation assignments across North America and multiple market studies to reposition golf assets (GGA 2011). Lastly, he frequently deals with golf course closures and receiverships (GGA 2011).

Steve was asked seven open-ended questions regarding who golf courses are generally tailored towards, the relationship between the difficulty of a golf course and its financial success, golf course renovations and marketing strategies, and his thoughts on the future of golf course architecture.

2.3.4 – Ben Cowan-Dewar

Cam Tyers suggested that Ben Cowan-Dewar would be a helpful person to contact about the study. Ben is the co-founder of Cabot Links golf course, the founder of Golf Travel Impresarios, and partner in GolfClubAtlas.com.

Ben was asked six open-ended questions regarding the importance of designing for all skill levels of golfers, design elements that have proven to produce positive and negative feedback from golfers, the current appeal of golf to novice
and intermediate players, what a new golf course needs in order to succeed, and how he would change the game of golf to grow the golfing population.

2.4 – Key Informant: Arthur Little

During the interview with Ben Cowan-Dewar, he indicated that Arthur Little came to Cabot Links to advise him and the architect on the placement and design of the forward tees. Arthur was contacted and agreed to help with the study. He is an affiliate member of the Golf Course Superintendents Association of America, was in the venture capital business for thirty years, but now he and his wife strive to advise golf courses to think about female golfers and design for them (Golfforwomen 2010). In 2007, Arthur and his wife played golf at Bandon Dunes which is widely considered the best golf resort in the United States (Ginella 2010). They enjoyed the course, but wrote a letter to the owner, Mike Keiser, explaining why the course was too long (Ginella 2010). It took some convincing, but Mike Keiser approved the addition of a new set of tee decks at the Old Macdonald Golf Course that would play to a par-71 at 4,400 yards in length using the colour royal blue for the tee blocks (Ginella 2010). Recently, Ben Cowan-Dewar and his partner, Mike Keiser, had Arthur return to help with the new Cabot Links royal blue tee deck.

Arthur is an expert on the topic of designing for women at golf courses therefore no questionnaire was given to him. Instead he was informed about the basis of the study and was allowed to provide any information he thought would be of value.
Chapter 3.0 – Results & Analysis

The majority of the data collected in the study was qualitative information received through the interview and survey questionnaire responses. The remainder of the data was collected from existing literature, and current events in the golf world. Due to the fact that all the data collected was qualitative and observational, grounded theory was used to sift through the information and analyze the data.

3.1 – Grounded Theory

This method of data analysis “allows the researcher to be scientific and creative at the same time” as long as they follow the general guidelines developed by Anselm Strauss and Juliet Corbin in 1998 (Babbie 2007, p296). The guidelines prompt the researcher to avoid biases that can surface from interpretations of initial observations; to obtain multiple viewpoints from participants regarding the research topic; to periodically step back and compare developing interpretations with the data; regard initial interpretations as provisional until backed up by more observations; and lastly to follow the research procedure (Babbie 2007). In summary, grounded theory allows the researcher to generate theories from the continual comparing and unfolding of observations (Babbie 2007).

The first phase of the grounded theory method identified themes and common categories found in the responses of the participants in the study. The data from the golf course architects and experts was initially separated from the novice and intermediate golfer data, and placed into their own themed categories.
3.2 – *Golf Architects and Experts Questionnaires*

The responses of the golf architects and various golf experts were organized into four topics that emerged from the questionnaire process: opinions on what skill level golf courses are best suited for, design features to avoid, design features suitable for all skill levels, and ideas to grow the game of golf.

3.2.1 – *Who are Golf Courses Best Suited for?*

When asked how high the priority of designing for novice and intermediate golfers was, all four architects stated that it was very high on their theoretical list, or that it was second nature to design for those skill levels. Ben Cowan-Dewar indicated that elite professional golfers do not pay for golf. High handicap golfers make up the majority of the golfing population therefore, a course needs to appeal to this skill level of player. However, even though Ian Andrew stated that designing for novice and intermediate golfers was high on his list, he claimed that for most golf course architects it is low on their lists. They tend to design from the back tees, forward. The remaining golf experts were of the consensus that the majority of golf courses they have experienced are tailored for elite and above-average golfers. Over half the experts also mentioned that most courses are not suited for junior or female golfers.

3.2.2 – *Design Features to Avoid*

Every respondent except one mentioned forced carries; three of the four architects try to avoid them entirely especially on approach shots to the green. If
they must be implemented, they should be strategically placed near the tees. A forced carry demands a golfer hit their shot over a hazard with no opportunity to play around it (Kelley 2003). Ian Andrew was the only architect to mention ponds and in-play out-of-bounds as features he avoids at all costs because he is not fond of hazards that do not allow for a recovery shot. Two other experts disliked the excessive use of lateral hazards as well, which is a hazard that runs beside the path of play limiting a golfer’s options of where to drop their ball if they hit into it (Kelley 2010).

Three of the six golf experts had negative connotations towards bunkers. If bunkers are too deep, they become very difficult and not enjoyable to play from. Steve Bryant was quick to add that entering and exiting bunkers can also be dangerous for seniors and others with mobility challenges. It was also mentioned that bunkers to the right of the line of play and sightline bunkers are a nuisance especially for intermediate and novice golfers, but do not pose a threat to elite golfers. The most common mishit for a novice golfer is a slice, which curves to the right, and since the majority of golfers are right handed, bunkers on the right hand side of a hole are threats to mostly novice golfers (Kelley 2006). Stephen Johnson said that it is commonly advised that during a renovation, courses remove bunkers that are overly penalizing to novice golfers, as well as those that are redundant or rarely played, thus cutting maintenance costs as well.

Features to avoid on the greens are very fast putting surfaces and overly contoured greens, although one expert said he enjoyed undulating greens. At least one of the golf experts or architects mentioned the following design features to
avoid: blind shots, narrow landing areas, stretches of uphill holes, very long rough or fescue, and narrow tree-lined fairways. Some of the golf architects noted that most of the design features listed above are sometimes impossible to avoid when building a golf course on certain terrains, but it is the over-use of these features that generates negative responses from golfers.

3.2.3 – Design Features Suitable for all Skill Levels

Design elements that are playable for novice and intermediate golfers, but maintain interest and challenge for elite golfers were considered “good design”. A closely mown area around greens was unanimously the advice given by the architects and experts. Because less skilled golfers tend to miss the green on approach shots, shorter grass allows them to have an easier recovery shot while still maintaining an interesting element for elite golfers to navigate. If a skilled golfer misses the green, their ball will roll further away from the hole than if there was long grass around the green to stop it thus making their approach shot more penalizing if mishit.

Another design principle heavily suggested by many was wide fairways. Wide fairways allow a novice golfer to hit a shot off line and still hit their next shot from the fairway, which is an easier task because the grass is shorter. However, depending on the hole location, placement of an elite golfer’s tee shot is still an important and challenging priority. Two architects and one expert suggested that alternate routes to the green were favourable features for mid to high handicap golfers because they can decide how risky of a route to take to get to the green.
Other less penalizing elements mentioned were elevated tee shots, firm fairway surfaces, and strategic sloping of greens to promote a specific line of play. Elevated tee shots promote confidence in novice and intermediate golfers because they can see what is in front of them, they also allow a shot to get airborne even if the player hits a low shot, which is a common mishit for novice golfers. Firm fairway surfaces promote roll for the low mishits of novice golfers allowing them to hit it further. If a green is sloped to a certain direction, there are optimum spots in the fairway for an elite golfer to access the green, but an inaccurate approach shot from a novice golfer will not be severely penalized.

3.2.4 – Ideas for the Future of Golf

None of the respondents believed that the current state of golf was satisfactory. Over half the respondents suggested that designing for children should be considered; better programs to get youth involved, or community golf leagues. Two experts mentioned similar programs, but aimed more towards women. The need for more affordable and time considerate golf courses was a common response; Doug Carrick suggested more compact golf courses. These courses would have the tee decks closer to the previous hole’s green, saving walking time between holes and occupying less total space. Steve Johnston explained how his company “renovates” a course’s scorecard from time to time in order to increase or decrease the par of holes to make it more fair. However, Cam Tyers finds it hard to imagine the golfing market growing again. He believes that radical changes need to happen to the game; it has to be more responsive to
emerging lifestyles and demographic trends. Lastly, he thinks that architects should take on the role of programming a golf facility instead of just designing the course on the property; create an experiential facility that encourages the golfer to stay before and after the round.

3.3 – Novice and Intermediate Golfer Interviews and Questionnaires

The responses of the fifteen novice and intermediate golfers were organized into four topics that emerged from the data collection process: reasons why they do not play golf more often, negative feedback about golf, positive feedback about golf, and suggestions to change the game. Three of the respondents were just beginning to play golf and do not keep score. The average score for the remainder of the respondents was 104.

3.3.1 – Why Golfers do not play Golf More Often?

All but one respondent said that they would like to play golf more often. Every golfer said that it costs too much and takes too much time to play an 18-hole round of golf. Half of the respondents mentioned that either it took too much time away from their family, or the sport was too expensive to play as a family. Also, commitments such as work and other summer activities took priority over golf. One respondent said it was hard to find another person to play with, and she did not want to spend the money on a golf membership.
3.3.2 – Negative Feedback about Golf

The most common design feature that received negative feedback was water hazards. Nobody said there should not be any water hazards on golf courses, just that there were too many. Some respondents said they were discouraged when they had to lay up in front of a pond just so they had a chance at hitting their next shot over it. Another golfer wished they could choose to try and hit over the water, or if they have lost too many golf balls already, to play from a safer spot. Water hazards directly in front of tee decks also received negative feedback.

No other design features received as much negative feedback as water hazards, but the following features were disliked by more than one respondent: holes being too long, fescue that was easy to lose a golf ball in and hard to recover from, blind shots, repetitive artificial mounding along the sides of fairways was boring, and that there were too many trees on the courses.

General negative comments about golf included: feeling rushed by the group behind, the sense of not feeling welcome because they were a beginner, and the courses they did feel welcome at were not well maintained or they were par-3 courses. Pace of play not being enforced enough was also criticized. Another golfer wished that the beverage cart drove by more often. A respondent said that their 16-year-old son was not interested in golf because it was too slowly paced and he had many other options to choose from instead of golf. Lastly, more than one golfer said that golf was too difficult to pick up and play, and that they needed lessons but could not afford them and did not have the time for them.
3.3.3 – Positive Feedback about Golf

Over half of the respondents enjoyed the scenery and beauty of the golf holes, and a quarter of them said that being outside or “the fresh air” were aspects they liked about golf. A quarter of the respondents said that exercise and the social aspect of golf were reasons why they played the sport. One golfer said that she enjoyed par-3 courses because her score is usually double the par making those courses less frustrating. Well-manicured greens and fairways received positive feedback from two golfers. Difficult water hazards were praised because one respondent liked the challenge of navigating the hazard. Lastly, alternate routes to reach the green in order to avoid trouble were enjoyed by two respondents.

3.3.4 – Suggestions on Changing the Game

The time it takes to play, and improved accessibility for children and family were the two prominent themes that emerged. Eighteen hole courses that did not take 4-5 hours to play was a suggestion, as was the option to play 3, 6, 9, 12, 15, or 18 holes depending on how much time was available. A golf facility with two courses, one difficult and one easier, was suggested so they could play the appropriate course and still meet their friends or spouse after the round to socialize together. Special green fee rates for children, programs for families to get involved, and designated time slots at courses for beginners and non-members were other ideas noted. One respondent suggested that an easier 9-hole course be built for parents and children to learn the game, but they would have to be reasonably priced and not just a field with no interest to it. Lastly, another beginner golfer
suggested that a membership could be purchased that allowed someone to play multiple courses for one rate.

3.4 – *Grounded Theory Continued*

The first phase of the grounded theory method identified themes and common categories found in the responses of the participants in the study. However, as suggested by Babbie (2007), initial interpretations were regarded as provisional until they could be backed up by more observations and data. The second phase of the grounded theory method analyzed the data obtained from the examination of current initiatives in the golf industry. Each of the implemented and proposed tactics to improve accessibility for novice and intermediate golfers had different levels of success, but all have not gained enough traction in the golf world. Furthermore, the information received from, key informant, Arthur Little helped fill the gaps in the initial data collected. His knowledge of swing speeds, average drive distances, and proper tee deck placement was vital to the effectiveness of the grounded theory process.

3.5 – *Current Initiatives in Golf*

3.5.1 – *TEE IT FORWARD Movement*

In the summer of 2011, the PGA of America and the United States Golf Association backed a week-long initiative called TEE IT FORWARD to “make the game easier, more enjoyable, and to speed up play” (Kim 2011). The program suggests that golfers play the proper tee decks that coordinate best with their
average drive lengths. This way, the golfer will hit more accurate approach shots into greens because they are closer to the target (Kim 2011). Table 2 shows the TEE IT FORWARD suggested tee deck lengths for the corresponding average drive lengths (PGA of America 2011). The USGA (2013) found that 56% of the people who tried it played faster and are likely to play golf more often, and 83% had more fun.

Table 2: TEE IT FORWARD Suggested 18-hole Length for Corresponding Average Drive

<table>
<thead>
<tr>
<th>Driver Yardage</th>
<th>275</th>
<th>250</th>
<th>225</th>
<th>200</th>
<th>175</th>
<th>150</th>
<th>125</th>
<th>100</th>
</tr>
</thead>
</table>

3.5.2 – Larger Holes and Multiple Pins

The idea of cutting larger holes into the green to create a bigger and easier target has been suggested by a number of people (Wall 2011). The theory is that if the cup were wider, fewer golfers would make three or more putts on the green and chipping would be easier thus speeding up play and increasing enjoyment (Finch 2011). Pine Needles Lodge and Golf Course put that theory to the test in 2011 by hosting the “W I D E Open” golf tournament, which had 60 golfers attend and the cups cut to be 15 inches in diameter; nearly 12.5 times larger than traditional cups (Finch 2011). “The 15-inch cup was popular with most players and many of the participants said they would enjoy doing it again, although they wouldn't want to play that way every time out” (Finch 2011). No group took longer than 4 hours to complete their round, and the majority of typical foursomes took 3 ¼ hours to finish (Finch 2011).
Mission Hills Golf Club in Haikou, China offers a golf course with two holes cut into each green; one hole is easy to access and the other more inaccessible (Missionhills 2011). This allows the golfer to choose which hole to aim for depending on their skill level (Missionhills 2011).

3.6 – Key Informant Results

Arthur Little provided a plethora of information and suggested resources regarding proper golf course design for female golfers and golfers with slower swing speeds. He described swing speed as being how fast the club head is moving at the point of impact with the golf ball and is a direct link to how far a golfer can hit a shot. Arthur focused on two main topics when helping with the study: Science of swing speed versus average drive distance, and the proper placement of tee decks.

3.6.1 – Swing Speed versus Average Drive Distance

Arthur is affiliated with the website GolfWithWomen.com, which attempts “to educate the golf industry on best practices for increasing play and enhancing revenues from women and families” (Golfwithwomen 2011). The group backs their suggestions and recommendations with mathematics. The average swing speed with a driver for a woman is 65 mph, which equates to an average drive of 135 – 140 yards (Leeming and Little 2011). Arthur went on to say that the characteristics of the ball flight of someone with swing speeds lower than 75 mph do not accommodate forced carries such as bunkers, streams, ponds, and heavy rough.
The consequence is usually a layup shot so the next shot is easier to clear the hazard, essentially adding a stroke to the hole’s par. The majority of forward tees at golf courses range from 5000-5600 total yards (Leeming and Little 2011). In a comparison to the average swing speed of men, 90 mph equating to roughly 210-yard drives, “asking the average woman golfer to play courses of this length is equivalent to asking the average man to play courses of 7500 to 8400 yards” (Leeming and Little 2011, p41).

3.6.2 – Proper Placement of Tee Decks

Leeming and Little (2011) equated tee placement to the amount of time it takes to complete a round of golf. An average female golfer playing the forward tees at the majority of courses will take an extra 14 to 18 shots throughout their round just to reach the green, and if they take the average amount of time to hit a shot, 40 to 50 seconds, this can add 12 to 15 minutes to play a round (Leeming and Little 2011). A foursome of golfers could add 45 to 60 minutes to their round. Arthur advised that golfers play tee decks that are fit to their swing speeds. As most golf courses do not have the proper tee deck lengths to accommodate the lower swing speed golfers, he and his partners have developed a guideline for the placement of tees. Assuming five sets of tees, the back tees should be 14% longer than the middle ones, next from the back should be 7% longer than the middle, the second shortest tees should be 22% shorter than the middle, and the forward tees should be 35% shorter than the middle tee deck. For example, if the middle tee deck is around 6100 yards, which is the distance that fits the swing speed of most
men, it equates to the following tee lengths from front to back: 3965 yards, 4758 yards, 6100 yards, 6527 yards, and 6954 yards.

Yardage is not the only factor to consider, as the angle of play is also very important (Leeming and Little 2011). In most cases the forward tees are constructed close to the cart path for convenience sake, but this can pose a more difficult angle from which to begin a hole (Leeming and Little 2011).
Chapter 4.0 – Discussion

4.1 – Grounded Theory Finalized

The final phase of the grounded theory method is the generation of theories by continually comparing and unfolding the observed data. This section of the study examines the links between the advice of golf experts, the opinions of golfers, and experiments and initiatives in the golf industry. Golf is also compared to other sports and the study limitations are discussed.

4.2 – General Takeaways

Each architect addressed relatively the same design principles with a few unique exceptions, but the fact that the remaining golf experts believed golf courses are tailored too much towards elite golfers raises some questions. Are current golf course architects following their own design principles, or are they compromising their designs when it comes to the capabilities of novice and intermediate golfers? Could the lack of new courses currently being built prevent architects from practicing their design theories when someone does hire them? There were many similarities between the design principles of the architects and the opinions and attitudes of the golf experts and novice and intermediate golfers. However, there was a lack of concern about score by the golfers who participated, which would probably surprise most architects. The majority of the respondents played golf for the scenery, exercise, and social aspects.
4.3 – Mitigating the Problems with Golf Course Design

There were negative connotations about many different aspects of golf and golf course architecture that arose during the data collection period. However, many solutions, ideas, and design principles were also discovered throughout the study.

4.3.1 – Forced Carries

Forced carries were a unanimous reason why novice and intermediate golfers were deterred from the sport. Forced carries in front of greens were especially disliked by golfers of these skill levels. The problem is that golfers with slower swing speeds must lay up in front of the hazard in order to hit their ball over on their next shot. This situation guarantees an extra shot be taken on the hole making par near unattainable. Ian Andrew went to the extreme in saying that, where possible, he avoids the use of ponds and out-of-bounds entirely because there is no chance for recovery adding a stroke to a golfer’s score if they hit it into that style of hazard. Alternate routes received positive feedback from the golfers interviewed. The ability to choose to go around a hazard gives the golfer more freedom on the golf course. The use of water features can be avoided as well. Less penalizing hazards like shallow bunkers, undulating turf, or medium length rough will challenge a novice or intermediate golfer, but allow them a chance for recovery. Sometimes a forced carry must be implemented where there is extreme terrain, or environmentally sensitive areas. An elevated tee deck directly in front of the forced carry gives a novice golfer the best chance to hit their ball over. Placing the tee
deck on the other side of the forced carry and significantly shortening the hole is another option.

4.3.2 – Green Complexes

The greens are where every golfer will set foot at some point during each hole, which makes them the most important design element at any course. Closely mown grass around the green was the one design alternative repeatedly mentioned by the architects. However, no novice or intermediate golfers mentioned this feature as being something they liked. This could be because they forgot about this feature, or perhaps the golfers interviewed had never experienced closely mown grass around greens. The majority of golf experts frequently defended this design principle. There was a general agreement that excessively fast greens or the combination of fast and undulating greens were too difficult and frustrated golfers.

4.3.3 - Fairways

Over three quarters of all the respondents mentioned something about the fairway. Wide fairways were mentioned by the majority of architects and experts as being a novice-friendly element to a course. Width allows novice and intermediate golfers to hit inaccurate shots and still play their next shot from shorter grass, which is an easier length of turf to hit from. Wider fairways also allow off-line shots to bounce and roll further where as narrow fairways bordered by rough will prevent a golf ball from rolling once it leaves the short grass. Alternate routes to the green
was another positive feature identified by the majority of golfers interviewed as well as two of the architects that participated in the study. Having an option to take a riskier route or safer route to the green promotes golfers to make decisions, which is challenging and more fun. Having a section of the green attached to the approaching fairway creates an opportunity for golfers to hit lower trajectory shots that bounce or roll from the fairway onto the green. Wider fairways, alternate routes, and easier access points to greens are less demanding on novice and intermediate golfer to hit good shots, but these design elements do not significantly decrease the challenge for elite golfers. By angling or sloping a green complex a certain direction, optimum approach locations present themselves to elite golfers, and just being in the fairway does not guarantee an easy approach shot to the green.

4.3.4 – Bunkers

The proper placement of bunkers along the fairway is a good way to challenge elite golfers to place their drive in the optimum location, but they also provide a hazard that strikes fear into average golfers. The challenge of avoiding bunkers was considered fun by some of the golfers interviewed, and they are less penalizing than water hazards. The depth of bunkers was an important factor noted by Steve Bryant and Steve Johnston. If bunkers are too deep, they can be too challenging and not enjoyable for novice and intermediate golfers, as well as unsafe for golfers to enter and exit the steep slopes. Bunkers that are placed in a common location on the majority of holes at a golf course can be overly penalizing.
to one set of golfers. For example, because the most common mishit is a slice to the right, bunker groupings or large bunkers on the right side of play can be overly penalizing to the majority of novice and intermediate golfers. Sightline bunkers are usually placed systematically on dogleg holes for elite golfers to use as a point of reference for the direction of their tee shot and not to penalize a bad shot. However, these bunkers are commonly 80-100 yards in front of the forward tee deck, which is a common distance for novice golfers to hit their drive, so the use of sightline bunkers should be avoided or they should be placed carefully.

4.3.5 – Tee Deck Placement

Golf holes being too long was a common negative response by the golfers interviewed. The use of Arthur Little’s tee deck suggestions would theoretically solve the length issue that many novice and intermediate golfers face. It was proven that golfers with certain swing speeds could physically hit the ball only so far, so it seems unfair to put them at a disadvantage from the start of a golf hole by forcing them to hit shots further than possible to reach the green in regulation. The use of elevated tees gives the average golfer a sense of power and confidence. The ability to see what lies ahead is also a benefit of elevated tees.

4.4 – Golf Handicap and Net Score

A golf handicap index compares a golfer’s scoring ability to the scoring ability of a scratch golfer on a golf course of standard difficulty (USGA 2006). A golfer enters their scores into a computer program along with the course’s slope
and course rating, which are numerical factors that determine the difficulty of a course from each set of tee decks. Using the golfer’s best 10 scores out of the most recent 20 scores, a handicap index is calculated that is transferable from course to course (USGA 2006). When a golfer plays a course, their handicap index is converted to a course handicap based on the slope rating of the tees they choose to play (USGA 2006). A course handicap is a numerical value that reflects a golfer’s potential difference above or below par. A golfer’s net score is calculated by subtracting their course handicap from the number of strokes they took to complete the course (Kelley 2010). For example, if a golfer’s course handicap is 23 and they take 98 strokes to complete their round, their net score is 75.

The purpose of golf handicaps is to make the game more enjoyable by enabling golfers of different skill levels to compete on an equitable basis (USGA 2006). Although, how enjoyable can it be for a golfer with a high handicap to subtract a large number from their score and claim they beat another golfer of much higher skill? Through observation, it is possible that the difficulty of golf courses are considered to be a given, and that the only way to level the playing field between elite and novice golfers is to assign handicaps. Even though novice golfers play from a set of tee decks that are significantly shorter in length than the tees elite golfers play, it is still common for novice golfers to possess handicaps upwards of 25-40 as seen by the average golfer scores in the United States.
4.5 – Comparisons to other Sports

4.5.1 - Skiing

A disconnect between the expectations present in the sport of skiing and the lack of direction affiliated with golf was identified by Jamie Trenholme and one of the golfers interviewed. In skiing, there is a clear delineation of the difficulty of each ski run on the hill, which is communicated to the skiers by the use of coloured symbols at the beginning of each run. Skiers know, or are told by ski hill employees, to stick to the runs that best suit their abilities. It is expected that skiers follow the suggested rules because runs can be unsafe for less skilled skiers, or too easy for elite skiers, which may disrupt the learning and enjoyment of novice skiers. Also, runs that suit a skier’s ability are more fun because they pose the right amount of challenge. Golf courses, no matter what the difficulty, attract all skill levels of golfers and it is expected that they play the same course efficiently together, which is rarely the case. Ski hills would not allow novice skiers onto a run that they could not manage to go down or else novice skiers would not return, as noted by Jamie. Yet, novice golfers are regularly forced to play courses too difficult for them because there are no other options.

4.5.2 – Leagues and Divisions in Team Sports

Through observation, it was noted that teams in sports such as hockey, soccer, baseball, and a variety of intramural sports are separated into leagues based on their skill level. This is done to create more fair and enjoyable atmospheres for the athletes because the competition within leagues is rarely too
easy or too difficult. School sports are commonly separated into divisions based on school size because larger schools have a better chance of creating a stronger team based on the number of students to choose from. It would not be fair to expect a college of 5,000 students to compete against one of 100,000 students. Again, golfers are forced to play the same golf course no matter their skill level and the only aspect separating them are the tees they play, and if the tees are not placed properly or there are unfair hazard-carries, some golfers will excel and most will fail.

4.6 – Study Limitations and Future Research

The golf course architects that participated in this study represent a large fraction of the practicing architects in the Greater Toronto Area however, this study focuses on the current state of golf in Canada as well as the United States. It is possible that design principles of Canadian golf course architects may slightly differ than those of American architects. Also, the sample size of fifteen novice and intermediate golfers is probably too small, but due to researcher location and weather constraints, this number of participants had to suffice.

One major area of future research to consider is the non-design side to golf; the impact that technology has on the game. Golf club and golf ball technology has improved immensely over the past decade, but elite golfers are benefitting from the advancements much more than novice golfers. There are strict regulations on golf ball, club head, and golf shaft properties that disallow a club or ball to perform too well. These regulations exist to standardize and limit the potential distance and
accuracy a golfer can hit the golf ball, which are only implemented in tournament situations. Future research could be done to inspect the necessity of golf technology regulations so golfers who play for pleasure and not official competition can benefit from technology advancements.

Future research could also examine what countries outside of North America are doing to make golf more appealing to novice and intermediate golfers. Also, a sample group of golfers who have given up the game could be interviewed to gather data on why golfers quit playing the sport and ways to prevent people from leaving golf.
Chapter 5.0 – Conclusions

The goal of this study was to identify ways in which golf courses can be better designed for novice and intermediate golfers. Interviews and survey questionnaires were used to obtain the design principles of four golf course architects; expert advise from two directors of golf, two golf columnists, a co-founder of a golf course, and a golf course financial advisor; an expert in designing golf courses for women; and the opinions of novice and intermediate golfers regarding golf course design. Current trends in golf, golf program initiatives, and proposed solutions in the media to fix the state of golf were also obtained in the study. Patterns, themes, and common categories were identified by using grounded theory to sift through the qualitative data. Design guidelines and programming recommendations emerged through the discussion of the results of the study.

5.1 – Alternative Golf Course Design Guidelines

i. Forced carries should be avoided at all costs. If unavoidable, place near elevated tee decks, or provide an alternate route around the hazard.

ii. The use of artificial ponds should be substituted with another form of hazard that is less penalizing such as a waste bunker, long grass, or undulating terrain.

iii. The use of closely mown grass around green complexes promotes an easier recovery shot, but maintains interest for elite golfers.

iv. Strategically tilting or angling the green in one direction to promote a specific
approach shot into the green remains challenging for elite golfers but not overly penalizing to novice golfers.

v. Green surfaces should not be maintained at high green speeds and should provide enough undulation for interest, but not too much that it becomes unreasonably difficult to play.

vi. Wide fairways can maintain strategy for elite golfers, but are more forgiving to novice golfers.

vii. Providing alternate routes to get to the green allow golfers to choose a route appropriate to their skill level or the level of risk they are willing to take to advance down the hole.

viii. Avoid narrow chutes of trees; it will make golfers feel claustrophobic on their shot and require a higher degree of accuracy.

ix. The removal of trees from the site of a hole will allow greater air flow which improves turf health, and also prevents obstructions for golf shots.

x. Insure there is an appropriate tee deck for everyone; in a five-tee-deck system, middle tees should measure between 6000 – 6200 yards. The remaining tees should be approximately 65%, 78%, 107%, and 114% of the middle tee deck’s total length.

5.2 – Golf Facility Programming

i. When possible, route the golf course to have returning loops of 3 or 6 holes to allow golfers to play quicker rounds of golf at lower rates.

ii. Offer an introductory class that new golfers can take to learn the rules, etiquette,
and swing; this way, beginner golfers can ease into playing regulation length courses.

iii. Have designated discount days for families and/or children to promote new people to join the sport at an affordable price.

iv. The creation of a great practice facility will promote practice over play in more cases, and with the use of yardage markers, golfers can learn how far their average drives travel, which makes selecting the proper tee deck easier.

5.3 – Possible Applications

Practicing golf course architects may already know what design features appeal to and deter novice and intermediate golfers, but the design guidelines generated from this study will allow professionals in other disciplines to understand the benefits of thoughtful golf course design so they can make a positive impact on the golfing population. Landscape architects and golf course owners can use the information in this study to improve their future design work and retrofit their golf course to increase accessibility for novice and intermediate golfers.

Landscape architects are commonly involved in the design of new suburban residential projects, some of which include a golf course in the master plan. Knowing general dimensions and the likely user base for the golf course, a landscape architect can make informed decisions with their housing layout so when a golf course architect is hired to design the course, they will have the optimum space and land characteristics required to create a successful course.

Not only will the design guidelines in this study aid architects with future
design decisions, they can also help the thousands of existing golf courses throughout the world that are not attracting novice and intermediate golfers. Golf course owners can renovate their course to appeal better to non-elite golfers, increasing the likelihood that more golfers will enjoy themselves and return more often to play the course. If the difficulty of their course is decreased for non-elite golfers, the pace of play should improve because it will take less time for novice golfers to complete each hole. Using the programming guidelines, a golf course owner can provide an environment that facilitates families and beginner golfers to practice and play at their course while feeling a sense of belonging.

5.4 – The Bigger Picture

The implications of more people joining the sport of golf means more people will reap the benefits the game has to offer. In a fast-paced, technology driven world, a few hours on the golf course with family, friends, new acquaintances, or by oneself can be very rewarding. People can escape for a brief stint of golf if the course design allows for it, which in turn could promote outdoor activity instead of sedentary indoor activities. If golf becomes more accessible to children, there is a greater chance that the youth of today can immerse themselves in golf and absorb the multitude of positive values associated with the sport. By making golf courses more appealing to golfers with slower swing speeds, women, beginners, and seniors can be confident that a morning or afternoon of golf will be more of an enjoyment as opposed to a struggle. As the difficulty of the game decreases for novice and intermediate golfers, the time it takes to play a round of golf will likely
decrease as well, which could allow people to play a round after work, or even complete 9 holes after dinner. Also, with new routing considerations, people can worry less about completing 9 or 18 holes and can instead choose to play however many holes that their free time, or their energy, allows them. From a health, social, business, and educational point of view, the benefits people can receive by playing more golf are irrefutable. However, it is up to golf course architects, landscape architects, golf course owners and developers to realize the benefits and make it possible for people to experience them by creating more accessible golf courses.


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Appendix

Golf Course Architect Survey Questionnaire

1. When designing a course from scratch, in your opinion, what is the ultimate goal for the future of that completed project?

2. Every designer has their own set of design principles they try to abide by; how high (or low) on this theoretical list is ‘designing for the high-handicap golfer’? What comes before it?

3. Specifically from a playability standpoint, are there any design features or elements that you try to avoid using in your designs? Why do you avoid them?

4. What design features have you come across over the years that have proven to be successful on a golf course? For instance, what design elements allow playability for high-handicappers, but maintain a challenge for elite golfers?

5. Lastly, assuming the economy doesn’t improve drastically in the near future, what do you think needs to happen in order for the golfing population to start growing again? What role can golf course architects play in the solution?

Extra Questions for Cam Tyers

i. I would consider Turnberry an “alternatively designed golf course”. What market of golfers were you and Doug Carrick trying to appeal to most?

ii. What was the strategy behind designing an 18-hole course of which 16 are par-3's?

iii. It’s been a few years since the opening of Turnberry in Brampton, what has been the general response thus far? On average, what types of golfers are playing this course regularly?
Novice and Intermediate Golfer Survey Questionnaire

1. What is your handicap? If you don’t keep one, what do you usually score on 18 holes of golf?

2. On average, how often do you play golf during golf season?

3. In general, why do you play golf?

4. Are there any specific design features you have experienced on a golf course that you really disliked?
   a. What about features you really enjoyed?
   b. Why did you dislike/enjoy these specific features?

5. On the contrary, what are some things that you really liked about the golf courses you have played?
   a. Why do you enjoy these things?

6. Any other things about golf that you dislike, or would like to see change?
Research Ethics Approval

The members of the University of Guelph Research Ethics Board have examined the protocol which describes the participation of the human participants in the above-named research project and considers the procedures, as described by the applicant, to conform to the University's ethical standards and the Tri-Council Policy Statement, 2nd Edition.

The REB requires that researchers:
• Adhere to the protocol as last reviewed and approved by the REB.
• Receive approval from the REB for any modifications before they can be implemented.
• Report any change in the source of funding.
• Report unexpected events or incidental findings to the REB as soon as possible with an indication of how these events affect, in the view of the Principal Investigator, the safety of the participants, and the continuation of the protocol.
• Are responsible for ascertaining and complying with all applicable legal and regulatory requirements with respect to consent and the protection of privacy of participants in the jurisdiction of the research project.

The Principal Investigator must:
• Ensure that the ethical guidelines and approvals of facilities or institutions involved in the research are obtained and filed with the REB prior to the initiation of any research protocols.
• Submit a Status Report to the REB upon completion of the project. If the research is a multi-year project, a status report must be submitted annually prior to the expiry date. Failure to submit an annual status report will lead to your study being suspended and potentially terminated.

The approval for this protocol terminates on the EXPIRY DATE, or the term of your appointment or employment at the University of Guelph whichever comes first.

Signature: ___________________________ Date: May 6, 2014

L. Kuczynski
Chair, Research Ethics Board-General