

Copyright
by
Erik Otto Gnagy II
2012

**The Dissertation Committee for Erik Otto Gnagy II Certifies that this is the
approved version of the following dissertation:**

**An exploratory study of the meaning and experience of strategic
decision-making for elite level golfers**

Committee:

John Bartholomew, Supervisor

Marlene Dixon

Chris Green

Carole Holahan

Louis Harrison

**An exploratory study of the meaning and experience of
strategic decision-making for elite level golfers**

by

Erik Otto Gnagy II, B.S.Ed.; M.S.

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

August 2012

Acknowledgements

So many people to thank that it's difficult to identify where exactly to begin. I have been truly blessed to have so many wonderful individuals that participated in some form or another in shaping me into the man that I am today. First and foremost I must thank my loving parents, my father Erik Gnagy, for his selflessness and my mother Carolyn Gnagy, for her unconditional love and support. I would like to acknowledge my advisor Dr. John Bartholomew, first for giving me the opportunity to earn this Ph.D. and also for affording me the freedom to chase my own interests and the encouragement to overcome my many doubts. Many thanks to my committee, Dr. Marlene Dixon, Dr. Chris Green, Dr. Carole Holahan, and Dr. Louis Harrison, thank you for supporting my use of phenomenological methods and for the hours you selflessly gave to see this process through. Special thanks to many of my colleges that supported me along the way, Mark Faries, Lauren Grieco, Lara Latimer, Brittany Crim, Dr. Paula Holland-Price, and Caelie Dunn. Many thanks, to Tan Thai for his patience, guidance, and numerous email reminders. Thank you Dr. Esbelle Jowers for allowing me the use of the lab despite my many messes. Last but certainly not least, I would like to thank Patty Coffman and Raffaella Garcia for their warm smiles and constant encouragement.

“Aerodynamically the bumble bee shouldn't be able to fly, but the bumble bee doesn't know it so it goes on flying anyway.” – Mary Kay Ash

An exploratory study of the meaning and experience of strategic decision-making for elite level golfers

Erik Otto Gnagy II, Ph.D.

The University of Texas at Austin, 2012

Supervisor: John B. Bartholomew

The purpose of this study was to explore the experience of strategic decision-making for elite level competitive golfers. Research in this area is scant. Therefore this study used phenomenological methods to gain an understanding of the experience of strategic decision-making for eight elite level competitive golfers. Analysis of the data was philosophically informed by Hermeneutic and Heideggerian principles. As such, five common components emerged from the data: Strategies, The-Swing, Flow-like-States, Disruptions-To-Flow, and Mind Games. The experience of strategic decision-making for these eight golfers describes a dynamic process that is effortless and natural in times of flow, frantic yet exciting during disruptions, and seemingly an effort to enhance the execution of their swing. For these golfers decision-making involved identifying a strategy with which they were most comfortable. As a result, while the process and overall goals appear consistent and potentially generalizable, the methods are idiosyncratic. Thus, the applied practitioner can utilize these results both to inform a general approach to working with elite-level golfers, but must be cautious to avoid a single, “one size fits all” solution for each situation.

Table of Contents

| | |
|---|-----------|
| List of Tables | x |
| List of Figures | xi |
| CHAPTER 1 | 1 |
| Introduction..... | 1 |
| Overview of Golf Strategy..... | 1 |
| Decision Theory..... | 3 |
| Proposed Approach | 6 |
| Delimitations..... | 7 |
| Limitations | 8 |
| Significance of Study..... | 8 |
| Key Terms..... | 10 |
| CHAPTER 2 | 12 |
| Review of Literature | 12 |
| Decision Making | 12 |
| Rational Choice..... | 13 |
| Cognitive Models..... | 15 |
| Bounded Rationality | 17 |
| Heuristics of Judgment | 19 |
| Affect and Emotions in Decision Making | 21 |
| Decision Making Summary | 24 |
| Decision Making in the Context of Sport | 25 |
| Psychological Variables in Golf | 30 |
| Decision-Making in Golf..... | 32 |
| Qualitative Underpinnings..... | 38 |
| Existential Phenomenology | 44 |
| Judging the Quality of Methods..... | 45 |
| Qualitative Research in Sport Psychology..... | 49 |

| | |
|---|-----------|
| Triangulation and Member Checking | 52 |
| CHAPTER 3 | 57 |
| Method | 57 |
| Study Overview | 57 |
| Philosophical Underpinnings | 57 |
| Participants | 59 |
| Interviews | 60 |
| Interview Instructions | 61 |
| Interview Guide | 61 |
| Decentering | 62 |
| Data Processing and Transcription | 62 |
| Data Analysis | 63 |
| Member Checking | 64 |
| CHAPTER 4 | 82 |
| Results | 82 |
| Overview | 82 |
| Section One | 82 |
| The Golfers | 82 |
| Section Two | 92 |
| Common Components | 92 |
| Strategies | 98 |
| In-The-Moment | 99 |
| Conservative | 100 |
| Textbook | 101 |
| The Miss | 102 |
| Prevent Defense | 104 |
| Aggressive | 105 |
| In Pursuit | 107 |

| | |
|--------------------------------|-----|
| The Swing | 110 |
| Recent Play | 110 |
| How You Feel | 111 |
| Act Of Swing | 113 |
| Flow Like States | 117 |
| Zone 117 | |
| Quick..... | 119 |
| Confident..... | 119 |
| Feeling Certain | 120 |
| Natural & Effortless | 121 |
| Disruptions To Flow | 122 |
| Pressure | 123 |
| Added Meaning..... | 126 |
| New 129 | |
| Over Thinking..... | 130 |
| Consequences..... | 132 |
| Adrenaline..... | 133 |
| Mind Games..... | 134 |
| Getting Comfortable | 134 |
| Work Through..... | 136 |
| Reassurance..... | 137 |
| Reduce the Decision Load | 139 |
| Slow Down | 142 |
| Emotional Escape..... | 143 |
| Down Grade the Task | 144 |
| Visualize | 145 |
| Play It Safe | 146 |
| Section Three | 148 |
| Additional Findings | 148 |
| Instincts | 148 |

| | |
|------------------------------------|------------|
| Transformations | 150 |
| Every Day is Different | 151 |
| Just For Fun | 153 |
| Golf | 154 |
| CHAPTER 5 | 155 |
| Discussion | 155 |
| Summary of Results | 155 |
| Extension of Theory | 169 |
| Putting Findings To Practice | 176 |
| Flow | 178 |
| Disruptions To Flow | 179 |
| Affect | 180 |
| Arousal | 181 |
| Stop | 182 |
| Mind Games | 182 |
| Multiple Coping-Goals | 183 |
| Approach/Avoid Goals | 184 |
| Approach Goal Congruence | 184 |
| Self-Efficacy | 185 |
| Automatic Swing | 186 |
| Outline of Decision Model | 187 |
| Traffic Light Analogy | 188 |
| Future Directions | 190 |
| Limitations | 192 |
| Conclusions | 194 |
| References | 196 |

List of Tables

| | |
|------------------------------------|----|
| Table 1: Strategies..... | 94 |
| Table 2: The Swing | 95 |
| Table 3: Flow Like States | 95 |
| Table 4: Disruptions To Flow | 96 |
| Table 5: Mind Games..... | 97 |

List of Figures

| | |
|---|-----|
| Figure 1 Model of Strategic Decision Process..... | 177 |
|---|-----|

CHAPTER 1

Introduction

This dissertation was designed to expand the field's knowledge and understanding of strategic decision-making in competitive golf. Utilizing methods consistent with the practice of applied sports psychology, in-depth interviews were conducted with individuals who have first hand experience competing at high-levels of golf (e.g., collegiate, high-level amateur, low-level professional, and PGA tour). Thus far, most of the decision-making literature in sport has focused on the accuracy or *correctness* of individual decisions (Cattew et al., 2010; Macquet, 2009) and the development of expert decision-makers (Berry, Abernathy, & Cote, 2008). Identifying both correct and incorrect decisions is useful because these decisions often directly impact the outcomes of performance. However, it is also important to understand the processes (e.g., judgments) that influence individual decisions (Bar-Eli & Raab, 2006). As such, findings from this study will expand the field's understanding of these processes and thus will be useful for applied sports psychology consultants, professional golf coaches, and high-level competitive golfers.

OVERVIEW OF GOLF STRATEGY

The fundamental goal in golf is to hit the ball into the hole in the fewest number of strikes with a golf club (strokes) as possible. To provide criteria of performance, the inventors of the game established benchmarks for the number of strokes needed to complete each hole. This benchmark, known as "Par" for a hole, depends upon the distance and difficulty of the hole and range from three to five strokes. Relatively short holes (e.g., 60-250 yards) have a par of three intermediate holes (e.g., 250- 500 yards) a

par of four and long holes (e.g., 500-600 yards) a par of five. To increase the difficulty for achieving par, designers use a variety of techniques that place a premium on hitting a ball accurately - emphasizing both distance and directional control.

Designers use natural obstacles like trees, tall grass (i.e., rough), lakes, creeks, and ponds, as well as man-made sand traps to penalize golfers for inaccurate shots. As a result, in order to achieve the standard of excellence a golfer must successfully navigate these obstacles while attempting to hit the ball into the hole. Successful navigation requires the golfer to establish a strategic plan, which involves plotting the types of strokes and a path to advance the ball from the teeing ground and into the hole. Obviously, a player would be expected choose a strategy that would get the ball onto the green in as few strokes as possible. One strategy is to maximize the distance the ball travels from the teeing ground. To do this, most golfers will use the longest club in their bag (typically a driver) and attempt to hit the ball as far as they can. However, this strategy comes at a cost of accuracy. According to PGA tour statistics (pgatour.com), there is a negative correlation between driving distance and driving accuracy. Thus, longer shots are more likely to land off the fairway and into the rough, sand, water or amongst the trees. This distance-accuracy trade-off is fairly consistent for most shots in golf, such that, the longer the distance the ball travels the greater the likelihood for deviations from the intended target. The alternative strategy would be a shorter, more controlled and accurate shot that leaves the ball further from the hole.

Thus, the golfer must make a decision: hit the ball as far as possible at the expense of accuracy, or maximize accuracy at the expense of distance. Both increase the risk of adding strokes to a hole and missing par. Long shots are more likely to end in the rough, and short shots are more likely to require additional strokes to reach the

hole. However, shorter, low risk shots are generally executed to achieve par exactly. In contrast, longer, high-risk shots are typically thought of as shots that compress the normal route to a green and achieve a score below par. These are, as a result, referred to as conservative and aggressive play respectively. The decision between these approaches underlie much of the attraction of the game, as a golfer will be faced with this type of decision on almost every shot, especially those from the teeing ground and the approach shots hit to the green. Some of these decisions are rather benign; however, some involve risk/reward trade-offs that significantly impact the golfers aggregate score. For example, consider facing a wide body of water between the teeing area and the green. One could “lay-up” by hitting a safe, shorter shot along the water and then a shot to the green. Or, one could try to reach the green with one, more risky shot over the water. The former, more conservative shot is likely to result in a score of par. The latter, more aggressive shot, requires greater accuracy and risks a large penalty (i.e. hitting the ball in the water) but – if successful – is likely to lead to a score below par. Thus, the design of the course requires the golfer to accept the risk of a score over par if she is to achieve a score below par vs. simply playing for par.

DECISION THEORY

There are several factors that a golfer considers when contemplating these strategic decisions. Obvious factors are the natural obstructions positioned between the golfer and the hole (e.g., trees, water hazards, sand traps), the distance to those obstacles, the wind, the lie of the ball, and firmness of the ground. These factors along with their desire to achieve a specific score are taken into consideration and ostensibly provide the golfer with a means for estimating their probability for success, given their skill level, and their satisfaction derived for a successful outcome. It can be argued that

golf is a statistical game that should lend itself to generalizing optimal decision strategies. For example, a golfer should have an idea of their driving distance and accuracy off the tee, which would enable them to calculate a reasonably accurate probability assessment. In addition, since a score of par is general accepted as the standard of excellence, it is reasonable that that a strategy that has a high probability of achieving par as an outcome would be strongly preferred. In fact, “smart golf” is a program that is design to teach this type of analysis in the play of golf (Kirshenbaum, Owens, & O’Conner, 1998).

This perspective follows the theoretical underpinnings of expected utility models, which state that an individual will invariably choose the option that maximizes utility (von Neumann & Morgenstern, 1944). However it is now widely accepted that intuitive judgments often stray from the laws of probability (Payne, Bettman, & Johnson, 1992) and that expected utility models consistently fail to predict individual decisions that often deviate from normative statistics (Starmer, 2000). Instead, individuals use both non-statistical and statistical principles in developing probabilistic judgments (Ginossar & Trope, 1987). For example, golfers appear to use positive illusions when deciding on what type of shot to hit off the tee, which leads to overly aggressive strategies that are beyond what their ability would support (Kirschenbaum, O’Connor, & Owens, 1999). Positive illusions include thoughts that are overly optimistic, foster exaggerated perceptions of control, and positively biased self-appraisals. Similarly, positive emotions have also been shown to influence estimates for success. For example, happy individuals have greater optimism about winning (Isen, Nygren, & Ashby, 1988). Further research has demonstrated associations between positive affective states and decreases in risk assessment, which lead to increases in risk-seeking decisions

(Lerner, Gonzalez, & Fischhoff, 2003; Slovic & Peters, 2006) and confidence ratings in decisions (Druckman & McDermott, 2008).

There is a wide literature addressing the role of emotions and affect in the decision-making process. Examples include: the affect heuristic (Slovic et al., 2002), the affect-as-information hypothesis (Schwartz, 1990), the somatic marker hypothesis (Damasio, 1994), and the affect as feedback theory (Baumeister, et al., 2007). Although it is unclear whether affect or emotions have a direct impact on behavior or if they merely work indirectly through risk assessment, sufficient evidence exists to support the premise that affective and emotional responses influence decision-making. Unfortunately, research has yet to test these possibilities in golf.

Golf research has focused primarily of the effects of pre-shot routines (Boutcher & Crews, 1987; Cohn, Rotella, & Llyod, 1990; Cotterill, Sanders, & Collins, 2010), imagery (Smith, Wright, & Cantwell, 2008), competitive anxiety (McKay et al., 1997), and psychological skills training (Thomas & Fogarty, 1997). Thus, little is known about strategic decision-making in golf. Recent data from Gnagy and colleagues (2010) provides evidence that golfers do not strictly adhere to a probability-based decision model. In interviews with low-level professional golfers, it was found that golf decisions during competition are impacted by multiple factors. These include the experience of positive affect and the personal meaning associated with specific strategies. However, this study's results are limited because of a small and narrow sample and a research question that targeted the experience of a specific type of strategic decision-making. Given the paucity of research, the present study is proposed to extend these results and to explore the experience and meaning of making strategic decisions in golf.

PROPOSED APPROACH

Given the exploratory design of the study, the data collection and analysis were informed by the philosophical underpinnings of existentialism and phenomenology. The very nature of the phenomena of strategic decision-making is conducive to an existential, phenomenological approach for several reasons. Existential phenomenology's primary objective is to gain understanding and describe the human experience as it is lived through individual consciousness in contrast to epistemological methods, which utilize mechanistic/reductionistic approaches attempting to explain the "cause" of a particular phenomenon (Fahlberg, Fahlburg, & Gates, 1992). According to Heidegger's (1962) thoughts regarding truth as an unconcealment, "phenomenology" means "to let that which shows itself be seen from itself in the very way in which it shows itself from itself" (Heidegger, 1962, p. 58). Thus, "truth" is uncovered through a discourse, which provides access to the experience being discussed. As such, existential phenomenology closely resembles the interaction between an athlete and a sports psychology consultant, where the consultant uses discourse to understand what the athlete experiences. This is in line with humanistic or person-centered approaches that rely on the development of a trusting relationship between the athlete and the consultant. Accordingly, the consultant-player interaction operates under the humanistic notion of equalizing power, referring to the athlete as the expert (Dale, 1996; Poczwardowski, Shreman, & Ravizza, 2004). Knowledge gained from phenomenological methods has the potential to change how a professional communicates with clients and by developing an understanding that affects thoughtful actions (Van der Zalm & Bergum, 2000).

To achieve this aim unstructured interviews were used to explore the experience and meaning of strategic decision-making in competitive golf. The participants were recruited from a men's division one collegiate golf team, local high-level amateur competitors, low-level professional tours, and the PGA Tour.

DELIMITATIONS

The results will be delimited to male collegiate, high-level amateur, low-level, and PGA professionals who participate in the study. However, this is consistent with qualitative methods, which focus on the experience and meaning of individuals for specific phenomena. As such, the findings may not generalize to a broader audience. For example, female golfers may experience strategic decision-making quite differently. However, it is reasonable to presume that the perspectives shared by the participants may resonate with both female and male competitive golfers. Readers may develop new personal perspectives related to strategic decision-making leading to personal growth or enhanced performance. The results are also delimited to the questions that arise from the interviews. Given that the interviews were unstructured, follow-up questions are likely to differ. Furthermore, participants shared experiences from different tournaments meaning that situational contexts (e.g., round, place in tournament, current score) are likely to be unique. However, this actually led to a much broader and in-depth description of the phenomena.

Again, the central aim of this research was to gain a new understanding of strategic decision-making from those who had first-hand experiences while playing competitive golf. As such, these findings may resonate with individual golfers who have shared similar experiences. Therefore generalizability was not an objective and should

not devalue the impact of this studies contributions to the understanding of strategic decision-making in golf.

LIMITATIONS

One limitation in qualitative research is the small number of participants, especially this study, which uses single interviews. This may limit the depth and breadth of the findings. This will be overcome by encouraging the participants to share multiple examples as deeply as they can recall. Retrospective accounts of personal experiences may be subjected to recall biases, which may stray from the actual experiences as they were lived in the moment. According to Hycner (1985), this is a function of any type of description using language, which can, “enhance or distill experience” and can at best be “one step removed from the original experience”(p. 295). Arguably, this effect is just as likely to occur in any study of athletic performance that is necessarily separate from the play itself. However, it has been shown that elite level athletes recall past experiences quite well (Nieuwenhuys et. al., 2011; Orlick & Partington, 1988). More importantly, future decisions are likely to be in-line with their recalled perceptions of earlier play.

SIGNIFICANCE OF STUDY

Giving the limited research on strategic decision-making in golf, the present findings contribute to the field’s knowledge of several key factors that are influencing the decision-making processes. Consistent with hermeneutics, the in-depth details of the individual’s descriptions are useful in creating understanding and for stimulating conversation (Wilson & Hutchinson, 1991). As a result, findings from this study may be used to guide future research and the development of individualized intervention

techniques. As such, the interpretations and presentation of the data will be useful to both applied sports psychology consultants and researchers. Sports psychology consultants will be able to share the findings with clients, who may be able to identify with the experiences. As such, researchers may use the results to develop future research questions, theoretical models, or guide strategic decision-making interventions.

KEY TERMS

Bracketing: To put into abeyance and presuppositions or knowledge of a given phenomena.

Dasein: German word for “Being There” used by Martin Heidegger to refer to the human capacity to recognize their own existence (Koch, 1995). It is also the understanding that human and world are inextricably linked to the extent that they co-constitute one another or what Heidegger referred to as ‘being-in-the-world’ (Cote, et. al.,1993; Munhall, 2007)

Decision Heuristic: a process in which an actor reduces the cognitive or temporal demands a decision by relying on fewer sources of informative cues.

Epistemology: concerned with ways of knowing and acquiring knowledge (McConnell-Henery, Chapman, & Francis, 2009).

Epoche: Greek word for bracketing

Hermeneutics: Science interested in the meaning and experience through the interpretation of text (Crist & Tanner, 2003).

Hermeneutic Circle: analysis of data in which the research moves from the part to the whole. First using an idiographic approach followed by a nomothetic approach that identifies commonalities or global themes (Larkin, Watts, & Clifton, 2006).

Idiographic Analysis: analysis of each individual transcript to identify meaning statements, categories of meaning, which are general interpretations of the individual experience.

Meaning Unit/Statement: “a segment of text that is comprehensible by itself and contains one idea, episode or piece of information” (Tesch, 1990, p. 116)

Member Checking: A process in which the interpretations of the interview data are reviewed by the participants enabling them to express any concerns or conflicts with the researchers interpretations (Groenewald, 2004)

Nomothetic analysis: An interpretation of the commonalities between the experiences of each participant. Includes the general abstractions labeled as common themes or components.

Ontology: Concerned with the nature of existence and what it means to exist (McConnell-Henery, Chapman, & Francis, 2009).

Semi-Structured Interview: Interview in which the researcher outlines a few key open-ended questions to be covered in each interview. However, the interview is guided mainly by the participant's responses.

Situated Freedom: existential phenomenological premise that humans are free to make choices, but their choices are constrained by affordances within the environment. (Lopez & Willis, 2004).

CHAPTER 2

Review of Literature

This review of literature will begin with an introduction to traditional models of decision-making under risk or uncertainty, covering basic assumptions and the development of alternative approaches. In addition, examples of research in decision-making in sport will also be examined. Next, the review will outline the extant sport psychology research in golf. Lastly, the review will introduce the philosophical assumptions and provide a brief history of the qualitative methods employed in this study as well as discuss issues of credibility or rigor.

DECISION MAKING

The following review will briefly discuss principles, assumptions, and research regarding decision-making, with a specific emphasis on decisions that occur with risk or uncertainty in outcome. It should be noted that the field of decision research is rife with disagreement and our understanding of human decision-making behavior is far from definitive (Starmer, 2000); with human decision-making far too complex for any model to explain (Sugden, 1986). Despite this, this review will highlight some of the classical discoveries that have shaped the field.

Decisions under *risk* are decisions made in which probabilities for each outcome – the relative risk of a specific outcome – within a choice set are known, while decisions under *uncertainty* describe instances in which the probabilities are unknown (Hey, 2002). Models of decision-making under risk or uncertainty typically fall into one of three categories: normative, descriptive, or prescriptive. Normative models are designed to indicate how and what an individual should choose. Descriptive models are designed to

indicate what is happening in the decision making process - especially why individuals might deviate from normative standards. Lastly, prescriptive models are intended to indicate how to improve decisions.

Normative models follow two primary assumptions; (1) individuals should seek to maximize utility by choosing the option that yields the most good (Baron, 2004) and, as a result, (2) their choices follow the logic of rationality. Rational choice behavior consists of a set of four principles that will be outlined ahead. The most widely discussed normative models can be traced back to Expected Utility Theories (Savage 1954; von Neuman & Morgenstern, 1944,).

Expected Utility theories maintain the premise that a rational individual will choose an option that maximizes utility – or the value of the outcome. Utility is represented numerically by taking the product of the value of a specific outcome and the probability with which it will occur. For example, a \$5 outcome with a 90% probability will yield a utility of 4.5; while \$10 outcome with a 25% probability will yield a utility of 2.5. To maximize utility the actor should pursue the first outcome. In addition, utility is assumed to incorporate the individual's subjective value of each choice or outcome, which can be used to weight the utility score (Starmer, 2000). A mathematical rating is then calculated for each, potential choice, with the actor selecting the behavior with the highest utility rating (Fishburn, 1968, Hastie, 2001). This mathematical approach enables theorists to test decisional behaviors and evaluate predictable, normative, and deterministic models that can explain what choices the “rational man” will make (Allias, 1953; Fishburn, 1968).

RATIONAL CHOICE

The principle of rationality asserts that an individual's preferences should follow rules of consistency and coherence that are predictable and invariant. The rules are: (1)

perfect consistency, (2) independence from irrelevant alternatives, (3) regularity, and (4) strong stochastic transitivity (Rieskamp, Busemeyer, & Mellers 2006, Starmer, 2000). Perfect consistency implies that an individual's preferences will be invariant across repeated opportunities for the same choice set. Independence requires that the relative preference *between* two options will not change when a third option is added. For example, an individual's preference for a blue t-shirt over a red t-shirt should not change or be reduced when a yellow t-shirt is introduced to the choice set. Similarly, regularity is a principle that assumes that while the introduction of an additional option into a choice set might reduce the likelihood of selecting one of the original options, such an addition will not *increase* the probability of selecting an option from the original set. Lastly, transitivity states that for any triad of choices, if an individual prefers A over B and B over C then they must prefer A over C as well.

No sooner were these principles described than evidence began to mount that individuals deviate from these principles (Hey, 2001). For example, Mosteller and Nogee (1951) found that individuals were inconsistent with their preferences across repeated gambles. Debreu (1960) demonstrated violations of independence when he discovered that preferences for a recording of Beethoven over a Debussy quartet recording were reversed when a third option (different recording of Beethoven) was introduced to the choice set. These violations highlight the difficulty in predicting human choice behavior and create doubt in the descriptive ability of expected utility models. Furthermore they provide little insight into the decision-making process, failing to describe any thoughts or feelings an actor may have when comprehending or evaluating a decision task. (Hastie, 2001; Rieskamp, Busemeyer, & Mellers, 2006).

Attempts to account for these violations have led to numerous alternative (e.g., Rank Dependant Theory, Quiggin, 1982) and nonconventional (e.g., Prospect Theory Kahneman and Tversky, 1979) models. These and other mathematical models were designed to account for violations of rationality by identifying phenomena to explain changes and variations in preferences. Models were formulated to account for similarity effects (Tversky, 1972), compromise effects (Tversky & Simonson, 1993), common consequence effects and common ratio effects (Allais, 1953), procedural (Lichtenstein & Slovic, 1971) and descriptive variances (Tversky & Kahneman, 1981). These models are considered descriptive because they assert that various cognitive processes or decision heuristic describe why deviations from normative models occur. However, before discussing the findings from descriptive models in greater detail it is important to understand how several researchers in the field conceptualize the cognitive processes and decision heuristics used in creating preferences.

COGNITIVE MODELS

Common to the study of cognitive function is the likening of the human mind to a computer. The computer metaphor or “computational metaphor” (Boden, 1979) or “informational processing” metaphor (Neisser, 1967) is a representation of how the human mind solves problems and the inherent limitations of the system. Within this framework it is assumed that cognitive function - which includes information processing, attention, and memory - operates within a limited capacity. These limitations negatively affect the predictability and accuracy of normative models (Payne, Bettman, & Johnson, 1992). Furthermore, cognitive function is described as a dual process system, in which two systems work both independently and concurrently to guide human decision behavior (Baumeister, et al., 2007; Epstein, 1994; Kahneman, 2003; Stanovich & West,

2000). Although various names have been given to the two systems: the consensus is that the first system is experiential in nature and is guided by automatic processes that act quickly with minimal effort or conscious awareness. In contrast, the second system is analytic in nature. It is a slower and more deliberate process that is rule governed and directed at a more conscious level. System two is also responsible for detecting errors resulting from system one and thus, is capable of overriding impulsive actions evoked by system one. Accordingly, these systems function to construct the preferences that are unexplained by normative models.

From a constructivist perspective, preferences are developed in the moment rather than retrieved (Lichtenstein & Slovic, 2006). Furthermore, the construction of preferences does not follow statistical algorithms, such as expected utility theory (Tversky et al., 1988). Instead, theorists propose that individuals overcome their limited attentional, information processing, and memories by implementing decision heuristics (Payne, Bettman, & Johnson, 1992). Heuristics (e.g., availability, representativeness, anchoring and adjustment, and affect) in this context can be thought of as cognitive shortcuts or processes that make decisions more efficient and manageable. Simon (1955) was one of the first to propose a heuristic approach. He argued that due to limitations in cognitive function, task complexity, and the interaction of the environment, people would follow a “bounded rationality,” which relaxes many of the expected utility principles. This argument states that decision behavior is directed at achieving goals and that individuals implement a strategy that merely satisfies rather than maximizing goal achievement (Simon, 1983).

BOUNDED RATIONALITY

Under the premise of “bounded rationality” descriptive theories can relax the principles of “rational” models and utilize adjustments like decision weights, attentional weights, or techniques like overweighting small probabilities and underweighting large probabilities to create models that more accurately fit choice behaviors. As a result, numerous explanations exist as to why individual choice behavior fails to meet normative standards. Preference reversals, sometimes referred to as the Allais paradox, were amongst the earliest discoveries of invariance or violations of rationality principles. Allais (1953) successfully predicted and demonstrated that individuals would violate expected utility assumptions. What Allais predicted was that individuals when given a choice between two gambles, the first being (\$1mill probability of 1) second being (\$5mill @ .10; \$1mill @ .89 or \$0 @ .01) would choose the sure gain of one million dollars. However, when faced with the gambles (\$1mill @ .11; \$0 @ .89) or (\$5mill @ .10; \$0 @ .90) individuals choose the lower probability chance for winning the five million dollars. In the first example the utility of the first choice is \$1 mill while the utility of the second choice is \$1.39 mill. The second gamble had the utility values of \$110 thousand and \$500 thousand respectively. A rational actor should have choose to maximize utility in both gambles, thus choosing the options with the potential for winning \$5 million. Allais’ results can be attributed to what are called common consequence effects, which occur when an individual’s preference changes with a shift in probability from one common outcome to the other (Wu & Gonzalez, 1998).

Changes in the presentation of a choice task can also result in preference reversals. This is a violation of the independence principle, which includes procedural invariance. Tversky and colleagues (1988) observed that preferences changed as a result

of the procedures used to present a decision problem. For example, decision questions are typically presented as either a choice or a matching task. A choice task requires individuals to simply make a binary choice between two gambles, while a matching task asks them to write out (i.e. place a bid on) how much they would pay to play each of the two gambles. Preferences reversed when individuals chose a gamble with a moderate prize and high probability in the choice task but would place a higher bid for the lower probability of winning a larger amount in the matching task. Again, these results are inconsistent with the consistency principals of rational behavior.

Another classic example of preference reversals attributed to changes in the descriptive presentation of the choice task. Reversals due to “framing effects” were demonstrated in the Asian disease problem (Tversky & Kahneman, 1981). In this problem preferences changed due to the description of the choices as either lives saved or lives lost. The two problems were presented in Kahneman (2003) as seen below:

Imagine the United States is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the programs are as follows

Problem 1: If program A is adopted, 200 people will be saved
If program B is adopted, there is a one-third probability that 600 people will be saved and two thirds probability that no people will be saved.

Which of the two programs would you favor?

Problem 2: If program A is adopted, 400 people will die.
If program B is adopted, there is a one-third probability that

nobody will die and a two thirds probability that 600 people will die.

Despite identical utility ratings, the results indicated that more individuals choose A in the first problem and that a majority of the individuals chose B in the second problem. Although the outcomes are statistically equivalent, how the questions were “framed” changed individual preferences. According to Kahneman (2003) “framing effects” occur because the presentation of the task affects what decision heuristics are accessible to the individual when formulating a preference.

HEURISTICS OF JUDGMENT

The word heuristic is used widely throughout the study of decision-making. However, its definition is vague (Shah & Oppenheimer, 2008) and it is often used in conjunction with the term biases (Busenitz & Barney, 1997, Kahneman & Fredrick, 2002, Tversky & Kahneman, 1974). As such, these researchers refer to heuristics and biases as “shortcuts” or as a decision-making processes that enable an actor to reduce cognitive demand. According to Kahneman (2003) the essential theme of heuristics is that it allows actors to take an ostensibly difficult question and answer it with an easier one instead. Although this process is less cognitively demanding, it may lead to errors in judgment and decision-making.

Heuristics work through a process of attribute substitution. According to Kahneman & Fredrick (2002) attribute substitution occurs when: “ (1) the target attribute is relatively inaccessible; (2) a semantically and associatively related candidate attribute is highly accessible; and (3) the substitution of the heuristic attribute in the judgment is not rejected by the critical operation of system 2.” Tversky and Kahneman (1974) discussed three heuristics: representativeness, availability, and anchoring.

Representativeness is a process of assessing the probability that X belongs to group Y, and asks the question how much does X resemble Y (Kahneman & Fredrick, 2002). This area of research has found that individuals essentially ignore probability information and judge the likelihood that X is Y based upon how well the description of X matches what they believe about Y. In golf, representativeness may occur when a golfer makes a decision based on what they believe their competition would do. Similarly, the *availability heuristic* is a process in which the actor assesses probability based on how easily an example comes to mind. For example, a golfer who is deciding between hitting a driver or a three wood may assess his/her probabilities for success based on a past, memorable shot. Finally, *anchoring*, is when the actor uses an initial estimate, either given in a problem or intuitively derived, as an anchor for comparing additional information in forming a final decision (Payne, Bettman, & Johnson, 1992).

Judgment heuristics are a fundamental principle within Prospect Theory, which was developed by Kahneman and Tversky, (1979). Prospect theory is a procedural model which choice is modeled as a two-step process starting with an “editing” phase in which individuals utilize heuristics to construct preferences. The second stage features a preference function that adds decision weights that account for the overweighting of small probabilities and the underweighting of large probabilities. Overweighting is likely to be caused by errors, which can be attributed to heuristics and biases. These adjustments explained deviations from expected utility models and successfully explained why individuals purchase lottery tickets and insurance policies despite the low probability of winning or incurring a loss (Kahneman & Tversky, 1979)). Kahneman and Tversky (1979) posit that an individual codes decisions in terms of gains and loses relative to a reference point. In addition, they propose the emotional impact of losses

may be greater than that of gains. As a result, the value function within Prospect Theory reflects valences of affective and emotional outcomes anticipated by the individual relative to the associated changes with each outcome (Kahneman, 2003). It is plausible that when assessing one's probability for winning an individual relies less on the probability statistics and more on the positive affect associated with anticipation of winning and the resulting decision heuristics. Accordingly, Kahneman (2003) asserts that the utility cannot be detached from emotions and theories that fail to account for the impact of emotions that are descriptively unrealistic of the human experience.

AFFECT AND EMOTIONS IN DECISION MAKING

Although most of the research on decision-making has focused on cognitive principles, such as, attention, memory and information processing (Slovic et al., 2002), affective state has become a burgeoning area of research. There are now numerous theories to describe how emotions affect decision-making, such as: the affect heuristic (Finucane et al., 2000;); risk as feelings (Loewenstein et al., 2001); affect-as-information hypothesis (Schwartz & Clore, 1983), mood maintenance hypothesis (Isen, 1987); somatic marker hypothesis (Damasio, 1994); and emotions as feedback (Baumeister, 2007). These theories are compatible with cognitive psychology's "computer metaphor" and dual process theories of cognitive function. However, they differ with respect to the role emotions play in influencing behavior.

The concept of emotions having direct influence on behavior was formalized by Frijda (1886) who proposed emotions call forth specific "action tendencies," such as, fear prompting one to flee and anger to attack. In accordance with these beliefs, Barlow (1988) posits that emotions have a direct impact on behavior and that their effects can occur despite contradictory cognitive evaluations. For example individuals with powerful

phobias understand that their fears are often exaggerated, yet they continue to avoid the associated behaviors. There is also some neurological evidence that may support the direct-link hypotheses. Ledoux (1996) identified direct neural links from the sensory thalamus to the amygdale that is not cognitively mediated.

Additional research involving patients with damage to the prefrontal lobe has demonstrated that feelings may prevent risk taking behavior. Research in this area has compared risk-taking behavior between patients with and without prefrontal damage, which lessons one's emotional response (Bechara, Damasio, Tranel, & Damasio, 1997; Damasio, 1994). To measure risk taking and the physiological affects, Damasio used the Iowa gambling task and measured patients skin conductivity to indicate stress prior to and after choice selection. Both groups demonstrated increased skin conductivity (i.e. higher physiological stress response) immediately after drawing a loss card from a high-risk deck. However, patients with prefrontal damage returned to picking from the high-risk deck faster than those without injury. Furthermore, the study revealed that while contemplating picking from the high-risk deck uninjured patients experienced a galvanic skin response, while prefrontal damaged patients did not. This lead the author to conclude that injured patients understood that the deck was riskier, however, they were unable to "feel" fear and therefore chose from the high-risk deck at a higher rate.

Consistent with the dual process view of cognitive function, Zajonc (1980) implies that affect directly effects decisions, claiming that affective responses are fast and automatic (i.e. system 1) and often occur before an individual is aware to what they are responding. This direct effect is the main assumption of Loewenstein and colleges (2001) "risk-as-feelings" hypothesis. Their review provides evidence that affect and emotional responses may account for the numerous observations of individuals failing to

demonstrate the kind of “rational” choice behavior that is fundamental to expected utility models.

In contrast, Baumeister and colleagues (2007) propose that affect and emotions operate as sources of feedback and motivation. As such, they support the affect as information hypothesis (Schwartz & Clore, 1983) and assert that emotions evoke cognitions. These emotions are, then, the primary initiators but not the determinants of action. In addition, emotional control is a valued outcome and they propose that individuals make choices and pursue behaviors that result in anticipated emotional outcomes. For example, individuals who are in a sad mood would be more likely to engage in a behavior if they believed it would improve their mood (Andrade, 2005; Manucia, Baumann, & Cialdini, 1984; Tice, Bratslavsky, & Baumeister, 2001). The idea of “mood repair” as proposed by Gallagher and Clore (1985) asserts that anxious individuals seek behaviors that reduce risk and uncertainty to alleviate anxiety, even at the expense of low reward. Raghunathan & Pham (1999) also found support for “mood repair” motivations, demonstrating that anxious participants rated job security (i.e. decreased uncertainty) as more important than differences in pay. In contrast, sad individuals rated pay (i.e. increased reward) as more important than job security. The same results were found with gambling decisions. Anxious individuals choose low-risk/low-reward options, while sad individuals choose high-risk/high reward options (Raghunathan & Pham, 1999).

Incongruent with expected utility models, assessments of risk have also demonstrated that emotional reactions to decisions under risk or uncertainty are independent of probabilities (Hogarth, Portell, & Cuxart, 2007; Rothenstrich & Hsee, 2001) and that feelings associated with risks are fairly insensitive to variations in

objective probability (Loewenstein et al., 2001). Instead, there have been numerous studies indicating associations between individual perceptions of risk and affective and emotional states. Positive emotions such as happiness have been associated with increased optimism for winning a gamble (Isen, Nygren, & Ashby 1988). Likewise, Lerner and Keltner (2001) found that anger decreased estimations of risk, while fear increased estimates of risk. They postulate that anger increases certainty and feelings of individual control, while fear decreases certainty and elicits feelings of situational control. DeSteno, Petty, Wegener, & Rucker (2000) found that angry people were more likely to endorse the idea that a car salesman would cheat them; and that sad people were more likely to endorse that idea that a close friend would move away.

This evidence clearly indicates that the experience of affective and emotional states influences individuals' risk perceptions, which in turn influences decision-making behavior. Evidence also suggests that emotions and affective states impact strategy selection (Lewinsohn & Mano, 1993; Luce, Betman, & Payne, 1997). In addition, the differences between sadness and anger indicate that distinct emotions of similar affective valence can yield contrasting behavioral responses (DeSteno et al., 2004). Thus, merely assessing affective valence may be insufficient to predict behavior.

DECISION MAKING SUMMARY

The study of decision-making extends across multiple disciplines (e.g., economics, psychology, business) resulting in a myriad of hypothesis and theoretical models. As a result, there is still much to be discovered and attempts at constructing one-size fits all models may be futile. Evidence strongly suggests that expected utility and statistically driven models do little to describe individual behavior or how decision information is acquired and evaluated (Starmer, 2000; Weber & Johnson, 2009). What is

unequivocally clear is that individual decisions are highly dependent upon the context with which they are made. According to Payne et al., (1992), “People employ a variety of heuristic procedures in order to simplify the representation and the evaluation of the prospects. The heuristics of choice do not readily lend themselves to formal analysis because their application is contingent on the method of elicitation, the formulation of the problem and the context of choice” (p.36). Reactions to the environment may also elicit affective and emotional responses that may, in turn, direct attention (Chou, Lee, & Ho, 2007) and impact choice. This is especially true in competitive sporting environments, which present copious informational cues that must be reviewed to determine athlete’s choice behavior. As such, an examination of these contextual and emotional factors is particularly relevant to the sport setting.

DECISION MAKING IN THE CONTEXT OF SPORT

Sports are dynamic and consist of subtle nuances that affect the decisions of an athlete. They must interact with external environmental factors (e.g., fellow competitors, obstacles within the field of play, risk reward tradeoffs) and internal personal factors (e.g., preferences, emotions, skills) as they deliberate between choice options (Johnson, 2006). Surprisingly, research investigating the process and experience of decision-making is sparse. Most research has, instead, focused on the quality of decisions. This interest has centered on a number of areas, including: the development of decision-expertise (Baker, Cote, & Abernathy, 2003a, 2003b), speed and accuracy of decisions with increased arousal (Fontana et al., 2009), accuracy of off-sides calls by soccer referees (Cattéuw et al., 2010), effects of fatigue (Royal et al., 2006), effects of conflict (Chen, Wang, & Zhang, 2011) effects of practice (Poolton, Masters, & Maxwell, 2006), knowledge (McPherson & Kernodle, 2003) and the development of tactical decision

expertise (Berry, Abernethy, & Cote, 2008). The assumption is that decisions in sports are objectively correct or incorrect. As such, this research compares decision making to a “known standard.” While this is true for some decision, e.g., an off-sides call in soccer, it is ostensibly untrue for strategic decisions that are often impossible to objectively define as correct or incorrect. Therefore it is necessary that research also seek to understand the underlying processes or experiences that are influencing the construction of individual choice preferences. As such, formal decision-making models may be inappropriate for this area of research.

The exception to this approach is Decision Field Theory (DFT). DFT is a descriptive non-expected utility decision model created by Busemeyer and Townsend, (1989). DFT is built on principles derived from motivational theories, approach-avoidance conflict theories, and information processing theories of choice response time (Busemeyer & Townsend, 1993). The theory predicts choice probabilities when an individual is confronted with multiple decisions in which anticipated gains or losses result from each choice. When an athlete is faced with a decision or choice, they deliberate between *affective inputs*. These inputs can be approach (e.g., expected gains) or avoidant (e.g., potential losses) oriented. As their attention shifts between options, the athlete assigns an attentional weight and an affective input based on values for anticipated gains or losses. The affective input and attentional weight establish a valance that in turn, produces a preference for a particular choice of action (Busemeyer & Townsend, 1993). Once a choice option exceeds a specific threshold, the decision-maker then chooses that option.

DFT goes beyond Deterministic (Kahneman & Tversky, 1979) and Static (Quiggin, 1982) decision theories, which propose overly simplistic binary choice options

that do not account for changes in preferences as functions of deliberation time. DFT is, instead, a stochastic—dynamic approach that accounts for people being inconsistent with their preferences and for preferences changing in relation to the amount of time allocated for deliberation (Busemeyer & Townsend, 1993). DFT is a dynamic theory in that it accounts for initial non-neutral preferences, shifting of attention across information variables, alternatives, and past experiences (Johnson, 2006). Recently, DFT has been applied to decision-making tasks in sports (Rabb, 2002) and has been used to assess individual differences in decision making for novice basketball players (Rabb & Johnson 2003).

Raab and Johnson (2003) applied the assumptions of DFT to the assessment of strategic decisions in basketball, beginning with initial preferences or biases towards specific goal outcomes. Action oriented individual's focus primarily on specific task goals and are more likely to choose more aggressive options. In contrast, individuals who are state oriented are more likely to focus on non-task-relevant cognitions and are less inclined to choose aggressive options. The study, which included novice basketball players, measured the individual's choice to either shoot or pass the ball to a playmaker. DFT was applied to analysis of the player's tactical decisions, which they made while watching a basketball simulation. The results illustrated that risk taking could be explained by the player's initial preference for risky/safe decisions and that the initial preference values were correlated with variances in levels of action orientation. Action-oriented players shot the ball faster and more frequently, while, state-oriented players passed to a playmaker more often.

Although the principles with DFT are applicable to the decisions found within sports, they are essentially untested by the research described above. This appears to

be common for mathematically based models that are often formulated post hoc to fit the observed data. Rarely are these constructs actually measured. For example, Raab and Johnson (2003) do not report measuring attentional shifts or the affective responses (i.e. valences) associated with each outcome, despite the fact that these are the primary psychological constructs within DFT.

Given the breadth of the literature, it is clear that decision-making is an immensely complex process involving a multitude of cognitive and affective processes. As such, it is unlikely that one model can explain this phenomenon. As such, it may be advantageous to investigate the phenomena from a broader perspective. For example, researchers could explore the experience of decision-making using qualitative methods. Qualitative methods are useful when little is known or for developing alternative perspectives. Decision-making in golf is a relatively unexplored area, thus the use of qualitative methods are an effective means for gaining an initial broad understanding of this phenomena.

Golf Research

Competitive golf requires that a player become highly proficient at a variety of skills. For example, a player must be able to drive the ball accurately of the tee, successfully hit approach shots with irons onto the green, hit shots close to the hole from just off the green, and putt the ball into the hole. In fact, these skills are said to account for over 90% of the variance in golf scores for PGA tour players during the 2002 season (Finley & Halsey, 2004). A closer inspection of the results revealed that two variables; greens in regulation (a measure of driving and approach shot accuracy) and putts per round (a measure of putting accuracy) accounted for 92% of the total 94% of explained variance. While this seems to explain nearly all variation in golf performance, it does not

explain why highly skilled golfers differ amongst these variables. Why is there such variability amongst PGA players in driving accuracy or putts per round? According to Jack Nicklaus, who has won more major championships than any other golfer in history, playing successful golf is 50% mental (Nicklaus, 1976). Unfortunately, to date no empirical evidence exists to support his claim.

Much of the extant research in golf investigating psychological variables (e.g., attention, self-efficacy, anxiety, imagery) has focused on motor skill acquisition or performance (Christina & Alpenfels, 2002; Mullen, Hardy, & Tattersall, 2005; Woolfolk, Murphy, Gottesfeld, & Aitken, 1985; Wulf, Lauterbach, & Toole, 1999), or has studied the affects of psychological variables on the performance of isolated golf skills like putting (Beilock, Afremow, Rabe, & Carr, 2001; Chamberlain & Hale, 2007; Grove, Prazer, Weinberg, & Pitcher, 2001; Pickents, Rottella, & Gansneder, 1996; Short et al., 2002; Taylor & Shaw, 2002). Additional research has investigated a variety of topics such as: experiences of peak performance (Cohn, 1991), flow (Cately & Duda, 1997; Nicholls, Polman, & Holt, 2005; Pates & Maynard, 2000) choking (Gucciardi et al., 2010) pre-shot routines (Boutcher & Crews, 1987; Cohn, Rotella, & Llyod, 1990; Cotterill, Sanders, & Collins, 2010), self-talk (Harvey, Van Raalte, & Brewer, 2002), mood (Hassmen, Koivula, & Hansson, 1998, Mathers & Cox, 2004), imagery (Smith, Wright, & Canwell, 2008) self-handicapping (Kuczaka & Treasure, 2005), stress (Cohn, 1990; Giacobbi, Foore, & Weinberg, 2004; Johnston & McCabe, 1993; McKay, Selig, & Carlson, 1997; Rees, Hardy, & Freeman, 2007; Nicholls, 2007; Nicholls, Holt, & Polman, 2005; Nicholls & Polman, 2008) and psychological skills associated with golf (McCaffrey & Orlick, 1989; Thomas & Over, 1994).

PSYCHOLOGICAL VARIABLES IN GOLF

However, even fewer studies have explored the relationships between psychological variables and performance using elite (i.e. competitive amateurs, division one collegiate golfers or professionals) golfers. Studies that have included elite players have mainly focused on the effects of anxiety or stress on competitive golf performances. Anxiety has received considerable attention in sports performance research. For example, the Multidimensional Anxiety Theory and the Competitive State Anxiety Inventory-2 (CSAI-2; Martens et al., 1990), which measures both cognitive and somatic anxiety along with confidence, have been used to study golf performance. Krane, Williams, and Feltz (1992) conducted a path analysis examining the relationship between the CSAI-2 factors and the first and second round scores of a female division one golf tournament. Although they found a reciprocal relationship between self-confidence and cognitive and somatic anxiety, those factors did not predict golf scores in either round. However the authors did state that cognitive anxiety might be indirectly related to performance due to its negative relationship with self-confidence. McKay and colleges (1997) also failed to find a relationship between CSAI-2 components and golf performance for PGA apprentices. Interestingly, their findings suggest that cognitive anxiety actually facilitated golf performance. The data indicates a moderate negative correlation between the two measures ($r = -.5$). More recently, a study of eight male collegiate golfers competing in an official NCAA golf tournament demonstrated that CSAI-2 construct of somatic anxiety had a negative relationship with 36 hole scores ($r = -.51$) and that cognitive anxiety had a positive ($r = .61$) relationship. Thus somatic anxiety was related to lower 36-hole scores (i.e. facilitating performance) while cognitive anxiety was detrimental to performance.

These equivocal findings may be a result of ineffective assessment procedures due to problems with the CSAI-2 (Jones, Swain, & Hardy, 1993; Jones, Hanton, & Swain, 1994). In addition, each of these studies had the participants complete the surveys prior to the round, rather than measuring these constructs during the actual competition. Pre-match anxiety is likely to have a greater amount of variance than in-round anxiety when decisions are made and swings executed. This is a challenge that is inherent in sport research and, as such, qualitative methods may be a more efficacious methodology for exploring the impact of psychological factors on sport performance. The potential of qualitative approaches were shown in work on stress and coping in golf. Nicholls (2007) and Nicholls and Polman (2008) have utilized various qualitative strategies to identify perceived stressors during golf performance and the perceived effectiveness of various coping strategies implemented by high-level international junior golfers. Nicholls's (2007) participants in the study identified several performance stressors (e.g., opponents, performance, putting, weather, mental errors) and determined that effective coping strategies include, rationalizing, blocking, and re-appraisal. While, participants perceived that the coping strategies: trying too hard, speeding up, and changing routines to be ineffective for coping with stressors during golf performance.

Using the think aloud technique for data collection Nicholls and Polman (2008) recorded golfers as they played six holes of golf on their home courses. Similar stressors were identified (e.g., course conditions, course management, weather, performance) as well as effective coping strategies such as positive appraisal, planning the shot, and having a swing thought. Interestingly, it appears, that the effectiveness of coping strategies varies throughout play and often the effective strategies early in a

round may be perceived as ineffective later on in the round. According to Folkman and Moskowitz (2004) coping strategy effectiveness varies with changes in situational contexts. Similarly, coping strategies may relieve stress in the moment, but come at a cost to performance. For example, one of the participants in Nicholls (2007) explained that he thought confidently about making a putt (to reduce stress) but subsequently did not focus on task relevant information, "I forgot about making the shot and just getting the mindset right...I wasn't concentrating on the shot 100%" (p. 175).

DECISION-MAKING IN GOLF

Qualitative data from both Nicholls and colleagues also identified components of the decision-making process as sources of stress for competitive golfers. Two, second order themes that emerged from the think aloud data in Nicholls and Polman (2008) were; course conditions and course management. The first order themes that comprised them were; course hazards, club selection, and pin position. All of these factors impact the decision-making process and as a result impact scores.

Participants in Nicholls (2007) talked about making mental errors; in particular, one mentioned making a strategic decision error, when he aimed for a pin when he felt it might have been more appropriate to hit the shot towards the center of the green. Additional data suggests that although a coping strategy may relieve stress in the moment, the strategy may not result in improved performance. For example, Ryan chose to "forget" about the mental error and move on as a means for coping and although this strategy may have alleviated his stress, it was an ineffective strategy for preventing further mental errors, as he continued to choose the wrong shots in the following days competition. Similar work by Nicholls, Holt, and Polman (2005), lead them to recommend that the effectiveness of coping strategies may be dependent upon the

controllability of the stressor. Their recommendations for golfers were to utilize problem-focused strategies for stressors within ones control and emotion focused strategies for stressors that were beyond ones control. However, these coping strategies may be occurring outside of the individual's awareness and negatively impacting decisions. As previously discussed, affect is a decision heuristic that works within system one (i.e. intuitive, automatic) which can lead to errors if undetected (Kahneman, 2002). Therefore, golfers under stress may be making erroneous decisions due to variation in affect. Unfortunately, this phenomenon has not been investigated in golf.

Surprisingly none of the research mentioned above discusses decision making directly, despite the fact that decision-making is a significant part of golf performance. In fact, many top professionals create game plans (i.e. strategic outlines of shots to hit in competition) and mentally rehearse strategic decisions the night before the tournament. Mccaffrey and Orlick (1989) identified tournament planning as a factor related to excellence for top PGA tour professionals. Two participants stated, "Mentally at night before the round, I go over the course, see where I want to hit the ball" and "I go over the holes and think how I would play them" (p. 263). However, the authors do not explain the purpose of planning and rehearsal or how it may contribute to excellence. It is plausible that these golfers develop these plans a priori in an effort to prevent decision errors that may arise due to the dynamic nature of emotions in golf performance.

In planning, a golfer must consider the environmental features of the course (e.g., water hazards, sand traps, out-of-bounds) that may impact their goal of achieving a low score on a particular hole. These inherent challenges are often conceptualized as a continuum based on a risk/reward tradeoff. At one end of the continuum you have high-risk high reward shots, which are commonly referred to among PGA tour players as

aggressive shots. Aggressive shots are risky as there is often a penalty (additional strokes) associated with a failure in execution. However, successful execution may be very rewarding in that it increases one's odds for completing the hole with fewer strikes of a club. At the opposite end of the continuum are conservative shots, which are less penalizing for errors in accuracy but do not significantly reward the golfer. All of the above factors are likely to be tied to affective responses. Similarly to effects demonstrated within Prospect Theory (Kahneman & Tversky, 1979), golfers may overestimate small probabilities for either success or failure that influence their decisions and performance outcomes. For example, conservative strategies are sometimes implemented as a means for coping with golf-related stressors.

Within the limited golf literature it is implied that a conservative strategy is the "Smart" approach (Kirschenbaum, Owens, & O'Connor, 1998). Further evidence demonstrating that golfers cope by implementing these strategies is found in a qualitative study by Giacobbi, Foore, and Weinberg (2004). Their findings identified several stressors that may be related to strategic decision-making, such as, the ability to control distance of shots and golf course challenges (i.e. course design). Participants stated that they coped by implementing conservative strategies such as, "playing safe over water, taking a safe club, playing smart, staying away from water, and playing conservative off the first tee play smart when others are watching" (p.172). One participant said, "I'll be really conservative to cope with more or less anxiety of all those people watching me [on first tee]" (p.176).

Both conservative and aggressive strategies are performance factors included in Thompson and Over's (1994) Golf Performance Survey (GPS), which was designed as an assessment tool for identifying problem areas or deficiencies that are negatively

impacting golf performance. The GPS consists of three scales: psychological skills and tactics in golf, psychomotor skill in golf, and involvement in golf, within each scale are several subscales. The psychological skills and tactics in golf scale include the subscales: conservative approach and striving for maximum distance. Results from Thompson and Over (1994) indicate that low and high handicap players do not differ in strategic approaches. Although, there were a few positive correlations that indicates relationships exist between skill level, age, and strategic decision-making. Higher handicaps were correlated with laying up if unsure of clearing a hazard ($r = .28, p < .001$), playing for the heart of the green ($r = .18, p < .05$), and hitting the ball as far as one can when driving ($r = .21, p < .01$). Older players were more likely to; lay up if unsure of clearing a hazard ($r = .25, p < .01$), prefer safer shot over a risky shot ($r = .22, p < .01$), play for heart of green ($r = .19, p < .05$), and sacrifice distance for accuracy ($r = .18, p < .05$). While it appears younger golfers are more likely to try to out drive opponent ($r = -.21, p < .01$), and feel satisfaction when drive is the longest in the group ($r = -.19, p < .05$). Further results from this study revealed that lower handicap players reported greater use of mental preparation strategies, concentration, and experience fewer negative emotions.

Findings from this study are limited for several reasons. First, it is unclear from this the extent to which age is related to years of experience playing golf. The sample did not include elite level golfers. Handicaps for this study ranged from 5 to 27, which means that there were no scratch golfers (0 handicap) or sub-scratch golfers (indicated by a + handicap). Lastly, the quantitative nature of the data reveals little about the potential psychological determinants of strategic decisions, limiting its contribution to applied fields, such as coaching or sports psychology consulting.

Kirschenbaum, O'Connor, and Owens, (1999) is yet another example of a study with limited findings, as they fail to provide in-depth descriptions of the phenomena under investigation. In two separate studies, strategic decision-making was assessed indirectly, by recording the club participants used for their tee shot. The holes used in the studies were purposely chosen because they provided the golfer with a variety of strategic options. For example the first study utilized a short par 4 that had a water hazard positioned left of the fairway that was reachable with an errant drive. As such, the authors proposed that the "smart" play would be to hit a club that would land short of the water hazard and position the player 150-130 yards from the green. The authors approached each of the (171) golfers as they arrived to the teeing ground.

Participants were then instructed that they would be a part of a study and that they would learn the nature of the study after hitting their tee shots. Club choice was recorded and scores were assigned to the shot based upon the position where the ball came to rest. In addition, 94 participants who received a low score for ball position were invited to hit a second tee shot. For their second shot, they were instructed to choose a club that would land in the fairway short of the water hazard, leaving them with an approach shot from approximately 150-130 yards. Second shots were also given a score. Finally, golf scores were also collected following the completion of the hole. Analysis of the data, lead the authors to assert that 80% of the golfers used inappropriate club selections. As such they concluded that these golfers decisions were guided by positive illusions.

The second study, which was conducted at a different golf course, was slightly different from the first in that half of the participants were randomly selected and asked to implement a "smart" golf strategy for their initial tee shot. Therefore of the 183

participants, 86 were assigned to the “smart” condition. However, 23 participants refused to follow the strategy, stating that their strategy was better. Data included the scores assigned to the results of each tee shot and the total amount of strikes needed to complete the hole. Results of the second study indicated that the “smart” condition hit more shots in good-excellent positions (in the fairway or just off the fairway). Therefore, the authors again reported that golfers that choose their own strategy made decisions based on positive illusions and those golfers in both studies made plans that may not correspond to reality.

In their discussion the authors claim that for both studies, the “risk vs. reward for tee shots...should have resulted in more than 10 times as many golfers using much shorter clubs...”(p. 21). These recommendations were not limited to high handicap golfers, as they proposed that most of the low handicap golfers would also benefit from a more conservative approach.

The findings of this study are interesting, as they clearly indicate that individuals employ strategies that are counter-productive. This is especially true if, in fact, the primary goal of each golfer were to maximize their chances for achieving a score of par or better. According to expected utility theories, individuals should consistently make choices that maximize utility. This would involve choosing a strategic option that that included a high probability for making the fewest strokes on a given hole. This perception is clearly challenged by these results. However, the findings of this study are limited in that the authors did not measure self-efficacy for tee-shots or levels or optimism, which may have supported their claim that individuals were acting based on positive illusions. Kirschenbaum and colleagues (1999) do acknowledge that alternative explanations may exist. For example, they state that a golfer may be more motivated to

hit a great shot than to obtain the lowest score or they may be following a heuristic and simply selecting the club that is the most associated with tee shots. Despite these alternative explanations, the authors assert that most golfers were probably motivated to achieve the best score and were therefore employing an inappropriate strategy guided by positive illusions.

This study may have been more impactful if, in addition to quantitatively measuring the quality of tee shot, they had also obtained a brief amount of qualitative data. For example, they could have asked each golfer, "What were your thoughts leading up to that tee shot?" This data would have provided insight into the thought processes prior to selecting their club or selecting a specific goal for the shot. This may have allowed for the emergence of both motivating and psychological factors in a more naturalistic way, providing greater depth to our understanding of decisions in golf. Clearly, a more qualitative approach to these questions is warranted.

QUALITATIVE UNDERPINNINGS

Several qualitative approaches (e.g., Interpretive/Hermeneutic Phenomenology) arise from a relativist ontology and a subjectivist epistemology, which assumes multiple realities exist and that the knower and what is known have a reciprocal relationship that co-construct knowledge. The central aim of these qualitative methods are to gain further understanding of what it means to be human and how experience shapes our understanding and meaning of our lived-world. Qualitative methods informed by Interpretive Phenomenology do not attempt to discover a single 'truth' that exists apart from the human being, nor do they attempt to explain or predict human behavior. The primary goal is to simply understand what a phenomenon is like, as it presents itself to the individual. Qualitative methods do not ask questions as to why a phenomenon exists

or presents itself, but asks the question, what is it like (Polkinghorne, 1989)? As a result, qualitative methods seek to understand the individual experience by asking the participants to describe the meaning of phenomena as they experienced them. The researcher does not assume to know what an experience is like or should be like, but rather is open to discovery. Often, the findings from qualitative work result in recommendations that are contrary to one-size fits all theoretical models.

For example, Cotterill, Sanders, and Collins (2010) explored the nature of pre-shot routines in golf using a qualitative approach. Using a semi-structured interview format, six male golfers described their experiences. The results of this study revealed 9 themes that constitute the experience of the pre-shot routine. The components were, the allocation of attention, psychological skills (e.g., self-talk, imagery, relaxation, confidence), shot selection, routine mind set, routine composition, compulsive behaviors, routine evolution/application, top players, and moderating factors. Contrast this with work from Boutcher and Crews (1987) who randomly assigned participants to a pre-shot routine condition. They found that the use of routine was especially beneficial for female golfers, but of little help to males. Though a useful contribution, it does little to help to understand the experience of a pre-shot routine or how one might be structured to provide a benefit. For example, imagery is a commonly employed technique within pre-shot routines. However, the qualitative findings suggest that imagery is experienced differently and that most of the participants developed their pre-shot routines haphazardly, meaning that they developed them often on their own over the years by looking at books, magazines, and video. These results emphasize the need for idiographic approaches that address individual differences rather than comparing group means.

Philosophically, most qualitative approaches embrace intersubjectivity, thus methods were established to be flexible. This has led to the development of a wide variety of approaches (qualitative description, ethnography, phenomenology, grounded theory), all of which have different goals or research objectives and are influenced by contrasting ontological and epistemological positions. The most disparate of which extend between phenomenology and grounded theory.

Phenomenology's primary objective is to reveal the essences of the lived-experience as described by the participants. As such, in the strictest sense, efforts are made to remain true to the voice of the participant and for the researcher to refrain from imposing his/her presuppositions or theoretical positions regarding the phenomena of study. As an end goal phenomenology seeks a greater understanding of human experience through the identification of common experiential structures or themes. This is in contrast to grounded theory, which seeks to identify constructs that demonstrate causal and explanatory relationships that may be generalizable to broader populations.

Grounded theory, which was developed by Glaser and Strauss (1967), was brought about as an effort to encourage researchers to explore means for developing theory rather than simply testing it. The methodology is situated within the theoretical principles of symbolic interactionism, which states that meaning is created within a dynamic interactional process between individuals and their social interactions (Fassinger, 2005). The method utilizes the qualitative technique of interviewing, as a means of data collection and utilizes analysis procedures similarly to phenomenological methods (Ayres, Kavanaugh, & Knafel, 2003). However, as units of meaning are coded during initial data collection, grounded theory methods become more distinct. For example, as constructs emerge early on in the interviewing process, they are constantly

compared to other forms of data, including extant theory and research literature. As such, future interviews become more narrowly structured and are guided by the categories of themes that emerged from earlier interviews and the constant comparative procedures. These interviews, which are called theoretical samplings, continue until “saturation” is reached. Saturation is a point at which no new information is being achieved or the researcher feels that the categories are complex enough that they capture all variation (Strauss & Corbin, 1998). Additional procedures, such as *axial coding*, involves placing the data into categories that demonstrate relational patterns and *selective coding*, which identifies the “core categories” that organize the concepts into an explanatory model or theory (Goulding, 2005; Starks & Trinidad, 2009). These methods have been criticized as being overly positivistic (Charmaz, 2000). Much like quantitative or traditional approaches, which seek to discover universal generalizations, grounded theory methods presume that human behavior is directed by a single reality.

Furthermore, the processes of thematic sampling are no less of a naturalistic approach to the acquisition of knowledge than are narrowly confined pencil and paper surveys.

In contrast, phenomenological methods stay true to the participants voice by allowing them to describe their experiences naturally without the use of questions that may lead them to answer in ways the researcher deems significant. A process that asks broad open-ended non-leading or judgmental questions authentically encourages the emergence of newer concepts and experiential themes. It is a constructivist approach, which presumes that humans construct meaning as they interact with the lived-world (Golafshani, 2003). Researchers who use phenomenology are not interested in generating abstractions or testing theoretically based hypotheses (Giorgi, 2005, Vander Zalm & Bergum, 2000). Rather phenomenologists are interested understanding,

describing, and interpreting experience. As such, phenomenology has been likened more to a philosophical stance or methodology than to a systematic method (Polkinghorn, 1989).

Qualitative methods informed by phenomenology can typically trace their origins back to the works of either Edmund Husserl or Martin Heidegger. These philosophers have distinct and opposing ontological and epistemological views, and as a result the phenomenological practices that are attributed to them have differing research goals and use contrasting methods for understanding phenomena. As such, a distinction must be made between the phenomenological methods that are heavily influenced by these two philosophers. Therefore, it is pragmatic for qualitative researchers whose methods are informed by phenomenology to make explicit the philosophical assumptions that undergird their methodological procedures (Caelli, 2001; Lopez & Willis, 2004). This is to prevent “method slurring” which can affect the overall perceived quality and rigor of a qualitative study (Coyne, 1997).

Husserl’s practice of phenomenology is also known as descriptive phenomenology (Lopez & Willis, 2004). Descriptive phenomenology asserts that an objective reality exists and that it exists independent of context. Descriptive phenomenology utilizes “bracketing” to get at the eidetic structures, or what Husserl deemed the universal essences of the lived experience (LeVasseru, 2003). According to Lopez & Willis (2004) those who follow these philosophical positions are advised to abstain from reviewing the literature before conducting their study, as this would make the process of “bracketing” more difficult. Husserl’s motivation to make the study of philosophy as credible as objective scientific practices meant that he was less concerned with ontological questions, such as, the meanings individuals ascribed to

experience. Instead, he was interested in identifying the essences of human experience as they actually were, which he referred to as returning, “to-the-things-themselves” (Dowling, 2005). Again, this assumption asserts that an objective reality exists, which is a dualistic epistemological belief and ontologically assumes the existence of a single reality. In opposition, Martin Heidegger’s strongly opposes dualism (Koch, 1995).

Although Heidegger was a student of Husserl, his philosophical position is different in that he presumes that humans are inextricably linked to their lived-world and co-constitute one another (Heidegger, 1962). This concept, which Heidegger called Dasein, reflects the premise that existence includes ‘being-in-the-world’. Dasein has several meanings, one is that humans are always interpreting their interactions with their environment and that they bring with them foreknowledge that influences these interpretations. A second aspect of Dasein is that humans are aware of their existence and therefore are presented with the question “what it means to be” (McConnell-Henery, Chapman, & Francis, 2009). Heidegger’s phenomenological interest was more ontologically oriented, as he was more concerned with how individuals make sense and assign meaning to their interactions with the lived-world. As such, Heidegger did not believe it was possible to ‘bracket’ presuppositions or foreknowledge. Humans are constantly interpreting.

Therefore researchers who take a more Heideggarian approach are said to be using Hermeneutic or interpretive phenomenology. Hermeneutics, which is a science of interpreting texts, is an approach that emphasizes the interaction between pre-understanding and interpretation (Denzin & Lincoln, 2005). This process called the ‘hermeneutic circle’ includes moving between parts of the text and the whole. This process is comprised of a decontextualization of the text as it is interpreted and

organized into smaller more manageable segments to a recontextualization as the segments are interpreted related to the whole or the context of the text (Polkinghorne, 1989; Sadala & Adorno, 2002). According to Koch and Harrington (1998), interpretations resulting from the Hermeneutic circle depend upon both the researcher's and the participant's background understandings as a part of the interpretive process. These authors contend that understanding occurs through a comparative process that includes what one previously knows and the presenting of a phenomenon.

This philosophical stance places the researcher directly within the *circle* along with the participant, who is commonly referred to as a co-researcher (Merleau-Ponty, 1962). There is no attempt to 'bracket' one's presuppositions; instead they are considered a valuable part of the interpretive process. Hermeneutics includes both description and interpretation, as Heidegger would assert that one does not exist without the other (Munhall, 2007). The primary aim of this process is to understand the meaning and experiences of the participant's descriptions and interpretations rather than explain them (Van Manen, 1997).

EXISTENTIAL PHENOMENOLOGY

Interpretive phenomenology is also closely related to existential phenomenology. Although Heidegger himself did not claim to be an existentialist, he is often cited as being aligned with existential phenomenology (Koch, 1995). Existentialists are interested in what it means to be human and how humans interact with and develop meaning for their experiences. Existentialists also oppose Husserl's dualistic epistemology and his use of 'bracketing' (LeVasseru, 2003). Existential phenomenology is a contextualist view and presumes that human and world co-constitute one another as humans are always situated as being-in-the-world (Larkin, Watts, & Clifton, 2006). Within

this philosophy, humans are believed to be “condemned to choice” and that these choices take place within the bounds of situated freedom (Valle & Halling, 1989). Situated freedom means that an individual’s choices are confined to the interaction between both the individual and the context of the situation (Dale, 1996, Valle & Mohs, 2006).

Because the purpose of the proposed study is to understand the meaning and experience of strategic decision-making from a first-person perspective, the structure of the interviews and the analysis of data will follow procedures that are consistent with interpretive phenomenology. Strategies, like the hermeneutic circle are designed to elicit the participant’s subjective meanings rather than provide a description of their overt behaviors or the precise make up of the phenomenon (Polkinghorne, 1983). Therefore, techniques used for obtaining objectivity, such as, “bracketing” or triangulation will not be utilized. It is understood that the findings from this study are subjective and that alternative interpretations will exist. However, phenomenological findings are useful in that they may initiate discussions within the field (Wilson & Hutchinson, 1991). As such, using techniques such as transparency and member checking enhance the quality of the study.

JUDGING THE QUALITY OF METHODS

The above philosophical viewpoints play a critical role in the design and implementation of methodological procedures within qualitative research. Although phenomenology is not in and of itself a method (Laverty, 2003; Osborne, 1990; Polkinghorne, 1983), its tenets are widely cited. However, this is not without confusion (Caelli, Ray, & Mill, 2003). As such, there are inconsistencies in qualitative approaches that claim to be conducted under the guise of phenomenology. These inconsistencies

have led to considerable debates as to the quality or rigor of qualitative research (Tobin & Begley, 2004). To date there is no consensus among qualitative methods, specifically those informed by phenomenological practices (Giorgi, 2006). Thus standards for judging quality, rigor, or trustworthiness are equivocal at best. However, philosophically this is consistent with relativist paradigms. In fact, several qualitative researchers readily accept that there are numerous interpretations that can come from qualitative data analysis (Osborne, 1990). This pluralistic view is defended by the position proclaiming that the quality, rigor, and trustworthiness of qualitative research should be judged by the reader (Bain, 1995; Crist & Tanner; Vidich & Lyman, 2000) or by the contribution of the findings (Emden & Sandalowski, 1998). These assertions are relevant to those in applied fields who often share the findings of qualitative research with their clients to alter perspectives, enhance growth, and performance. However, despite the lack of clarity or uniformity of procedures, it is evident that researchers engaging in qualitative methods need to articulate the philosophical underpinnings of their research questions and their chosen methodological procedures. (Lopez & Willis, 2004) This form of transparency allows for the reader to follow the logic of the researchers decisions and methodological techniques.

This is of particular importance for qualitative studies that are informed by interpretive phenomenological approaches. These practices are situated in contextualism (Denzin & Lincoln, 2005; Fahlberg, Fahlberg, & Gates, 1992; Golasshani, 2003) and are guided by subjectivist epistemologies and a relativist ontology. These positions assert that there is no one “true” or “independent” reality that exists apart from interpretation (Willis, 2001). In fact, Heidegger would argue that literally “no-thing” exists apart from human experience, which attributes meaning to things as they are revealed within a

specific context (Breivik, 2007). Therefore these principles must guide the framework for which qualitative works are measured.

However, traditionally this has not been the case. Unfortunately, methods for establishing quality, rigor, and trustworthiness have been rooted in methods associated with positivistic approaches. Even Husserl, criticized psychology for using natural science methods; implemented procedures rooted in positivism in an attempt to validate phenomenological research (Laverty, 2003). This is not surprising as positivism was the dominant paradigm and thus ostensibly controlled academic research. As such, qualitative practices were not considered scientific, making conducting and publishing qualitative work difficult (Martens, 1997). In an effort to establish credibility standards for qualitative methods, Guba, (1981) and later Guba and Lincoln (1981) presented four criteria for obtaining rigor within the Naturalistic paradigm. Although the purpose was to create an independent criterion the terms and methods paralleled the requirements of quantitative practices. The constructs were credibility (internal validity), transferability (external validity), dependability (reliability), and confirmability (objectivity).

Debates regarding quality, rigor, and trustworthiness have not ceased. Some continue to question the relevancy and appropriateness of applying parallel criteria and whether such criteria are philosophically aligned with subjectivist methodologies (Morse et al., 2002; Sparks, 2001; Sparks & Smith, 2009). Furthermore, it is ineffectual to try and establish one set of criteria for all contexts of qualitative investigation (Caelli & Mill, 2003). Sparks and Smith (2009) argue that criteriology (i.e. predetermined standards or quality) prevents growth and expansion of knowledge by preventing creativity and narrowing views of valid research. As an alternative, emphasis must be placed on the

ontological and epistemological assertions associated with differing paradigms (Morrow, 2007).

Fossey and colleagues (2002) present alternative suggestions for evaluating the quality of interpretive qualitative methodologies. These authors contend that one of the primary aims of interpretive methodologies is to ensure that the participants are authentically represented in the process. As such, the participant is considered a co-researcher with equal power, thus, should be included in the various stages of the process (e.g., data collection, analysis, and presentation). This principle is consistent with the humanistic tenet of equalizing power, which in sports psychology often refers to the athlete as the expert (Dale, 1996; Poczwadowski, Shreman, & Ravizza, 2004).

In addition, Fossey et al., (2002) also provided methods for assessing interpretive rigor through authenticity, coherence, reciprocity, typicality, permeability of the researcher's intentions, engagement and interpretations. Authenticity is measured by how well the findings were presented, while providing an accurate reflection of the participant's experience. The use of member checking is an effective technique for achieving this standard. Member checking techniques are consistent with principles of equalizing power between the researcher and the participant. Coherence evaluates the extent to which the interpreted findings fit the data presented. In other words, are researchers interpretations reasonable, given the data presented? Coherence is achieved by placing in-depth quotes in juxtaposition with the interpretations. Typicality, concerns the written report of the study and whether the findings were presented are relevant to a variety of contextual settings throughout the field. Lastly, permeability is a detailed description of the researcher's involvement of the study. For example, how were

potential biases considered and to what extent did they influence the interpretive process.

In summary, the above methods demonstrate the importance for qualitative researchers to choose wisely the methodological procedures that are philosophically congruent with the research question and the epistemological and ontological precepts. One common feature is the empowerment of participant by treating them with equal power (Fossey et al., 2002; Lincoln and Guba's 1985). Empowerment can be achieved by including the participant in the analysis process via member checks and by ensuring that the participants voice is accurately represented in the interpretation of the data. Staying at the level of the lived-experience or staying true to the participants voice and incorporating the language of the participants in the creation of themes is a common practice for establishing trustworthiness (Larkin et. al., 2006; Colaizzi, 1978; Dale, 1996, Lincoln & Guba, 1985).

QUALITATIVE RESEARCH IN SPORT PSYCHOLOGY

The following will review a few qualitative studies informed by various forms of phenomenology within sports psychology and the methods that they employ in data collection, analysis, and establishment of trustworthiness. Using an existential phenomenological approach, Gearity & Murray (2010) explored the experience of poor coaching by interviewing 16 athletes. The influence of existential philosophies guided the use of a single "grand-tour" (Pllio, Henley & Thompson, 1997) question, which was "tell me about a specific time you experienced bad coaching." Follow up probes were used to expand upon descriptions and clarify meanings. Analysis included three iterations; abstracting meaning units from the transcripts, categorized the meaning units, and comparing categories across participants to create themes of poor coaching. The

themes were generic or everyday terms representing the described experiences, as opposed to extant theoretical or psychological constructs. This reflects the phenomenological principle of staying true to the live-experience as described by the participants.

Dependability and trustworthiness was established through common phenomenological procedures such as, the use of a bracketing interview, in-depth unstructured interviews, member checking, and keeping an audit trail. The use of a bracketing interview seems unnecessary given the existential approach, which typically acknowledges that the researcher is inextricably linked to the process. In addition, it is unclear as to what steps were included in the member checking.

Holt, (2003) used a phenomenological orientation to inform the analysis of single participant case study. Holt's methods reflected the philosophical underpinnings of Heideggerian hermeneutic interpretive analysis. Four separate interviews were used for data collection, in which the participant (a professional cricket player) described the use of coping strategies for dealing with daily hassles during a competitive season. Although it is unclear as to the initial structure of the interviews, the author did report using preceding interviews to guide subsequent interview sessions. As such, the authors claimed that this process established trustworthiness through prolonged engagement as well as on-going member checking which included corroboration for theme development. This study also has slight inconsistencies in the match between its stated philosophical assumptions and methods. For example, the data analysis followed procedures recommended by (Van Manen, 1997) who is said to follow Husserl's descriptive phenomenology despite disagreeing with the concept of bracketing.

Similarly, in a study investigating athletic talent development, Burton and colleagues (2006) choose a Heideggerian phenomenology, stating that it allowed for the researcher to be an integral part of the interpretive process or hermeneutic circle. These authors posit that their experiences (background) as sports researchers enabled them to better understand the experiences of talent development. Eight female former Olympic athletes were interviewed following a pre-established interview protocol. The protocol which included two phases of an initial interview and a follow up interview guided by the notes derived from the first interview. This allowed for the authors to collect data on the different phases of their athletic development. For example, the interviews asked participants to describe their experiences during early childhood sports participation, experiences competing at elite levels prior to the Olympics, and their Olympic experiences. This type of questioning is appropriate to phenomenological procedures as it allows for the researcher to address the primary research question and also allows for the participant to describe experiences across various contexts. Contextual dependency is a significant premise within the study of lived experiences and their meanings (Allen-Collinson, 2009; Cohen, 2000; McFee, 2009). However, the findings from this study were presented differently than most phenomenological studies, which usually present a table of theme development and separately discuss each theme along with relevant quotes independently. Despite reporting that the data was analyzed following common procedures: identifying meaning units, categorizing meaning units, and formulating overall themes, the authors choose to present the narrative stories of only three of the eight participants. The authors propose that their presentation of the findings gives voice to the three participants and that these stories best described the experience of talent development.

Issues of trustworthiness were established through the use of a “validity check” (Groenwald, 2004) where the authors sent all eight participants a copy of the manuscript to review and voice comments or concerns regarding the interpretations. This step is similar to member checking procedures. However, it seems irrelevant to send copies of the transcripts to the participants whose voices were not included in the presentation of the findings. Lastly, incongruent with phenomenological tenets, the authors compared the results to existing theoretical models of talent development recommending that new models should include talent development that occurs past periods of elite levels of competition.

These three studies provide a small preview of a few common inconsistencies that occur within phenomenological practices. Sample sizes vary considerably among studies. Philosophical underpinnings, when stated are sometimes contradictory to procedures. Demonstrations of rigor or trustworthiness vary in both the terms used and the extent to which the procedures are followed. It is no coincidence that disagreements continue to arise and that the efficacy of qualitative methods as a whole continue to be questioned. As a result, researchers disagree on the use of two of the most commonly implemented criteria for establishing rigor and trustworthiness.

TRIANGULATION AND MEMBER CHECKING

Triangulation methods and member checking are two techniques cited within the literature for establishing trustworthy qualitative research. Triangulation, which has been linked to procedures found within positivism is a process in which interpretations are compared to multiple sources. Denzin (1978) outlined four sources of triangulation: methodological, data, researcher, and theoretical. Within sports psychology, researcher and theoretical triangulation methods are commonly implemented. Theoretical

triangulation occurs when researchers compare interview data to extant theoretical constructs, while researcher comparisons typically involve an outside researcher who reviews the transcripts and identifies themes which are compared to the original interpretations (Farmer et. al., 2006). Comparable to triangulation, member checking is a strategy for verifying the quality of the interpretations that involves having the participants check the transcripts for accuracy, having them review the interpretations, or both.

Arguments in support for or against triangulation and member checking are sometimes based on epistemological tenets. Triangulation is often associated with dualistic and positivistic methods, whereas, member checking is a holistic means for preserving the subjective nature of knowledge. Tobin & Begley (2004) state that triangulation methods are epistemologically incongruent with qualitative methods because the underlying premise suggests the existence of a single reality or truth that can ultimately be confirmed. It is also argued that the use of triangulation may in fact exacerbate subjectivity rather than reduce it (Krane, Andersen, & Streaan 1997). Lastly, Giorgi (2006) argues that triangulation is an empiricist approach, not a phenomenological one and that the data should be justified by new data (interviews) rather than the opinions of experts.

However, Giorgi also opposes the use of member checking, claiming that research is for the growth of the discipline not the participant. Therefore he believes it is untrustworthy to seek the approval of the participant who may not be privileged to the meanings of what they described. Morse and colleges (2002) also make a good argument against the use of member checking, or any form of post-hoc evaluation of validity, stating that unless the study involved a single subject the interpretations are a

synthesis of decontextualized and abstracted descriptions from several individual participants, thus, may be unrecognizable to participants. Moreover, these authors believe that member checking may delimit the researchers interpretations.

In contrast, Polkinghorn (1989) make the argument that a study's validity would be in question without the use of member checking and recommends that researchers ask each participant how their interpretive and descriptive results compare to their actual experiences. In addition, Thompson, Locander, & Pollio (1989) describing existential phenomenology propose that member checking is a way for staying true to the voice of the participant. These authors also posit that the use of triangulation is inappropriate, that the data should not be corroborated with external sources. Furthermore they state that interpretations should not incorporate hypotheses or broad interpretations that extend beyond what is present in the data. Hanson and Newburg (1992) believe member checking is congruent with the intended goals of naturalistic research which are to reconstruct the participants experiences as accurately as possible. As such they assert that it is pragmatic to include the participant in the interpretive process.

What is clearly evident is that there is a lack of consensus within the field of qualitative research (Sparks, 2001). It is believed by some that interpretations can never be validated due to the uniqueness of individual meaning (Annells, 1996). Therefore, as stated earlier, it is important that the researcher clearly states the philosophical, epistemological, and ontological underpinnings of the methods. It is recommended that researchers be transparent in stating their goals and the methods for which they intend to meet these goals (Fossey, Harvey, McDermott, & Davidson, 2002). As such, a study's quality, rigor, or trustworthiness may be judged based on the congruency between the goals and methods chosen for a particular research question (McFee, 2009; Morrow,

2005). In addition, the overall quality of a study may be judged on its contribution to the fields understanding of lived experience and the applicability of the findings to applied practices which should be judged by their usefulness (Avis, 1995).

Many believe that the final say regarding quality, lies with the readers themselves (Crist, & Tanner, 2003; Diekelmann & Ironside, 1998; Elliott, Fischer, & Rennie, 1999). Bain (1995) suggests that the contribution of qualitative research is not found in generalizations but the results are a “tool for reflection” in which the reader may develop a new insight. Qualitative research should be judged by whether or not the findings speak to the reader (Ellis, 1995) Vidich & Lyman, 2000). Munhall (2007), states that phenomenological results are validated when the reader gives a “phenomenological nod” meaning they believe they too could have had a similar experience. This form of validation is particularly useful in applied settings where vicarious learning can have a positive impact on changing behavior and enhancing performance.

In sum, Osborne (1990) asserts that absolute definitive interpretations do not exist. As such he contends that the best a researcher can do is defend his interpretations, which will ultimately be judged by the reader. Therefore, if the goal of the study is to identify the lived experience of the participants it makes sense that a researcher would include the participants in the interpretive process by asking them if the interpretations are consistent with their experience (Hanson & Newburge, 1992). As for other methods of verification, they should be flexible and coherent with the epistemological and ontological underpinnings of the study. There is inherent danger in implementing overly structured, narrow, and constraining procedures (criteriology), while attempting to insure quality, rigor or trustworthiness (Sparks & Smith 2009). In accordance, these authors further state that criteriology may close down conversations,

thwart creativity, and stagnate the nature of understanding severely limiting research progress.

As such, the present study will be transparent with its approach as well as utilize member checking as means for strengthening interpretive rigor. Given the interpretive approach and the use of the hermeneutic circle, which positions the researcher and participants as equals, member checking is an efficacious technique for achieving *authenticity, reciprocity, and coherence* (Fossey et. al., 2002). In addition, the transparency of the philosophical underpinnings and the presentation of the in-depth descriptions will enable the readers to judge the quality of the study. Lastly, the presentation of the findings should facilitate transferability, enabling both sports psychology consultants and researchers to apply the results to additional decision-making contexts.

CHAPTER 3

Method

STUDY OVERVIEW

The aim of the present study was to explore the experience and meaning of strategic decision-making for high-level competitive golfers. To achieve this, qualitative methods informed by existential and phenomenological practices were used to gather data through unstructured interviews. Findings from this study will contribute to the fields understanding of strategic decision-making and be useful to applied practices of sports psychology consulting and golf coaching. In addition, findings from this study may be used to guide the development of future research.

PHILOSOPHICAL UNDERPINNINGS

Qualitative research has been regarded as a broad, umbrella term for research methodologies that seek to understand human experiences from a first person perspective or simply as methods that do not involve the use of statistical procedures to explain some phenomenon (Fossey, Harvey, McDermott, & Davidson, 2002). Despite Polkinghorne (1993) use of the word methodology, phenomenology is not generally considered a method to follow but a creative approach or attitude (Laverty, 2003; Osborne, 1990). A phenomenological attitude consists of openness and a willingness to allow the essential structures of phenomena to emerge from beyond the bounds of extant theory or presuppositions. Thus, phenomenology is a process for the acquisition of knowledge through the interpretation of in-depth descriptions of human experiences. A major premise within phenomenological research is that “truth” can be discovered within lived experience (LeVasseru, 2003). To ascertain this knowledge, phenomenology

explores detailed in-depth descriptions of specific experiences as provided by the participants of study (Allen-Collinson, 2009). Lastly, because phenomenology is a flexible approach, there have been numerous variations to the techniques used to acquire and analyze interview data. This broad range of styles has led to what some call “method slurring”, which is when researchers use techniques that are incongruent with the stated philosophical influences of their methods (Becker, 1993; Stern, 1994). Therefore, the present study will be conducted using qualitative methods that are informed by Interpretive and Existential phenomenological practices that were influenced by the teachings of Martin Heidegger.

Heidegger argued for co-constitutionality, which is the philosophical assumption that there exists an indissoluble unity between person and world (Kerry & Armour, 2000). This philosophical position limits one’s ability to act freely within the world. Instead the individual navigates and makes sense of their existence within a “situated freedom” (Valle & Halling, 1989; Osborne, 1990). The concept of “situated freedom” is also a major tenet of existential phenomenologists (Lopez & Willis, 2004). Situated freedom is an assumption that we as humans are situated within social, cultural, and political contexts that limit the choices one can make. This interrelationship is mutually creative, in that the individual both shapes and is shaped by their lived-world and that experience and meaning are best understood within specific contexts. The belief that person and world are mutually influencing, is why interpretive phenomenological methods do not attempt to “bracket” and why they assert that the researcher and participant are integral parts of the hermeneutic circle. In addition, the hermeneutic circle also includes all prior understandings “background” as well as cultural, political, and historical influences that are a part of creating meaning and interpretation (Fossy, Harvey, McDermott, &

Davidson, 2002). During data analysis, the hermeneutic circle is the process of first analyzing the parts separately before integrating them back into the whole.

In addition, consistent with the philosophies of interpretive and existential phenomenology the researcher and participants are considered co-researchers. As a result, the participants play a significant roll in dictating the flow of the interview. In addition, participants are also given the opportunity to review the researchers interpretations prior publication. Language is an integral component of conveying meaning that is why it is important for interpretive phenomenologists to stay true to the voice of the participants and to refrain from imposing abstractions and labels onto the data that may deviate too far from the participants experience (Allen-Collinson, 2009). Therefore this study will us methods such as “in vivo” coding which attempt to use the participants actual statements when creating labels for meaning categories. Lastly, member checking will be used to check the legitimacy of the interpretations.

PARTICIPANTS

In accordance with the philosophical foundations discussed above the participants were purposefully sampled, meaning that participants are chosen for a specific purpose, often due to their first-hand experience with the phenomena under investigation (Hanson & Newburg, 1992). According to Patton (2002) there are no set rules for determining how many participants to include in a study. As such, it has been stated that as few as one participant may be sufficient (Maltrud, 2001) or that the “magic” number 12 may be just as good as any (Morrow, 2005). Therefore, eight golfers, drawn from high-level amateur, collegiate, PGA tour experience, and lower-level professionals with mini-tour experience (e.g., Adams Tour, Canadian tour) were interviewed for this

study. According to Pollio, Henely, and Thompson, (1997) three to five participants may provide sufficient data for the emergence of thematic analysis.

INTERVIEWS

Interviews informed by both existential and phenomenology range from unstructured interviews to semi-structured interviews (Osborne, 1990; Polkinghorne, 1989; Greenfield, Greene, & Johanson, 2007). This style of interview typically involves the use of open-ended questions that very broad and non-leading. For, according to Polkinghorne (1989) interviews are not conducted to confirm what is already known, but rather are used to expand our understanding. As such these interviews are driven more by the participant than the researcher (Fossey et al., 2002; Lavery, 2003; Thompson, Locander, & Pollio). This process assists in lessening any potential bias the researcher may bring to the study (Greenfield, Greene, & Johanson, 2007). Each interview lasted approximately 101 minutes.

The interview began with a general discussion of the purpose of the study. Participants were encouraged to talk openly about their experiences. Participants were informed that there are no “correct” answers and that they should describe their own experience, not what they think others may do or what they think the researcher wants (Munhall, 2007; Polkinghorne, 1989). Participants were also encouraged to continue sharing their thoughts and experiences until they felt they have nothing more to say (Jasper, 1994). This style of interviewing is consistent with the philosophical premise that the participant is the expert or a co-researcher (Allen-Colinson, 2009; Dale, 1996; Van Manen, 1990).

Interview Instructions

The purpose of this interview is to gain an understanding of your experiences with strategic decision-making in golf. Specifically, strategic decisions like where you intend to place a tee or approach shot, rather than the process you go through to select a specific club. For example, the strategy of trying of aiming directly at a pin or trying to maximize the distance of your tee shot. Your responses will be digitally recorded and transcribed verbatim so that an interpretive analysis can be conducted. Although your responses are being recorded, your participation will remain anonymous. The interview is much like an informal conversation. Please feel free to share your thoughts and experiences as openly and honestly as you can recall. There are not “correct” or incorrect answers, the goal of the interview is to gain an understanding of how you experience strategic decision making during competition. This is different from expressing your opinion of what you think you or someone else should do while making decisions in golf. Before we begin, do you have any questions form me?

Interview Guide

The interview guide is a list of the general topics that will be covered in the interview (Newman, 1992). For each question the participants were asked to share specific examples and to talk about any thoughts or feelings that they experienced before, during, and after their experience. Because language and meaning are the primary focus of phenomenological inquiry, probing questions were used to clarify the participant’s descriptions (Cohen, 2000). The interview guide for this study consisted of two questions. First the participants were asked, “What’s it like to make strategic decisions in competition?” Follow up probes were used to gain greater clarity and to encourage the participants to provide more in depth descriptions of their experiences. At

a point in which the participants had appeared to exhaust all their thoughts on the topic, participants were asked a second and final question. Each participant was asked, “How do you define yourself as a golfer and how do your decisions fit with that identity?” Again, follow up probes were asked until the participants felt they no longer had anything else to add.

Decentering

Although “bracketing” is inconsistent with a Heideggerian approach, it has been proposed that a research should attempt to decenter before beginning the interview process (Munhall, 2007). According to Munhall, this is a process of entering the interview with an “unknowing” attitude, so that the research doesn’t “hear” in a way that substantiates preexisting knowledge but rather presents an openness to discovery. The practice of Decentering is facilitated by the use of an unstructured interview format. This process allows the participant to freely describe their experience without interruption. However, the researcher will take notes during the interview, so that probes can be asked to clarify points made during the description.

DATA PROCESSING AND TRANSCRIPTION

Interviews were digitally recorded using two separate devices to protect from any loss of data due to system malfunctions. The recordings were saved as mp3 files and were stored on multiple devices. Recordings will be reviewed by the principle investigator as an initial step in the analysis of the data (i.e. developing general interpretation of the interview as a whole). Lastly, the interviews were transcribed verbatim.

DATA ANALYSIS

The data analysis consisted of an interpretive analysis informed by Hermeneutic procedures and recommendations from Colaizzi (1978), Cote et al., (1993), Dale (1996), and Tesch, (1990). These procedures are an iterative process utilizing idiographic and nomothetic analysis, which includes decontextualizing and recontextualizing the data. Decontextualizing of the data involves removing individual units of meaning from each transcript. Meaning units, which Tesh (1990) defined as “a segment of text that is comprehensible by itself and contains one idea...” (p. 116) are organized into similar groups. This process helps to condense the data into a more manageable form for interpretation (Phillips-Pula, Strunk, & Pickler, 2011). When recontextualizing the data the researcher checks for consistency between individual groupings of meaning units and the transcript as a whole. In addition, recontextualizing also includes the nomothetic analysis where the research looks for convergence amongst the meaning categories for all the participants (Sadala & Adorno, 2002). The convergence of the categories of meaning units constitute the structure or “essence” that are the essential components revealing the experience and meaning of the phenomena as described by the participants (Valle & Halling, 1989).

1. Reading each individual transcript several times and extracting “meaning units” from each interview independently (idiographic approach).
2. Group meaning units into categories with similar meanings and “tag” or give an title to the group of statements. (decontextualized)
3. Organize the categories into the invariant or common structures or “essences” (recontextualized).

4. Provide an interpretive description of the experience as a whole.
5. Share findings with each participant to check for accuracy of the researchers interpretations.
6. Compare the results with the extant literature to develop a broader interpretation.

MEMBER CHECKING

According to Cote and colleges (1993), there is no one true way to analyze qualitative data, and others state that interpretation is an unending process (Crist & Tanner, 2003). Many propose that it is up to the reader to judge the usefulness and quality of the research findings (Diekelmann & Ironside, 1989; Osborne, 1990; Vidich & Lyman, 2000). However, qualitative interpretations must reflect the meanings and experiences of the participants (Annells, 1996). Therefore the research must include the participants in the interpretation of the data. Participants in the present study were asked to review the final interpretation and confirm that the author's interpretation is consistent with their experience.

Member checking is a process that allows the participants to review the findings and express any concerns that they may have with the interpretations (Dale, 1996; Groenewald, 2004; Lincoln & Guba, 1985; Valle & Halling, 1989). Member checking is not an attempt to "triangulate) or substantiate the findings with extant theory or the researchers presuppositions (Thompson, Locander, & Pollio, 1989). Rather, the process is simply a means for establishing trustworthiness by insuring that the interpretations remain true to the voice of the participants. Data analysis for this study will maintain a phenomenological stance by attempting to use the participant's own words when

creating titles for meaning units and the essences (Pollio et al., 1993).

Pilot Study

To illustrate these methods, a qualitative study informed by both Interpretive and existential phenomenology was conducted to explore the meaning and experience of playing aggressive and conservative golf shots in professional competition.

Participants

Three participants were purposefully recruited from a group of professional golfers who had competitive experiences with both aggressive and conservative shots. The three participants have been playing sub-PGA professional golf for an average of 3.9 years. They each played on various, low-level mini-tours (Canadian, Hooters, and Adams). To maintain the anonymity of the players they have been given the following pseudonyms (Jack, Ben, and Byron).

Procedures

The study was approved by the University of Texas at Austin, Institutional Review Board for Research with Human Subjects. The participants were contacted by telephone to determine a convenient time and location for the interview. The interviews took place in an environment that was void of potential distractions. The interviewer clarified the purpose of the study and confirmed the participant's verbal consent. The interview was unstructured and began with the question, "Can you tell me about times in which you've taken an aggressive approach while playing competitively and describe your experience?" Follow up probes were used as needed as well as questions asking the participants to describe additional experiences with aggressive play. The duration of the interviews ranged from approximately 70-90 minutes.

Analysis

The interviews were audio taped and transcribed verbatim by the investigator. The data was analyzed following recommendations from Colaizzi, in which interpretive analysis included extracting meaning statements from the individual transcripts and arranging them into groups (Colaizzi, 1978). This method was chosen because it accommodates an idiographic approach that allows the data to speak for itself maintaining the connection between the interpretation and the participant's subjective experience. Although the grouping of the individual meaning statements demonstrates some convergence within the data they are not intended to represent a parsimonious theoretical model explaining the phenomena. Rather the groupings are intended to reveal the 'essences' or structures of the lived experience, in a manor consistent with phenomenology (Allen-Collinson, 2009).

According to Heideggarian phenomenology the researcher's background is an inexorable part of the hermeneutic circle (Kerry & Armour, 2000). Specifically, the researchers experience as a golf professional informed the analysis and therefore cannot be divorced or "bracketed" from the interpretive process. However, in an attempt to dampen any bias the researcher used the participant's own words to generate titles for each group of meaning statements. In addition, trustworthiness was established through member checking. Member checking is a process through which the researcher shares the interpretation of data with the participant, in which case the participant attests to the researcher's authenticity of interpretations and conclusions (Lincoln & Guba, 1985).

Results

To provide a clearer description of these individuals and to establish a reference point for their experience, the following are the player's self-descriptions of their

preferred style of play. As will be clear from their quotes, this sample represents a group of golfers who are thoughtful about tactical decisions in golf and a range of aggressiveness. As such, they provide an ideal opportunity to study decision making in golf. Throughout each of the interviews the players were asked on multiple occasions if they considered themselves to be an aggressive player, their responses were:

Jack: I don't play fully aggressive but I'd say...I'm closer to playing aggressive more consistently than I am conservative more consistently...I'm defiantly not... just all out all the time but...I definitely feel better about it when I am taking a few chances a round.

Ben: I would say I'm a situational player. I would say it's how I feel at the time – how the shot looks to me – it's just how I feel...I don't know if I would say I'm aggressive – I would just say that I'm not conservative. I'm not reckless – I'm definitely not too conservative though. I would say I'm a well balance mix of both.

Byron: I am probably very calculated. I'll play aggressive but I kinda pick the spots that I want to be aggressive...that's why when I set out this year my goal was to hit more aggressive shots cause I knew that I was a little more calculated than some guys.”

The players were also asked to describe the meaning of aggressive play, which resulted in the following quotes:

Jack: It means to be willing to... take a risk and... that will ultimately better your score and position in a golf tournament... for me its more fun and sometimes more rewarding to take a few chances here and there...

doesn't mean that your all out on every shot it just means that there are certain points in everybody's round where sometimes a risk is needed to be taken in order to potentially finish the best that you can...there's going to be plenty of times it doesn't work out but that's all part of the...the fun is you don't know.

Ben: Manning up. Just hitting the shots that you know you are capable of in the situations when you need them. That is what it means. It is not playing outside of your capabilities. You see a shot you know you are good at and you go for it. End of discussion.

Byron: It is one of those shots where you are a little out of your comfort zone cause you don't do that all the time, especially in tournaments... I'm going to have to take some chances and I recognize that's what my competition does and it's just what I have to do to compete.

These self-definitions and the expressed meanings of aggressive play clearly depict a shared belief that aggressive play is a necessary part of the game if a player wants to compete with and beat his or her opponents. In addition, the data is replete with statements, which connote that aggressive play means to "taking a chance" and that it is a "risky play" and that the decision is one with potentially negative consequences. However, although these players share a common belief regarding the utility of aggressive play, that belief is reinforced through different mechanisms for each and is expressed uniquely throughout the process as they assess the situation and ultimately make the commitment to attempt the shot.

For Jack, as many of his quotes will reveal, has a tendency to make the decision based on an impulse, a strong feeling that it's the right shot for the moment and that he

can “pull it off”. Ben’s decisions appear to be driven by a need to pursue the goal despite any fear and a determination to demonstrate that he can “do it better” than his fellow competitor. Ben has also developed a belief that, over the long run, his scoring average will be better if he chooses to “go right at it” when he feels right or the situation falls within a predetermined decision rule. Lastly, Byron as he stated, is more calculated, utilizing more decision rules but with an understanding that although playing aggressive may be “out of my comfort zone” if he trusts his technique and mental process its worth the risk.

From a philosophical perspective it is important that the analysis maintains the individuality of each player while integrating the data into a collective description of the phenomena presented. Going forward the paper will present the data as it unfolded through the iterative process of reading the individual transcripts and extracting meaning statements to identify the “essences” that make up the participant’s experience of strategic decision-making.

The initial analysis resulted in the identification of thirty-two categories of meaning statements for which most were given titles that were actual statements from the participants. Upon further examination of the meaning statements and the transcripts as a whole, it became evident that experience of aggressive play involved a decisional process. Specifically, what emerged from the participant’s descriptions was a decisional process consisting of five interrelated components (assessment, affect, conservative alternative, competitive environment, and commitment). The following will provide a brief description of the components within the process. In the interest of keeping true to the voice of the players and phenomenological research, numerous quotes will be provided. The interview data themselves provides thick description of the experiences revealing

the essential truths of the phenomena as lived by the participants. As such, the presentation of the data is done in a manner that allows for the reader to adopt meanings and significance through their own exploratory analysis (Bain, 1995, Van Manen, 1997).

Assessment

The decision to play aggressive begins with an assessment of the situation. The assessment included categories of meaning statements titled: taking a risk, pre-round strategy, rules of engagement, weighing the options, and justified decision (see table 1). The assessment component characterizes aggressive play as an acknowledged risk. The decision to attempt an aggressive shot is sometimes made a priori, guided by a predetermined decision rule or an impromptu choice that is guided by a “feeling” or the decision has been justified through a series of rationalizations. Regardless, it is clear that the process includes an exploration of alternatives, which are gradually narrowed to the choice to attempt the aggressive shot. Therefore, in the end the thought or urge to go after the reward outweighs any potential risk. The following quotes support the interpretation that these decisions are made prior to the round.

Jack: Sometimes those chances are necessary to take if you want... to shoot that score you're going to need to shoot.

Ben: A lot of times it is before the round I'll be like I'm going after it today.

Byron: The mindset in the first round is, go as low as you can cause you know there are going to be one or two other guys who do that pretty much every time.

As can be seen by the player's statements the decision to play aggressive is a strategical decision employed in an attempt to achieve low scores. However, the

decisional process does not end before play begins. There is also deliberation within the moment, when a player is standing over a shot and the option to play aggressively moves from a general, pre-match goal to an in the moment decision. This time however, the players must contend with the thoughts of potential negative outcomes.

Jack: You definitely have to weigh...obviously you know what the positives are that's why you came up with it... but then you also have to weigh... the negatives you don't dwell on the negatives but you have to know what can happen if it doesn't work out.

Ben: You are evaluating all the situations, all the places you could hit without vividly picturing them, hopefully.

Byron: You can't... if you miss the green right it kicks down into the rocks and it's marked hazard... if you miss the green to the left its trees so you know there, it's a "better hit it straight" situation.

Interestingly both Jack and Ben describe a process of shifting attention between alternative outcomes, however both acknowledge that they don't want to focus on the negatives too intently. Byron relies on visualization to control his focus in the "better hit it straight" situation.

All three players also talked about having some form of decision rule, which influenced their decision to play an aggressive shot. **Jack stated:**

I'll say... can I pull this shot off seven out of ten times, if I can pull this shot of seven out of ten times then it's probably worth the risk depending upon what that risk is, it's different in every situation.

In contrast, Ben's rule included a limited acceptable amount of risk rather than a perception of his ability. **Ben stated:**

I pretty much will go for something if the penalty for a miss is not more than a shot. If there is out of bounds – if it is a par 5 and it's out of bounds – like ten feet left of the premium spot, then I'm not going to aim at the premium spot because it is not worth the risk. If I miss by 10 yards and I have hit it out of bounds, that is no good. But if it's some rough or a red hazard or something like that and I can make eagle if I go for it, or if I miss I will have an easy up and down or something like that I'll go for it.

Finally, Byron's rules were governed by the particular club required for the shot or by his standing in the tournament. **Byron stated**, "For the most part there are kind of certain given situations... wedge, 9, or 8 iron pretty much every time go at the pin regardless of the score even if I'm shooting you know 63."

Although each of these players state that they have a set rule that guides their decisions, the rules are not followed dogmatically. These players find alternative means to justify taking an aggressive approach. Whether it is by deeming the situation to call for an aggressive shot, or by reducing the amount of perceived risk through rationalizing, they find a way to reinforce the behavior. For example, each of them stated:

Jack: I need some birdies I need to advance my position in this tournament.

Ben: Just realizing when I would go after those shots, you know how small I actually missed by if I do miss... it made me feel like alright... if I'm off, okay I'll miss but worst case you know I'll have a chip or like a 25 footer where as, before when I would aim away from the flags... my good shot would be to 20 feet and I would hit it right at where I was looking. And I was like, that is terrible, you shot a lot of 71's doing that.

Byron: I'm one or two shots better in the tournament [playing conservative] but I shoot 75, is that really what I wanted to do? No... it's just how you have to play [aggressive] if you want to...

The assessment component is also driven by the following three components, affect, competitive environment, and conservative alternative, which all appear to further reinforce the decision to play aggressively.

Affect

The affect component includes the categories of meaning statements titled: amazing feeling, momentum, every thing's clicking, and regret (see table 2). Choosing to attempt an aggressive shot and then executing the shot successfully is an exhilarating experience which is captured in the following quotes:

Jack: What can you say it feels great...when your standing there and you envision your shot and you know it's a risky play and but you trust your ability you go to execute and you successfully execute and it turns out for the best.

Ben: It was so good I was so pleased with myself for pulling that shot off. I just I mean, I couldn't have been happier with the way that shot came off.

Byron: It is a little bit of a rush cause you know there is risk there and it is a recognized risk and when you pull it off it's a great feeling... it's a little bit of a momentum changer just like in any sport there is momentum in golf too.

As stated by Byron, the experience of success can build momentum. This momentum or the resultant positive affect can further reinforce the player's decision to continue on with

an aggressive strategy. For **Jack**, positive experiences from earlier in the round (i.e. hitting good shots or achieving low scores) which he described as “every thing was clicking that day”, creates an impulse to play aggressively:

When things are going well I definitely get that impulse... you know sometimes surge of confidence to go ahead and try things that I might not other wise try if say the round wasn't going for the best... I don't necessarily think it's an aggressive play while it's happening it just seems like the right play.

However, the urge to play aggressive may not be limited to positive affect, it appears that negative affective responses may also reinforce aggressive decisions. For Ben experiencing an undesirable outcome while making the choice to play a more conservative shot can lead him to play more aggressively. **Ben stated:**

I get pissed off, and pissed off for me is good. You kind of let go of all the fear and you're like all right this is what I'm going to do....you get more resolute with all of your decisions...I've had tournaments where I'll hit a conservative shot into a bad spot and end up making a bad score, and that will actually fuel me to make more sound, more aggressive, more resolute decisions, and I'll actually play the rest of the tournament better because of that one shot that I didn't hit the way I wanted to, and I didn't get the results that I wanted to. That will actually give me more resolve.

Although Ben describes a situation in which he attempted a conservative shot and had a bad outcome, there is a consensus among all three players that playing conservatively is a less than optimal alternative. In fact, each of them appears to hold a negative view of

conservative play. This view may further reinforce decisions to play aggressive, which is why attitudes towards conservative play are a component of the decisional process.

Conservative Alternative

The component conservative alternative includes the categories: regret, taking foot of the pedal, less than optimum, avoiding disaster, and rules for conservative (see table 3).

The following quotes are answers to specific questions regarding how the players would feel if they played completely conservative.

Jack: If I shot the same score I shoot 72 just trying to hit the fairway hitting my three wood and two irons...and making a bunch of pars and I shoot 72 with three birdies and an eagle and five bogies and... I would have more fun and it would be more exciting to me (laugh) to have it the latter way.

Ben: To never go for it, I've played rounds like that and It just sucks, I can't take it, I've given myself no chance to have a good upside and little chance to have a bad round but what are you trying to prove, that you can finish 50th?

Byron: The experience...if you don't shoot a low score, say you turn in a 72. You immediately go back to those situations and you think, I had wedge in my hand and I hit it right where I wanted to and I had 15 feet and missed the putt. Why don't I go right at the pin and hit it where I want to and I have a four footer? Now, instead of 72 I could shoot 68.

The experiences described by all three players indicate that conservative play is less enjoyable, provides little upside, and can lead to feelings of regret, which is further demonstrated by the following:

Jack: I can...maybe I actually take the foot of the pedal too much play too conservatively and end up end up regretting it.

Ben: It pisses me off...playing a conservative shot and then getting in trouble...I would much rather make bogie going for the green, I feel better about myself.

Feelings of regret are associated with the understanding that playing conservatively significantly limits one's opportunity for obtaining the very rewards they are seeking. Conservative play is also associated with the negative mindsets such as, avoiding disasters, taking a step backwards, or an overall a lack of confidence.

Jack: Everything was going well I didn't want to take a step backward.

Ben: If I missed...o well my other option was to lay up...that option is not as heavily weighted towards the good as going for it, so anyway... I went for it.

Byron: The only way you're going to do that [play conservative] is if you're just not feeling that good about your swing...so you're more worried about avoiding the trouble then going for the birdies if you're feeling good about your swing you're going for the birdies.

Although each of these players describe conservative play as an overall negative experience each of these players do agree that it is an appropriate strategy at times. However it's utility was limited, thus a conservative approach should be regulated to extremely tough conditions. For example, extremely fast greens, tall rough, in strong wind conditions or when their execution had been poor. In addition, their rules for playing conservatively were governed by an avoidance mentality, such that they were consciously attempting to prevent any possible negative outcomes.

Jack: Sometimes it's necessary to not take too many chances but most of the time it's under really tough conditions...those are the times when its okay to play conservative and get it on the green and not shoot yourself in the foot and let everybody else shoot themselves in the foot by taking chances when the conditions are tough.

Ben: Unless you have got a 5 shot lead going in the back 9 of the tournament, and it is like okay I just got to maintain my heartbeat here.

Byron: I have a 6 shot lead...that might be a situation where you see better players playing a little more conservative...one debate is a lot of people like to see those guys keep the same mindset and still stay aggressive... but it's just like in any sport...with the prevent defense...where sometimes you might see some people get conservative.

Competitive Environment

The fourth component of the experience of aggressive play is the competitive environment, which includes the categories, guys are good, trying to win, and the situation is right (see table 4). These external or environmental determinants also play an instrumental role in the assessment and ultimately the decision to play aggressively. Specifically, the perception that their competition is good and that in order to compete they may have to take some of the same chances that their fellow competitors are taking and "pull them off" if they want to win.

Jack: At the end of the week... unless the wind is just blowing 45 (mph) everyday and you're playing on US Open greens, the winner of the

tournament is going to be someone that's taking some chances...there's really not a whole lot of disputing that.

Ben: You know guys are good, you have got to be good too...I'm trying to beat everybody. I'm not trying not to lose.

Byron: You know that there are guys passing you and doing better than you, so you know you need to do something to make a couple of birdies or start shooting a lower score.

Quotes within this component reveal a strong desire to win, which means doing better than the competition. Thus, perceptions of the capabilities of their opponents are clearly impacting their decisions to play aggressively. Common situations promoting aggressive play were, early in the tournament, being a few shots back from the lead, or just standing over a shot that set up well to them, compelling them to go for something great.

Commitment

The final component, commitment, is also the final stage of the process where the players affirm their decision and go forward with executing the shot. Commitment includes the categories: confidence, getting comfortable, zoning in, not worrying about trouble, going for it, swinging aggressively and disasters can happen (see table 5). The categories getting comfortable, zoning in and not worrying about trouble describe processes that include a narrowing of focus, visualization, and shifting attention towards the intended goal.

Jack: I go through more of a process of how I commit to my shot...not just me but I think everybody probable zones in a little bit more on those kinds of shots. Without worrying about the negatives I got up and executed the swing the way I needed to.

Ben: I literally told myself over the shot no! I am going after this thing. It feels aggressive...and sometimes you feel like you shouldn't be doing something that you are doing, but if you can come to grips with that before you take the club back and say okay this is what I'm doing, it is easier to make a free swing.

Byron: I commit to, okay this is what you're gonna do, this is what you've committed to do, so now try and get a good visual, visualize it, set up to it and go through your normal routine and then just make the aggressive swing. My focus is a little sharper...I feel like I'm in my shot a little bit more because it needs a little more attention you know.

Lastly, a large part of the commitment process is found within the category disasters can happen. Disasters can happen demonstrates the player's acceptance of negative consequences. It is an understanding that the choice brings potential negative consequences into play, but they accept those consequences for the possibility that they can achieve the reward of a great shot.

Jack: In order to go through with it... with that plan you have to be able to accept what could possibly happen if it doesn't happen to work out for the best. And if you feel like you can accept it and you're willing to take that chance then you'll end up going for it.

Ben: Before I hit an aggressive shot, I have already accepted any outcome that could happen. When I'm weighting the options, and I'm like okay you know, if I want to win this golf tournament do I need to go for this? Do I need to be aiming right at this thing? If the answer is yes and

you need to pull off a good shot, then that gives me all the acceptance that I need whether I hit the shot well or not.

Byron: You recognize for a split second that yeah it's a risky shot, there is the potential for this...and you don't want that outcome to happen but if it does, it was just cause you made a bad swing and that's okay.

The results of this study, brought to light several factors that are a part of the experiences of aggressive and conservative golf and identified factors that may be influencing a golfers decision to employ these specific strategies. However, the results are limited due to the homogenous nature of the sample (e.g., same level of competition, same years experience). An additional limitation is related to the narrow focus on aggressive and conservative shots. As such, the present study will overcome these limitations by recruiting a more diverse sample and by asking a broader question regarding the experience of strategic decision-making in competitive golf.

CHAPTER 4

Results

OVERVIEW

Consistent with interpretive phenomenological methods, specifically those informed by Heideggerian philosophy, the results begin with a summary analysis of each of the eight participants. This idiographic approach, labeled “The Golfers,” allows for a greater understanding of the individual’s lived experiences of strategic decision-making. Following the summaries is the nomothetic analysis, which reveals the convergence of the experience across most golfers. This is labeled “Common Components.” Lastly, additional components that were not integral components to the experience of decision-making, but add to the understanding will be discussed. This section is labeled “Additional Findings.” To maintain anonymity the participants will be referred as golfer one (G1), golfer two (G2), golfer three (G3) and so on.

Section One

The Golfers

Golfer one (G1) is a division one collegiate golfer who at the time of the interview was competing in his final year as an amateur. When asked how he defined himself as a golfer he replied:

I think my image of myself has changed since I was a junior golfer since I was a freshman here until now, and I certainly think that it is very important, how a golfer views him or herself as a golfer and how that effects how they play. At least for me it has made a significant difference, you know just like playing in Hawaii in that round I didn't define myself as the number one golfer on the...team in my first tournament.

In a follow up question he was asked to describe how his definition of himself as a golfer impacted his experience of decision-making. He described his self-concept as significantly affecting the strategy he chose. If he was defining himself as a great player he would attempt a much more difficult shot, whereas if he did not he felt more uncertain and chose to play a much more comfortable shot. His comfort level was the primary component of his experience with strategic decision-making. In essence, the strategy that he chose for a given situation was the strategy that brought about the most comfort.

G1: I think the decision making process goes back to trying to make it the most simple and the most confident so that you can take out some of that anxiety and feel as comfortable as I can in the situation.

This golfer used a number of different strategies or “mind games” as he called them, to get comfortable with a decision. This included: breathing strategies, visualization, cognitive reframing of the task, focusing, and specific goals to facilitate the process. In one of the experiences that he shared he described a time in which he set a specific goal for birdying the last four holes of a tournament. This goal reduced the number of strategic options, which not only lessened the cognitive demand but also provided him with a sense of confidence and a narrowed focus.

G1: I remember those shots very clearly because, I feel like there was only that set of options really. When it came down to actually hitting the shot, I certainly could hit lots of things and I was concerned of doing lots of things but when it came down to go ahead and doing it, it was almost a fact of, here is what I want to do and that is just what I'm going to do. It wasn't a well maybe I will screw up or I don't know how I'm going to hit this or how I'm actually going to do that. It was okay, I need to make birdie and the first step is to hit a great drive and you just sort of get lost in hitting that shot if that makes any sense. It is a, to me it is a real focus of the moment at hand.

In this experience he used what he defined as a “heightened sense of a goal,” which put him in a “doing state,” enabling him to focus and be comfortable in an environment where he felt pressure to perform well for his team.

Golfer two (G2) is an assistant coach for a division one collegiate golf team who has competed at both the collegiate and professional levels and had recently competed in the 2011 U.S Open section qualifier. When asked how he defined himself as a golfer he replied:

Analytical I guess, I'm an analytical person I think. Analytical. I'm not saying that's a good thing or a bad thing, that is, I'm constantly thinking what is the best way to play this hole? Okay, I'd say that I know exactly what my strengths are and more importantly I know exactly what my weaknesses are. I don't hit it a long ways so I'm never going to try and dominate a golf course and I'm never going to try and get to par 5's that I can't get to. So I'm going to play to my strengths which is generally my wedge game and the only other thing that I have I mean my wedge game and if I putt well that's a strength. Usually I can putt it better than most guys usually, now if that's not, in addition to that the other one thing, that I feel like can help me compete against guys that hit it a long was, is to not make mistakes. Not make foolish mistakes, mistakes that should never happen I can't make um I don't want to make them and that you know if I wedge it good and I putt it good and I'm really efficient and I don't make the dumb mistake that some guys make then I am able to compete with the longest hitters.

As is apparent within the quote, G2's experience of strategic decision-making is strongly influenced by a desire to prevent negative outcomes. In addition, his experience is influenced by his beliefs about how a hole should be played based upon the design of the hole and the odds for making certain scores given the design.

But I just thought I have to hit driver here to play this hole. If I hit a good drive there I'm probably going to make par. If I hit a good drive with 3 wood maybe I make par but more than likely I thought I was going to make bogey. So that right there kinda tells you where I am in my head when I'm making decisions. It's really about the hole. And it's not always just, it's really about the hole, what am I playing for here what am I really trying to make on this hole and what am I trying to not make kind of all at the same time. In other words, I was playing for four on that hole with a very outside chance for a three knowing that I could make five but if I hit three wood that is almost like three is out of the question four is a maybe and 5 is probable.

G2's concern for errors occurs under pressure in competition. This is in contrast to how he plays when just playing a fun round with, "the boys." When G2 is playing golf for fun he has an approach focus and experiences less concern for avoiding mistakes.

G2: that's like playing with your buddies you know just going out and having fun playing with you buddies.... in those moments you're really not thinking about the out of bounds or the hazard you are really just thinking about where you want it to end up and you're, you don't care if it goes, I mean you care a little bit if it goes out of bounds or in the hazard but you are not totally distraught if it does.

Golfer three (G3) is also a collegiate golfer who at the time of the interview was the ranked in the top 5 of division one golf. G3 defined himself as:

I can answer that question. I got exactly what you are getting to. I define myself as a, a mechanical artistic realist, I guess that's, those three words come to mind. So I have a mechanical part, an artistic part, and a realistic part. The mechanical part is the theory of the golf swing the theory of putting all those mechanical thoughts that are taken care of usually off the golf course before I have played a round of golf. Then the artistic side is mainly those feelings those innate feelings that come to mind through playing for many years through experiencing different situations those really, they're not really mental functions they're more just internalized feelings that help you achieve a desired result and then the final part of being a realist that's my mental cognitive side of the odds we were talking about earlier. The feelings I have how comfortable I am with the shot the percentages of me making it that's the realist side.

G3's experience can be summarized by an effort to align his internal feelings with the strategy he is about to employ. His experiences are guided by a hierarchy of goals and feelings. The grand level goal is to hit the ball as close to the hole as possible. However, he knows that goal is improbable. As a result, he chooses a strategy that enables him to hit the ball as close to the hole as possible given the external factors (i.e. course features) and the internal feelings (i.e. adrenaline) that he is processing. He believes that those feelings are there to help a golfer and that by sorting through them he is able to find a comfortable strategy and execute it successfully. The following two quotes summarize his experience:

So on that main level I'm basically just aiming that toggle and I'm saying a perfect shot is right there that's perfect but then on that second level almost like a lower level, more internal level I'm saying what can I with these feelings with these factors that I have to contend with, what is the realistic result and that's something that is really hard to get over cause it's easy to, to know what the good shot is cause you have eyes you can see where the pin is, you can see

where the trouble is and that's fine, but when you go try and deal with those I don't want to say demons, because I'm a pretty clear minded player but those, those feelings that can often turn negative to deal with that is basically what's what I believe is the tough part about golf.

You have to analyze those feelings and you have to let those almost guide you I mean golf is an intensely emotional, not I mean emotional to some degree but feel artistic game you have to let those feelings, those feelings are almost there to guide you there not there to force you to hit a bad shot or to distract you from the moment they are there to help you and if you know how to use them and you know how to help them make decisions or let them help you make decisions its going to make your round better and it is going to make your overall performance better that is what I believe.

G3 also talks about how his experience using odds to facilitate his decisions is not a cognitive representation of a number, such as 60 percent, but rather something he experiences as a general feeling that he has acquired through his years of experience.

No, it's more a feeling I have come to know it as a feeling...I know my wedge from 80 yards 85 yards I know I can get it up and down if you had to get me to quantify it I may quantify it at 65, 70 percent of the time I'll up and down that but that maybe that may not be accurate but that's what I feel.

Golfer four (G4) has been competing at the professional level for 12 years, including several years on both the PGA Tour and the Nationwide Tour. He defines himself as:

As much as I'd like to say I think I'm a world champion golfer; I haven't felt that lately cause I've not garnered any kind of result that would yield that right now and I've recognized that my belief in my ability to compete is low because of this preoccupation with mechanics - paralysis by analysis - and I would say that the decisions fit in with that identity a lot of my decisions are, fear based mode they are in and effort to not screw up and they are in an effort to not hit certain bad shots rather than solely focused and determined to hit good shots with confidence and determination. It's been amazing to experience what it is like to, to be clouded and confused by just doubt of mechanics of what you are doing.

G4's experience can be summarized as an internal battle to do the "right thing" as well as a self-described, "need to control the outcome." Much like G2, his strategic decisions are guided by a belief that the set-up of the hole largely dictates the correct

strategy to be played. Later this will be described as the “Textbook” or “Smart” strategical approach. Similarly this mindset has led to an experience of cognitive dissonance that impairs performance. G4 explains it as:

There is obviously a tension point there because it's like, sometimes the picture perfect shot doesn't jive with how I am feeling. So then there becomes a point where I have to assess which is bigger, is playing the right shot and going with it and committing to it knowing that I'm playing a fade you have got the whole left side of the green that's where its going to start...it's, its really there is a parallel there is a correlation to my belief in my proficiency at hitting the shot so if I feel like I can pull the shot off I totally go with the picture perfect shot almost every time because if I feel confident I know it makes more sense the fat side of the green, I always aim it at the fat side of the green that's simple that's in my head. The challenge I guess is my own, within the proficiency of pulling off certain shots at certain times I feel more confident at pulling off those particular shots whether they be the picture perfect shot or not, other times I don't and then when I don't it feels like...I feel some personal ineptness or inadequacy of not being prepared to hit that shot, that I should be able to hit all those shots and that's kind of my own obviously to the undermining of my own confidence but yeah it's just clutter I think it manifests itself with clutter unnecessary stress when I'm trying to make decisions.

Furthermore, G4 is similar to G2 in that they both like to pre-determine their decisions the night prior to competition by reviewing the layout of the golf course. This process significantly reduces the demands of the decision making process. These findings will be discussed in greater depth later in section two.

Golfer five (G5) has both division one collegiate experience as well as several years experience playing professionally on lower-level tours (i.e. Gateway Tour, Adams Tour). G5 defined himself as:

It's completely opposite, I consider myself one of best wedge players to ever play golf. I, I would, I think if I ever get to the PGA tour I'll be known as one of the best wedge players out there, instantly, I'm really cocky when it comes to that, but the way I play on a golf course doesn't, isn't indicative of that. My decision making is to that of, to not mess up, always constantly worrying, trying to prove myself out there as a good player, other than when I'm at (golf club) just playing around, I know I'm a good player. I can go out and execute and decision making is easy and I go out there and play golf and make a bunch of birdies and shot a good

round, but in a tournament, that guy isn't out there playing, it's a different guy. I mean at times its almost like I don't even feel like the same person.

Golfer five's experience of decision-making is indicative of someone who has added extra meaning to the game, such as trying to prove ones-self to others as well as a preoccupation with the penalty for hitting a shot into a hazard or out of bounds. As a result he too experienced decision-making through an avoidance-based approach that fueled fear and anxiety.

I mean you are thinking, water, water, water, water, water, water, you know I mean it's almost just like people would feel fear like if, they open the door and realize that someone might be in their house, its that, I mean, you're, I mean you can feel the blood flowing at that moment before you are about to hit that shot.

For G5 this experience was unique to competitive tournaments. During practice rounds or preparing on his home course he considered himself to be a very aggressive player with an approach goal orientation, attempting to make as many birdies as he could without worrying about potential penalties.

Golfer six (G6) is a division one collegiate golfer who has also competed in several PGA Tour events as an amateur. When asked how he defines himself as a golfer he responded:

I define myself as an aggressive player. I mean, I define myself as an aggressive player if that is what you are looking for. I define myself as a golfer kind of a, a straighter hitter with more emphasis on short game and putting but aggressive in my swings, aggressive in my strategy, when I step on the tee. A lot of people may say alright this is a hard hole lets, lets hit it down the middle hit it on the middle of the green and make par. Mine is how can I make birdie, that's a more aggressive strategy a more aggressive game plan going into the hole, but as a golfer you know I'm more aggressive and that's I think as opposed to (teammate.) There's multiple ways to get it in the hole, we find it our different ways but I, there are, I realize that there are factors that change how, how you play your game which is what we've been taking about moving towards more conservative play depending upon either the shot or the hole how the round is going but as a golfer in general I'm more of an aggressive confident player.

His experience is influenced by his confidence and by a very specific approach goal strategy in which he works to make a birdie on every hole. However, despite his ostensibly overly aggressive approach, he is flexible in the way he goes about trying to obtain that goal. As such, he utilizes both conservative and aggressive strategies to achieve his goals. In addition, he uses what he has learned from past experiences to prepare for similar situations, so that he is better equipped to channel his emotions in such a way that they improve his performance. This is demonstrated by the following two quotes:

I mean tensions just, tension just insecurity for many reasons for all the stuff going on in my head and kind of, when I channel it the right way when I'm positively nervous when I have adrenaline but I'm still calm about it when I'm smooth with it, that's when all that matters is my starting point and my ending point.

It was more like okay lets just go back to what happened, lets just go back to what you've learned from your last experience and it was going through my head. I was saying okay, this is what I did here this is the outcome this is what, whenever I have had success coming down the stretch these are the things I've done. And that's what I'm thinking about when I'm walking up to the tee box knowing what, knowing it's a drivable hole and I have a decision to make, you know there is out of bounds right and there is crap on the left but, I'm sitting there going, okay your success has come from doing what in this situation and how confident are you with your driver right now and since I had realized that going ahead and trusting my swing and not trying to make the golf course harder than it needs to be, plus I was kind of confident in my driver, it was kind of a no brainer.

Golfer six is also flexible in his approach. Although he too believes there is a "true shot" that should be played based on the set up of the hole, he is able to comfortably deviate from that and play a shot that makes him the most comfortable. As he explains, "It may not be what the hole set up for, but I'm cheating the hole, I'm doing it my way."

Golfer seven (G7) has been competing on professional tours for nine years include both the PGA and Nationwide Tours. His response to how he defined himself as a golfer was:

I define myself as a golfer as...my self image of myself is that I don't have any weaknesses and there is no shot that I can't pull off but I don't, I don't get caught up in ego or thinking I'm so good at driving the ball that it's going to make bad decision...on the golf course. I guess, I know that I can hit any shot out there and I'm, and at any time I can hit that shot but I'm not so caught up in that, that I try and do it like I also know that mentally I'm pretty strong out there and that's when I know, I know I can hit, I know when to hit the right shot.

His experience of decision-making was unique in that his experience was heavily influenced by the interaction with his caddy. As such, he described experiences in which his natural instincts were in conflict with the strategy that his caddy had prescribed.

I kind of like got out the, out of the rhythm of just playing shots you know like, cause if, if your caddy tells you, 10 feet right of this, the tree behind the green or whatever is a good target if you are going to work a draw in there. You commit to that shot, you pull a club and then you walk up and stand over the shot and all of a sudden the ground is telling you that, I want to hit this straight at the hole, like it feels better to just go straight at it and not hit it a draw and do all this, but whenever you, I've learned that whenever I seek that confirmation from my caddy it doesn't let me hit the shot that is natural to me.

He also describes himself as an aggressive player who prefers to take a more direct route to the hole, leaving a much shorter putt for birdie. In fact, this desire may exist at such a deep level that his performance is guided by goals that are counter to his conscious intentions. He describes a process in which he instinctually hits the ball directly towards the hole despite intending to hit the ball away from the hole.

I think instincts are when you, you have like a left pin or something and you are trying to play a smart shot for the lie you have you are taking a conservative shot, target to the right of the hole but for some reason you hit the shot and instinctively you pull it and hit it right at the flag I mean you, I guess subconsciously you always know where the flags at and I think your instincts are what allow you to go ahead and pull it or push it at the flag because you know its going to be okay or I think instincts are what tell you to, hit a certain shot at a flag even though you're not aiming at it and you have got to trust those.

In addition, G7 describes how competitive pressure can alter his perceptions of the variables that are considered when contemplating strategy. For example, he describes how slight changes in temperature can suddenly become overwhelming - causing him to overestimate the influence it will have on the flight of the ball.

Golfer eight (G8) has been playing professional golf for twenty years including both the PGA and Nationwide Tours. He defines himself as:

As far as definition of myself I mean I'm a really good player, still not where I'd like to be but, I'm a good player a straight ball striker and my decision making comes from being a straight ball striker hitting the driver straight, you know (year), I hit 76 percent of my fairways and that was number one on tour so that's the way I play. I try to play to hit fairways, you know once I'm in the fairway I can hit it on the green and have a better chance of hitting it close so that's how it all kind of comes into play being as far as the definition goes.

G8's experience describes the evolution of himself as a player as well as the game of golf. For him, he felt as if his strategy has had to change with the game and how it has evolved over the years with the courses being designed more for the long hitters rather than for those who hit the ball short and straight. He shared that he used to play more aggressively but as he got older and "wiser" he began to play more conservatively.

Now a days I guess I'm a little older a little wiser, maybe I don't know if I am but I think I am it's just...taking some of those chances...being through many of the experiences that I have, you don't take as many chances. I think as you get older that if anything you almost get too cautious so but that type of thing I remember when I was...younger in college or first turned pro I tried a lot more shots you know the more aggressive shots I hit a lot more aggressive shots and as I've gotten older and I used to shoot a lot of big numbers make a lot of big numbers back then ah now that I have gotten older and look back on those experiences you, now I tend to play safe a little more and avoid the double bogies.

G8 also described decision-making as stressful especially under the pressure of competing in the PGA's tour qualifying school calling it a "do or die" situation in which you play not to make mistakes.

Section Two

Common Components

These eight golfers provide a vast range of experience and represent a broad spectrum of personal preferences for making strategic decisions in golf. Their descriptions demonstrate the complexity of the phenomena and the infinite contextual factors that are interwoven within the experience. Therefore the participants shared experiences from a variety of distinct contexts rather than from a single event that they had in common. That is, participants shared decisions from numerous golf experiences rather talking about a specific, common event like their first professional event, or the experience of making a hole in one. Although this makes it more difficult to derive commonalities, the present study revealed five common components that describe what's it's like to make strategic decisions in golf for these eight golfers. The five components are; **Strategies, The Swing, Flow-Like States, Disruptions-To-Flow, and Mind Games**, These five components constitute a dynamic process in which they are interacting and mutually influencing each other rather than working in an isolated or even a linear, causal relationship.

Extensive quotes will be shared to provide the reader with an in depth description of the experience of strategic decision-making. As such, the quotes often overlap with more than one component. Although specific parts of the quotes may extend beyond the specific component that they are used to support, they are left intact to demonstrate

the interactions of the components and the complexity of this process. This decision is consistent with phenomenology, which seeks to understand lived experience within these complex contexts.

The following tables represent the how each of the five components were coded. The first column represents the individual level categories of meaning and will be depicted throughout the text by bold print. The second column represents the group level meaning categories and the third column is the common component. Group level categories will be depicted by bold italicized print. In the individual meaning categories, the title of the category is listed first followed by all the golfers who shared that category. Individual level meaning categories will be depicted by italicized print. There are several group level meaning categories that share the same heading as the individual meaning categories because that heading best described the group experience. Lastly, "in vivo" coding is when you utilize the participant's language to label a category. This was used when possible, in an effort to stay true to the participant's voice, reflecting the experiences as lived and described by the individual.

Table 1: Strategies

| Individual Level Meaning Categories | Group Level Meaning Categories | Common Components |
|---|---------------------------------------|--------------------------|
| <i>Next Shot Plan G1 Made in The Moment G4 G6 G7 G8 Map G6</i> | <i>In The Moment</i> | |
| <i>Conservative G1 G6 G7 Play it Safe G3 G4 G5 G6 Less Reward G3 G4 G5 G7 Not Taking a Chance G8 Take My Medicine G4 G6 G8</i> | <i>Conservative</i> | Strategies |
| <i>Smart Play G1 G5 G6 G7 The Right Way G2 G3 G8 Textbook G4 G6 G8</i> | <i>Textbook</i> | |
| <i>The Miss G1 G2 G3 G5 G6 G7 Best Misses G4 Room For Error G8</i> | <i>The Miss</i> | |
| <i>Avoid Mistakes G5 G7 G4 Eliminate The Worst Outcome G2 Protect G6 Play Away G5 On Defense G1 G4 Guarding G8 Too Cautious</i> | <i>Prevent Defense</i> | |
| <i>Aggressive G1 G2 G3 G4 G6 G8 Free Wheeling G8 On Offense G4 Take a Chance G8 Risk G3 G4 G5 Risk Reward G2 G7</i> | <i>Aggressive</i> | |
| <i>Desired Outcome G1 Pursuing G2 G3 Want to Hit G5 G7 G8 Attack G4</i> | <i>In Pursuit</i> | |

Table 2: The Swing

| Individual Level Meaning Categories | Group Level Meaning Categories | Common Components |
|---|---------------------------------------|--------------------------|
| <i>Recent Play G1 G2 G3 G4 G6 G7 G8</i> | <i>Recent Play</i> | The Swing |
| <i>How You Feel G1 G3 G7 G8</i> | <i>How You Feel</i> | |
| <i>Act of Swing G1 G2 G3 G4 G6 G7 G8</i> <i>Aggressive Swing G2 G3 G6 G8</i> <i>Conservative Swing G3</i> | <i>Act of Swing</i> | |

Table 3: Flow Like States

| Individual Level Meaning Categories | Group Level Meaning Categories | Common Components |
|--|--|--------------------------|
| <i>Zone G1 G3 G5 G6 G7 G8</i> | <i>Zone</i> | Flow-Like States |
| <i>Quick G1 G2 G3 G4 G6 G7 G8</i> | <i>Quick</i> | |
| <i>Confident G1 G2 G3 G4 G6 G7 G8</i> | <i>Confident</i> | |
| <i>I Know G1 G2 G3 G4 G6 G7 G8</i> | <i>Feeling Certain</i> | |
| <i>Natural G3 G4 G7</i> <i>Easy G4 G7 G8</i> <i>Familiarity G2 G6 G7</i> <i>Clear G1 G2 G4</i> <i>Less Thinking G3 G8 G7</i> | <i>Natural & Effortless</i> | |

Table 4: Disruptions To Flow

| Individual Level Meaning Categories | Group Level Meaning Categories | Common Components |
|--|---------------------------------------|----------------------------|
| <i>Pressure G1 G2 G3 G4 G5 G6 G7</i> | Pressure | Disruptions To Flow |
| <i>Added Meaning G1 G5 G6 G7 Money G2 G5 G7 Taste of Victory G6 Something To Lose G2 G8 Looking Foolish G2 Impressions G1 Team Mates G1 Parents G5 Self Image G1 Spectators G5 Enormity G5 All the Work G5 Birdie Hole G3 Maintain A Lead G3 Do or Die G5 G8 Pro Tournament G5 Take Advantage G4 Responsibility G4</i> | Added Meaning | |
| <i>New G1 G6 G7 Unfamiliar G3</i> | New | |
| <i>G1 G5 G6 G7 G8</i> | Over Thinking | |
| <i>Consequences G1 G2 G5 G8 Hazards G3 G5 G6 G7 G8 Peripheral Crap G2</i> | Consequences | |
| <i>Adrenaline G1 G3 G5 G6 Heightened Sense of Awareness G3 G6 Excited G1 G6</i> | Adrenaline | |
| <i>Cognitive Dissonance G4 G7 Extra Factors G3 Wrong Thoughts G5 Negative Thoughts G8 Negative Images G2 G6 Swallow Pride G6</i> | Competing Thoughts | |
| <i>Doubt G1 G3 G4 G5 G6 G7 G8 Doesn't Jive G4 Lacking Confidence G2 G4</i> | Uncertainty | |
| <i>Uncomfortable G1 G2 G3 G4 G6 G7 G8 Helpless G2 Bad Memories G4 Sense of Urgency G4 Stress G7 G8 Frustrated G4 G7 Angry G6 G8 Fear G4 G5 G8 Insecurity G6 Nervous G5 G6 G8 Anxious G3 Worry G3 Tension G4 G6 G8</i> | Negative Affect | |
| <i>Clutter G1 Distracted G1 G3 G6 Poor Focus G3 G7 Pulled Away G4 Wandering Mind G5 No Clear Plan G1 Cloudy G1</i> | Disrupted Focus | |

Table 5: Mind Games

| Individual Level Meaning Categories | Group Level Meaning Categories | Common Components |
|--|---------------------------------------|--------------------------|
| <i>Comfortable G1 G3 G4 G6 G7 G8</i> | Getting Comfortable | Mind Games |
| <i>Align Thoughts and Feelings G3 Flush it Out G3 Mind Games G1 Get Focused G1 G2 G3 G6 G8 Throw Out the Past G6 Blank-Fight Off Nerves G6 Control Emotions G6 Come to Senses G6 Awareness G7 Helpful Feelings G3 G4 Hold Self Back G8 Mood G6 Fight Through Thoughts G8 Channel G6 Spin it G1</i> | Work Through | |
| <i>Self Deception G2 Bravado G3 Build A Façade G3 Convince G3 G7 Done This Before G1 G2 G6 G7</i> | Reassurance | |
| <i>Rules G1 G2 G4 G7 G8 Ignore Feelings G1 G3 G5 Pre-Programmed G8 Game Plan G2 G4 G6 G8 Dome G7 Simplify G1 G7 Limit Options G1 G4 G5 Forcing G1 G4 G7 Pushing Too Hard G6</i> | Reduce The Decision Load | |
| <i>Step Back G3 G5 G6 G7 Slow Down G1 G4 G5 G6</i> | Slow Down | |
| <i>Off Topic G1 G8 Disengage G1 Alleviate Pressure G2 G8 Take Self Out G3 Rushed G6 Escape G4 G5 Take Away the Fear G5 Get it Over With G3 G5</i> | Emotional Escape | |
| <i>Down Grade G1 G3 G6 G7 Welcome G7</i> | Down Grade Task | |
| <i>G1 G2 G3 G4 G5 G6 G7</i> | Visualize | |
| <i>Back Down G1 G2 G4 G6 G7 Adjust Standards G3 Aim Away-Little More Control G8 Easy Way Out G5</i> | Play It Safe | |
| <i>Calm G3 G6 Loose G8 Relax G1 Level Pulse G7</i> | Relax | |
| <i>G1 G4 G6 G7</i> | Forcing | |

STRATEGIES

The common component **Strategies** describes the culminating point of the experience, and thus represents the outcome or choice in that moment. The outcome in this case is the type of shot that the golfer chooses. The analysis reveals that these choices appear to be motivated by distinct goals related to achieving positive or circumventing negative outcomes. In addition, it appears that these goals may be deeply embedded within the golf culture.

Strategic choices in golf are comprised of several elements. The most basic elements are: what type of shot to play (e.g., high/low or draw/fade), how far to hit it, and what direction (e.g., straight at the hole, or slightly away from the hole). The type of shot that is chosen is typically defined on a continuum, which places aggressive shots at one-end and conservative shots at the other. Aggressive shots are higher in difficulty, take a more direct route to the hole, and include a higher element of risk. While this is designed to minimize the number of strikes needed to finish the hole, an error in execution is likely to lead to a significantly higher score on the hole. Conservative shots on the other hand, are typically played to minimize risk. Therefore when a golfer chooses a conservative shot, they typically aim away from the hole and or choose a shorter club enabling them to better control their accuracy.

The underlying goals associated with strategic decisions, were such that the golfers were either pursuing goals directed towards achieving desirable outcomes or they were attempting goals that were designed to prevent negative outcomes from occurring. For these eight golfers, aggressive shots were often associated with the more pursuing type goals, whereas conservative shots were often linked to preventing negative outcomes. Interestingly, conservative strategies appear to be guided by

fundamental principles that not only appear to be common knowledge among elite level golfers but might be considered “best practices” in golf strategy. These principles are described by the golfers as the “correct miss” and the “textbook” strategy for strategic decision-making in golf. These will be described in more detail within the derived group level meaning categories within this component, which were **In-The-Moment,**

Conservative, Textbook, The Miss, Prevent Defense, and Aggressive, In Pursuit.

These categories will be described in detail below.

In-The-Moment

In-the-Moment, briefly describes the golfers’ experiences of the present moment, in which they take into account both the internal and external factors of the decision.

Although a couple of the golfers (G2 and G4) shared that they like to make these decisions prior to the start of the competition, the context of the present moment seemingly won out. Thus, how they were feeling in the moment had the greatest impact on their choice. As such, most of the golfers describe making these decisions in the moment, when they are directly experiencing the feelings and situation at hand:

G1: I focus on the opportunity at that moment and that I have okay I have these certain options and I need to find what makes the most sense for this shot.

G3: Getting an initial goal a target, which is the hole to make it in that hole that’s my thought. From my thought, I’ll internalize all the outside effects: how I feel, the wind, my lie, what my clubs look like, what clubs I have, what’s affecting anything that is affecting me. Whether I have a right toe ache, anything. Internalize any of those feelings and come up with basically a diagnosis of those things to treat the shot the best way possible, the most economical way. If that economical way is straight at the pin, then make the shot like the giant picture that I have created.

G4: I just have to assess how I feel with that particular lie and my decision-making is based on how I feel that particular moment. Based on the probabilities of what I think in my head.

G6: On the golf course, while I’m on the golf course. Cause I’m seeing the different conditions that are, you know maybe the winds blowing on this hole and

it's not blowing on the other hole, that changed my strategy on maybe what club I'm going to hit of the tee to make birdie or where I'm going to put that, where I'm going to hit my drive. I think, you know obviously going into the round, I'm able to see how comfortable I am with my clubs after warming up but, I, I don't think you can make that kind of plan until you step on the tee box and you know how things, how you feel over the ball and ah and how the conditions are playing out on that hole.

G7: I think my strategy is just kind of formed on each hole on each shot based on like the comfort level if you just hit a bad drive on the first hole and you hit a bad drive on the 2nd hole that changes the strategy.

G8: I'm kind of a little more go with it, you know kind of step on the tee look at the pin sheet and, and go with it, then you know and make my decision right then.

Conservative

Conservative shots are less difficult shots, either because the player chooses to hit a shorter club, which is usually more accurate than the longer clubs and or there is little or no penalty for inaccuracy. These golfers often referred to conservative shots as the “safe” play or the “smart” shot.

G1: I certainly wasn't going to make birdie by being conservative on that hole and hitting an iron down the left side and giving myself a 4 iron or 5 iron in. I had to pound a driver down the tree line on the right and get it within wedge range so I would even have a chance.

G2: I just start pulling shorter golf clubs if the hole is normally a driver then I am hitting a 3 wood if the hole is normally a 3 wood then I am hitting hybrid if it's a hybrid then I am hitting 3 iron. And I do that because ah generally you have more confidence with a shorter golf club. So I'm trying to, I guess I'm really just trying to alleviate the pressure, a little bit, so I can make a decent golf swing.

G3: Should have acknowledge those feelings and been more conservative and aimed further left which was the shorter carry to the pin or to the green, shorter carry to get it on the green.

G4: I'm evaluating whether or not I am going to play it safe and take my medicine and chop it out or say to hell with it I'm going go for it.

G5: I would change my strategy for sure, again because I'm being conservative thinking about a bad result.

G6: Very conservative smart player and not only is it just with longer clubs because longer clubs you can't control as well with distance or accuracy but if

there's environmental factors, like maybe there is a mud ball or a little mud on it and you don't know it its going to do anything to it that's when you need to, that's when you need to swallow your pride and play the smart shot, that's when you say although the map was to birdie the hole that is when you say okay I got a bad break.

G7: That's what I would categorize as conservative you know if I have a 3-iron into a green obviously anywhere within 25 feet for me would be a good shot, I'm not going to take dead aim to a right pin with a 3-iron.

G8: Well it's just being you know just protecting is being too conservative. I mean or being conservative you know you just you are playing not to make mistakes and so you are not going to be aggressive you are not going to take those chances.

As indicated by the above quotes, conservative play is associated with playing “smart” and or “safe.” However, many of them felt that conservative strategies were less favorable options. Also, conservative strategies occurred the most when these golfers were experiencing poor play or feeling uncomfortable. Further support for this interpretation is found within several individual level meaning categories, such as, *Take My Medicine* and *Limited Reward*, which included statements like, “swallow my pride” and “you can do that [play conservatively] all day long and shoot even par and miss the cut.”

Textbook

This category demonstrates the pervasiveness of strategic philosophies that are primarily conservative, as they attempt to reduce the risk for incurring scores of bogey or double bogey. According to the golfers the “smart” or “textbook” way to play a shot into the green is to aim for the middle of the green and intentionally curve the ball in the direction of the hole. In this strategy, if they fail to execute the curve they remain in a safe position on the widest portion of the green – albeit further away from the hole.

G1: Under pressure the shot choice might end up being hitting, a take one more club and hit a cut from the center of the green to the flag. So now if I end up

missing it, I'm in the center of the green and I still have my chance of making my three.

G4: There is a sense of what is the proper way to play the shot and here I go on the negative again kind of, there is this sense that what is that quote in quote perfect way to play the hole - meaning if the pin is right of center a fade shot is kind of a picture perfect pretty way, ideally I would like to play it on paper. If the pin is left middle or left of center it's kind of like a draw. If it is a dog leg right it's shaping it with a fade. If it's a dog leg left it's drawing it.

G6: A smart shot is something that I don't necessarily like to hear. It's something that coach will tell me all the time. You know, why don't you just do this, why don't you just hit this shot? Well coach, because I feel like I can hit this shot, but he's like yeah but it's just not the smart play.

G7: Yeah, I mean, you got, I mean, you know how to conservative or you know the smart play on every hole is, you know, aim at the fat part of the green aim at the fat part of the fairway but you can do that all day long and shoot even par and miss the cut.

G8: The pin is tucked right on a green that might have a bunker on the right side you want to hit it to the center of the green and maybe just kind of fade it in their a little bit or just play it to the center so you are not taking a chance.

An integral belief comprising the textbook approach is that there is an optimal or “correct” area in which to miss a golf shot. These thoughts were expressed by several of the golfers and make up the group level category ***The-Miss***.

The Miss

Theoretically, the correct miss affords the golfers with a greater chance for saving par, should they hit an errant shot. As G4 put it, he assess, “what’s going to be my best misses,” when determining the type of shot he wants to play around the green. Identifying the miss is a common initial step in selecting a strategy for each hole. G2 describes how when he is determining his strategy he identifies where the best place to miss is:

G2: Like I'll give you an example, like number 3 the tee shot on number 3 at (DELETED) golf club that is a hard tee shot. You basically have out of bounds, trees, fairway trees, hazard - there are 5 things that can happen out there. You

want one, you want the fairway if you don't get it in the fairway the next best is left ruff. If you don't get it in the left rough you want it in the right rough. That's kinda slim cause it is on a side slope. You don't want it in the tree's on either side cause that's no good, so what's better? in the hazard left or out of bounds right? Id rather hit it in the hazard. I'm going hook that golf ball.

Thus, given the set-up of the hole, the correct miss is left and the golfer will “hook” the ball left rather than try to aim directly at the hole.

G3 and G6 both shared how understanding where the proper miss was for the shot they were about to play facilitated the decision. In addition, the following quotes also demonstrate how this process of being aware of the miss may be disruptive to performance.

G3: I took the decision there to hit a fade. So a shot left to right and obviously the miss for that shot was to the right so I programmed that into my head but because it was the final round and I was in the lead it was a really tight situation. I almost, I overemphasized what I had to do, I, I basically was so intense in the moment that I, favored that right side too much.

G6: I stepped behind it to visualize the shot, is when I said okay, you know your miss is going to be right here, you know lets go ahead and start if right and if you turn it a lot then it will be good and if it stays out there it will stay on the right side and ah you know, looking back obviously you can say, I should of done this should have done that but I think that you know.

However, the miss is not entirely disruptive. Golfers can use it to create a sense of comfort knowing that they don't have to execute the shot to perfection. As G1 and G3 stated:

G1: Just take something right at the middle of the green that I can be comfortable with and know that shit if I pull it five yards I'm still on the green and in that case it gives me a wider margin of error and allows me to find something to go ahead and pull the trigger on.

G3: I stood up there knowing that I had the safety of about a 20 yard miss to the right, on the green and the perfect club was a hybrid there, so a similar distance to the previous example, but it was different club, so I had, I had the hybrid in my hands, what I was thinking there was, I was trying to feel, I felt comfortable with missing it right because I had so much green I was okay with a shot that missed to the right even if it was 20 yards.

G7 also relied on the miss in reducing the need for perfect execution; however, he again believed that he could instinctively guide his swing to produce the miss if he felt something was amiss with his swing. He states:

G7: I know where my miss is, if this swing doesn't feel absolutely perfect I know if it's a left pin and you know you can kind of just flinch it at the end and hit it to the middle of the green if you don't feel perfectly comfortable over it. But I think, I think playing, by playing at targets that aren't the aggressive target I, like it works the opposite you try and make a bad swing to push it right at your target or flip it to get it to hook more at your target.

In golf, this act of flinching to hit the ball to the “miss” area is also referred to as the “bailout,” which is an intentional disruption to the swing - “flinch it” - to prevent a shot from landing in a penalizing area of the course. As such, golf strategy is typically designed to avoid penalty areas. Avoiding penalty areas or parts of the course that make it more difficult to achieve par is a major motivating goal that appears to be underlying these decisions.

Prevent Defense

As implied by the label of this category, the goals that constitute the **Prevent Defense** are designed to prevent the golfer from experiencing negative outcomes. An example of this type of goal in golf would be to avoid hitting a ball into a hazard, which would lead to a penalty stroke. This is the case for G2, as indicated by his description of his thought process, which began with a negative goal:

G2: I want to hit the green in regulation that is my goal. That's not where I start my thought process. My thought process is okay, I don't want to hit it in the water. Next is where can I get it up and down for 3 and then my last is, what do I want to do, where do I want the ball to end up on the green.

Another golfer, G7, - after stating his thoughts on how the strategy was designed to avoid consequences - questioned that line of thinking:

G7: I mean your strategy is just, to me strategy is just like how far can I hit it off this tee or strategy I guess is consequence. I mean you build a strategy to keep you away from if I hit it here I'm going to be in trouble or if I hit it over this green I'm going to be, like those, like strategy is in your yardage book looking at where the trouble is and then and then you play instinctively to play away from that I guess. I mean you build a strategy on where to not hit it, does that sound right? That sounds kind of backwards.

Interestingly, this kind of tension seems common among several of the golfers.

Additional comments included:

G5: I have a different game plan especially at the beginning of tournament rounds then I do just going out and playing. The overall strategy, I'm almost trying not to mess up, don't screw this up.

G6: So I knew that all I had to do was go one over on my last three, and that was the problem, is that I told myself you can go one over on the last three, instead of, instead of taking a deep breath and saying why don't you just go three under on the last three? Why don't you plan these holes out to make birdie instead of avoiding bogey and that was something that, normally I'm very good at, is telling myself, okay stick to your game plan and pick out a strategy to birdie this hole.

G8: It's being you know playing protective, playing, that way is you almost get, it seems to me if you are protecting you are almost adding a little extra tension to yourself you know a little extra tenseness to the moment and whereas you're aggressive it's a little more free-wheeling type of thing...it's a so that's what it seems like to me. Yeah, if you are being aggressive its a little more just free wheel it go with it you know go right at it. Yeah when you are being protective you are aiming away you know from the trouble or away from the pin so you can just take your two putt and go on.

In the last quote G8 points out the contrast in goals between the protective nature of conservative strategies and striving nature of aggressive strategies. As he described, there is more tension associated with the preventative strategy than with the strategy that is motivated by attaining positive outcomes.

Aggressive

Aggressive strategies are those in which a player takes a more direct aim at a flag or attempts to maximize the distance of a tee shot despite there being less margin for error. These shots are typically considered high-risk, high-reward type shots in which

the player is “taking a chance” or “going for it”, which connotes risk but also striving to obtain a desired goal. Examples of these descriptions follow:

G1: Need to be aggressive here and get after it because if I try and back off a little bit I think I'm going to let my nerves get the best of me and then I'm not going to hit my best shot. If I go ahead and just be aggressive I'm going to end up being in a more comfortable state of getting after it so in that situation I was going to get it.

G2: If I am pursuing something, if I'm trying to make birdies then I make better golf swings. I don't know why that is more aggressive, less inhibitive, if I am protecting or I have something to lose I start making bad golf swings.

G3: I actually for that shot I was actually really aggressive. I mean, there was a bunch of green left that I could have worked with there was wind coming down and out of the right so I could have realistically chosen to hit the complete safe shot 20 yards left of the pin but I figured if I hit this club relatively well it's going to get up there and I will have a realistic chance at birdie so I'm not going to shy away, it's almost like a bravado thing.

G4: Knowing double, yeah, it's very similar to making a risky decision knowing bogey is in play on a par 5, going for it. I mean it's just like okay, you got to hit the shot so ultimately you have to belly up to the bar and concentrate on where you are trying to hit it.

G5: If you make a snap decision you are always going to play more aggressive because, because I'm aggressive first. I think on the golf course, like I'll always take a riskier shot, if I think I can pull it off, than the safe shot for the most part.

G6: For me I'm more of an aggressive type and I thrive on playing aggressively, really aggressive swings with a smart thought process.

G7: You have to know when it is okay or you have to be able to feel when it's okay to take those chances and take those a little bit more aggressive plays to make those birdies you know, cause you don't, you have to, to win golf tournaments.

G8: Aggressive... it's and it's almost like there is a little more confidence there, I would say, I mean just looking back on it and thinking about it. I mean if you are being aggressive you are feeling more confident with yourself and with the shot and you know you can pull it off.

Given these golfers' descriptions it is clear that aggressive and conservative strategies are motivated by different goals. Aggressive strategies seem to be associated with positive goal strivings, whereas conservative strategies appear to be linked to goals

in which the golfer is trying to prevent a negative outcome. Further support of this premise is provide within the group level meaning category ***In-Pursuit***.

In Pursuit

The meaning category ***In-Pursuit*** depicts positive goal strivings in which behaviors are guided toward achieving a desirable outcome. For example, in golf when a golfer sets a positive goal to hit a shot to a specific target in the fairway or onto a green, he is striving to achieve a desired outcome. Further contrast between the goals associated with the categories ***Prevent-Defense*** and ***In-Pursuit*** can be seen in G2's description:

G2: It is different, well if you are pursuing you can make a decision to make a relatively aggressive play if you are protecting you are going to have the tendency to make a play that falls under the umbrella of just don't screw this shot up and when you swing the club and that is kind of your thought don't do the worst thing you can possibly do here, guess what you might do, the worst possible thing you can do here. So yeah it definitely affects it. It affects your decision-making.

Similarly, G1 also describes his experience as pursuing or going after a desired outcome, which in this case was to make birdie on the hole. He stated, "If I go ahead and just be aggressive I'm going to end up being in a more comfortable state of getting after it so in that situation I was going to get it."

However, positive goals are not limited to aggressive strategies, as G4 and G6 both described experiences where they could be playing more conservative but still setting goals in which they are focused on achieving a desired result. For G4, he described it as an attacking strategy:

G4: It's an aggressive get the ball close to the hole. It's a inside 150 shot you are just putting the ball in play off the tee, inside 150 and then attacking with the iron. Getting the ball up and in and on par 5 reaching it in two particularly if there's trouble around, attack it by being conservatively attacking it. There is a lot of different ways, Zack Johnson was very aggressive at the masters, he laid up on

every par 5 and he got great with his wedges but he attacked with his wedges. Doesn't always mean you need to be heroic going for it all the times aggressive you can be, you know there are a lot of ways to be aggressive, but its really having offense is aggressive.

The above quote, suggests that interaction may exist between the shot strategy and the motivating goal. It also demonstrates that the meaning of aggressive and conservative is very broad and idiosyncratic, where one golfer may choose a conservative strategy while maintaining the belief that he or she is playing aggressively with positive goals. G6 also supports this point with his description of setting an aggressive goal to make birdie on each hole, but doing so by following a more conservative strategy.

G6: You're going to plan each hole to make a birdie but you're going to plan it to make a conservative birdie and then on those three holes you know, you are just going to play them out the text book way and you are going to make a birdie and that way, I took my mind off of where the scores were and I was able to shoot, whatever 2 under on the back nine or something.

For G7, striving for the desired outcome may be so deeply imbedded that it may actually guide his shots to go more directly at the hole despite his intentions to hit a shot away from the hole. The following two quotes show his preferences for taking a more direct route to the hole and also his belief that goal sometimes acts on its own:

G7: If I am standing in the middle of the fairway and I feel 100 percent confident, I want to make it, you know. I want to make a two and go to the next hole. I don't want to hit a perfect shot or the exact shot I picture in my mind to 20 feet right and have to take another chance at it.

G7: I think instincts are when you, you have like a left pin or something and you are trying to play a smart shot for the lie you have, you are taking a conservative shot, target to the right of the hole but for some reason you hit the shot and instinctively you pull it and hit it right at the flag.

The above quotes appear to demonstrate the conflict that golfers sometimes incur when contemplating a decision. This conflict, which appears to stem from their desire to

essentially fulfill two goals simultaneously. One goal, to get the ball in the hole in as few of strokes possible and a second to avoid any or all potential threats to achieving that goal.

In sum, the common component Strategies appears to contrast two distinct strategic approaches, aggressive and conservative. Aggressive strategies, which are strategies that implement a more direct route to the goal and conservative strategies which attempt to insure the avoidance of scores above par. The relationship between these two strategies closely resembles the relationship between approach and avoidant goals, where aggressive strategies appear to be guided by approach goals and conservative strategies by avoidant goals. However, this is not a true dichotomy as the golfers expressed conservative strategies that can be executed aggressively with approach like goals. In addition, this component suggests that a universal set of assumptions may exist within golf, in which there is an optimal or “textbook” strategy for playing the game that is structured around a “correct” miss. According to G3, you are only as good as your misses, “they say that golf is a game of misses if your miss is a really good one at 10 feet from 170 yards you are going to be better than 99 percent of the worlds golfers.”

As such, golfers strategic choices are often predicated by their estimations of accuracy. How likely am I to hit this shot accurately enough so that I can achieve a desired outcome? The answer often changes moment to moment and is often based on the golfers performances prior to the decision and their present moment feelings. These feelings assimilate to form a general level of comfort or confidence in their ability to successfully execute the golf swing required for the chosen strategy. This experience is detailed in the common component ***The Swing***.

THE SWING

The golf swing is inarguably the central determinant of all golf performance. As the golfer's swing goes, so to goes his performance. This, in turn, affects his next set of decisions. This was made very clear as the golfers described their experiences.

Throughout each of the eight interviews the golfers frequently discussed how previous levels of play, feelings about their ability to swing the club, and the affects that the experience of decision-making in the moment had on their ability to swing effectively.

Therefore the meaning categories that comprise this component are: **Recent Play**, **How You Feel**, and **Act of Swinging**. Although each of these categories are distinct when removed from context and placed into individual meaning categories, the categories will be described as they interact within the common component: **The Swing**.

Recent Play

Recent play describes how the golfers use their previous performances as a gage for the type of strategy they select. Successful play leads to optimism and less worry regarding strategy. Poor play leads to more conservative, smart golf.

G1: If things are clicking and you have made five birdies you are going to kind of stick with what you are doing and you are going okay this is the process that is going well for me today this is what I need to stick with but if you just made two doubles sometimes its important to reevaluate, you know okay my mind is really thinking about that calculus test I really need to focus on picking good targets for the rest of the day.

G2: I'm playing well, if I'm hitting it well, I just execute the game plan. If I'm not playing well, that's when things go poorly and then you start second guessing yourself.

G4: The decisions are based more on how I'm striking the ball that day how I feel about this particular shot and how I want to play it and more so, what the, what's the most confident I can feel of pulling this particular shot off. What feels most, where am I most confident?

G5: Yeah a lot of times, if I'm comfortable in that shot that I'm seeing, and visualizing and I've already been hitting it good and I know, I mean it's amazing the difference.

G6: I had just come off a double bogey on the par 5 because I hit it out of bounds and a bogey on the hole before that so I was like okay lets be smart here, lets be smart lets get it in the right position and I started it left of the hole, it stayed left of the hole and kind of went on the place I needed it to go so, that was a smarter decision.

G7: That changes, I mean with the day, I mean how you are playing or whatever and depending on what your comfort level is or how you have been playing and what shots you feel like you are able to pull off that day, I mean sometimes a smart tee shot isn't, you could have hit a more aggressive shot or you felt better hitting that one I mean I think everyday is different every shot is different based on your comfort level and how you are playing how you are feeling.

G8: Well I'm not swinging at it good today so what's the best chance of getting it in the fairway or what's the best chance of getting it on the green from where you are umm it's definitely you know when you are not feeling the confidence it's definitely a lot harder to make decisions cause you know you are going to second guess whether your bread and butter shot is your bread and butter shot that day.

Clearly how the golfers are playing prior to the decision is affecting not only their choices but also the feelings and level of comfort that they experience during the process of making decisions. These general feelings also play a significant role in the experience.

How You Feel

How you feel is a general description that the golfers use to describe their overall affective state or level of confidence with their swing. Thus, rather than a detailed analysis of prior play they appear to often rely on these feelings as a proxy for how they are playing in determining their strategy for a subsequent shot. The following quotes are example of this general use feel:

G1: Man, I'm hitting my hybrid really great today I hit it close on 16 and just I'm feeling this shot and that is what I go with.

G3: I mean its not one or the other in my mind, its how you feel where the balls going, I don't really know how to explain those thoughts.

G7: Sometimes you just, you step up to a shot and you have that feeling that tells you that you can go straight at this one.

G8: The feeling a lot of times it seems like with your feelings on how you feel with a particular golf shot you know your probably better off going with the one that feels better.

In general, when the golfers have good feelings they tend to play more aggressively and the experience flows smoothly. However these golfers also shared numerous experiences when their feelings led to discomfort. Factors that appear to contribute to this general feeling of discomfort include: anxiety, anger, feelings of uncertainty, and the pressure that results from the added meaning golfers often attach to their performances. These factors are discussed by the participants in the context of how each affects the golfers moment-to-moment feelings and their ability to swing. Later they will be discussed with regard to how they affect the golfer's experience of decision-making.

G1: I think some of that ability comes in the day and the situation and how I'm feeling. Some days you are just more anxious than others and I feel like there is, that makes a big difference on some of those decision processes, you know what club do I want to hit here, do I have, I really felt great about hitting my 8 iron or my irons are not feeling good today you know and in that situation I might go back and think a little longer about what shot I might want to hit.

G3: So when you are not feeling perfect when you are not feeling good that's when the mistakes come in. It is still possible to hit that ideal shot when you are not in that state but it's a whole lot tougher. Its like, I can image it's like throwing a dart to a dart board, you're stable you're set every things perfect you hit that bulls eye but when you are not in that mental state you are basically on some type of uneven platform that's shaking and that's moving around and you've got to try and contend with something to get it into that bulls eye.

Doubt and uncertainty due to playing poorly (i.e. swinging poorly) may also lead to adjustments in the golfer's strategic-decisions - adjustments in strategy that may include goals motivated by a desire to avoid negative outcomes. G2 Shared:

G2: You start second guessing your game plan and you kinda go into the protective mode like, okay lets just try and not do the worst thing possible here.

The above quotes not only describe the instability that a golfer's affective state can create but also highlights the golfer's awareness that these feelings will impact the act of swinging the golf club.

Act Of Swing

Act of Swing describes the golfers' recognition that their present moment experience impacts their ability to swing the club effectively. As such, much of their strategy and cognitions are designed to create a moment in which they can execute their swing – even if that requires the use of less than ideal strategy.

G3: So by basically making a decision that calms your thoughts down and calms your feelings down that helps a lot in the action of swinging the golf club basically its like trying to play stress free golf. You are trying to work out the easiest way to get around and while that goes on I'm being realistic I'm probably not going to make birdie from 180 yards or how ever far I have in so, once I've got that thought in my mind it calms me down.

Interestingly, the environment within which golf is played is purposefully designed to create discomfort. Penalty areas such as water hazards and out-of-bounds are strategically placed to capture a golfers attention as if to remind them that a slight error in execution may result in additional strokes. Awareness of these potential penalty areas can prompt emotional responses and memories of past experiences, all of which affect the golfer and subsequently their ability to make effective swings. As such, golfers are well aware that they need to be careful how much attention they give to such areas:

G5: Like I said, when fear gets into your mind you, you don't, it's good to acknowledge that there's trouble but you almost acknowledge it too much and you talk self into hitting a bad shot, and it's its, fear I can't think of any other way to describe it.

Fear as well as an array of other emotions or general affective feeling states often lead the golfers to implement a more conservative or as previously discussed, “smart” strategy to dampen the effects of their feelings in an effort to increase their confidence in making a good swing. Thus, the conservative strategical decision helps to facilitate making a good golf swing.

G2: It's absolutely not to aim at that pin, it's to aim at the fat part of the green cause that's going, I know I can hit the fat part of the green so if I know I can hit the fat part of the green I'm going to make a good golf swing cause I have confidence, cause I have confidence that I can hit the fat part of the green. If I don't have the confidence to take a tight line at a tight cut hole location that's going to cause apprehension and apprehension causes a bad golf swing, bad golf swing causes bad golf shot, bad golf shot causes a bad score.

Apprehension, according to G2 leads to poor golf swings. However, apprehension is not limited to situations in which the environment has elicited doubt. Doubt can also arise when a golfer's true goal for the shot is not aligned with their chosen strategy. As a result the golfer's swing is negatively impacted:

G7: I think sometimes when you're in the fairway and you feel 100% confident over a shot but you're still trying to play smart and hit it towards the middle of the green and work it at the hole, but...I hit a lot of bad shots by not playing aggressive because, I for some reason, I just, I try and hit shots that have a lot more curve on them to get them close, instead of just hitting a straight shot right at the flag.

G7: When I stepped up to the shot I felt a more aggressive target was more comfortable but I wouldn't let myself hit it at that, the target that instinctively I wanted to hit it at and then I think that led to bad shots cause you're instinctively you are trying to hit this shot and your brains telling you to hit this shot so it, there's two different swings when you're, you're not committed to one shot.

These quotes demonstrate the conflict between ones ultimate goal of getting the ball in the hole with the fewest possible strokes, and the strategy to take more shots to avoid potential threats. Where this has been discussed in the **Strategies** component, in this example G7 describes how this conflict can negatively impact his ability to execute the swing.

Interestingly, the broad conceptualization of aggressive and conservative approaches are not limited to strategic decisions. Golfers also use aggressive and conservative to describe how they swing. An aggressive swing is described as swinging at the ball harder or more freely. In contrast, a conservative swing is described as a more controlled movement that can lead to what they sometimes refer to as “steering” or trying too hard to aim the ball. These meanings are found in the following quotes:

G1: It affected how hard I swung at it I wasn't going to get up there and just swing out of my shoes so it made me play a little more conservatively, just to keep it within realms cause I want to be in the fairway you know so if I play it at a smoother pace.

G4: Instead of standing up knowing that I can hit that little draw down the middle, I'm steering the ball and I'm uncertain.

G2: What I mean by aggressive, is I make a good golf swing. I make a good aggressive move and I'm not saying I'm playing it on an aggressive line or I am trying to chase a flag that is unchaseable. I'm talking about making an aggressive physical move through the golf ball and trying to do a particular thing to the golf ball. Whereas the opposite of that is making a bad swing, an uncommitted swing where I don't, I haven't defined down exactly what I'm trying to do to the golf ball because all this other crap is coming into the equation.

G8: Pull out the shorter club and hit it hard or take the longer club grip down on it and hit a little lower shot in there with a little more control. I'd pick the longer club because I feel better with that you know, I don't always trust the full swing or the hard swing cause you are going to get out of balance you can put a bad swing on it a little easier. Whereas if you stay under control hit the little control shot, I usually do a lot better with that.

G6: When I start getting too aggressive that's when my aggressive strategy that's when I start picking aggressive lines with too aggressive, too much aggressive swings, instead of picking the smart lines with aggressive swings.

The last quote again demonstrates an interaction, this time between the chosen strategy and the type of swing a golfer attempts that suggests a relationship between aggressive strategies and aggressive swings. That is, when golfers choose an aggressive strategy they may be more comfortable swinging aggressively. While the

same relationship appears to be true for more conservative strategies being associated with conservative swings, this is not always the case. A few of the golfers discussed making aggressive swings to conservative targets. G7 stated, "I mean you can hit aggressive shots to conservative targets." Similarly G6 shared that when he is focused and in control he is better at, "picking the smart lines with aggressive swings." Thus, it may be that a conservative strategy is most effective when it serves to create a moment in which the golfer can commit to the strategy and therefore make an aggressive swing.

G8 also described an interaction between his emotions and his ability effectively hit the shot. Specifically, he felt that being angry typically lead to more aggressive strategies but was disruptive to the swing:

G8: Most likely you are going to make a more aggressive choice but because you are angry you are not going to be able to execute as well and so more than not you are going to hit another bad shot. So whereas if you are in a better mood and you choose that aggressive shot you are going to be freer and more relaxed and you will be able to pull it off more times than not; whereas if you are angry you know more times you won't pull it off than you will. So emotions they can just, got to, you know learn what happens with certain emotions over time, you know over time and then figure out what works better for you.

Within each of these quotes there are elements of the other common components (i.e. disrupted flow, mind games, strategies, and flow). Thus, it is evident that the golfers' perceptions about their swings are an integral component of the experience of decision-making.

G1: It has a lot to do with how I am feeling about my ball striking

G4: If I'm not hitting it well as I said earlier, in the beginning, I allow, my decisions are based on how I'm hitting the ball that day or how I'm feeling that day.

G6: You game plan and you strategize based on, that's based on how you are really feeling that day.

G7: I mean that's, the feel for me is what determines how aggressive you can play.

These golfers' clearly demonstrate that the experience of strategic decision-making is significantly influenced by how well they are playing, how they feel about their swing, and their ability to manage those feelings so that they can successfully execute their swing. However, it is unlikely that we can extract how much or at what point in the equation these experiences determine decisions or the resulting outcomes. However, the following results will help to elucidate the interactions that exist between the feelings that these players experience, the factors that elicit these feelings, and the coping processes the golfers engage.

FLOW LIKE STATES

The third component is **Flow Like States**. This offers a general description of what the experience of decision-making is like when everything is going well for the golfers. Without prompting, all but two of the participants brought up having "zone"-like experiences – which is a common descriptor for flow states. The categories of meaning within this component were: **Zone, Quick, Confident, Feeling Certain** and **Natural & Effortless**.

Zone

The zone describes the pinnacle of sports performance in which the athlete is centered in the present moment with no concern for future or past performance. As a result, performance is said to flow directly and without cognition. All athletes aspire to achieve it, but it is an elusive and fleeting phenomenon. Conversations of the zone typically arose as the golfers were describing decision-making when they were really playing well.

G1: I don't know if there are certain words to describe that I think some people call it the zone, you have this I mean certainly I have been in the zone plenty of

times and to me that feeling is sort of you are not aware but you are highly aware of everything that is going on and sometimes when I have been in it I tried to really think about I'm feeling and what I'm thinking and stuff and it is almost like you don't even realize what you are doing. And yet you just feel like what any normal person would you have God it certainly is a difficult thing to put a pin point on it but I have certainly noticed in a round where I have been in the zone and then I have gotten myself out of the zone by adding extraneous thoughts.

G3: Yeah it definitely is as I said with that wedge shot, it's for me it speeds up the decision making process. I don't have to spend as much time thinking about what is going on, it's almost like I have a checklist, like a pilot has a checklist before he takes off, when you get into that zone or that comfortable situation where that shot is easy to hit, you almost have if there is 15 things in your checklist you almost have 12 of them checked off before you have even hit the shot before you have even thought about it.

G5: I've found that zone quite a bit in my life but you're, you're in that zone and you don't think about anything else other than execution and you're, it almost, I mean, probably if you would film it, it would almost look like a different player by my body language and my mannerisms and just everything it was like stand up there, pick a line, pick a shot and hit it. As opposed to worried about all the other stuff.

G6: That's just me getting on that confident level and there are times when I can stay on that for a while and just get in a freakin zone and that's what I need to learn how to do more often obviously, that's what everyone wants everyone wants to be in that one 24/7 it's not necessarily possible but, um you can work towards having it happen more often

G7: it's hard to make it four rounds and stay in that zone to where your thoughts are that simple but that's what, I mean that's what you are practicing for that's what you are trying to get to, to where it is simple to just go out and play naturally and whatever I mean golf ball and a hole that's all the two thoughts.

G8: It is definitely a lot easier when you are playing well... you know what clubs to hit and or what type of shot and stuff. It's almost like you are in that zone so to speak and, which I've been fortunate enough to have that zone once before if not a couple of times and it's, it's just one of those things when you are playing good and it just you just kind of walk up and say oh you get your yardage you say okay this is the club, you pull it and hit it.

These quotes describe the unique nature of zone-like experiences. Clearly these are positive experiences that appear to occur during optimal levels of performance. As such,

follow up questions asked the golfers to describe how these experiences influence their strategic decisions.

Quick

When golfers were playing well decision-making was faster. The golfers shared that they were able to distill a lot of information in a matter of seconds.

G1: In a lot of respects it's a fairly fast process.

G2: It doesn't take that long, like I just described it in 15... 20 seconds or whatever that decision when I step on the tee is almost like that (snap fingers) it's like no, okay, yes, and then I make the decision based on that last thought.

G3: It's (clap clap) boom, between those two claps I've worked it out, if you could put sensors on my brain and see what I'm picturing that would be great but I really can't tell you.

G6: I'm not really thinking or I'm not really feeling during that phase. I'm more of just thinking, I more of just focused, okay I got this, this is how that feels this is what that's doing, this is what that's doing, there we go. Put it together, alright pick the point its like, its like a process its like a phase and it happens pretty fast because, I mean if you're feeling confident you don't even think about that you just think about, if you're confident and you're playing a normal hole, only rarely do you have to stand back and think for a while on that, you know if you're, the only times where I'd have to think like for an extended period of time is if I'm in a position to win.

G7: When you are in competition, you know, it happens really quick, you know you can't really. I don't think you perform well if you sit there and really over analyze it so for me its just, you know it's what just comes natural based on, you've got to trust your instincts.

G8: Well, when you are playing really well it happens (snaps fingers) your decision-making, you are trusting it you are confident.

Confident

When playing well these golfers also experienced high levels of confidence. For G2 confidence seemed to buffer him from aspects of the game that would otherwise make him uncomfortable if he was not playing as well.

G2: If you have a lot of confidence, if you have a lot of confidence then you don't ever really feel uncomfortable.

When asked to describe what it feels like to make a decision when feeling confident, G6 replied:

G6: Its exiting, I mean I stand over it and I'm like okay, lets pick your shot here and when I know all the factors are kind of coming together and I know the club in my had is the right club. I mean it's really exciting. It's like why don't we just make this, why don't we just make this shot you know, why screw around with a, there is no reason to bail out- there is no reason to over do it, I mean its just, those don't come into my head when I have the confident club in my hand. I know that, I know that I'm going to pull the shot off, you know there's just no doubt, there is no doubt involved and I mean it really is, its exciting when I get in that position.

Confidence doesn't necessarily always promote aggressive play; confidence can also encourage the golfer to remain patient, as G4 shared:

I'm confident, yes I feel, I feel like I can get it up and down from the fairway for par so, I'll hit it out in the fairway and take my medicine. I mean I'm like okay, there's you know this is a good hole lets just take our medicine and punch it out, make par or bogey. There is no reason to make it difficult make it more difficult than there is, bring in double bogey into play, so more patient I find that when I'm confident funny enough.

Feeling Certain

While experiencing **Flow-Like-States** golfers felt very certain about their ability to execute the shot that was required by the strategy, sometimes before they began the decision process.

G1: There isn't uncertainty about that because really I'm already, to me I have had plenty of experiences where I have already felt it long before I have done it, and there is no anxiety in that when you already feel like you have completed the shot.

G3: That's just a physiological or a some type of higher mental state, that makes you feel that way but there's a feeling a certain feeling that I know that I can pull that shot off and that comes before I've hit the shot going through the mental process of choosing the shot.

G6: How I'm hitting that ball, you know how, the feel I have over it, then I can, I know I can pull it off, so that's why I'll move it, just shift it [Aim] a little closer to the hole.

G7: It's such an easy process. I mean before you even get to the ball you already know, you have already been looking at the flag or whatever and you already know what you are going to do before you even pull a club out of the bag usually.

Natural & Effortless

For three of the golfers Decision-making was a very natural process.

G3: It's pretty natural think I would say after having played golf for so many years it's something that just happens, happens naturally I know there is probably more that goes into it but in my mind its something that just happens and takes over in a natural, natural way.

G4: When I am driving the ball well and I feel confident and I see a straight hole I'm just I know what I'm going to do. I'm going to tee it up on the left side I'm going to hit it down the right center and draw it to the middle. There's a big curve dog leg right, I tee it up on the right, you know tee it a little lower and hit a fade down there it's just, it becomes really simple cause I'm confident in my ability to hit the shot, and the decision making factor the experience is very succinct and natural, it becomes easy and comfortable for me.

G7: Just, hopefully comes natural you play enough to where when you get into the situations where you're hitting a shot that's not a straight forward shot that you've hit on the range and kind of you just learn to simplify it, cause when you are in competition, it happens really quick, you can't really. I don't think you perform well if you sit there and really over analyze it. So for me its just, it's what just comes natural based on, you've got to trust your instincts and be able, being able to trust you instincts when you are in a pressure situation and not get technical and start thinking about the process.

When these golfers are playing well they also experience fewer thoughts, greater clarity and golf seems easier:

G7: I mean it really is that simple with me when I'm playing good there's just limited there is just less thoughts going through your mind before the shot. I mean in the tournaments that I won that's, I'll write in the notebook or whatever,

what was so different this week what went right and it's usually just thoughts you know there's less going through my mind.

G1: When I'm really sure its umm, you know, I see what I'm going to do and that is what I go ahead and do. There is no second guess there is no contemplating.

G8: Where everything just kind of came easy, hit it in the fairway, then, I'd hit it you know just kind of hit it close or I made a couple of long putts during the stretch but it's just one of those things that you just pull the club and hit it was almost automatic.

For G2 the experience of clarity was like:

G2: It is knowing the outcome no matter what club I choose here I pretty much know the outcome. I know what I am about to produce and I know where this ball is going to stop after I hit it.

This flow like state is in contrast to states of uncertainty and discomfort. As one of the golfers stated:

G4: I guess the biggest distinction that I can grasp or to comment about is there is tremendous difference in my head, there is clutter and uncertainty in the other, the others clarity and calmness or very simple quiet, quiet thinking quiet thoughts there is not scrambling of competing beliefs or thoughts, competing thoughts.

Flow-Like-States are ideal states for optimizing performance. Unfortunately, it is a rare or fleeting occurrence. As such, it is more common for golfers to experience states in which flow has been disrupted by both internal and external factors.

DISRUPTIONS TO FLOW

The common component **Disruptions-To-Flow**, depicts the experiences and challenges that are inherent to the game of golf. Some of the disruptions stem from external factors, such as the golf course and the consequences it levies, while others begin internally, such as the meaning a golfer places on the outcomes of performance. Within the common component **Disruptions-to-Flow** are eleven categories of meaning statements: **Pressure, Added Meaning, New, Over Thinking, Consequences, Adrenaline, Negative Affect, Doubt and Uncertainty, Distracted Focus, and**

Competing Thoughts. Although each of the categories will not be discussed in detail, all of the categories will be visible within the quotes used to describe this common component.

Pressure

The experience of pressure is common within elite level, competitive sport. For these eight golfers' pressure can be described as a general feeling state that can be both exciting and threatening. Pressure arose from an interplay between the golfers' desire to attain their goal for playing well, the uncertainty of obtaining that goal, and the meanings that they attach to achieving or failing to achieve the goal.

G1: Pressure for me is a lot about wanting to get to a certain goal, you know try and make birdie on this hole or try and get to five under today or you know I want to impress coach and then there is an excitement of wanting to do that and then I think for me at least when you get into a situation where you are having the ability to do it, there is a feeling of trying to actually, the pressure is, is the feeling of having to do it at this moment that you don't have a second chance.

G2: The pressure of winning the tournament knowing you are in the lead knowing that it is yours to win or yours to lose. I mean obviously you create that pressure in your head, which I did.

G3: yeah cause I knew that, that was an option and the pressure was mainly from the unknown as to what the guy behind me was doing cause he was a shot or two back.

G3: I stood back looked at it and I just looked at all those people and I was like this is awesome why don't I just go and hit it there, there was pressure I could have hooked it in the water and made myself look like a fool I could have sprayed it tight into the crowd and killed someone and in that sense I was narrowed down and I was focused.

For G6, the pressure was greatest when he was close to achieving a significant goal, with a feeling that was almost indescribable:

G6: I mean I can't describe to you what the pressure is like when you're sitting there one or two shots back in a PGA tour event as an amateur on the back nine of the last round. I mean it is freaking nerve wracking.

Likewise, another (G5) stated that it completely altered his experience of the game. “If you’re up, if you are up near the lead, it’s things look a little different than normal, it doesn’t even seem like the same game.”

When asked to describe what it felt like to make decisions under pressure, golfers replied:

G2: What does it feel like... pressure feels like, it feels like, that’s a good question. I mean, physically pressure can cause you to shake. It can make your hands shake if you put enough pressure on a person on the first tee. I have seen people their hands are shaking they can hardly tee the ball up, that is pressure. Pressure in your mind though is not being able to focus on what you can do. It’s all of a sudden seeing things seeing shots that you never hit.

G3: It’s definitely tougher cause you have more feelings to deal with usually or your feelings are more intense they may not be more feelings but your feelings are more intense so you have to deal with the physiological reaction of your body pumping adrenaline.

G6: I mean the pressure, I mean I can feel my heart and I could just I mean it’s just going nuts but it’s not just that its running through my head and that’s the thing, you know when you feel nervous you get, right in the back of your head or where ever it is, obviously there is scientific explanation to it but its just its like it just makes you think like oh shoot you know what’s going on? It makes all, all of your senses are magnified I mean you are seeing more clearly, you know you are sensing everything you are hearing everything.

For a few of the golfers pressure began with the first shot of the day:

G1: I certainly think it depends on how much pressure is on the shot I mean if were talking about the first tee shot there might be more anxiety there might be more fear or doubt or questioning.

G1: I felt there was a lot of added extra pressure for that first tee shot... I wanted to make a good impression on the guys I was playing with.

G5: When I’m in a tournament round and I’m that is what I would consider settling into a round hitting the fairway, obviously the fairway on the first hole, is a good start, it ah, the most pressure you ever feel in a tournament, I think is that first swing, you know they announce your name on the tee and you are like alright its go time now its like the whole world comes crashing down, once you hit it then it really frees up quite a bit

G7: I mean the first tee shot of each tournament is you are excited to get going. It's kind of a different pressure, like its you practiced all week or whatever you are excited to get it started and once you hit that first tee shot and get it in the fairway, there's kind of, the heart beat levels out okay it's time to go to work and everything but I don't know it's pretty wild, different situation on each shot as the week goes, different stress levels different comfort levels.

As was the case with earlier discussions, the golfer may change his strategy in an effort to reduce the experience of pressure.

G2: What I think affected that was probably pressure I mean if I was to be honest I felt like, you know when you get under pressure you start to, maybe make plays that you feel like maybe you for sure can make you know, and that's not always driver on a hole where you would normally hit driver.

G5: I definitely took the non-aggressive easy way out, just to make things, to try to get rid of the pressure that I was dealing with, with that one shot, it's like the pressure is gone for like the next minute or two, cause I'm walking up to that next shot and in can hit that wedge shot or whatever, whatever you know, it didn't become a pivotal point in the round anymore, you know knock it on there and two putt for birdie or something, it wasn't, now it was just a 100 yard wedge shot for a third shot on a par 5, which is easy.

G7: I don't think it should. I mean you should continue to play the 72nd hole the same way you played the first hole of a tournament but I mean pressure obviously does, it does change your game plan sometimes but you shouldn't let it I mean, I mean it's easy to say but it happens to all of us.

G1: Under pressure the shot choice might end up being hitting a take one more club and hit a cut from the center of the green to the flag so now if I end up missing it I'm In the center of the green and I still have my chance of making my three whereas if I'm just playing against one of my teammates on Friday afternoon and it's just for fun I may take that one less club take it right at it and swing really hard and just try and hit this real high straight ball.

The last quote brings up an interesting point about pressure. As G7 stated, he would have a completely different approach if he were merely playing a fun round of golf. This topic will be discussed in greater depth in section three and the discussion. It is mentioned here to highlight the idea that these golfers create pressure by the meaning that they attach to their performances and the subsequent outcomes. The game is same

with friends or within a competition. The same rules apply. The course set-up is the same. The difference is the perceived significance of the extrinsic factors and meaning that is added to the competitive event.

Added Meaning

Disruptions to flow also emanated from the golfers creating additional meaning. These include: trying to impress coaches and spectators; or competing in a significant tournament. For G1, additional meaning arose from attributing his competence as a golfer to whether he choose to go for a par five in two strokes or to take a more conservative three stroke strategy that required him to hit a short, lay up in front of the green.

G1: It was more of I'm going to hit this shot because of what it says about me as a golfer then I'm going to hit this shot because I'm going to make birdie here. And I ended up hitting a terrible hybrid and I was just distraught, I didn't know, in a lot of ways I was having that hybrid define if I was a good player or not and it made the shot so much more stressful and more anxious because it was like you know (name) if you screw this up you are a real shitty golfer.

G1: I felt like if I was laying up I was just chickening out and I was just going to...you know, I'm not as good, I can't hit that shot I gotta lay up. When in all reality I could just be laying up because it's more comfortable it's going to suit my game and I'm gonna just make birdie, it's just going to be that much easier to make birdie that way, but that was not how I was looking at it, I was more coming from I am going to be a shitty golfer if I lay up. And that's where it really affected my decision and ended up causing me to hit a poor shot cause I'm doing all this other stuff than just hitting a golf shot.

Similarly for G4, the additional meaning came from his need to do the “right” thing and to make the decision that reflects the proper way for playing a hole.

G4: In that little moment like okay what do I need to do here or what should I do here and its kind of the shoulds feeling, which is I ought to and gotta and need to, it makes sense in my head and in theory and on paper. I agree with the you know, the picture perfect shot but trying to be a competitor and getting the ball near the hole is the goal.

In addition to feeling obligated to do it the “right” way this golfer also experiences a sense of urgency and a need to take full responsibility for the outcomes of his decisions and his ability to execute shots. He states: “well just that it’s impending, your decision and then you’ve got to follow it through.” Later he expanded on that feeling which he described as “the experience is a urgency” in this way:

G4: It’s based on shots that are going to be having an impending outcome on every shot. So I know that’s true, that’s the case for every, in competition, all four rounds every tournament every shots going to have that tied to it, the outcome. You’ll have to go chance and hit the next shot and then write down the number you scored on that particular hole and accumulation of 18 of them makes your score for the day and it adds up for four days for the tournament, then its compared your contemporaries and you get paid accordingly or compete accordingly.

For G5 the added meaning came from wanting to prove himself to others and from a desire to not let his parents down. He also felt as if each tournament was directly related to his being able to make it to his ultimate goal - to play on the PGA tour.

G5: You’re so in the moment, you are kind of looking around and you see your parents they are watching and the girl I was dating at the time, my caddie and all these people, you know I’ve known or whatever growing up and their all there for you, there rooting for you, you know. I was thinking of so many things, rather than just get up here and hit this 5 iron... its tough to just treat this like any other 5 iron that you’ve had in the past, this isn’t just any other 5 iron it’s you knock it on the green you make two putts and you win the tournament for the fourth time, be like the second person to ever do that all these people would be going nuts my picture is going to be in the paper um I’m going to be going nuts with my caddie were going to celebrate after the round I’m thinking of all this stuff out there on the golf course and that is just nuts I mean that’s boarder line need some help nuts.

G5: I look at every round of golf I play as a stepping-stone to the PGA tour and you go out and play 20 rounds in practice, I would shoot course records in practice. I’d get out there in the tournament same course and shoot 74, I shot 74, 75 in the first round of the state open one year when the day before I shot 63 and broke the course record, I was free swinging first day practice round didn’t matter, scared to death in the first round.

For G6 disruptions due to added meaning came from thinking about winning his first college tournament and the fact that the tournament was being hosted by golf legend Jack Nicklaus.

G6: I started getting thoughts of winning my first college event, you know being at Jack Nicklaus' course a PGA tour caliber course, you know that kind of stuff can't get into you head until after you finish the round and that, that crept in my head, I think maybe because we had to wait on the tee box.

In another example of added meaning, G6 described a decision in which he let the emotion of the moment and the crowd of a PGA tour event affect the strategic decision he choose.

G6: So I went to my caddie and I was like okay, and my caddy was like alright, start it at the middle of the green maybe hit a little fade and hit it maybe 15 feet left of the hole... we're talking through this, this is both of us saying that, which would normally be what I would do in that circumstance but, what I said was, was you know what, I got adrenalin rushing, I know that this shot is going to work out for me and I want to get this crowd pumped up and so I played, I want to get this crowd on my side. I want to hit this close to the hole. I actually hit it about 10 feet away from the hole right of the pin, so in that little peninsula I hit it on the edge of the green over there on the corner of the green it started at the pin I was freaking out in mid air I'm like oh shoot be the right distance some how, some how, lands pin high just stays there right of the hole 10 feet away and I was just pumped up and the crowd was going wild and, I mean it was really cool, there were guys, everyone was throwing parties in their houses on that hole and it's like a dome and so there was, probably a good 15,000 people on that hole 20,000 people

This quote is a good example of how positive emotions can affect an individual's judgments by decreasing perceptions of risk and increasing estimates of likelihood for success. He later explained that, "I had just gotten so caught up in the new experience, the crowd, the moment, and not focused on the shot. It paid off but it wasn't, it wasn't necessarily the right decision."

Lastly, additional meaning leading to disruptions to flow can occur when a player recognizes that they are in the lead or have an opportunity to win a golf tournament.

Often tournaments have leaderboards that are visible from vantage points throughout a course. Leaderboard information can be both useful and detrimental depending upon the golfer's responses. In the following two examples the golfers were not prepared to respond in a manner that would facilitate performance.

G2: I felt great. I had it cruising but at that moment I didn't know where I stood in the tournament. But when I walked off 9 green they had the leaderboard sitting right there and I'm at I think I was at 6 or 7 under, next guy was at like I think two under. I think I had a four shot lead, whatever the numbers were and I remember thinking well gosh, right then that's when I kind of flipped in my head how I was going to play the back nine. I shouldn't have to the degree that I did. I would have been better off if had never seen that leader board, to be honest.

G6: I was walking to that tee box and all that was on my mind was look at the scoreboard, you know that's what's going on, you need three birdies here to get a chance, you know. Plus I got all the other factors all the people there all the cameras, all the, its just new to me. But I was so focused on the scoreboard and not on my game plan on the tee box. I was so focused on more of how in the world, its not that I lost trust or anything, you know I was excited to do it. I was excited for it but I didn't, I didn't take my time. I rushed the hole, I rushed every shot every on that hole and that's when I went back to what I used to do when I was younger, when I was 12,13,14 years old and that was rush my shots, especially when I got nerves.

New

For a few of them the pressure and **Disruptions to Flow** arose as a result of the situation being new or unfamiliar to them.

G1: I had played well the first day. I was playing one for us the second day and I had been nervous all day and it was my first college tournament and I wasn't used to it yet.

G6: Maybe it was because I finally tasted victory in my first college event, you know I really wanted it, it was a new kind of a new position for me. I don't know what it was but I stepped on the tee box saying, okay where can I go to avoid bogey and that's just not... that's not the way that I have always thought and so I hit away from the hole away from the water and hit it in a back right bunker.

G7: But if you are standing in the middle of the fairway and Tiger Woods is waiting on you to hit your shot and it's for a million bucks, it's different, but it shouldn't be.

G7: Pressure makes you change your thought process I think when it's new to you in different situations. You know I had two weeks, I had two out of three weeks in 09 where I played with Tiger in the final round and both times I was ahead of him in the going into the final round and he beat me and won the tournament but I think the first three rounds were so easy you know I'm just making birdies, thought process is simple like I said number and a target and then the second the pressure hits you, my mind would go back to thinking about a process (swing mechanics).

Over Thinking

Feelings of pressure, or the heightened emotions associated with added meaning clearly disrupt a player's experience of flow like states. In addition, disruptions to flow can lead to distracted focus, over thinking or over analyzing during the decision process. Several of the golfer's experienced this disruption when feeling pressure or feeling uncomfortable with their swing. Several of the golfers described this state as being cloudy or cluttered in their thinking.

G1. I mean there's just clutter and a lot of ways when I feel I'm not sure what I'm part, like I have sat on holes lets say I'm trying to hit a shot into a par three and I wanna hit a 7 iron, I want to visualize the 7 iron going to where I want to go before I hit it and sometimes when you're in that not that cluttered state you just don't see it and you just go, (sigh) okay come on. I know what that looks like what is that (ahh sigh) and you just don't it just doesn't quite click and that's where if you have that you go, maybe I should go ahead and take a 6 iron out and try and hit a little cut and maybe I can see that, that's where you start going back to plan B plan C to give yourself something to see.

G2: Cloudy is seeing a lot of different possibilities, it's seeing the peripheral the trees the out of bounds the water not having a clear cut picture of what you want to do with the shot or where you want the shot to finish.

G7: Yeah, I mean if you're its not I mean there are a lot of extra thoughts going through your head which is taxing and stressing. I mean you're it's. I mean its not just a natural.

G8: Ahh (sigh) been there, just start thinking too much about you know what's on, what's around the hole what's around the green you know just overanalyzing what the winds doing what's the wind going to do? What your lies like you know just thinking to much about everything and then the next thing you know you forget to put the swing on it.

G4 compared the experience to that of a blender or an out of tuned radio stating:

G4: It's like turning on the blender very loud and making a shake. Its annoying and there's just this tension and there's just this dull franticness that is just kind of there Its not like getting amped up on three cups of coffee but its definitely like, well this is difficult and there is very much of a forcing it's a it's a ah kind of a stressful experience of trying to make something happen that you're, it's trying to make your car work with out fuel, you know. It's a stress. It's a difficulty, if you're not clear minded in what you are trying to accomplish and you have got competing thoughts, its like you know listening to the radio but you can't get it dialed into the right frequency its static(y) and noisy. You got a little good music you can hear it but then it might be this station A and this station B comes in it's kind of scrambled so it's really not a joyful experience cause there are competing thoughts and it becomes a and it also leads to tension. I noticed when I'm getting over the ball and there is an awareness that I'm not totally settled.

Further disruptions come from external sources like the course itself or in one case from the golfer's caddy. G7 discussed how he felt that his caddy gave him too much information and that his caddy recommended strategies that he was not real comfortable with but yet he felt some pressure to perform well for the caddy.

G7: And the caddy is talking to you before a shot, there's extra pressure from him to hit the shot he just told you to hit or you guys, you guys whatever we both can, decided we are going to play but then when you step up over the shot you're automatically; I'm feed this information that this is the shot that I'm going to play now but I'm still thinking I need to play the other shot we just thought of right before you get over it. I mean I should be able to, to feel the shot and decide what shot I'm going to hit. I mean when you have two different, two different conflicting shots you're not going to hit a good shot.

G7: I go against what I feel and aim, you know, I step up there cause I've already, the caddy has already told me what shot I need to hit but even though my instincts are telling me to hit straight at it, all of a sudden I'm doubting my instincts and I'm aiming right of the hole trying to force a draw when that's not the shot that feels comfortable and I've kind of had to learn the hard way, by, it's just not my personal preference to...yeah I need the yardage and I'll decide how aggressive I'm going to play by what I feel and I've, I've I haven't done that in the last couple of years I've kind of like trusted a caddy you know this is the way to play smart and all this and it's not what's working for me.

Consequences

Additional disruptions come from the design of the course and the hazards that are strategically placed to capture the player's attention. These hazards can become such a nuisance to golfers that they experience excessive amounts of worry or fear. G5 was so afraid of hitting a ball out of bounds that he ruminated about the shot for two weeks prior the tournament. In another example, he shared that he unnecessarily laid up on a hole because of his fear of incurring a penalty.

G5: We had a conference tournament in high school. The first hole is a, it's got trees down the right, a row of trees, to where I can't really hit a draw back into the fairway so I have to start left of these trees. If I draw it there is out of bound on the left side. Well, two, two weeks leading up to the tournament I'm thinking about this tee shot, and I got up there and ripped it right out of bounds on the first hole.

G5: I had about 200 yards and I laid up. I mean I hit this shot probably a 100 yards and my coach comes up there and was like, what are you doing? What are you doing? And I was like, I looked at the green and all I saw was water and it was a huge green a bunch of fairway in front, you know probably hitting a 5 iron in there. You got to be able to hit the green with a 5-iron right? But I'm thinking, I'm going to hit it in that water, if I swing this club and hit it up anywhere near that green, it's going into the water and, and I, scared to death and so I, it did impact the decision cause I got out a wedge and chipped it down the fairway (laughing) my teammates still bring that up.

These hazards have obvious consequences and players understand how those consequences impact their scores

G2: I hit drive down there I have got 186 yards to the flag. Right is hazard that is automatic bogey or double bogey. Front bunkers is still okay, long left is dead that is automatic bogey. Shot left you can still make par and you have got to hit freaking great shot to get it on that front, its front left, the pin was front left, so I'm not going to miss it right, so automatically I'm just thinking I'm going to start this left.

G5: Cause you can't hit it in the water there is no penalty (laying up), but see that's the thing, that water was so out of the way that I would never think of hitting it there but since it was there, you are thinking, everyone knows you hit it in the water and it's a penalty and there's a lot of water you know it was a big, big lake. So the green kind of jetted out into the lake and ah it, it shouldn't be different, looking at it I know sitting in this office I don't. I feel like I could go hit that shot

right now, you know, but when you are in the moment and you are trying to beat a bunch of very good players the water is a very - I mean it's a penalty you can't hit it there, and there's a big area on the golf course so it's a, it, it shouldn't affect you negatively but it does, but when it's not there and you give me a 200 yard shot I'm not thinking about missing the green I'm trying to hole it here. I could have missed the green probably 20 yards left and right of that is on land and I couldn't pull the trigger. So its definitely different when it's not there because you're not thinking of, you don't think of a bad shot you don't you don't look up there and see penalty, I'm looking and I'm seeing penalty you know, luckily I've changed that to a point.

G3: Then I mean if the feeling is perfect and everything is great then yes I'm going to go for it I'm going to hit it at that pin and trust in the swing, but you just said there is a hazard left of the green. That is going to alter my feelings, that's something that's, although it is in the grand scheme of things it's just another feature the same as a bunker, a green fairway, it is another feature but when you internalize that it's a negative its something that you want to avoid. So therefore that may change my feelings, some day's water hazards will irritate me and will catch my attention other days I don't even think about them.

These experiences can be so powerful that over time some golfers, like G8, become more and more aware of the consequences and their strategic decisions become more conservative. He stated:

G8: Now a days I think I, I think of the consequences too much, of not pulling off a shot rather than thinking of the reward of pulling off a shot. So I'm trying to get back to that little more aggressive mode of playing.

Adrenaline

The last disruption to flow to be discussed is the experience of adrenaline. Adrenaline is most often associated with a heightened level of internal activation, such as an increase in heart rate, sensory perceptions, and cognitive activity. For a G5 and G6 adrenaline inspired them to play much more aggressively, while G3 experienced adrenaline as something that was acting in opposition to his confidence.

G5: I always find myself, when I have adrenaline going it, it makes me rushed and probably not make the best decision, but if I'd have to answer your question id say that it probably does give you a false sense of your abilities or you kind of loose track of what the smart thing to do is.

G6: *Oh yeah, I think all the adrenaline going through for sure, it was like oh come on I, you know I had lost all my brain cells on that tee box I really did. I was like you know what screw this I'm going right at it.*

G3: *Okay well, obviously I had a bunch of adrenaline going through cause there was two holes left, I had the lead I, I felt the adrenaline I was really jacked up. I had a lot of energy and I was trying to just trust in my ability and trying to feel confident even though that adrenaline feeling was definitely counter acting a confident, confident feeling*

As outlined above there are numerous factors that can disrupt a golfer's experience of more flow like states. However, this is not to imply that these disruptions are necessarily detrimental to performance. On the contrary, some of the golfers describe how they use some of the disruptions like nervousness, consequences, or adrenaline to facilitate their performance. Thus, many of the golfers described using a variety of techniques to help them return to flow. The common component **Mind Games** describes those techniques and experiences.

MIND GAMES

The component Mind Games describes the cognitive and behavioral strategies that these golfers utilize as a means for coping with disruptions to flow. Strategies like cognitive reframing, relaxation breaths, visualization and setting attainable goals were put to use as tools for managing the disruptions in flow and enhancing decision-making.

Getting Comfortable

The first category within this component is Getting Comfortable. Similar to the common component, **The Swing**, and the category, **How I Feel, Getting Comfortable** is a more abstract or general description of the efforts a golfer takes to feel comfortable with both the strategy and the shot that it requires. The following quotes describe this

process of matching the strategic decision with their current level of comfort or changing their level of comfort by making a certain decision.

G1: I mean and to me, not only does it come down to the options but it also comes down to being the most comfortable. Right, because I'm under a lot of anxiety, which means I feel uncomfortable. I'm not settled I'm nervous the best way to cope with that is to try and get as comfortable as possible. Obviously its not going to go away I'm a competitive athlete. I want to win, I want to have some anxiety of being able to compete that is just kinda part of it but you find ways to take that anxiety and make it something that you are wanting.

G2: How I felt at the moment, it was either 3 wood or hybrid it wasn't a driver, cause that's almost well in that moment when you have 3 bad things out there and one good thing, you dam sure better take a club that you feel comfortable with. Especially on the first shot of the day, cause you are already, you know, you are a little nervous. You can't just hit, you can't just say its driver and hit driver and screw it on the first hole. You got to work your way into the round. So I would hit 3-wood down in the fairway.

G3: Once those underlying thoughts are in order are in tune and you can internalize those and turn that into a feeling of comfort a feeling of, they talk about the zone and all of that once you get that, then you can try risky things. I mean, I have hit some amazing shots over my career and it's because of that level of comfort.

G7: Ah, it's just how I play. I mean there's obviously times where you don't aim at flags and you don't have those shots where you can get close but I mean, that's up to the individual to identify that, what they are comfortable, your comfort level on each shot I think determines how aggressive you can play.

G8: Which I wouldn't have felt as comfortable with off the tee and then I would have left myself with a longer shot into the green over water which wouldn't have felt as comfortable with so you know in that strategy right there it was like take your best club and hit it and that way you have a shorter club that you can control better into the green.

As indicated in the above quotes, strategic-decisions are closely related to the level of comfort a golfer is experiencing in the moment the decision is to be made. These golfers, as described by G3, integrate the feelings that arise to form a level of comfort. As such, they then adjust their strategies to align with that level of comfort as indicated by G2 - who makes his club selection based on creating comfort. This

adjustment is an altering of goals, such that the golfer perceives the moment as an opportunity to be successful. This is what G7 is referring to when he stated that his level of comfort with a shot was what ultimately determined how aggressive he could play. To achieve greater levels of comfort these golfers described processes in which they actively worked through their thoughts and feelings and, in turn, used them to facilitate their performance.

Work Through

Working through demonstrates how the golfers use the emotions and feelings to guide their performance. A number of the golfers discussed using negative affective states, such as anxiety or nervousness, as facilitating mechanisms. G3 provided the most in depth descriptions of his process.

G3: I think you have to - you have to analyze those feelings and you have to let those almost guide you. I mean golf is an intensely emotional not, I mean emotional to some degree but feel artistic game. You have to let those feelings, those feelings are almost there to guide you. They're not there to force you to hit a bad shot or to distract you from the moment they are there to help you and if you know how to use them and you know how to help them make decisions or let them help you make decisions its going to make your round better and it is going to make your overall performance better. That is what I believe.

G3: You take into account the lie how you feel whether your backs stiff today. Whether your mind is thinking of a girl or of something else, like there is all these other things that you have got to think about and that, that good shot is almost like, its not an illusion but it's your ultimate goal that's what your trying to get to. So, once you have dealt with all these little feelings and external things you can hopefully get to a place where that major goal and that bigger target of hitting it into the hole is realistic and feels natural. If you let those other things basically cloud your, cloud your thought process and cloud your physiological, your act of swinging the club that's when, that's when a bad shot comes into play. So, you are using that as basically a goal to get all other things in order so that you can execute the shot to that picture that you have created.

G3: Well I think the main thing is, I'm trying to correlate what my mind is thinking to what my body should feel. So, I often have the thought of looking at a target if I am hitting it towards the pin and I know there is trouble left I often try and dial that in with my mind say okay there is trouble left. Obviously you are not trying to

think of it, that's not going to be your main thought your main thoughts going to be that target but underneath that level you are going to try and have some type of physiological reaction that will program you to steer right if something goes wrong. So if, if you're feeling good with the shot and you can just go ahead and look at that target and hit it straight at that target maybe that, that lower level feeling will not come into play as much but it really does come into play when you are not comfortable with the type of shot you are going to hit.

For G3 the emotions are facilitators and it is a matter of organizing them and adjusting your goals so that you have the greatest opportunity for success given your current state. Similarly, G6 and G4 also shared that they believe that nervousness or pressure can help them perform and that it is simply a matter of recognizing and taking the time to channel the feelings appropriately. In one of several comments on the subject G6 stated, "normally when I get nervous I'm able to kind of channel it and play better." While G4, talked about how when he feels the heat, it can improve his focus:

G4: When I really feel the heat of, I better concentrate here, it helps me kind of sometimes when I feel that risk cause its like, you know, there's some, obviously I can easily tie the consequence to this shot here, this shot right here will have a consequence if I don't pull it off, well I make double, if I do, then I make bogey or par. It depends on how I perform this shot so it gets me really focused on the shot so I kind of like that. It's kind of like a little pressure cooker that helps me.

Another means for working through the emotions is to reframe the situation - changing it from a feeling of anxiousness to a feeling of excitement. G1 states:

G1: When I get in that situation if I spin it to all I want is to have the chance so I can do it it's not a if he makes it that's going to put more pressure on my putt to win it. It's like I want the chance to win and that spins that anxiety to more of an excitement and so it doesn't come across as fear it comes across as a great opportunity and that changes the outlook and allows me to be more comfortable in the shot choice I make.

Reassurance

Reassurance is another means for cognitive restructuring. The golfers used self-talk or rationalizing to build comfort and confidence in their strategic decisions. G2 had previously discussed a tournament in which his performance was disrupted by seeing

the leaderboard and subsequently resorting to a conservative strategy in an effort to cope with the pressure of having something to lose. In a separate event, he described using self-talk to help him continue to strive toward a desired outcome. This mind game helped prevent him from feeling the pressure of having something to lose. As such he kept focusing on pursuing positive goals and was able to win the tournament. He shared:

G2: No one knew where they stood until the end and then it turned out to be great for me cause I won. Then I was, that day when I went out there I knew that, that was going to be the case. I kept just telling myself if you are going to tell yourself anything in your head tell yourself that you are behind and you need to keep pursuing, keep pursuing.

For G3, he was able to reframe the situation and use vicarious experiences to reassure his confidence:

G3: All you need to do is hit it on a good line and you can be fine. So I tried to calm myself down by basically just taking myself out of the situation and saying O look someone else has done it, that is pretty easy, you should be, should comfortable with hitting the shot and I was still, still obviously I was still really intense still had the adrenaline going and still, still had to contend with all of those feelings but I tried to use that to calm me down and I did. I had a little bit of self-talk in my head almost to spur myself I said, I can't remember the exact thought but I was like come on lets do this right here just put the tournament away just whack it on the green, you got it from there.

In another example he rationalized making an aggressive play by convincing himself that he was feeling comfortable.

G3: I've convinced myself that I have hit 2 great shots before this to put me this position so, there is no point in me hitting it to the middle of the green playing the really conservative safe shot, and having a really tough chance to make birdie. I feel good in this situation cause I like hitting my sand wedge. I like the feeling of having a almost 90% sand wedge swing and I felt comfortable with the shot.

Lastly, G6 used a past experience and his current level of confidence to reassure himself to stick to his game plan.

G6: It was more of, I mean, I wasn't really nervous making the decision. It was more like, okay lets just go back to what happened. Lets just go back to what you've learned from your last experience and it was going through my head. I

was saying okay, this is what I did here, this is the outcome this is what, whenever I have had success coming down the stretch these are the things I've done. And that's what I'm thinking about when I'm walking up to the tee box knowing what, knowing it's a drivable hole and I have a decision to make, you know there is out of bounds right and there is crap on the left but I'm sitting there going, okay your success has come from doing what, in this situation and how confident are you with your driver right now and since I had realized that going ahead and trusting my swing and not trying to make the golf course harder than it needs to be, plus I was kind of confident in my driver.

Reduce the Decision Load

Another Mind game that was commonly implemented was to reduce the cognitive load of decision-making. These golfers use pre-established game plans, specific goals, and rules to guide their decisions. These efforts served to reduce the number of options for given scenarios and thus reduced the cognitive demand during performance. The pre-game plan was strictly implemented by G2 and G4. As such, the game plan differed with each course they played. In contrast, G6 used a more general game plan that he applied in every tournament. For golfers G2 and G4 the time they spent planning prior to the round essentially removed the demands during performance. G2 stated:

G2: If I have prepared properly then I just execute my game plan. So there is no decision making really that is happening at that moment. So like, I already know like, I have already decided I'm hitting driver here. And that goes as far as to say if its down wind or if its into the wind. I have thought those scenarios through and I know if it is down wind I'll hit 3-wood here. If it is into the wind it's driver, if it is calm it is driver, so I kind of know that before I even go.

G4 utilizes the pre-game plan similarly but added that it increases his confidence and his feelings of being able to manage his game.

G4: Having to make a decision, I guess what I'm saying is those strategic decisions don't seem that weighty because I feel like I do a lot of the work before hand that takes care of a lot of the decision making stuff.

G4: It's something I can really control it's managing my game and that really calms me emotionally because instead of trying to do everything myself, it's like hey I've got a plan now I just go play and do that. Especially, when I'm confident and especially when I'm clear on what I'm doing with my swing mechanics then

it's really simple cause then it's just getting into my game plan. My swings there and I hit the shots.

Although both of these golfers set their strategic plans prior to performance, they both stated that they often have to deviate from those plans based on how they are playing in the moment. For G6, his general game plan is to birdie every hole. This is a very specific goal that reduces the number of options available as you cannot achieve a birdie with an overly conservative plan. Interestingly, although this strategy requires using the most direct route to the hole, it does allow some flexibility in how he goes about pursuing his goal. In addition, he attempts to simplify the decision process by clearing his mind of excess thought:

G6: Well they're kind of, I guess I don't know if the words are supposed to coincide but they kind of have different meanings to me. Game plan is I'm going to make birdie on this hole, strategy is the way I'm going to do it given the condition that I'm in.

G6: I like to keep my mind as simple as possible and so when I go through if I go through a game plan if I go through the experience of decision-making, and I go through it the way I want, my mind is just blank.

G7 takes a unique approach to simplifying the demands of decision making by thinking of every decision as being in a dome. He explains:

G7: In an ideal world I play golf in a dome with no wind no elevation changes completely flat that, that's how I base my shots on. I mean, you know if its up hill two yards, if its 150 yards and it's up hill 2 yards and there's five yards of wind in my face you know I factor it in 7 yards. So now it's 157 yard shot and just step up and play it that way you know to where, I just factor all my shots into like a controlled environment and all those, the elevation, the wind, the temperature, what ever those are all variables that you kind of plug in to how far you think the shot is playing and then once you pull the club it's, it's simple.

This process reduces the amount of attention that is given to the all of the environmental factors through an effort to distill them into a single variable: yardage. For example, rather than thinking of all the variables separately along with their implications for how

hard to hit the ball or what club to use. Thus, lie is in the rough (add 5 yards), uphill (add 10 yards), wind behind (subtract 7 yards), and overall distance (189 yards). This allows him to combine these factors into a single estimation how many yards he need to play (197 yards). For G7 he stated numerous times that all he really wanted to think about was how far does he needs to hit it and to what target. His creation of a controlled “dome” environment accomplishes that.

Golfers may also use specific approach oriented goals or aggressive mindsets to narrow their focus, thus decreasing the cognitive the demands of the experience.

G1: I knew I needed to do something and had been upset about not making much happen all day so I decided to say, I wanna birdie the last four holes coming in...I gave myself a very specific set of rules to follow for those last for holes.

G3: I programmed myself in the beginning of the day if I'm 10 shots back I programmed to go out there and be aggressive I'm on an aggressive mindset that whole day. So its not and individual thought every time to be aggressive its before the day. I have set my goal before the day. I've trained myself to think aggressively throughout that whole day so I'm not gonna stand over a shot on the 7th hole from 90 yards and say I got to be aggressive here, that is already programmed.

G8: But when you are aggressive its one of those mindsets that's you know it's kind of one of those things being aggressive is all or nothing you know it's knock it in the hole or whatever, take your par or bogey and go you know if it doesn't work out.

G8: Sometimes it's a little easier going into a round of golf trying to play like that...knowing that you have to get up there, because, especially if you are playing well or feel like you're, feel confident you can be more aggressive. Whereas if you are, if you're kind of up there you are going to tend to guard against making mistakes so you get, kind of get a little protective and that's sometimes when you get protective is sometimes when you start making the mistakes so you know it's a fine line on whether to be aggressive or be protective or play conservative.

Golfers can also reduce the demands of decision-making by limiting the clubs that they use around the green or by committing to hitting one type of shot.

G5: I have always used that club around the greens so I think in a way that helps me, cause I won't question my strategy on that.

G4: I'll go out and play 9 holes and say I have got to play nothing but draws all nine holes or nothing but fades for all nine holes well it becomes so simple for me being a shot maker always feeling like I want to work the ball left or right the simplicity of knowing every shot is going to move one direction is really calming and helpful cause there's less decisions right then and there for me to make

Finally, decisions can also be made easier by establishing specific rules to follow.

Golfers often establish rules that are governed by the design of the course. For example golfers may set restrictions on where they aim a shot depending upon the hazards around the intended target or the slope and shape of the green. Golfers may also set rules based on what club is required for the shot. Others will set behavioral guidelines, such that they won't go forward with a decision unless they are completely confident.

G2: I'm not going to work a golf ball back towards that water so right off the bat I'm working it away from the water so that determines my club selection.

G7: Not like one specific shot its just the way I approached the iron game I think If I had for some reason I had it locked in my head that, if I didn't have a wedge in my hand I wasn't going to hit it at the flag.

G6: I need to, when I make my decision, no second guessing, that is something that I used to struggle with when I was younger so I need to be confident with exactly what, what decision I've made and if I'm not confident then I need to change it. There's, you never step over the ball with any kind of doubt at all.

Slow Down

A behavioral strategy that many of the golfers discuss using during decision-making is to recognize when they are in states of disrupted flow and slow down and take their time with the process.

G1: I was getting, I started noticing myself getting ahead of myself going o man I'm going to make birdie here and it means I only got to birdie the par five and boy it's going to be great what are my friends going to say ... and I really had to make sure that I slowed down and that I really gave myself a break from what I was, from the focus of hitting a golf shot in between shots. I mean, I specifically

remember the 17th hole and just being really excited that I was going to hit a really great shot you know and I had just made two birdies and I'm in the middle of the fairway and I hit this great shot and I had to go (deep breath) okay how do I hit this here? How do I hit it close? Well, I'm this number and that is a great stock gap wedge if I get after it and I got to go ahead focus on doing that and once that was over I had to go think about well, I'm going to go jump in the ocean after this.

G5: I realized the mistake I had made before and then at that time applied it to okay, you just need to calm down take an extra second and hit a good golf shot here rather than than hurry up and try and see your result and hook it in the water and make bogey or something you know. I, I stepped back and looked at the situation and took that extra second and that extra second or two that I took allowed me to hit a better golf shot.

G6: No, because that was when I had tension, that was when I rushed it. When I'm really nervous and I take my time, I'm able to channel it to help me.

G7: if I get too much information from him I'll just put the club back in the bag and start over.

The above quotes demonstrate the golfers' ability to recognize a need to take a moment and to focus. In addition, many of them took this time to use additional behavior strategies, like taking a deep breath.

G3: I need to try and calm the feeling down to try and say okay just breath. Just take it easy. I did, take a couple deep breaths, the sports psychologist worked with us and I did take 2 or 3 deep breaths before to try and calm my body down

G6: My pre-shot routine takes away a lot of the nerves. I step back behind the ball and what you do is, you take deep breaths in through your nose for four seconds, you pause for four seconds a out slowly through your mouth, you do that and you kind of glide to the ball while you are breathing out through your mouth and it really does kind of lower the tension it lowers the nerves.

G7: I think the reaction to shots being able to keep your pulse or your heartbeat pretty level and every thing that affects the whole round.

Emotional Escape

Golfers also used strategies to escape from the emotional pressure of performance and the demands of strategical decision-making. Two golfers mentioned taking time away from thinking about golf in between shots.

G1: *When I am walking around in between shots my thoughts are pretty much anywhere and most of the time they are going to be on stuff that's not about golf, while I'm not hitting a shot because I'm going to try and not focus on my golf shot unless it's at hand. So for 45 seconds that's when I focus on hitting a golf shot it is not the 10 minutes when I'm walking up the ball.*

G8: *With golf, I mean there is a lot of decisions to be made in golf. I mean its four hours for and a half hours out there on the golf course and you know you're not going to be thinking of strategy the whole time you are out there.*

Others choose to seek relief by rushing through to get it over with. This strategy, although effective for relieving the emotional strain, was less effective for both the execution of the golf swing and overall performance.

G3: *Basically, as I said, I kind of made up a bit of a facade it wasn't a confident swing in the true sense of the word it was just a kind of a okay lets just get this over and done with and see what will happen. So in that sense it wasn't really good, a good feeling or a good thought to have before the swing.*

G4: *It was a combo of anger and frustration yeah, frustration disappointed upset and a part of me just wanted to get out of there I wanted to hurry up and get it over with I wanted to, I wanted to push the eject button and get out of there cause I just wasn't operating on a confident level but that had more to do with my swing.*

G5: *I was scared and I wanted to hit the shot fast so I could see the result.*

G5: *Yeah, I mean it took away the fear I wasn't scared of hitting it in the water anymore, so I took the easy way out. It wasn't the most aggressive and it wasn't the way you are going to win a golf tournament. I'm not going to go win a major laying up in that situation, no way. I mean, I need, if I'm going to win that golf tournament I hit the drive to put myself in position to make an easy birdie.*

Down Grade the Task

Another cognitive restructuring strategy the golfers used during decision-making was to reframe the task so that it seemed more manageable, less difficult, or for removing any added meaning that may have been attached to the performance. The golfers shared:

G1: *Instead of sitting there going o gosh all that work I did is going to be ruined if I don't make this and I add extra pressure to myself...for me to make it positive*

and an exciting thing of just go ahead and do this and you have gotten to what you want to be. It makes it much more relaxing for me in a sense of its like all I have to do is go check out at the grocery store. I've gotten my groceries, just walk out the door, instead of feeling like I need to count how many tiles there are on the way out.

G3: I focused really hard and then when it got to that point of getting into the pre-shot routine behind the ball I just relaxed and I told myself it doesn't matter, if you make it, you make it, if not it's fine.

G6: I was focused on my golf game and I was focused on the map and the plan because I just told myself I was playing another round of golf, I was trying not to make it as big a deal as it was.

G7: I know that its not that big of deal. I know that I can go up and make it and I think that takes a lot of pressure off the rest of my game because I know that the putter is there to save, the putter is always the last club to be used and I know it's always kind of there to save me incase the other stuff doesn't work. I know that I drive the ball good but I also know that if, even if I do hit a bad drive I know that I'm, my iron game is good. I know that there is always something there to save me so I don't put so much pressure on each shot cause I always know there's more tools in my bag that can save me if it isn't a perfect shot.

Visualize

One of the most common cognitive strategies employed was to visualize the shot. As such, golfers decisions were often adjusted based upon the images that they were able to produce or in some circumstances to remove unwanted negative images that arose during performance.

G1: That is where the comfort level comes in, is how much can I see and feel the shot before I do it. When I can find, when I find it visually beforehand that's when I'm going to feel the most comfortable.

G2: Well when you start to see images in your head of shots that you never hit, that's when you start thinking okay I've got to choose a golf club here where I have a different image where I only have a good image.

G3: Basically, a goal is to get all other things in order so that you can execute the shot to that picture that you have created.

G5: I try to visualize the shot. I try to visualize it before I hit it and realize okay you've done this millions of times. You know, step back behind the ball visualize the shot step into it and try to execute.

G6: *You know as long as I can visualize that I've already done it, that is my kind of thinking process over each shot.*

G7: *Whatever shot you're, you're the most comfortable with, I mean whatever, whatever the picture in your mind is before you hit the shot if you create that exact picture I think that's, that's a perfect shot.*

Play It Safe

The final meaning category is **Play It Safe**. Although this category appears to be a strategical category, it is placed within the Mind Games component because the adjustment in strategy is used as a means for coping. This category demonstrates that golfers alter their strategy, typically to a more conservative approach, in an attempt to create comfort. Interestingly, it is not always in response to poor play, but rather a response to the self-induced pressure of sustaining or "protecting" the player from losing the lead that they had created. As previously discussed, G2 coped with the pressure of sustaining a lead by immediately altering his plan to a more conservative strategy:

G2: *I had a game plan but now I'm four shots ahead now I'm thinking screw the game plan lets just kind of nurse it around here and don't do the dumbest thing possible and just make a bunch of pars.*

G2: *If I feel uncomfortable, like I said I'll back down to a shorter club until I do feel comfortable. Ultimately, I mean you got to make good golf swings and the only way your going to make a good golf swing is if you have a clear picture in you head. If you have a club in your hand that you can't get a clear picture in your head, then you have the wrong club in you hand.*

G6: *Yes, definitely, I would say I move more towards a conservative route realizing that I am nervous, realizing that the position that I'm in I definitely would move more towards a conservative route.*

The others chose to contend with disruptions by making slight adjustments and shifting their intended targets away from the hole or away from hazards or they chose more conservative paths to avoid making mistakes.

G3: Well the standard for every shot in my mind is to hit it in the hole. Obviously, if you can reach the hole the standard is to hit it in the hole that's ideally where, where you want the ball to go. So by altering you standards you basically... changing, you are almost changing your target, so I'm imagining the hole 10 yards left on that shot. So my standards therefore have decreased because I'm not trying to hit it in the hole.

G4: Just wont feel well or good with a shot or I don't feel comfortable and you know I just have to do what shot I know I can get in play so I may not, so I may have to get off my game plan based on how I feel.

G5: I altered my line left to play away from the bunker but I still hit the ball in the bunker.

G8: I was feeling more confident with the, the lay up and trying to hit my wedge close to make the birdie you know might have been a little stressed out or not stressed out but a little tight I guess or so to speak with the situation being the final stage of tour school... trying not to, you know you don't want to make mistakes but at the same time you don't want to guard from making mistake.

G8: I was a little uptight a little nervous especially cause I wasn't hitting the ball that week so the tee shot was actually more nerve racking than anything else. And but you know once I got the tee shot off and then lade up, I was feeling fine.

In sum, the common component Mind Games describes strategic decision-making as a coping process in which the golfers identify and work through feelings that create discomfort. In doing so, they utilized several cognitive (e.g., positive reframing, visualization) and behavioral strategies (e.g., breathing, altering of strategy) that, according to these golfers, were tied to their performance of hitting a golf shot. Some of the strategies were deemed more affective, such as breathing, visualizing, down grading the task, while others like emotional relief and backing down were less effective means for achieving the golfers goals.

Section Three

ADDITIONAL FINDINGS

The purpose of this section is to share some of the experiences that were shared by fewer golfers but extend the depth of the description of strategic decision making. In addition this section will include the golfers' thoughts on the game of golf itself as well as their thoughts on the effectiveness of their strategic decision-making.

Instincts

G3 and G7 shared that they experienced an awareness of their swing that allowed them to either purposefully alter the shot so that their miss would be in the correct area or that some subconscious or instinctive process guided their swing. G3 talked about programming his mind to favor the direction of the safe miss.

G3: So I tried to use that mental thought to, as I said to steer my body to favor that right side but that almost overemphasis forced me to hit it too far right.

G3: There is going to be like...almost like a safety shot that will just deploy if something goes wrong so for me that's a big part of my game I tend to use that pretty often.

The safety shot he is referring to is an awareness that something was off in his swing and then having the ability to alter it – in the moment - in time to miss on the correct side. As previously shared in the common component strategy, G7 referred to this as a natural instinct that would guide his swing to hit the ball towards toward the hole even though he wasn't lined up to hit it toward the hole.

G7: I think your instincts are what allow you to go ahead and pull it or push it at the flag because you know its going to be okay or I think instincts are what tell you to, hit a certain shot at a flag even though you're not aiming at it and you have got to trust those.

Interestingly, golfers are well aware that the ball is likely to go where their mind is truly focused.

G1: I mean that those decisions are more based out of fear and you know you go back to sometimes people talk about, if you don't want to hit it in the water don't think about not hitting it in the water cause you are focusing on hitting it in the water even if you don't want to do that, you know your mind doesn't really have a difference in, between a negative and a positive it just hears water and goes water.

G5: It just pretty much made me hit the ball there, I mean just, I thought, I thought about it so much and I thought about I don't want to hit it there so much that, you know I've been told that, and you can tell me if this isn't right but I've been told that your mind doesn't understand anything with an apostrophe in it. Supposedly when it comes to sports psychology if that makes sense, like don't hit it in the water your mind is hearing water, doesn't even, not thinking don't hit it in the water you are most likely going to hit it in the water.

G8: And then you look right and you say, oh I don't want to hit it over there and then you know so you try and focus left but because you say I don't want to hit it over there 90 percent of the time you are going to hit it over there (laugh.)

G4 expressed this conflict in goals when he described setting up for a shot in which he was attempting to play the correct or "picture perfect" way by hitting it more towards the middle of the green instead of directly toward the hole but knowing that he was really going to try and hit it close to the hole.

G4: When I contemplate that, most of the time is when I'm giving, I'm giving lip service to the fact that I'm, I'm a focusing on the middle of the green hitting a draw but what happens is I end up kind of getting greedy and say I'm going after the pin trying to hit that draw...then I gotta start it a little further right or aim what feels like a little further right and I'm really going after the pin and there is less margin for missing.

It appears that these golfers are experiencing disruptions to performance due to divided attention, in which two or more goals are competing. One goal is a positive striving, where they want the ball to go; and the second being a preventative goal where focus is on not hitting in a troublesome area of the course.

Transformations

Three of the golfers shared that they had changed or were in the process of changing. Specifically, as they got older they became more conservative with their strategies. G7 explained how he had changed and how he let his caddy and the money he was winning for making cuts; start to influence his strategic decisions.

G7: I think I've changed; I changed the way I played golf once I got on tour. I mean I've always played aggressive and I was very precise with my decisions. Like, I didn't doubt myself and when I got on tour I had some caddies that caddied for names that guys that I looked up to as a junior golfer so I automatically gave them credit for knowing well.

G7: I realized I was playing pretty conservative then cause I was you know, I'd make every cut I really wasn't taking a lot of risks out there. I wasn't making a lot of birdies but I wasn't making bogeys either and that wasn't really I mean, I was, I don't know what happened I was playing conservative cause I mean if you just make a cut on tour you can make a lot of money but that's not really what you are there for. You are there to win tournaments and I think I got too involved with you know I've said it before I mean playing like shit and making \$50,000 a week. I mean that's insane to say that but you play well you make a million it's a big difference or you play unbelievable you make a million but I think I got so locked in to just padding my bank account instead of going out and trying to win tournaments and that is when I realized that I wasn't trusting my instincts and playing aggressive like I did on the mini tours and the Nationwide tours trying to win every week and it's strange how I kind of got locked into that. But I guess it's different on the, when you are playing for that kind of money I mean you can still, you still get kind of a positive reinforcement every week cause you are making a lot of money

G8 describes how his experience and wisdom has led to him play more conservatively, but also stated that he would like to be able to play a little more aggressive.

G8: I guess I'm a little older a little wiser, maybe I don't know if I am but I think I am. It's just, you know taking some of those chances just don't you know being through many of the experiences that I have you don't take as many chances. I think as you get older that if anything you almost get too cautious so but that type of thing you know I remember when I was a kid or younger in college or first turned pro I tried a lot more shots you know the more aggressive shots. I hit a lot more aggressive shots and as I've gotten older and you know I used to shoot a lot of big numbers make a lot of big numbers back then ah now that I have gotten older and look back on those experiences I tend to play safe a little more and avoid the double bogies.

G8: I'm trying to get myself to be a little more aggressive at times now you know cause you have to be aggressive at times if you want to have a chance to win.

G6, who happens to be the youngest golfer of the eight, states that he is trying to move to a more conservative style of play, especially in certain situations. However he does struggle with “swallowing” his pride.

G6: I think that's what lead to my aggressiveness which has gotten the better of me especially when I was younger cause I didn't know. I didn't know when you kind of needed to swallow your pride and say par is a good score and you know and now I've kind of moved to a little more conservative route. But I'm still if conservative is this end (extending arms out) and aggressive is this end I'm still more towards the aggressive but I've worked my way back a little bit in certain situations.

The transformations seem to come full circle. All three have played PGA tour events; G6 has played in three events, all as an amateur, while G7 and G8 have played for several years on the PGA tour. G6 is working on becoming more conservative, while G7 and G8 are working to regain some of the aggressiveness that they had when they first made it onto the PGA Tour.

Every Day is Different

Several of the golfers expressed the dynamic nature of both the game of golf and their own experiences with strategic decision-making. They describe it as changing every day and sometimes even changing within the same round of golf. Several stated:

G1: When it comes to a day-to-day game plan there isn't a book that I can follow. Well okay you know if I'm aggressively lazy on every shot today I'll play great, which is sometimes my motto. It doesn't always fit to everyday. I can't always wear a t-shirt everyday the weather changes I think there that in lies the complexity of the game cause it does change like that. There are certain days I need to go out and I need to be real aggressive and I just need to fire at everything to come out with a good result and there are other days that I need to feel like I am in a better rhythm and I'm just really in the fairway and on the green an I know that I will make a putt sooner or later.

G2: That's not always the case day-to-day and I don't care who you are professional amateur beginning whatever day to day your golf game is going to

be a little bit different. Sometimes it feels perfect great and those days it is easy to go at...its easy to have the mindset how close can I hit it to the hole. Now there are other days for whatever reason you feel awkward and those are the days where you can't continue in that mentality how close can I hit it to the hole. Well, you can't hit it close to the hole cause you feel like shit you know or you are not hitting so in that moment you do have to face reality.

G3: So it changes everyday and that's why I believe that being able to alter and being able to take care of those feelings is so important because it changes day to day.

G6: I definitely experience the round I experience myself as a golfer differently.

G7: So it's just it's golf, everyday is different you just kind of have to it's a learning process and you have to learn when you can and can't hit those shots.

The golfers realized the need to be flexible and adapt to changing conditions, both internally and externally. Thus, part of the experience is recognizing when adjustments need to be made.

As the golfers discussed their experiences, several of them admittedly found errors in their thinking. For example, in an earlier quote from G7, in which he explained how strategy was designed around consequences and where not to hit the shot, he exclaimed, "does that sound right? That sounds kind of backwards." G2 expressed a strong desire to want to change the way he thought through decisions, stating:

G2: Its probably bad I'm probably screwed up for thinking that way but yeah there is probably people out there where it's not that way. Tiger Woods not that way you know, Phil Mickelson, he see's target he hits a target but you are talking about some freaks you know, one and 10 million.

G2: For me yeah it does, I wish It wasn't the case I really wish I was a freak and pressure, I never created pressure in my mind I wish I was a lot dumber, I wish I was a lot dumber person, you know, you know they say that people who play golf really well are really dumb or really smart, its true there has been some really, really dump people, that just weren't smart enough to create any pressure, therefore they could perform all the way through.

G7: I mean golf is not for intelligent people, I mean I hate to throw some people under the bus, but I mean if you over think it you are not a successful golfer.

G5: Trying to hit solid golf shots and you know fairways and green. Trying to avoid making any bogies or doubles, which I know I shouldn't be thinking about.

Just For Fun

These golfers also expressed how their thinking was almost completely the opposite when they were just playing a practice round or playing a round for fun with their friends. They all are playing the same game but once it became a competition, their thinking changed significantly. Most of them had very aggressive mindsets when playing for fun. Several stated:

G1: Whereas if I'm just playing against one of my teammates on Friday afternoon and it's just for fun I may take that one less club take it right at it and swing really hard and just try and hit this real high straight ball and see if it comes out.

G2: I'll give you an example, number one at gray rock when I would go and play with my boys I would tee driver low and on the right side and I'd play a little bleed cut out there every single time automatic. That's the way I played the hole, I aimed it left and hit a little bleed cut. Now in a tournament when all of a sudden consequence play a roll I didn't even hit driver cause there is out of bounds right there's trees left and there is hazard left of the trees. So basically there are 3 bad things out there and one good thing, the fairway. So when I got into a tournament it was basically 3 wood down there, if it was downwind I hit hybrid.

G3: I'm playing a match just a friendly match at UT golf club with (a teammate) or with someone else, I'm probably going to be in a more aggressive mindset because I know he's going to be in a more aggressive mindset and try and go for a shot. So once he's hit it tight on the first hole I'm going to be more aggressive cause I'm trying to win this hole.

G5: When I'm out playing, a practice round, don't even see it, maybe I see it but I don't, It never, never crosses my mind that I could even hit it in that bunker ever, no way. But that bunker looks huge in a tournament, like oh don't hit it in there, hit it 15 feet left and get out of here with a par.

G5: I'm trying to birdie a lot more of the holes, when I'm just playing a round for fun as opposed to a tournament. A tournament I'll be happy, with you know, two or three birdies and limiting, I'm trying to eliminate bogies in a tournament, I'm trying to make birdies just playing golf, totally different strategy.

G7: When I'm home practicing and playing, you know you play aggressive you are playing on courses you're super familiar. You try and hit the perfect shot every time and you usually do and then when you get under big pressure

situations I don't know why you decide, I decide to play differently by, by taking more conservative targets and forcing myself to hit a shot that has more curve to get it close instead of just hitting it, hitting it right at it.

Despite playing the same game, the golfers' experiences are significantly different playing for fun than they are playing in a tournament. When playing for fun they are more aggressive and they give less meaning negative consequences. As such, they do not experience pressure like they do during competition.

Golf

Lastly, these golfers describe the game of golf as a thinking game with infinite possibilities, which is why they enjoy playing the game. They recognize it as mentally challenging, because you have to control your focus and balance your ultimate goal with a more realistic one.

G2: That's the game you know, that is golf that is the game really if you can control if you can really just forget about everything you just did and all your only in the present moment and you are only maybe either present or thinking just a little bit ahead that's a good place to be. If you are thinking about the past when you have done something wrong that's a terrible place, that's just not good, but it's hard. I mean that's the game that's what I'm trying to say.

G3: So that, giant goal of hitting it in the hole is the good shot or the perfect shot, but realistically cause golf is, is almost unfair you can not hit a shot in the hole from 170 yards every time. Yes it is realistic but the odds are, its never going to happen its never been done before that every, that someone has holed a shot from 170 yards every time.

G6: To think through a golf course I mean that, that's what the great thing about golf is. When I go through, what it's like is when I go through, that kind of, when I go through that and have it pay off, I know that not only did I physically conquer the hole or conquer golf on that hole I also mentally beat it and that's if you can get any kind of mental edge over any one or anything, that is huge in golf and that is what I feel like when I have accomplished the plan on that hole.

G7: That's what's so great about golf is it's, there is no right or wrong way to do it and its, it's just strategy its just a big chess game out there.

CHAPTER 5

Discussion

SUMMARY OF RESULTS

Strategic decision-making has received relatively little attention in the study of sports performance and less in elite golf. As such, phenomenological methods were utilized to investigate the experience of strategic decision-making for competitive golfers. This methodology has been deemed a useful strategy for examining lived experiences for which little is known or as a means for taking a step back to reexamine a question from a different perspective. Moreover, use of phenomenological methods informed by hermeneutic or Heideggerian philosophies allow for both an idiographic and nomothetic analysis of lived experience.

The idiographic analysis was based upon eight distinct, individual experiences of high-level golfers. Their responses demonstrated the variability common to human behavior. Consistent with Heidegger's emphasis on "time" (Heidegger, 1962) these experiences were constructed based upon their past, present, and anticipated future outcomes. Through these discussions, it became clear that decision-making was a fluid phenomenon that could change within a round of golf, across rounds, and across years. For example, changes were described during a round when the golfer is playing well, experiencing flow, and then has that flow disrupted by the awareness that they have put themselves in a position to win. Instantly, the experience changed from a calm, natural, automatic reaction, to an intense, deliberative, and uncomfortable experience. Likewise, G6, G7, and G8 shared that they experienced transitions as they progressed through their careers, which led to a shift from predominantly choosing more aggressive shots to more conservative shots. G6 shared an experience where he had changed his

approach from the previous year. Playing in the same tournament, on the same hole, a year later he made “smarter” decision by playing a shot away from the hole.

G6: So I was like okay lets be smart here, lets be smart lets get it in the right position and I you know started it left of the hole it stayed left of the hole and kind of went on the place I needed it to go so, that was a smarter decision but it was really kind of a perfect example of how I had changed mentally over the course of a year.

In addition, these experiences were consistent with the philosophical underpinnings of the hermeneutic circle, which depicts the reciprocal relationship between the individual and his or her environment, for which Heidegger referred to as Being-in-the-world (Heidegger, 1962). In fact, this was a fundamental consideration as golfers considered the challenges presented by the design of the course and their resulting emotional states and physiological arousal.

The nomothetic analysis of the eight golfers revealed five common components that depict the overall “essence” or general abstractions of strategic decision-making in golf. Although not a goal of phenomenology, these demonstrate a convergence among the experiences of high-level golfers. The following will provide a brief summary of the components along with a discussion of how these results relate to existing theory. Each of these discussions will be followed with the implications of the findings within each component for applied practitioners, such as, coaches and sport psychologists. The final section will discuss limitations and future directions.

The first common component **Strategies** describes two strategic approaches that are distinct motivationally and experientially. Aggressive strategies, where the golfer chose to play a high-risk high-reward shot were motivated by a desire to take a chance, to go and get the reward, and to play to win. The experience was more confident, “free wheeling” and for G6, it was how he thrived. In contrast, conservative strategies involved

hitting low-risk low-reward shots, motivated by a desire to avoid making a mistake. The experience was less rewarding, like “lets just take our medicine” and “play it safe.”

These strategies are theoretically distinct, with aggressive strategies being associated with approach goals and conservative with an avoidance goal motivation. According to Elliot (2006), avoidance motivation is defined as, “the energization of behavior by, or the direction of behavior away from, negative stimuli”(p. 112). As such, decisions in golf that are motivated by avoiding penalties or high scores would fall into this definition. Avoidance motivations appear to be pervasive in golf, given the emergence of the meaning categories *Textbook*, *The Miss* and *Smart Play*, which refer to strategical approaches designed to avoid making mistakes that lead to higher scores. These strategies are conservative approaches in that they attempt to reduce risk by selecting shots that afford greater room for error. *The Miss*, strengths the premise that avoidance-based goals are pervasive in golf, as many of the golfers in this study described locating or knowing where the correct “miss” was while making their decisions.

In contrast, aggressive strategies, which are designed to maximize the golfers opportunity for reward, appear to be guided by an approach motivation. Approach motivation is defined as, “the energization of behavior by, or the direction of behavior toward positive stimuli” (Elliot, 2006 p.112). For example, when G8 set the goal to shoot a score of 68 and subsequently set goals that kept him focused on playing aggressively.

The use of Approach and Avoidance goals were evident throughout the common component **Strategies**. Although the research investigating the affects of approach and avoidance goals in sport is scant, the findings suggest that approach goals are related to more positive outcomes than avoidance goals (Adie, Duda, & Ntoumanis, 2008; Nien &

Duda, 2008; Stoeber & Crombie, 2010). The golfers experiences with approach and avoidance goals support these findings, in that approach goals were typically associated with higher levels of performance and more positive experiences. When the golfers describe experiences with approach motivated goals they describe a much clearer focus, more assertive actions, and overall more positive experiences. G8 also described how when he was playing aggressive he felt more confident with himself and how it was more of a “free wheeling” mindset. In comparison, their descriptions when experiencing avoidance-based goals are encumbered with doubt, fear, frustration and poor performance. As depicted by several of the quotes, the sources of the fear, frustration and doubt may have been directly related to the avoidance-based principles that underlie the “Textbook” and “Smart” strategical philosophies. As seen in the results, both golfers G4 and G7 described negative experiences when trying to adhere to “textbook” prescriptions, when those prescriptions were contrary to what they felt comfortable playing in the moment.

Although many of the golfers described using approach goals while playing more aggressively and avoidance based goals while playing more conservative, there were also indications that they may be using both simultaneously. G6 shared that he would still play using an approach goal, to make a birdie, but would use a conservative strategy when he felt nervous. Similarly, others described having a conservative target but making an aggressive swing. These findings highlight the idiosyncratic nature of these experiences.

As such, these idiosyncrasies call into question the effectiveness of universal, on size fits all prescriptions for strategic play. This strategy may not only be disruptive to flow like states, the overall conservative nature of the strategy may also limit

performance and result in negative experiences. Comments from the golfers regarding the use of conservative strategies included

G3: There was not real place to layup, I would have had to have hit wedge, wedge which is kind of demoralizing to do on a par 5.

G5: You can't layup from 200 yards and make birdie.

G8: I was out there just trying to make cuts rather than out there trying to win and it just, your not going to win if you are trying to make cuts (laugh).

G1: I certainly wasn't going to make birdie by being conservative.

Further demonstrating the pervasiveness of the ostensibly universal approach was the experience that G7 described when he discussed his interactions with his caddy. He described how his caddy would always recommend that he aim to the middle and curve the ball toward the hole (i.e. Textbook). He stated:

G7: but I was still having this thought, this conversation with my caddy before each shot and he would always say you know that tree just to the right of the flag or whatever is a good target.

This prescription created doubt for G7, especially as he was over the ball, because he felt like the ground and the lie of the ball called for a shot more directly towards the hole. As a result he would purposefully manipulate the shot even more in an attempt to hit the shot closer to the hole, which was more in line with how he wanted to play the shot. G7's experience demonstrates a conflict between approach and avoidance motivations. This particular conflict occurred because the golfer and his caddy had different motivations. However, conflicts between approach and avoidant goals appear to be deeply imbedded in the game of golf.

Golfers know where the hole is and they want to get the ball in the hole in as few shots possible, yet in doing so they simultaneously are attempting to avoid numerous other outcomes. Negative outcomes like looking foolish, letting down their coaches and

teammates, incurring a penalty stroke, or self-criticism were all avoidance-based goals that these golfers experienced during competitive rounds of golf. Given their disruptions, it appears that the strategy golfers may be making decisions based on whichever goal motivation was most salient in the moment. As the results demonstrate, saliency is affected by numerous internal and external factors. However, what is concerning is that saliency towards avoidance-based goals may be originating from coaching philosophies that are prevalent in golf. While these approaches are appropriate when the athlete is not able to execute difficult shots, these philosophies may not be beneficial to golf performance within this population of highly skilled, elite golfers.

Given these findings it would be beneficial for a coach or consultant to interview the golfer and identify both their dispositional goal orientation and the situations in which these goals may be hindering performance. Interviews, much like the ones for this study, can help identify the areas in which the goals they set may become problematic: e.g., when golfers begin a round with approach goals but revert to avoidance goals when experiencing pressure. It was very instructive to see how the interviews for this dissertation helped the golfer begin to consider their own tendencies and how they may be impacting their performance. Once this is accomplished, the coach and golfer can work together to develop goals that are more likely to facilitate performance. As indicated by the results, this doesn't preclude conservative approaches. Again, golfers can set an approach goal of making birdie, but go about it utilizing more conservative strategies, such as hitting to the widest part of the fairway. Given the present findings, what appears to be most critical is that the goal directs the golfer's attention to elements of the task that are more consistent with flow like states - like confidence, relaxed, natural, and easy.

Decision-making was closely linked with the experience of making a golf swing. So much so, that the on-going assessment of the golfers' swing becomes an integral part of the experience of strategical decision-making. This was demonstrated by the numerous quotes within the meaning groups **Act of Swing** and **How You Feel**. For example G1 commented, "it has a lot to do with how I am feeling about my ball striking." The common component, **The Swing**, highlights the significance of physical performance interacting with the more mental or cognitive aspects of performance. This is one feature that sets this form of decision-making apart from the traditional decision-making research. Early research, rooted in expected utility (von Neumann & Morgenstern, 1944), utilized decision problems for which the actor's choice had no influence on the outcome. For example, a decision-maker is asked to choose a gamble. Beyond the initial choice, the actor has no influence on the outcome of the gamble. In contrast, golf – like most sports - is dependent upon both the decision and the execution of that decision. Thus, the actor, the decision, and the outcome of the choice are inextricably linked - creating a more dynamic decision-making experience. In addition, the result of the swing then influenced the decision on the subsequent shot. Thus, unlike Expected Utility Theory, the odds for achieving an outcome are fluid rather than static. Odds change depending upon the interaction amongst the golfer, his recent performance, and the environment for each shot. As a result, although these golfers may evaluate the decisions with an awareness of probabilities for success, their experience of the odds is more of a fluid feeling than an objective percentage. G3 described it as:

G3: I have come to know it as a feeling...I know my wedge from 80 yards 85 yards I know I can get it up and down if you had to get me to quantify it I may quantify it at 65, 70 percent of the time I'll up and down that but that maybe that may not be accurate but that's what I feel

G4 also shared his experience with assessing the odds for shots around the green by asking himself how many out of five or ten shots did he feel he would hit close to the hole. However, he also stated that this did not fully dictate his choice - especially when he was feeling more confident. He said, "It really doesn't matter cause I only got to do one for one, it doesn't have to be 10 shots." Clearly, for these golfers the probability was fluid not static. Their estimates for success changed as they dealt with their present feelings and the external environmental features of the golf course. Thus, each golfer actively adjusted the odds for success through a change in strategy, a change in feelings, or both. This process varied as a function of the level of comfort that they were experiencing when it came time to make a decision. Thus, rather than basing the decision on historical performance – which would be predicted from traditional decision-making theory – it was largely based on the immediate flow of their performance. When they were swinging well and feeling good their perceived odds for success increased, as did their experience of flow-like-states.

This common component, **The Swing**, has clear implications for practitioners. When golfers are struggling with their swing or experience heightened levels of anxiety they tend to cope by attempting to consciously control their swing. For example, G4 described the experiences being like driving a car:

G4: If I'm doubtful in my ability and I'm preoccupied with swing mechanics, its not a free flowing well okay, its just like driving a car trying to think about all your foot position hand position move this, I man you are just cluttered with a bunch of noise, you are not just driving hoping in and doing it, its not autopilot, and that is a difficult place to live, and it really influences my decision making because trying to do everything right and yet I'm not just driving.

According to theories of motor control, conscious attempts to control one's performance of well-learned skills may be detrimental (for examples see, Beilock and Carr's 2001,

explicit monitoring hypothesis or Masters, 1992, conscious processing hypothesis). Therefore, coaches and consultants need to develop coping strategies that enable the golfer to swing the golf club confidently without overt monitoring. For example, they could identify a single swing cue, where the golfer focuses on a more global feel of the entire movement rather than consciously monitoring specific segments of the swing or individual parts of the body.

The third common component, **Flow-Like States**, represents the golfers' experiences of playing well or with high levels of confidence. At times, the experiences they described were similar to what others have defined as "peak experiences" (Ravizza, 1977) or "flow" (Csikszentmihalyi, 1990), with seven of the eight participants mentioning being in the "zone" at various times throughout their careers. As the golfers expressed, these experiences allowed decision making to flow naturally, requiring less effort and thought. In general, when golfers were experiencing flow like states they were more likely to choose a more aggressive strategy or make a more aggressive swing. However, this is not always the case.

What was consistent with this experience was clarity of thought, greater focus on the task at hand, and seemingly fewer thoughts. The experience of fewer thoughts is significant given the amount of information that golfers process during decision-making. As G6 stated, "There is a lot of information, there is a lot of information like when I said when you're picking the strategy there is a lot of information." Interestingly, he followed that comment by describing how his mind then goes blank as he begins his pre-shot routine. Another one of the golfers, G3 expressed that he felt like when he was playing well or feeling highly confident about a shot, that he had 12 out of 15 checklist items

checked off within a span of seconds. These experiences describe a processing of information that is likely occurring at a subconscious level.

This proposition fits within Stanovich and West (2000) where they describe the dual-process theories of decision-making. System-one is the automatic, associative, and highly contextualized system, while system-two is the slower, rule based, analytical, system that is deliberately controlled through conscious awareness. The use of system one is consistent with flow like states, where decisions are being made quickly within the context of the present moment. The experience is such that the golfer is interacting with the contextual environment harmoniously. That is, the impressions of the external environment and the outcomes of behavior are congruent with the assumptions being made by system one. As a result, there is no need for disruption from system two, thus the golfer can continue with the experience - effortlessly relying on system one to make the appropriate choices and thus facilitating flow. In contrast, engagement of system two which involves self-awareness would likely put an end to the experience of flow.

Whether or not golfers can initiate specific behaviors to achieve **Flow-Like-State** is debatable, as these experiences are a rare and temporary phenomena (Cohn, 1991; Ravizza, 1977). However, golfers can initiate many of the behaviors that have been consistently tied to these types of experience. These behaviors are typically included in a golfers pre-shot routine, which has been shown to facilitate golf performance (Boutcher & Crews, 1987; Cohn, Rotella, & Lloyd, 1990 Cotterill, Sanders, & Collins, 2010). Cottrerrill et al., (2010) recommend that coaches and sports psychologists should avoid developing pre-shot routines base off of a “one-size-fits all” approach by taking into account individual differences in personality, coping resources, and situational appraisals. Based on the current findings coaches and consultants should also consider

developing routines based off of the individuals experience of **Flow-Like-States**. For example based of the experiences of the golfers in this study, routines should include a relaxation strategy, a narrowing of attention, a clear approach goal, and a decisive decision. According to Csikszentmihalyi (1990) the strategic decision should create a perfect balance between the individual's skill level and the challenge of the required shot. This approach may include encouraging the golfer to use his in the moment instincts to guide his decisions. As G7 stated numerous times, he felt he played his best when he trusted his instincts.

Experiencing **Flow-Like-States** is obviously ideal. However, as the golfers in this study described, there are frequent disruptions to this level of experience. As depicted in the results, several factors affected the golfer's level of comfort, which lead to the experiences described in the common component **Disruptions-to-Flow**. The use of the word disruption is not intended to connote that performance is negatively impacted. Rather, it is used to signify that the golfers are no longer experiencing a flow like state - in which their performance continues unabated and effortless. In contrast, the golfers described experiencing a heightened awareness of themselves and their surroundings to the extent that the experience no longer seemed comfortable or natural.

A common characteristic of the experience of disrupted flow was the apparent activation of the sympathetic nervous system. This stress response can eventually hinder performance through a variety of mechanisms. One such mechanism is increased arousal. According to the catastrophe model (Hardy & Fazey, 1987) arousal is initially facilitative to performance, focusing attention on task-relevant cues (Easterbrook, 1959; Landers, 1980). This benefit peaks at a certain threshold, in which it then becomes disruptive - turning attention to task-irrelevant cues. This is critical to golf performance as

increases in the sympathetic response occurred during both positive and negative states. One golfer feels the rush of adrenaline in anticipation of achieving a desired outcome, while another feels the angst of having something to lose. Both experiences involve increased physiological activation. Where they differ is in the individual interpretation of the activating event. According to the catastrophe model (Hardy & Fazey, 1987) these interpretations are likely to be associated with contrasting levels of cognitive anxiety. This is important, as positive interpretations may buffer the negative effects of increases in arousal. These interpretations were associated with the meaning these golfers attach to the decision.

These individual differences were described in the group level meaning category ***Added Meaning***. A unique feature of human experience is the construction of personal beliefs and evaluations of objects, events, and the environment. These constructions dramatically shape experience and subsequent behaviors, which are primary tenants of cognitive theories (Beck, 1979, Ellis, 1958). For these golfers, factors such as: personal responsibility, parents, coaches, teammates, and status of the tournament lead to feelings of pressure, nervousness, or excitement. These stressors are consistent with extant golf research (Cohn, 1990; Rees, Hardy, & Freeman, 2007). These studies found that, technical problems with one's game (i.e., swing), personal problems, competitive pressures, trying to meet personal standards, playing difficult shots, spectators, weather, and meeting parents expectations were sources of stress negatively impacting the individuals experience and performance.

Further disruptions came from situations in which the golfer described as being new to them. This is not surprising as novel situations have been shown to elicit the stress response in sport (Thatcher & Day, 2008). Again, these findings demonstrate the need

to develop individualized intervention strategies for coping with golf-specific stress. These golfers experiences of coping with performance related stressors were also consistent with the literature. As such practical implications for this component will follow the summary of **Mind Games**.

The common component **Mind Games** supports theories of coping that posit coping as a dynamic process (Lazarus & Folkman, 1984). Coping inherent to athletic performance is a significant determinant of athletic success (Dugdale, Eklund, & Gorden, 2002; Gould, Eklund, & Jackson, 1993; Lazarus, 2000). The golfers in this study employed a broad array of coping strategies during competitive performances. Strategies were utilized to manage pressure and feelings of discomfort, such as relaxation breathes, visualization, taking ones time, and cognitive-restructuring through self-talk. These findings are consistent with golf specific research (Nicholls, 2007; Nicholls, Holt, & Polman, 2005; Nicholls, Remco, & Polman, 2008). These studies found that golfers use a variety of techniques, often in combination, for dealing with a single stressor.

However, the previous research and the research of Gaudreau and Colleagues (Gaudreau, Nicholls, & Levey, 2010; Gaudreau, Blondin, & Lapierre, 2002) predominately focused on the effectiveness of coping strategies. According to a review by Nicholls and Polman (2007), research on coping effectiveness is predominately influenced by the underlying premises of process-oriented models (Lazarus & Folkman, 1984). A major tenant of process-oriented and similar coping models is that effective coping can be neatly organized. For example Folkman (1992) suggests that effective coping is based on a Goodness-of-Fit model. This states that if an individual appraises a stressor to be controllable then a problem focused strategy (i.e. planning, goal setting,

time management) should be effective. However, these claims are not supported by extant literature or the present findings. Nicholls et. al., (2005) found that effective coping often involved using multiple strategies at once. In addition, golfers have reported that while a coping strategy was effective in some instances, it was ineffective for managing the same stressor in a different setting (Nicholls, 2007). Their findings were strongly supported by the present data, as golfers listed multiple mind games applied during a round and even in preparation for a single shot.

Furthermore, coping strategies may not be limited to a single category or purpose. For example, many of the golfers in this study shared that they used breathing techniques to contend with anxiety. This suggests breathing as an emotion-focused strategy. This categorization may be appropriate, but these golfers also reported that they used breathing to reduce arousal so that they could more effectively swing the club. This second example suggests that breathing is a problem or task focused strategy. As such, the present data do not support a strict interpretation of these coping models. Rather, it suggests an active form of coping in which efforts are made to simultaneously control the emotion and to directly enhance performance.

What is clear is that coping is an idiosyncratic response, as evidenced by individual variation with the choice of coping strategies and their effectiveness (Gaudreau, Nicholls, & Levey, 2010). Therefore, coaches and sports psychology consultants need to work with the individual to identify both sources of stress and effective means of coping. The use of a competitive journal is an effective method for achieving both these goals. Nicholls et al. (2005) reported that several of the golfers were unaware that they had been coping poorly until they were asked. This is similar to G7's quote in section three, where he shared that his strategy was guided by the

consequences of a poor shot and then quickly became aware that this approach may not be right, he then said, “Does that sound right? That sounds kind of backwards.”

The purpose of this study was to explore the experience and meaning of strategic decision-making in golf. Despite its relative importance in golf performance this area has received little attention. Given this, the present findings as described above serve as a positive first-step in expanding the field’s knowledge of decision-making for elite level golfers. Below is a more detailed extension of the findings, specifically, as they relate to the phenomenological experience of flow and dual processing theories of decision-making.

EXTENSION OF THEORY

The results of this study can be thought of as describing two distinct phenomenological experiences. The first, an orderly experience characterized by positive affective states such as; confidence, clear thinking, reduced cognitive effort, and certainty. The second, a disorderly experience that was associated with negative affective states like, uncertainty, disrupted focus, polyphasic thinking, and cognitive dissonance. Theoretically these two experiences are consistent with descriptions of flow and anti or disrupted flow (Nakamura & Csikszentmihalyi, 2005) and the premise that individuals rely on two distinct processing systems when making decisions (Kahneman, 2011). Integrating the two theories, flow states would be associated with the reliance one system one (i.e., intuitive and heuristic processes), while disruptions to flow would activate system two leading to more elaborate information processing.

Flow theory, developed by Csikszentmihalyi (1975) describes phenomenological experiences of optimal mental states during common everyday activities, work, play, and sports performance. The experience of flow is characterized by: a balance of challenge

and skill, present moment focus, merging of action and awareness, perceptions of control, unambiguous feedback, clear proximal goals, distortion in perception of time, loss of self-consciousness, and an autotelic experience. Research within sport indicates that elite level athletes have had flow experiences (Jackson, 1992, 1995). However, our understandings of the conditions that lead into flow or sustain it are still unclear. This is likely due to the challenges of examining flow in naturalistic settings - as its assessment would necessarily undermine the experience. However, another reason may be that the model is an overly parsimonious explanation of a complex phenomenon that includes a dynamic person-environment interaction.

According to the original model of flow, an individual must perceive a balance between the challenge of the task and their skills (Csikszentmihalyi, 1990). If the challenge is believed to exceed one's skill, anxiety will ensue. Whereas, boredom occurs when skills are believed to be greater than the challenge. However, empirical data failed to support these relationships. In response, an updated version of the model was developed to illustrate that flow states occur when both perceived challenge and skill are high (Csikszentmihalyi & Csikszentmihalyi, 1988). However, recently the challenge-skill model has been called into question, with findings demonstrating weak interactions and identifying potential moderating variables (Engeser & Rheinber, 2008). Interestingly, these authors found that when the activity was highly important, flow states were more likely to occur when an individual's skills exceeded the difficulty of the challenge. Given their results, and the results from additional studies (Pfister, 2002), these authors proposed that flow should be studied in a more multi-dimensional form.

These recommendations are more tightly aligned with the phenomenological principles that are associated with Csikszentmihalyi's own characterization of flow. One

such principle is that of intentionality. This is the reciprocal and subjective person-environment interaction within which flow occurs. In addition, is the concept of emergent motivation. This is the moment-to-moment creation of proximal goals that result from the interaction. According to Csikszentmihalyi, present moment awareness and selective attention are the key components of the interaction and experience of psychic orderliness (Hunter & Csikszentmihalyi, 2000; Nakamura & Csikszentmihalyi, 2005). Unfortunately, the present model of flow does not describe how these processes interact to create or sustain flow.

Compounding the problem is that most research, especially within golf has investigated the antecedents (Catley & Duda, 1997) or methods for initiating flow, such as hypnosis (Pates & Maynard, 2000) and imagery (Nicholls, Polman, & Holt, 2005). As such, little is understood about the ongoing process of flow. A solution may be to begin asking different questions, questions that examine the person-environment interaction and the factors that maintain an orderly flow (i.e., use of Kahneman's system one) and those that disrupt and cause disorder (i.e., reliance on Kahneman's system two).

The present findings support many of the characteristics of flow, including: confidence, distortion of time, positive feelings, and control. It also demonstrate the negentropic qualities of the experience. Golfers within this study described experiencing a negentropic orderliness of the mind within the common component flow like states. When playing well they shared that decision-making was easy, involved fewer thoughts, and their thoughts were clearer, which made the experience seem natural and effortless. These experiences describe the reliance on system one for making-decisions. When making decisions in flow golfers appear to be relying on a simple decision heuristic, "how do I feel about it" (Schwartz & Clore, 1988). If the golfers feel good then they simply

follow their instincts and continue on with seemingly fewer thoughts and greater clarity. In decision theory, positive feelings essentially serve as a “go” sign, which enable the golfer to rely on simple and orderly processing (Clare & Huntsinger, 2009).

Given that positive feelings are both a key attribute of the experience of flow (Jackson, Kimieck, Ford, & Marsh, 1998) and an integral component of orderly decision-making, the model of flow may need to include theories of positive affect. According to Fredrickson’s broaden and build theory (1998), positive affect promotes attentive engagement, creativity, flexibility of thought and has an undoing effect on negative affect. All of these seemingly would promote experiences of flow. More importantly, positive affect may foster or help sustain flow by maintaining the orderliness of thoughts and attention as the individual engages in the competitive environment. In addition, positive affect may help restore order after flow has been disrupted.

Further supporting the need for an extension of the model beyond the challenge-skill relationship were the findings within the common component disruptions to flow. The experiences described in this study suggest that many of the disruptions were unrelated to perceptions of challenge or skill; e.g.: G1 wanting to impress his coach, G2 and G6 becoming anxious upon noticing the leaderboard, G3 worrying about what the players behind him were doing, and G7 being distracted by the presence of Tiger Woods. These disruptions, which included changes in arousal and affective, may lead to a shifting from system one to system two. Engagement of system two, leads to more thoughts; which were typically oriented around future outcomes or more detailed examinations about how they were feeling about their ability to execute the golf shot. These thoughts indicate that the golfers were no longer experiencing flow. Depending upon whether or not the golfer was aware of these disruptions, they then began efforts to

cope with the disruptions. One particular means of coping was to make adjustment to the demands (i.e., challenge) of the shot by aiming away from hazards or laying up with a shorter shot. These forms of coping suggest a further expansion of the flow model to include efforts to actively engage the process and regain flow.

Sport presents a unique application of flow because the challenge changes from moment to moment. In baseball the challenge changes for the batter with each pitch. In football the challenge for the quarterback changes on each play as defensive coaches modify alignments. It is particularly interesting that challenge in many sports is not limited to a single decision – even when play is reduced to a single action. This is particularly true in golf. Not only does the challenge change from hole to hole and with each swing - but within each challenge there are a variety of options (shots) that can be selected. Each of these shots require different levels of skill and fit within different potential solutions to reach the ultimate outcome. Thus, the athlete is an active agent in selecting the level of challenge that best meets their skills. Because of this, golfers frequently employ tactics that place lesser demands on their skill (e.g. hitting a chip shot rather than a flop shot), in an effort to increase the odds for success. These adjustments may lead to experiences of flow. As previously stated, Engeser and Rheinber (2008) found that in situations of high importance individuals were more likely to experience flow when their skills exceed the demands of the task. Adjusting the difficulty of the shot may be one way for the golfer to create positive feelings so that they can return back to a simpler, more orderly process of decision-making.

Based on the present findings it appears that golfers prefer to rely on system one. Specifically, they want to rely on the “how do I feel about it” heuristic. If the answer is, “I feel good” then they see a “go” sign. If the answer is “I feel bad” they then begin

more detailed information processing. These elaborations can either exacerbate the negative affective feelings and arousal or ameliorate them. The differences are often contingent upon individual difference in appraisals and coping strategies. As such, given the associations between positive affect, flow, and system one processing, individuals may be more likely to continue on in flow or return to flow more easily if they make use of appraisal and coping strategies that simplify the challenge and induce positive affect.

The present data demonstrates that golfers utilize several coping strategies that are known to increase positive affect, such as relaxing breaths, positive reframing, acceptance, and imagery. Golfers in this study also restored order to their thinking by simplifying the task, setting clear goals, and narrowing their focus. For example, G1 described an experience in a tournament where he had been playing poorly, lacking focus, when he suddenly decided to make a very clear and narrow goal to birdie the last four holes. Furthermore, he also described purposefully redirecting his attention to the present moment, as well as using distraction techniques (e.g., not thinking of golf between shots) to help calm his excitement. This example fits well within Csikszentmihalyi's recommendations for obtaining flow (Hunter & Csikszentmihalyi, 2000). He had a clear goal. The challenge was high enough to motivate full engagement. He was able to shift his attention between relevant and irrelevant thoughts.

Given these results, along with Csikszentmihalyi's description of flow as a phenomenological intentionality, it seems fitting that research in flow should redirect its attention from the challenge-skill interaction to the subjective experiences that occur during flow as well as efforts to manage the experience to reach system one and flow. Specifically, research needs to focus on interactions of situational appraisals, coping strategies, and their relationship with system one decision-making processes. Given the

association of flow with positive affect, it seems plausible that appraisals and coping strategies that create positive affect may facilitate reliance on system one and thus promote flow experiences. For example, the practice of mindfulness (Segal, Williams, & Teasdale, 2002), specifically the principle attitudes of non-judging and acceptance and the skills of self-regulation and attentional control may be effective techniques for fostering flow. These strategies may prevent or dampen reactions to non-relevant stimuli that distract attention and lead to changes in affect. For example, had G2 and G6 approached the sighting of the leaderboard from a non-judging and accepting attitude they may have prevented or at least dampened the subsequent increases in arousal.

Flow is a complex phenomenon and, to date, our understanding is still incomplete. This is partially due to the difficulty in establishing reliable research methods. Despite this, the present study adds to the description of what flow is like for elite level golfers. For the golfers in this study, flow can be described as an orderly mental process. As a result, decision-making seemed fast and effortless. These experiences may be due in part to the golfer being able to answer the question “how do I feel” with a positive reply, “I feel great”, which allows the golfer to play with greater confidence, clarity, and fewer thoughts. These results also provide a positive step forward in understanding the experience of decision-making in golf. Further research is needed to examine how appraisal and coping strategies can facilitate the reliance of system one decision-making heuristics that may be related to flow like states. Specifically, research needs to re-examine the principles of “Smart Golf”, which may be disruptive to flow. These principles often direct the golfers’ attention towards aspects of the environment that may cause the golfer to go from an “I feel good about it” state to an “I don’t feel good about it” state, leading to an activation of system two processing.

Activation of system two may, in turn, lead to elaborations and selective attention that are disruptive to performance.

PUTTING FINDINGS TO PRACTICE

Strategic decision-making in golf is a complex and dynamic process in which the golfer relies on internal and external factors when making a choice. The experience that these golfers described reveals that decisions in golf are not independent choices but are contingent upon previous outcomes. More specifically, the residual affective and physiological responses from previous attempts are influencing judgments of shot difficulty and self-efficacy. For example, failure from one shot may increase the difficulty of the next shot due to the affective and physiological changes as well as declines in perceived self-efficacy.

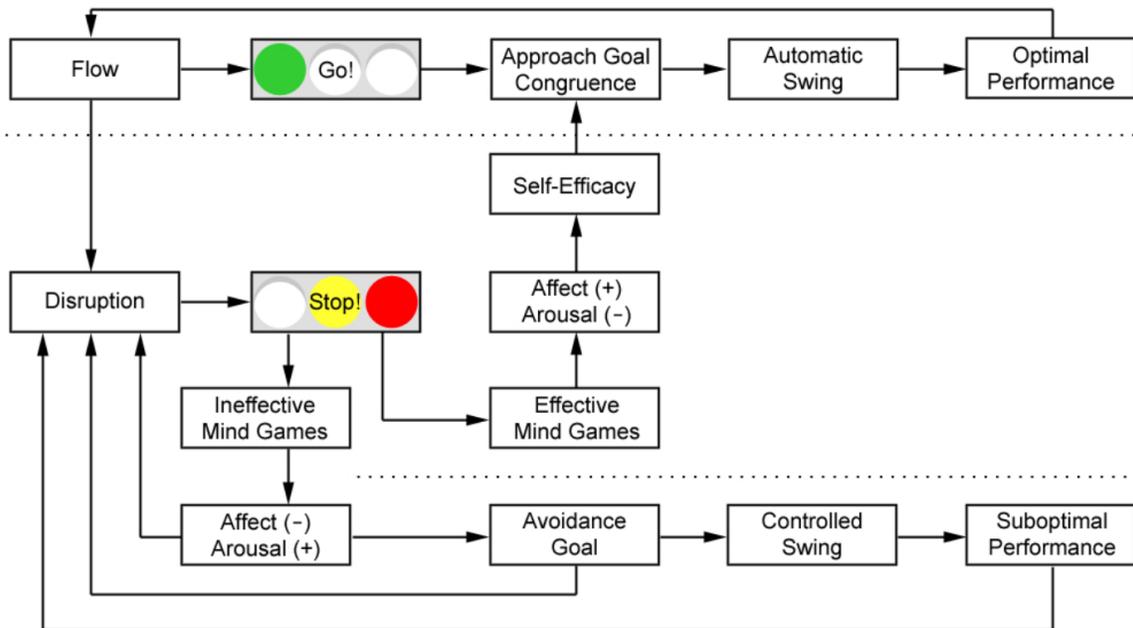
Changes in affect and arousal, coupled with individual differences, make it unlikely that a single model of decision-making can predict a golfer's decision. Decisions in golf are more complex than can be explained by Expected Utility or Decision Field Theory. Expected Utility does not account for the roles of affect and individual differences. Decision Field theory falls short in that it cannot explain affective changes or the fluid development of alternative options (Johnson, 2006). In addition, both theories fail to account for changes in probability due to subjective estimates of shot difficulty and self-efficacy that change during the course of a round of golf. However, the results of the present study are useful in developing a model of the decision-making process that may be used with golfers to facilitate golf performance.

Model of Strategic Decision-Making Process

This model is designed to provide coaches and sports psychologists with a simple framework for teaching strategic decision-making in golf. The following model

integrates the present findings with extant theory on affect, motor control, and sports performance. In addition, the teaching of the model can be integrated with the traffic light analogy (Ravizza, 1995), which teaches an athlete awareness of flow like experiences (i.e. green lights) and potential disruptions to flow (i.e., yellow and red light situations). The top half of the model illustrates the experience of the decision-making process when a golfer is in flow or experiencing green light situations. The bottom half represents a decision-making process that an athlete should follow once they recognize yellow or red light situations. This section of the model integrates coping strategies, self-efficacy estimates, and a matching of demands of the shot with high self-efficacy, in an effort to return the golfer back to flow and maximize performance. The model is not intended to predict performance outcome but rather to provide a simple way to teach strategic decision-making in golf.

Figure 1 Model of Strategic Decision Process



Flow

Flow arises when an individual engages in a task in which their skills are commensurate with the challenge (Csikszentmihalyi, 1990). The experience is such that the individual is completely emerged in the present moment, experiencing positive emotional states, and feelings of control. Individuals experiencing flow are more likely to rely on decision heuristics. For example, golfers in the present study often relied on the “how do I feel about it” heuristic (Schwartz & Clore, 1988). When they stepped up to a shot and the answer was, “I feel good” the decision-making was easy. Their thought processes were orderly, meaning they had clear and concise thoughts. As such they had fewer thoughts and the thoughts they did have were often images of hitting their ideal shot.

According to the affect processing principle (Clore & Huntsinger, 2009) the experience of positive affect is essentially a “go” sign. Golfers in this state are feeling highly efficacious, trusting their swing, and decision-making is clear. Golfers experiencing flow should not judge their performances; as such acts may disrupt the experience of flow. Judgments often lead to an increase in information processing, which may result in attentional shifts from the present moment to thoughts about the future. This elaborating process may provoke thoughts that are linked to affective states (Damasio, 1994) that may lead to further disruptions. Therefore the top of the model indicates the “Go” sign, or a green light situation (see traffic light analogy), which suggests that golfers should continue to rely on positive approach goals and an automatic swing to achieve optimal performance.

Disruptions To Flow

The golfers in this study revealed several factors that had led to Disruptions to flow (e.g. leaderboard, hazards, desire to impress others). Disruptions arise from numerous factors (e.g., poor play, hazard, unfamiliar situation) and were often associated with changes in affect, arousal, and cognitive processing. These disruptions can occur at any point in a round even when the golfer is playing well. For example, a golfer can be in a state of flow, when suddenly they see a leaderboard or a water hazard and subsequently experience a rush of adrenaline or begin to have conflicting thoughts that create doubt and undermine confidence. Often the thoughts associated with these types of disruptions are focused on future outcomes or past experiences. Regardless, the golfer is no longer focused on the present moment, which is the key factor for flow like experiences.

Disruptions to flow, according to the affect processing principle serve as a “stop” sign (Clare & Huntsinger, 2009) indicating a need for detailed informational processing. As such, golfers experiencing disruptions to flow, whether from positive states of excitement or negative states of anxiety (e.g., yellow or red light situations), should stop and engage in a coping strategy that is effective for returning affect and arousal states to levels that are more conducive to optimal performance. Thus, errors may be made when a golfer either fails to recognize that they are experiencing a disruption to flow or fails to actively employ appropriate coping strategies. These failures may allow for the changes in affect and arousal to further disrupt performance. Therefore, golfers need to develop their ability to recognize when their thoughts, feelings, and behaviors may be disrupting their chance to experience flow. Golfers can develop this awareness using the traffic

light analogy described in the next section, specifically golfers should identify yellow and red light situations.

Affect

As previously stated, disruptions to flow are typically associated with significant changes in affect. Affect can be deleterious to a golfer's performance through numerous mechanisms. The present results indicated that affect influences the golfers' feelings of efficacy in both their ability to perform the swing and in the certainty they feel about their decisions. Affect in decision-making has been shown to influence perceptions of risk (Lowenstein et al., 2001); promote approach or avoidance motivation (Baumeister, et al., 2007; Zajonc, 1998); and direct attentional searches (Coats, Janoff-Baulman, & Alpert, 1996). For example, negative affect has been shown to be associated with risk-averse decisions (Lerner & Keltner, 2000); motivation to reduce uncertainty, (Lerner & Tiedens, 2006; Rathunanthan & Pham, 1999) and decreased effort (Baumeister, et al., 2007). The golfers in this study shared several examples of these effects. G5's experience of fear led to a risk-averse decision, when he decided to layup despite the relatively low-risk demands of a more aggressive alternative. G2 reported that when he felt uncomfortable he would reduce the uncertainty of a shot by using a shorter club.

In contrast, positive affect has been associated with risk seeking (Lerner & Keltner, 2000); mood maintenance goals (Isen, 1987); and decreased perceptions of risk (Lowenstein et al., 2001). When golfers were feeling good they were much more inclined to play aggressively and pursue making birdies even if this included taking an unnecessary risk. G6 took an unnecessarily risky shot because he was feeling good and wanted to get the spectators cheering. Given these findings, it is evident that affect is influencing decision-making and thus may lead to errors resulting in sub-optimal

decisions that undermine a golfer's performance. As such, it may be appropriate to teach regulation skills for affect independent of the setting or task at hand.

Arousal

The golfers in this study also described how disruptions to flow included physiological changes. Physiological changes, like increases in arousal, are associated with disruptions in cognitive function and performance. Theories contend that increases in arousal can be disruptive due to the demands it places on cognitive resources and by narrowing attentional focus to irrelevant cues (Easterbrook, 1959). Although, arousal can be facilitative for gross motor movements (Tod, Iredale, & Gill, Blanchard, 2000) it has been shown to be disruptive to fine-motor movements (Noteboom, Fleshner, & Enoka, 2001). Since the golf swing is a combination of the two – both a decision of what club and shot to hit as well as the execution of that shot - the present model assumes that there is an optimal level of arousal for executing the golf swing. Lastly, anxiety that can manifest itself through affect (i.e. cognitive anxiety) and physiological arousal (somatic anxiety) has been shown to be disruptive to golf performance (Chamberlain & Hale, 2007). According to both the conscious control hypothesis (Masters, 1992) and the explicit monitoring hypothesis (Beliok & Carr, 2001), anxiety may also cause the golfer to attempt to overly control their golf swing. This type of internal focus of control has been shown disruptive to golf performance (Wulf & Su, 2007). Thus, it may also be appropriate to teach methods to control arousal and anxiety independent of the task at hand.

Stop

The position of the stop sign in the model is not intended to indicate a linear or sequence point in the process. Rather, the stop sign is a figurative call to awareness, instructing the golfer that attention needs to return to the present moment. Present moment awareness is critical to optimizing performance (Hunter & Csikszentmihalyi, 2000; Ravizza, 2006). In the model, present moment awareness is characterized by a mindful awareness in which the golfer approaches the moment non-judgmentally and with an attitude of acceptance (Kabat-Zinn, 1990). From this perspective, the golfer is better equipped to access the situation and address changes in affect and arousal that may be disruptive and begin the coping process.

Mind Games

Mind Games represents an approach to strategic decision-making that incorporates coping processes with the formulation of strategic decisions. This section of the model suggests that once a golfer becomes aware that they are experiencing a disruption to flow they should make a conscious effort to engage in coping strategies to return to a more optimal level of affect and arousal. Mind games are a reflection of principles from Mindfulness Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002) and the transactional model of stress and coping (Lazarus & Folkman, 1984). MBCT teaches mindfulness strategies (e.g. acceptance, mindful breathing) along with strategies for recognizing and coping with automatic intrusive thoughts. Mindfulness of the present moment enables the golfer to effectively cope with changes in affect and arousal that may arise from previous performances as well as anticipated future outcomes.

As indicated earlier, affect impacts the golfers' perception of risk and efficacy, which may lead to strategic errors. Thus, coping should include efforts to manage changes in affective states. This should lead to more accurate appraisals of both the difficulty of the shot and the ability to execute that shot. According to Fredrickson's (2005) broaden and build theory, creating positive affective states will assist the golfer in identifying alternative options that may lead to more favorable outcomes. Based on the present findings, and in conjunction with others (Gaudreau, Nicholls, & Levey, 2010; Nicholls et. al., 2005), several strategies may be effective in altering affect and arousal. These include: relaxation, taking ones time, positive-reframing, following a pre-shot routine, imagery, and acceptance.

Multiple Coping-Goals

The transactional model is also limited in that it tends to focus on coping with single factors. This is problematic in golf where golfers are simultaneously contending with multiple stressors. Golfers have performance coping-goals (e.g. maintain a lead), psychosocial coping-goals (e.g. make a good impression), and affect regulation coping-goals (e.g. escape fear) that demand attention and coping. This apparent competition amongst coping-goals may become detrimental to performance if coping with one of the goals leads to a strategic decision that is incongruent with the golfers goal of shooting the lowest score possible. For example, when G5 choose to lay up on a par five, it became more important for him to cope with and alleviate the fear of the hazards, even if this decision undermined his goal for success. This example is used to depict a decision-making error because his experience of fear led to an over estimation of risk. If G5 had coped more effectively with his fear, he may have been able to choose a more appropriate strategy. Through the process of mindful-awareness and effective coping,

the golfer can align affect, arousal, and cognitive appraisals so that they form a unified goal, which matches the challenge of the skill and their efficacy for meeting that challenge.

Approach/Avoid Goals

Finally the coping process within mind games must also identify approach/avoid goal motivations that may have emerged. Approach and avoidance goals impact both the strategical decisions that are made and the affective valance of the decision-experience. Avoidant goals are associated with psychological distress and inefficient cognitive processing (Coats et al., 1996; Emmons & Kaiser, 1996). According Schwartz (1990) approach goals are much less demanding in that the individual need only to identify one accessible path to the desired goal. As such, approach goals are proposed to lead to a system one process and facilitate greater performance. In contrast, the avoidance of a negative outcome may require the individual to identify and block all possible paths resulting in the negative outcome. This is, in fact, the basis of the smart golf approach, in which the golfer begins with an analysis of risk; which is likely to increase the risk for disruptions to flow.

Approach Goal Congruence

Approach goal congruence represents a re-entry into the flow loop. This is achieved after a golfer has successfully managed affect and arousal states to the point in which their self-efficacy is such that they make a more accurate assessment of the difficulty of the shot and their ability to execute their swing. As a result, the golfer should chose a shot that enables them to swing aggressively or automatically, meaning, they swing without worry or conscious control. The decision should be based on a positive

approach goal, which directs the golfer's attention to opportunistic areas of the course rather than penalizing areas. Thus, the decision search should begin by focusing on the most opportunistic areas of the course, such as the fairway or the flag on the green. From that point, as G3 described, they can assess the difficulty of the shot and their level of self-efficacy. If the first and most opportunistic option is not a match the search then continues. The golfer then moves on the second best option. The search continues until the golfer finds the shot that best matches the challenge they were willing to take given their present level of self-efficacy. The key is that this search begins with the ideal approach and moves away as needed – rather than beginning with the areas to avoid. This strategy is consistent with both Flow theory and Fredrickson's Broaden and Build theory (1998).

Self-Efficacy

Self-efficacy as depicted in the above model is an integral component of both the coping process and the formation of strategic decisions. Efficacy judgments are likely interacting with each of the factors (i.e. affect, arousal, coping). Golfers in this study shared numerous examples demonstrating how perceptions of self-efficacy were influential throughout the experience of strategic decision-making. However, the primary purpose of placing self-efficacy in this model is to train golfers how their efficacy judgments may be impacted by their experiences of disruptions to flow. More specifically, golfers should understand how their efficacy judgments are shaping their decisions and how to use their efficacy to identify an optimal strategy.

In essence, individual judgments of self-efficacy are comparable to the odds of winning a gamble in Expected Utility models. However, unlike the odds of a gamble that are fixed and independent of the actor as in the throw of a die, efficacy judgments in

sport are dependent upon fluctuations in performance, challenge, and interactions with the environment and their competitors. Consistent with efficacy theory (Bandura, 1997) golfer's efficacy judgments varied as a function of mastery experiences, vicarious experience, social persuasion, and physiological arousal. For example, golfers in this study relied on previous play, their fellow competitors, caddies, and judgments of their feelings in making estimates of self-efficacy. As a result, golfers in this study often adjusted their strategic decisions depending on perceptions of efficacy or as a means creating higher perceptions of efficacy.

Automatic Swing

The last component of the model is the golfers' performance of the swing free of overly conscious control. Internal or conscious efforts to control one's golf swing may lead to sub-optimal execution (Gucciardi & Dimmock, 2008; Masters, 1992). As such, it is proposed that if a golfer has coped effectively they will choose a positive approach goal that matches challenge and skill. Given this match, the golfer should be willing to trust the automaticity of their golf swing. This, in turn, should improve performance and return the golfer back to flow and the "Go" sign.

Application

The intention of this model is not to predict a golfer's strategic decisions, nor is the model designed to assert which decisions a golfer should make beyond that of beginning with approach goals and then matching the challenge of the task with their self-efficacy. The top of the model represents strategic decision making in golf when a golfer is experiencing flow like states. Again when a golfer is in flow they should continue doing what they are doing.

The main function of the model is to train golfers to optimize their decisions through an interactive and iterative process of coping with disruptions and aligning strategic options with self-efficacy judgments. This iterative process is a fundamental component of the transactional model and of self-efficacy theory, which both posit the existence of a reciprocal relationship between the individual and their environment. Therefore the decision-making process includes both coping with internal and external factors while formulating one's strategy, with the end goal being to pick a strategy that matches challenge and skill so that the golfer can execute their swing with automaticity.

Teaching of the model may begin with defining flow and describing its characteristics (e.g. merging of action and awareness, clear goals, feelings of control) and it's fundamental prerequisite of matching the challenge with one's skill. As an exercise, golfers can write down their own past experiences with flow. This will help them to develop a greater understanding of the mental states that preceded the experience as well as the thoughts and feelings they experienced during flow. Next, golfers would learn about how disruptions to flow impact performance relative to strategic decision-making and methods for coping with them. The following is an outline of how the model may be used to teach strategic decision-making.

Outline of Decision Model

1. Teaching golfers principles of flow (challenge/skill principle).
2. Teaching them how to recognize disruptions to flow (see traffic light analogy).
3. Teach them principles of MBCT and effective coping strategies such as breathing, positive reframing, acceptance, re-focusing, and pre-shot routines.
4. Teach principles of positive approach goals and to begin the decision-making process by identifying opportunities rather than threats.

5. Teach performance attribution strategies to alter or maintain self-efficacy.
6. Teach golfers to have an external focus while executing the golf swing.

TRAFFIC LIGHT ANALOGY

The present findings clearly demonstrate that golfers' responses are highly individualized, as are the methods that they implement to contend with the inherent pressures related to competitive golf. As such, strategies for enhancing performance need to cater to individual experiences. One method that consultants can use is to teach golfers the traffic light analogy, which associates an athlete's competitive experience with the colors of a traffic light (Ravizza & Hanson, 1995). In this analogy a green light situation is comparable to when the golfers are experiencing flow-like states. When the light is green the golfer just keeps doing what they are doing without conscious evaluation. This experience is similar to the dual process model of decision-making, when system one is controlling decisions. Coaches and consultants can help the golfer identify green light situations and the associated thoughts and feelings having the golfer share their best performances. For example G7 described a situation that would qualify as a green light:

G7: I've had some good rounds like that I mean and those are usually the rounds when you don't realize you are 6 or 7 under par until you are done and those that's the best feeling every cause you are just stuck in the process of walking to the next shot reacting to it you're not, you not really thinking about all the other stuff

Based on this quote the consultant could recommend to the golfer that during competition they should focus more on the process (i.e. executing their pre-shot routine) and forget about their score.

Next the consultant can discuss the meaning of yellow light situations. Yellow lights are similar to the meaning categories found within disruptions to flow. Yellow light situations are moderate stressors that begin to undermine confidence, spur frustration, doubt and increase activation of the stress response. For example yellow lights can be, poor golf swings, feelings of pressure, or water hazards. Yellow light situations can become detrimental to performance if undetected. These types of situations call for system two to actively engage in decision-making. However, according to Kahneman (2011), system two is lazy and will often allow system one to operate autonomously.

Thus it is imperative that coaches work with the athlete on developing greater awareness of yellow light situations. Once the yellow lights have been identified the coach and golfer can begin to develop effective coping strategies. Many of the strategies can be found in the common component Mind Games. Golfers in this study shared using various techniques to slow themselves down and gather their thoughts in an effort to cope and return to flow. Many of the golfers talked about consciously taking a step back to slow down and gather their thoughts. For example, when G7 experienced situations that would constitute a yellow light he just started over. He shared, "I'll just put the club back in the bag and start over." This act of starting over takes conscious awareness and discipline; therefore these strategies should be well rehearsed during practice so that they happen more naturally during performance. Failure to recognize and manage yellow light situations are detrimental to performance and can lead to red light situations.

Red light situations can be major stressors (e.g., triple bogey) or experiences in which the stress response has surpassed a useful threshold and so the golfer has seemingly lost control of their performance. A good example of a red light experience was shared by G6. He described how upon seeing the leaderboard he became extremely excited about the opportunity to win a PGA tour event. Although this is seemingly a positive stressor, the subsequent elevation in arousal needed attention. However in this example G6 failed to, as he stated, “come to his senses” and channel the adrenaline more appropriately and thus choose a better strategy. He stated:

G6: I rushed the hole, I rushed every shot every on that hole and that’s when I went back to what I used to do when I was younger, when I was 12,13,14 years old and that was rush my shots, especially when I’ve got nerves.

This example demonstrates the importance of both recognizing stressful experiences and having effective coping resources for dealing with them. The traffic light analogy is an effective tool for coach and sports psychologist to use for developing both of these skills.

FUTURE DIRECTIONS

Future research needs to continue exploring decision making from an individual perspective. In addition, based on these findings further research is needed to better understand how the external environment, such as water hazards affects the individuals emotional and physiological states. Given the dynamic nature of the experience it is difficult to identify causal relationships between the common components. Future research should utilize experimental designs to better determine the relationships among these variables, such as The Swing and Flow-Like-States.

Research is also needed in the area of approach-avoidant goals. Specifically, research is needed that clearly distinguishes between the two goals and whether golfers

are processing both goals simultaneously during competitive performance. According to the theory of Ironic Processes (Wegner, 1994) attempts to suppress a thought actually leads to greater attention being directed to the thought. As discussed in the results section many golfers are aware of this phenomenon, yet they still allow their attention to dwell on the consequences of poor shots. Dwelling on the consequences appears to be positively related to the golfers age. Research should explore this phenomenon to determine if in fact golfers do become more concerned with errors as they become more experienced and in turn become more and more conservative with their strategies.

The findings lend support theories that posit the experience of affective states changes the individual's judgments of risk and the subsequent behavioral choices. For example the golfers in this study clearly described experiences that suggest that when experiencing positive affect they are more likely to take risks and feel more confident in achieving a positive outcome (Lerner, Gonzalez, & Fischhoff, 2003; Slovic & Peters, 2006). In contrast, G8 stated that when he felt angry he felt more compelled to play aggressively. The findings were also consistent with arguments that suggest measuring affect is not enough, that distinct emotions are better predictors of choice behavior (DeSteno et al., 2004). For example, fear has the same negative valence as anger, yet when these golfers experienced fear they were more likely to avoid taking risks.

A few of the descriptions provided rational that may challenge decision theory principles that assume probabilities are static. Given the dynamic nature of both the individual player and the playing environment this appears not to be the case. As the players feelings change so do their estimations of success as well as their estimations of the difficulty of the task. Future research should address this topic. First, research should assess how accurate golfers are in estimating their probability for success.

Additional research could then measure if golfers estimate of success given various affective states.

Many of the golfers suggested that under pressure, the game changed appearing almost as an entirely different game. Seemingly innocuous variables were given greater importance, hazards look bigger or closer, and the consequences were greater. This was made abundantly clear as each golfer without prompting, made comparisons to playing the game in competition and playing just for fun. The experiences were almost exact opposites. Playing for fun, the golfers thought very little about consequences, played much more aggressively, and seemingly performed better. This and the idea that these golfers who had been playing golf for over ten years could have new experiences during competition demonstrates the significant role that personal meaning plays in a golfer's performance. Additional research needs to address why competitive performances are some much more meaningful than playing the game for fun. This type of meaning may only be understood at an individual level. Further qualitative research studies could be conducted to look at more narrowly defined experiences. For example, qualitative studies can explore the experience of being in the lead or the experience of specific strategies like aggressive or conservative play.

LIMITATIONS

As a qualitative study, this research is limited in that it is unable determine causal links. Likewise, it is unable to determine the temporal flow of decision-making. For example, it is not clear if comfort with the swing informs, is the result of, or intertwined with the decision process. However, given the scarce available research, the selected qualitative approach was the ideal starting point and the results suggest this process is dynamic with numerous factors interacting and mutually influencing one another. This,

then, provides fodder for future research that might be designed to disentangle these factors.

Another obvious limitation of this study is the small number of participants who were drawn from a relatively homogeneous population. As such, these results do not extend the field's understanding of the experiences of female golfers, high level PGA Tour professionals, or even the range of participating amateurs. However, the utility of large and diverse sample sizes is that they strengthen the generalizability of research findings. Generalizability is not a goal of qualitative research grounded in phenomenology, which aims to seek greater understanding of the individual's lived experience. To this end, the researcher must weight the benefits of larger, less developed data vs more in-depth data that can be collected from smaller samples. Future research should, obviously, be designed to conduct similar studies of other populations.

These results are also limited by the use of retrospective accounts of lived experience. Specifically, the broad nature of the question allowed the participants to share experiences that were both unique to them and possibly biased by their ability to recall distant events. Although this is limiting, as previously stated there is evidence that suggests elite level athletes are quite adept at recalling past experiences (Nieuwenhuys et. al., 2011; Orlick & Partington, 1988). Future research could address both these issues by interviewing golfers immediately following a competitive event, or even collecting decision making during the round through self-talk methodologies. In addition, to potential participant bias, the results of this study were limited by the researcher's biases. However, in the phenomenological approach these biases are not only unavoidable, but are considered an integral part of the hermeneutic circle (Lavery,

2003). According to Heidegger one's pre-understandings and historicity are apart of the interpretive process and thus help the research look deeper into the experience identifying the underlying essences resulting in a shared understanding of the experience (McConnell-Henery, Chapman, & Francis, 2009). Furthermore, the use of extensive quotes and a detailed outline for the interpretive procedures allows for transparency, so that the reader can ultimately judge the quality of the findings (Fossey et. al. 2002).

CONCLUSIONS

The experience of strategic decision-making for these eight golfers describes a dynamic process that is effortless and natural in times of flow, frantic yet exciting during disruptions, and inextricably designed to enhance the execution of their golf swing. In sum, the meaning of strategic decision-making for these golfers may be described as a process for feeling comfortable. Numerous strategies are used to arrive at a level of comfort that will enable them to execute their swing. It was interesting that while these efforts were targeting the same outcome, the methods of achieving and describing that process varied by golfer. As a result, while the process and overall goals appear consistent and potentially generalizable, the methods are idiosyncratic. Thus, the applied practitioner can utilize these results both to inform a general approach to working with elite-level golfers, but must be cautious to avoid a single, "one size fits all" solution for each situation.

This study represents the first step to understanding the experiences of strategic decision-making as lived by elite level golfers. The results highlight the need for further examination of global principles such as the "textbook" approach that is guided by avoidance-based goals and may be over applied with golfers of this caliber.

Furthermore, the results demonstrate the uniqueness of individual experience. The detailed descriptions of these golfers' experiences should be useful to both competitive golfers, their coaches, and applied sport psychologists. This is a strength of qualitative designs, in that the reader can use vicarious experiences to gain greater insight into their own experiences. As such, certain quotes may resonate with a golfer. If so, this may lead to a break through helping them maximize their performance. In addition there are numerous examples of how theory is put into action. For example, many of the golfers shared how they interpreted anxiety or adrenaline as facilitative, which is consistent with Jones (1991), who found that it is the direction of the interpretation of anxiety that is related to competitive performance outcomes. G2 talked about spinning a pressure situation into a positive, while G6 talked about channeling it calmly and smoothly into his routine to help him focus. These examples fit well with the transactional mode of stress and coping (Lazarus & Folkman, 1984), where G2 reframes the situation into a challenge appraisal and G6 effectively copes by redirecting the stress to actively engage in the task. These experiences along with the many others detailed in the results should provide a conversation piece for golfers and consultants who are exploring ways to improve their decision-making experiences.

References

- Adie, J. W., Duda, J. L., & Ntoumanis, N. (2008). Achievement goals, competition appraisals, and the psychological and emotional welfare of sport participants. *Journal of Sport & Exercise Psychology, 30*, 302-322.
- Allen-Colinson, J. (2009). Sporting embodiment: sports studies and the (continuing promise of phenomenology. *Qualitative Research in Sport and Exercise, 1* (3), 279-296.
- Allias, M. (1953). Le Comportement de l'Homme Rationnel devant le Risque, Critique des Postulats et Axiomes de l'Ecole Americaine. *Econometrica, 21* 503-546.
- Andrade, E. B. (2005). Behavioral consequences of affect: Combining evaluative and regulatory mechanisms. *Journal of Consumer Research, 32*, 355-362.
- Annells, M. (1996). Hermeneutic phenomenology: Philosophical perspectives and current use in nursing research. *Journal of Advanced Nursing, 23*, 705-713.
- Annells, M. (2006). Triangulation of qualitative approaches: hermeneutical phenomenology and grounded theory. *Journal of Advanced Nursing, 56*, 55-61.
- Avis, M. (1995). Valid arguments? A consideration of the concept of validity in establishing The credibility of research findings. *Journal of Advanced Nursing, 22*(6), 1203-1209.
- Ayres, L., Kavanaugh, K., & Knafl, K. A. (2003). Within-case and across-case approaches to qualitative data analysis. *Qualitative Health Research, 13*, 871-883.
- Bain, L.L. (1995). Mindfulness and subjective knowledge. *Quest, 47*, 238±253.
- Baker, J., Co^teÅL, J., & Abernethy, B. (2003a). Learning from the experts: Practice activities of expert decision makers in sport. *Research Quarterly for Exercise and Sport, 74*, 342–347.

- Baker, J., Co^teÅL, J., & Abernethy, B. (2003b). Sport-specific practice and the development of expert decision-making in team ball sports. *Journal of Applied Sport Psychology, 15*, 12–25.
- Bandura, A. (1977). Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191-215.
- Bar-Eli, M, & Raab, M (2006). Judgment and decision making in sport and exercise: rediscovery and new visions. *Psychology of Sport and Exercise, 7*, 519-524.
- Baron, J. (2004). Normative models of judgment and decision making. In D. J. Koehler & N. Harvey (Eds.), Malden, MA: Blackwell Publishing.
- Baumeister, R. F., Vohs, K. D., Nathan DeWall, C., & Liqing Zhang. (2007). How Emotion Shapes Behavior: Feedback, Anticipation, and Reflection, Rather Than Direct Causation. *Personality and Social Psychology Review, 11*, 167-203.
- Barlow, D. H. (1988). *Anxiety and its disorders: The nature and treatment of anxiety and panic*. New York: Guilford Press.
- Bechara, A. , Damasio, H. , Tranel, D. , & Damasio, A. R. (1997). Deciding advantageously before knowing the advantageous strategy. *Science, 275*, 1293–1295.
- Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York: International Universities Press.
- Becker P.H. (1993) Common pitfalls in published grounded theory research. *Qualitative Health Research, 3*(2), 254–260
- Beilock, S. L., Afremow, J. A., Rabe, A. L., & Carr, T. H. (2001). “Don’t miss!” The debilitating effects of suppressive imagery on golf putting performance. *Journal of Sport and Exercise Psychology, 23*, 200-221.

- Beilock, S.L., & Carr, T.H. (2001). On the fragility of skilled performance: what governs choking under pressure? *Journal of Experimental Psychology. General*, 130, 701–725.
- Breivik G. (2007). Skillful coping in everyday life and in sport: A critical Examination of the views of Heidegger and Dryfus. *Journal of the Philosophy of Sport*, 34(2), 116-134.
- Berry, J., Abernethy, B., & Cote, J. (2008). The contribution of structured activity and deliberate play to the making of expert perceptual and decision-making skill. *Journal of Sport and Exercise Psychology*. 30 (6), 685-708.
- Boden, M. A. (1979). *The computational metaphor in psychology*. In N. Bolton (Ed.). Philosophical Problems in Psychology. London; Methuen.
- Boutcher, S. H., & Crews, D. J. (1987). The effect of a preshot attentional routine on a well-learned skill. *International Journal of Sport Psychology*, 18, 30-39.
- Busemeyer, J. R., & Diederich, A. (2002). Survey of decision field theory. *Mathematical Social Sciences*, 43(3), 345–370.
- Busemeyer, J.R., & Townsend, J.T. (1989). *Decision field theory: A dynamic-cognitive approach to decision making* (Tech. Rep. No 89-7). IN: Purdue University Mathematical Psychology.
- Busemeyer, J.R., & Townsend, J.T. (1993). Decision field theory: A dynamic-cognitive approach to decision making in an uncertain environment. *Psychological Review*, 100(3), 432-459.
- Busenitz, L. W., & Barney, J. B. (1997). Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making. *Journal of Business Venturing*, 12(1), 9–30.

- Burton, L. J., VanHeest, J. L., Rallis, S. F., & Reis, S. M. (2008). Going for Gold: Understanding Talent Development Through the Lived Experiences of US Female Olympians. *Journal of Adult Development, 13*, 124-136.
- Caelli, K. (2001). Engaging with phenomenology: Is it more of a challenge than it needs to be? *Qualitative Health Research 11(2)* 273-281.
- Catley, D. & Duda J. L. (1997). Psychological antecedents of the frequency and intensity of Flow in golfers. *International Journal of Sports Psychology, 28*, 309-322.
- Catteeuw, P., Gilis, B., Wagemans, J., & Helsen, W. (2010). Perceptual-Cognitive skills in offside decision making: Expertise and training effects. *Journal of Sport & Exercise Psychology. 32*, 828-844.
- Catteeuw, P., Helsen, W., Gilis, B., & Wagemans, J. (2009). Decision-making skills, role specificity, and deliberate practice in association football refereeing. *Journal of Sports Sciences, 27*, 1125-1136.
- Chamberlain S. T., & Hale, B. D. (2007). Competitive state anxiety and self-confidence: Intensity and direction as relative predictors of performance on a golf putting task. *Anxiety, Stress, and Coping, 20(2)*, 197-207.
- Charmaz, K. (2000). Grounded theory: Objectivist and constructivist methods. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 509–536). Thousand Oaks, CA: Sage.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York, NY: Harper and Row.
- Csikszentmihalyi, M., & Csikszentmihalyi, I. (1988). *Optimal Experience: Psychological studies of flow in consciousness*. New York: Cambridge University Press.
- Chen, L., Wang, Z. M., & Zhang, W. (2011). The effects of conflict on team decision making.

Social Behavior and Personality, 39(2), 189-198.

Chou K. L. , Lee, T. M. C., Ho, A. H. Y. (2007). Does mood state change risk-taking tendency in older adults? *Psychology and Aging* 22:310–18

Christina, R.W. and Alpenfels, E. (2002). Why does traditional training fail to optimize playing performance? In *Science and Golf IV: Proceedings of the World Scientific Congress of Golf* (edited by E. Thain), pp. 231–245. New York: Routledge.

Clore, G. L. & Huntsinger, J. R. (2009). How the object of affect guides its impact. *Emotion Review*, 1(1), 39-54.

Coats, E. J., Janoff-Bulman, R., & Alpert, N. (1996). Approach versus avoidance goals: Differences in self-evaluation and well-being. *Personality and Social Psychology Bulletin*, 22. 1057-1067

Cohn, J. P. (1990). An exploratory study on sources of stress and athlete burnout in youth golf. *The Sports Psychologist*, 4, 95-106.

Cohn, P. (1991). An exploratory study on peak performance in golf. *The sports psychologist*, 5, 1-14.

Cohn, P. J., Rotella, R. J., & Lloyd, J. W. (1990). Effects of a cognitive-behavioral intervention on the preshot routine and performance in golf. *The Sport Psychologist*, 4, 33-47.

Cohen M.Z. (2000) Introduction. In *Hermeneutic Phenomenological Research: A Practical Guide for Nurse Researchers*. Sage, Thousand Oaks, CA, pp. 1–12.

Colaizzi, P.F. (1978). Psychological research as the phenomenologist views it. In R.S Valle & M. King (Eds.), *Existential phenomenological alternatives for psychology* (pp. 48-71). New York: Oxford University Press.

Cote, J., Salmela, J. H. Baria, A., & Russell, S. J. (1993). Organizing and interpreting unstructured qualitative data. *The Sports Psychologist*, 7, 127-137.

- Cotterill, S.T., Sanders, R., & Collins, D. (2010). Developing effective pre-performance routines in golf: Why Don't we ask the golfer? *Journal of Applied Sports Psychology, 22*, 51-64.
- Coyne I (1997) Sampling in qualitative research. Purposeful and theoretical sampling: merging or clear boundaries? *Journal of Advanced Nursing. 26*, 3, 623-630.
- Crist, J. D. & Tanner, C. A. (2003). Interpretation/analysis methods in hermeneutic interpretive phenomenology. *Nursing Research, 52*(3), 202-205.
- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety*. San Francisco: Jossey-Bass.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Basic Books.
- Dale, G.A. (1996). Existential phenomenology: Emphasizing the experience of the athlete in sport psychology research. *The Sports Psychologist, 10*, 307-321.
- Damasio, A. R. (1994). *Descartes' error: Emotion, reason, and the human brain*. New York: Avon.
- Debreu, G. (1960). Review of R. D. Luce, individual choice behavior: A theoretical analysis. *American Economic Review, 50*(1): 186-88.
- Denzin, N. K. (1978). *The Research Act 2nd edn*. McGraw-Hill: New York.
- Denzin N. K. & Lincoln, Y. S. (2005). *Handbook of qualitative research*. Thousand Oaks, CA. Sage Publication.
- DeSteno, D., Petty, R. E., Wegener, D. T., & Rucker, D. D. (2000). Beyond valence in the perception of likelihood: The role of emotion specificity. *Journal of Personality and Social Psychology, 78*, 397-416.
- DeSteno, D., Petty, R. E., Rucker, D. D., Wegener, D. T., & Braverman, J. (2004). Discrete emotions and persuasion: The role of emotion-induced expectancies. *Journal of*

Personality and Social Psychology, 86, 43-56.

- de Witt, L., & Ploeg, J. (2006). Critical appraisal of rigour in interpretive phenomenological nursing research. *Journal of Advanced Nursing*, 55, 215-229.
- Diekelmann N. & Ironside P. (1998) Hermeneutics. In Encyclopedia of Nursing Research (Fitzpatrick J.J., ed.), Springer, New York, NY, pp. 243–245.
- Dowling, M. (2005). From Husserl to van Manen. A review of different phenomenological approaches. *International Journal of Nursing Studies*, 44, 131-142.
- Druckman, J. N., & McDermott, R. (2008). Emotion and the Framing of Risky Choice. *Political Behavior*, 30, 297-321.
- Dreyfus, H. L. (2000). The primacy of phenomenology over logical analysis. *Philosophical Topics*, 27(2), 3–24.
- Dugdale, J. R., Eklund, R. C., & Gordon, S. (2002). Expected and unexpected stressors in major international competition: Appraisal, coping, and performance. *The Sport Psychologist*, 16, 20–33.
- Easterbrook, J.A. (1959). The effect of emotion on cue utilization and the organization of behavior. *Psychological Review*, 66, 183-201.
- Elliot, A. J. (2006). The hierarchical model of approach-avoidance motivation. *Motivation and Emotion*, 30, 111-116.
- Elliott, R., Fischer, C. T., & Rennie, D. L. (1999). Evolving guidelines for publication of qualitative research studies in psychology and related fields. *British Journal of Clinical Psychology*, 38, 215–229.
- Ellis, A. (1958). Rational psychotherapy. *Journal of General Psychotherapy*, 59, 35–49.
- Ellis, C. (1995). Final negotiations. Philadelphia: Temple University Press.
- Emden, C., & Sandalowski, M. (1998). The good, the bad and the relative, part one:

- Conceptions of goodness in qualitative research. *International Journal of Nursing Practice*, 4, 206-212.
- Emmons, R. A., & Kaiser, H. (1996). Goal orientation and emotional well-being: Linking goals and affect through the self. In A. Tesser & L. Martin (Eds.), *Striving and feel in Interactions among goals, affect, and self-regulation* (pp. 99-120). New York: Plenum Press.
- Engeser, S., & Rheinberg, F. (2008). Flow, performance and moderators of challenge-skill balance. *Motivation and Emotion*, 32(3), 158-172.
- Epstein, S. (1994). Integration of the Cognitive and the Psychodynamic Unconscious. *American Psychologist*, 49 (8). 709-724.
- Fahlberg, L.L., Fahlburg, L.A., & Gates, W.K. (1992). Exercise and existence: Exercise behavior from an existential-phenomenological perspective. *The Sports Psychologist*, 6, 172-191.
- Farmer, T. Robinson, K., Elliott, S. J., & Eyles, J. (2006). Developing and Implementing a Triangulation Protocol for Qualitative Health Research. *Qualitative Health Research*, 16, 377-394.
- Fassinger, R. E. (2005). Paradigms, praxis, problems, and promise: Grounded theory in counseling psychology research. *Journal of Counseling Psychology*, 52, 156-166.
- Fishburn, P. C. (1968) Utility theory. *Management Science*, 13, 435-453.
- Finley, P. S., & Halsey, J. J. (2004). Determinants of PGA tour success: An examination Of relationships among performance, scoring
- Finucane, M. L., Alhakami, A., Slovic, P., & Johnson, S. M. (2000). The affect heuristic in judgments of risks and benefits. *Journal of Behavioral Decision Making*, 13(1), 1-17.

Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, 2(3), 300-319.

Fredrickson, B. L. (2005). Positive emotions. *Handbook of positive psychology*. New York: Oxford University press. p. 120-134.

Frijda, N. H. (1986). *The emotions*. Cambridge, England: Cambridge University Press.

Folkman, S. & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, 55(7), 45-74.

Fontana, F. E., Mazzardo, O., Mokgothu, C., Furtado Jr. O., & Gallagher, J. D. (2009).

Influence of exercise intensity on the decision-making performance of experienced and inexperienced soccer players. *Journal of Sport & Exercise Psychology*, 31, 135-151.

Fossey, E., Harvey, C., McDermott, F., & Davidson, L. (2002). Understanding and evaluating qualitative research. *Australian and New Zealand Journal of Psychiatry*, 36, 717-732.

Fontana, F. E., Mazzardo, O., Mokgothu, C., Furtado Jr. O., & Gallagher, J. D. (2009).

Influence of exercise intensity on the decision-making performance of experienced and inexperienced soccer players. *Journal of Sport & Exercise Psychology*, 31, 135-151.

Gaudreau, P., Blondin, J.-P., & Lapierre, A.-M. (2002). Athletes_ coping during a competition: relationship of coping strategies with positive affect, negative affect, and performance-goal discrepancy. *Psychology of Sport and Exercise*, 3, 125–150.

Gaudreau, P., Nicholls, A., & Levy, A. R. (2010). The ups and downs of coping and sport achievement: An episodic process analysis of within-person associations. *Journal of Sport & Exercise Psychology*, 32, 298-311.

Gallagher, D., & Clore, G. (1985). *Effects of fear and anger on judgments of risk and evaluations of blame*. Paper presented at the meeting of the Midwestern Psychological

Association, Chicago.

- Gearity, B. T., & Murray, M. A. (2010). Athletes' experiences of the psychological effects of poor coaching. *Psychology of Sport and Exercise*, 12(3), 213-221.
- Giacobbi, Jr., P. R., Foore, B., & Weinberg, R. S. (2004). Broken Clubs and expletives: The sources of stress and coping responses of skilled and moderately skilled golfers. *Journal of Applied Sport Psychology*, 16, 166-182.
- Ginossar, Z., & Trope, Y. (1987). Problem solving in judgment under uncertainty. *Journal of Personality and Social Psychology*, 52, 464-474.
- Giorgi, A. (2005). The Phenomenological Movement and Research in the Human Sciences. *Nursing Science Quarterly*, 18, 75-82.
- Giorgi, A. (2006). Difficulties encountered in the application of the phenomenological method in the social sciences. *Analise Psicologica*, 3(XIV), 353-361.
- Glaser, B. and Strauss, A. (1967), *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Aldine, Chicago, IL.
- Golafshani, N., (2003). Understanding reliability and validity in qualitative research. *The Qualitative Report*, 8(4), 597-607.
- Gould, D., Eklund, R.C., & Jackson, S.A. (1993). Coping strategies used by U.S Olympic wrestlers. *Research Quarterly for Exercise and Sport*, 64, 83-93
- Goulding, C. (2005). Grounded theory, ethnography and phenomenology: A comparative analysis of three qualitative strategies for marketing research. *European Journal of Marketing*, 39, 294-308.
- Greenfield, B. H., Greene, B. & Johanson, M. A. (2007). The use of qualitative research techniques in orthopedic and sports physical therapy: Moving toward Postpositivism. *Physical Therapy in Sport*, 8, 44-54.

- Groenewald, T. (2004). A phenomenological research design illustrated. *International Journal of Qualitative Methods*, 3(1), 2–26.
- Grove, J. R., Prazer, V. D., Weinberg, R. S., & Pitcher, R. (2001). The role of imagery ability in the learning and performance of golf skills. In *Optimizing Performance in Golf* (edited by P.R. Thomas), pp. 311–326. Brisbane, QLD: Australian Academic Press.
- Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries, *Educational Communication and Technology Journal*, 29 (2), 75-91.
- Guba, E. G., & Lincoln, Y. S. (1981). *Effective evaluation: Improving the usefulness of evaluation results through responsive and naturalistic approaches*. San Francisco, CA: Jossey-Bass.
- Gucciardi, D. F., & Dimmock, J. A. (2008). Choking under pressure in sensorimotor skills: Conscious processing or depleted attentional resources. *Psychology of Sport and Exercise*, 9, 45-59.
- Hanin, Y. L. (2000). Individual zones of optimal functioning (IZOF) model. In Y. L. Hanin (Ed.), *Emotions in sport* (pp. 65-89). Leeds, UK: Human Kinetics.
- Hanson, T., & Newburg, D. (1992). Naturalistic inquiry as a paradigm for doing applied performance enhancement research. *Contemporary Thought on Performance Enhancement*, 1, 26-39.
- Hardy, L. and Fazey, J. (1987). The inverted-U hypothesis: A catastrophe for sport psychology? *Communication to the Annual Conference of the North American Society for the Psychology of Sport and Physical Activity*, Vancouver, BC, Canada, June.
- Harvey, D. T., Van Raalte, J. L., & Brewer, B. W. (2002). Relationship between self-talk and golf performance. *International Sports Journal*, 6 84-91.

- Hastie, R. (2001). Problems for judgment and decision making. *Annual Review of Psychology*, 52(1), 653–683.
- Hassmen, P., Koivula, N., & Hansson, T. (1998). Precompetitive mood states and performance of elite male golfers: Do trait characteristics make a difference? *Perceptual and Motor Skills*, 86, 1443-1457.
- Heidegger, M. (1962). *Being and time*. (J. Macquarie & E. Robinson, Trans.) Oxford: Basil Blackwell. (Original work published in 1927)
- Hey, J. D. (2001). Does repetition improve consistency? *Experimental Economics*, 4, 5-54.
- Hogarth, R. M., Portell, M., & Cuxart, A. (2007). What risks do people perceive in everyday life? A perspective gained from the experience sampling method (ESM). *Risk Analysis*, 27, 1427–1439.
- Hogarth, R. M., Portell, M., Cuxart, A., & Kolev, G. I. (2011). Emotion and reason in everyday risk perception. *Journal of Behavioral Decision Making*, 24, 202-222.
- Holt, N. L. (2003). Coping in professional sport: A case study of an experienced cricket player. *Athletic Insight*, 5(1), 1-11.
- Hunter, J. & Csikszentmihalyi, M. (2000). The phenomenology of body-mind: The contrasting cases of flow in sports and contemplation. *Anthropology of Consciousness*, 11(3-4), 5-24.
- Hycner, R. H. (1985). Some guidelines for the phenomenological analysis of interview data. *Human Studies*, 8, 279-303.
- Isen, A. M. (1987). Positive affect, cognitive processes, and social behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 20, pp. 203-253). New York: Academic Press.
- Isen, A. M., Nygren, T. E., & Ashby, F. G. (1988). Influence of positive affect on the

- subjective utility of gains and losses: It is just not worth the risk. *Journal of Personality and Social Psychology*, 55, 710–717.
- Jackson, S. A. (1992). Athletes in flow: A qualitative study of flow states in elite figure skaters. *Journal of Applied Sport Psychology*, 4, 161-180.
- Jackson, S. A. (1995). Factors influencing the occurrence of flow states in elite athletes. *Journal of Applied Sports Psychology*, 67(1), 76-90.
- Jasper, M. A. (1994). Issues in phenomenology for researchers in nursing. *Journal of Advanced Nursing*, 19, 309-314.
- Johnson, J.G. (2006). Cognitive modeling of decision making in sports. *Psychology of sports and exercise*, 7, 631-652.
- Johnston, B. & McCabe, M. P. (1993). Cognitive strategies for coping with stress in a simulated golfing task. *International Journal of Sports Psychology*, 24, 30-48.
- Jones, J.G., Hanton, S. and Swain, A.B.J. (1994). Intensity and interpretation of anxiety symptoms in elite and non-elite sports performers. *Personality and Individual Differences*, 17, 657–663.
- Jones, J.G., Swain, A.B.J. and Hardy, L. (1993). Intensity and direction dimensions of competitive state anxiety and relationships with performance. *Journal of Sports Sciences*, 11, 525–532.
- Kabat-Zinn, J. (1990). *Full Catastrophe living: using the wisdom of your body and mind to face stress, pain, and illness*. New York: Bantam Doubleday Dell Publishing.
- Kahneman D. 2003. Maps of bounded rationality: a perspective on intuitive judgment and choice. In *Les Prix Nobel: the Nobel Prizes 2002*, ed. T Frangsmyr, pp. 449–89. Stockholm: Nobel Found.
- Kahneman D. 2011. *Thinking fast and slow*. New York, NY: Farrar, Straus and Giroux.

- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47, 263-291.
- Kerry, D.S., & Armour, K. M. (2000), Sport Sciences and the promise of phenomenology: Philosophy, method, and insight. *Quest*, 52, 1-17.
- Kischenbaum, D.S., Owens, D., & O'Connor, E. A. (1998). Smart golf: Preliminary evaluation of a simple, yet comprehensive, approach to improving scoring the mental game. *The Sports Psychologist*, 12, 271-282.
- Kirchenbaum, D.S, O'Connor, E. A., & Owens, D. (1999). Positive illusions in golf: Empirical and conceptual analysis. *Journal of Applied Sports Psycholgy*, 11, 1-27.
- Koch, T. (1995). Interpretive approaches in nursing research: The influence of Husserl and Heidegger. *Journal of Advanced Nursing*, 21(5), 827-836.
- Koch T. & Harrington A. (1998) Reconceptualizing rigour: the case for reflexivity. *Journal of Advanced Nursing* 28, 882–890.
- Knox, S., & Burkard, A. (2009). Qualitative research interviews. *Psychotherapy Research*.
- Krane, V., Andersen, M. B., & Strean, W. B. (1997). Issues of qualitative research methods and presentation. *Journal of Sport and Exercise Psychology*, 19, 213-218.
- Krane, V., Williams, J. and Feltz, D. (1992). Path analysis examining relationships among cognitive anxiety, somatic anxiety, state confidence, performance expectations, and golf performance. *Journal of Sport Behavior*, 15, 279–295.
- Kuczka, K. K., & Treasure, D. C. (2005). Self-handicapping in competitive sport: Influence of the motivational climate, self-efficacy, and perceived importance. *Psychology of Sport and Exercise*, 6, 539-550.
- Landers, D. M. (1980). The arousal/performance relationship revisited. *Research Quarterly for Exercise and Sport*, 51, 77-90.

- Larkin, M., Watts, S., & Clifton, E. (2006). Giving voice and making sense in interpretative phenomenological analysis. *Qualitative Research in Psychology*, 3, 102-120.
- Lazarus, R.S. (2000). How emotions influence performance in competitive sports. *The Sport Psychologist*, 14, 229-252.
- Lazarus, R. S. & Folkman, S. (1984). *Stress, Appraisal and Coping*. New York: Springer.
- Laverty, S. (2003). Hermeneutic phenomenology and phenomenology: A comparison of historical and methodological considerations. *International Journal of Qualitative Methods*, 2(3), 21-35.
- LeDoux, J. (1996). *The emotional brain*. New York: Simon & Schuster.
- Lerner, J. S., Gonzalez, R. M., Small, D. A., & Fischhoff, B. (2003). Effects of fear and anger on perceived risks of terrorism: A national field experiment. *Psychological Science*, 14, 144–150.
- Lerner, J., & Keltner, D. (2001). Fear, anger, and risk. *Journal of Personality and Social Psychology*, 81, 146–159.
- Lerner, J. S., & Tiedens, L. Z. (2006). Portrait of the angry decision maker: How appraisal tendencies shape anger's influence on cognition. *Journal of Behavioral Decision Making*, 19, 115-137.
- LeVasseur, J. J. (2003). The Problem of Bracketing in Phenomenology. *Qualitative Health Research*, 13, 408-420.
- Lewinsohn, A. & Mano, H. (1993) Multiattribute choice and affect: The influence of naturally occurring and manipulated mood on choice processes. *Journal of Behavioral Decision Making*, 6, 33-52.
- Lichtenstein, S. & Slovic, P. (1971). Reversals of preference between bids and choices in gambling decisions. *Journal of Experimental Psychology*, 89, 46–55.

- Lincoln, Y.S., & Guba, E.G. (1985). *Naturalistic Inquiry*. Newbury Park, CA: Sage.
- Lipshitz, R., & Cohen, M. S. (2005). Warrants for Prescription: Analytically and Empirically Based Approaches to Improving Decision Making. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, *47*, 102-120.
- Lopez, K. A., & Willis, D. G. (2004). Descriptive Versus Interpretive Phenomenology: Their Contributions to Nursing Knowledge. *Qualitative Health Research*, *14*, 726-735.
- Luce, M. F., Bettman, J. R., & Payne, J. W. (1997). Choice processing in emotionally difficult decisions. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *23*, 384-405.
- Loewenstein, G. F., Weber, E. U., Hsee, C. K., & Welch, E. S. (2001). Risk as feelings. *Psychological Bulletin*, *127*(2), 267–286.
- Macquet, A. C. (2009). Recognition within the decision-making process: A case study of expert volleyball players. *Journal of Applied Sports Psychology*. *21*, 64-79.
- Martens, R. (1987). Science, knowledge, and sports psychology. *The Sports Psychologist*, *1*, 29-55.
- Martens, R., Burton, D., Vealey, R., Bump, L., & Smith, D. (1990). The development of the Competitive State Anxiety Inventory-2 (CSAI-2). In R. Martens, R. S. Vealey, & D. Burton (Eds.), *Competitive anxiety in sport* (pp.117_190). Champaign, IL: Human Kinetics.
- Masters, R.S.W. (1992). Knowledge, knerves and know-how: The role of explicit versus implicit knowledge in the breakdown of a complex motor skill under pressure. *The British Journal of Psychology*, *83*, 343–358.
- McCaffrey, N. & Orlick, T. (1989). Mental factors related to excellence among top professional golfers. *International Journal of Sport Psychology*. *5*, 278-287.

- McFee, G. (2009). The epistemology of qualitative research into sport: Ethical and erotetic. *Qualitative Research in Sport and Exercise*, 1(3), 297-311.
- Malterud, K. (2001). Qualitative research: Standards, challenges, and guidelines. *The Lancet*, 358, 483-488.
- Mathers, J. F., Cox, R. L. (2001). Pre-performance mood and elite golf performance: what are the optimal mood factors before competition? In: Thomas PR, editor. *Optimizing performance in golf*. Brisbane (QLD): Australian Academic Press, 327-36.
- McConnell-Henery, T., Chapman, Y., & Francis, K. (2009). Husserl and Heidegger: Exploring the disparity. *International Journal of Nursing Practice*, 15, 7-15.
- McPherson, S. L., & Kernodle, M.W. (2003). Tactics, the neglected attribute of expertise. In J. L. Starkes & K. A. Ericsson (Eds.) *Expert Performance in Sports* (pp. 137–168). Champaign, IL: Human Kinetics.
- McKague, M., & Vehoeft, M. (2003). Understandings of health and its determinants among clients and providers at an urban community health center. *Qualitative Health Research*, 13 (5), 703-717.
- McKay, J.M., Selig, S.E., Carlson, J.S., & Morris, T. (1997). Psychophysiological stress in elite golfers during practice and competition. *Australian Journal of Science and Medicine in Sport*, 29, 55–61.
- Merleau-Ponty, M. (1962). *Phenomenology of perception*. (C. Smith, Trans). Evanston, IL: Northwestern University Press.
- Mosteller, F. & Noguee, P. (1951) An experimental measurement of utility, *Journal of Political Economy*, 59, 371–404.
- Morrow, S. L. (2005). Quality and trustworthiness in qualitative research in counseling psychology. *Journal of Counseling Psychology*, 52(2), 250-260.

- Morrow, S. L. (2007). Qualitative research in counseling psychology: Conceptual foundations. *The Counseling Psychologist, 35*(2), 209-235.
- Morse, J. M., Barrett, M., Mayan M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods, 1*(2), 13-22.
- Mullen, R., Hardy, L., & Tattersall, A. (2005). The effects of anxiety on motor performance: A test of the conscious processing hypothesis. *Journal of Sport & Exercise Psychology, 27*, 212–225.
- Munhall P. (2007) Phenomenology: a method. In *Nursing Research: A Qualitative Perspective*, 4th edn (Munhall P., ed.), Jones and Bartlett, Boston, MA, pp. 123–184.
- Murayama, K., Elliot, A. J., Yamagata, S. (2011). Separation of performance-approach and performance-avoidance achievement goals: A broader Analysis. *Journal of Educational Psychology, 103*(1), 238-256.
- Nakamura J., & Csikszentmihalyi, M. (2005). The concept of flow. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 89-105). Oxford: University Press.
- Nicholls, A. R. (2007). Can an athlete be taught to cope more effectively? The experiences of an international level adolescent golfer during a training program for coping. *Perceptual and Motor Skills, 104*, 494-500.
- Nicholls, A. R. (2007). A longitudinal phenomenological analysis of coping effectiveness among Scottish international adolescent golfers. *European Journal of Sport Science, 7*(3), 169-178.
- Nicholls, A. R., & Polman, R. C. J. (2007). Coping in sport: A systematic review. *Journal of Sports Sciences, 25*, 11-31.
- Nicholls, A. R., & Polman, R. C. J. (2008). Think aloud: Acute Stress and coping strategies

- during golf performance. *Anxiety, Stress, & Coping*, 21(3), 283-294.
- Nicholls, A. R., Polman, R. C. J., & Holt, N. L. (2005). The effects of individualized imagery interventions of golf performance and flow states. *Athletic Insight*, 7(1), 43-66.
- Nicklaus, J. (1976). *Play better golf* New York: King Features.
- Nien, c.L., & Duda, J. L. (2008). Antecedents and consequences of approach and avoidance achievement goals: A test of gender invariance. *Psychology of Sport and Exercise*, 9, 352-372.
- Neisser, U. (1967). *Cognitive Psychology*. New York: Appleton-Century- Crofts.
- Newman, M. A. (1992). Perspectives on the Psychological dimension of goalkeeping: Case studies of two exceptional performers in soccer. *Contemporary Thought on Performance Enhancement*, 1(1), 71-105.
- Nieuwenhuys, A., Vos, L., Pijpstra, S., & Bakker, F., (2011). Meta experiences and coping effectiveness in sport. *Psychology of Sport and Exercise*, 12(2), 135-143.
- Noteboom, J. T., Fleshner, M., & Enoka, R. M. (2001). Activation of the arousal response can impair performance on a simple motor task. *Journal of Applied Physiology*, 91, 821-831.
- Orlick, T., & Partington, J. (1988). Mental links to excellence. *The Sport Psychologist*, 2, 105–130.
- Osborne, J. W. (1990). Some basic existential-phenomenological research methodology for counselors. *Canadian Journal of Counseling*, 24(2), 79-91.
- von Neumann, J., & Morgenstern, O. (1944). *Theory of games and economic behavior* (1st ed.) Princeton, NJ: Princeton University Press.
- Pates, J., & Maynard, I. (2000). Effects of hypnosis on flow states and golf performance. *Perceptual and Motor Skills*. 91,1057-1075.

- Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nded.). Newbury Park, CA: Sage.
- Patton, M. Q. (2002). *Qualitative research & evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.
- Payne J.W., Bettman J.R, Johnson E.J. (1992). Behavioral decision research: a constructive processing perspective. *Annual Review of Psychology*, 43, 87–131
- Pfister, R. (2002). Flow im Alltag. Untersuchungen zum Quadrantenmodell des Flow-Erlebens und zum Konzept der autotelischen Persönlichkeit mit der Experience Sampling Method (ESM)[Flow in everyday life: Studies on the quadrant model of flow experiencing and on the concept of the autotelic personality with the experience sampling method (ESM)]. Bern: Peter Lang.
- Pickens, M. M., Rotella, R. J., & Gansneder, B. M. (1996). The effect of putting confidence on putting-performance. *Journal of Sport Behavior*. 19 (2), 148-162.
- Philips-Pula, L., Strunk, J., & Pickler, R. H. (2011). Understanding Phenomenological approaches to data analysis. *Journal of Pediatric Health Care*, 25(1), 67-71.
- Poczwadowski, A., Sherman, C.P., & Ravizza, K. (2004). Professional philosophy in The sport psychology service delivery: Building on theory and practice. *The Sports Psychologist*, 18, 445-463.
- Polkinghorne, D. (1983). *Methodology for the human sciences: Systems of inquiry*. Albany: State University of New York Press.
- Polkinghorne, D. E. (1989). Phenomenological research methods. In R.S. Valle & S. Halling (Eds.) *Existential-phenomenological perspectives in psychology* (pp. 41-60). New York: Plenum.
- Pollio, H., Henley, T., & Thompson, C. (1997). *The phenomenology of everyday life*.

Cambridge, England: Cambridge University Press.

Poolton, J. M., Masters, R. S. W., & Maxwell, J. P. (2006). The influence of analogy learning on decision-making in table tennis: Evidence from behavioral data. *Psychology of Sport and Exercise*, 7, 677–688.

Quiggin, J. (1982). A theory of anticipated utility. *Journal of Economic Behavior and Organization*, 3, 323–343.

Raab, M. & Johnson, J. (2003). Decision Field Theory Explain Individual Risk-Taking Behavior And Simulation Data In Sports. In R. Stelter (Ed.), *European Congress of Sport Psychology*, 2003, p. 136. Copenhagen: Det Samfundsvidenskabelige Fakultets Reprocenter.

Raghunathan, R., & Pham, M. T. (1999). All negative moods are not equal: Motivational influences of anxiety and sadness on decision-making. *Organizational Behavior and Human Decision Processes*. 79(1), 56–77.

Ravizza, K. (1977). Peak experiences in sport. *Journal of Humanistic Psychology*, 17(4), 35-40.

Ravizza, K. & Hanson, T. (1995). *Heads-Up Baseball: Playing the game on pitch at a time*. Indianapolis, IN: Masters Press.

Ravizza, K. (2006). Increasing awareness for sport performance. In J. M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (5th ed). (pp. 228-239). New York, NY: McGraw-Hill.

Rees, T., Hardy, L., Freeman, P. (2007). Stressors, social support, and effects upon performance in golf. *Journal of Sports Sciences*, 25(1), 33-42.

- Rieskamp, J., Busemeyer, J. R., & Mellers, B. A. (2006). Extending the bounds of rationality: Evidence and theories of preferential choice. *Journal of Economic Literature*, *44*(3), 631-661.
- Rottenstreich, Y., & Hsee, C. K. (2001). Money, kisses, and electric shocks: On the affective psychology of probability weighting. *Psychological Science*, *12*, 185–190.
- Royal, K. A., Farrow, D., Mujika, I, Halson, S. L., Pyne, D., & Abernethy, B. (2006). The effects of fatigue on decision making and shooting skill performance in water polo players. *Journal of Sports Sciences*, *24*(8), 807-815.
- Sadala, M. L. A., & Adorno, R. deC. F. (2001). Phenomenology as a method to investigate the experiences lived: A perspective from Husserl and Merleau-Ponty's thought. *Journal of Advanced Nursing*, *37*(3), 282-293.
- Savage, L. J. (1954). *The foundations of statistics*. New York: Wiley.
- Schwandt, T. A., Lincoln, Y. S., & Guba, E. G. (2007). Judging interpretations: But is it rigorous? trustworthiness and authenticity in naturalistic evaluation. *New Directions for Evaluation*, *2007*, 11-25.
- Schwarz, N. (1990). Feelings as information: Informational and motivational functions of affective states. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 527-561). New York: Guilford.
- Schwarz, N. , & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: Information and directive functions of affective states. *Journal of Personality and Social Psychology*, *45*, 513–523.
- Schwarz, N. , & Clore, G. L. (1988). How do I feel about it? Informative functions of affective States. In K. Fiedler & Forgas (Eds.), *Affect, Cognition and Social Behavior* (pp. 385-407). New York: Guilford.

- Seale, C. (1999). Quality in qualitative research. *Qualitative inquiry*, 5(4), 465.
- Segal, Z. V., Williams, J. M., & Teasdale, J. D. (2002). *Mindfulness and the prevention of depression: A guide to the theory and practice of mindfulness-based cognitive therapy*. New York: Guilford Press.
- Shah, A. K., & Oppenheimer, D. M. (2008). Heuristics made easy: An effort-reduction framework. *Psychological Bulletin*, 134(2), 207.
- Short, S. E., Bruggeman, S. G., Marback, T. L., Wang, L. J., Willadsen, A., & Short, M. W. (2002). The effect of imagery function and imagery direction on self-efficacy and performance on a Golf-putting task. *The Sport Psychologist*, 16, 48-67.
- Simon, H. A. (1955). A behavioral model of rational choice. *Quarterly Journal of Economics*, 69, 99–118.
- Simon, H. A. (1983) *Reason in Human Affairs*. Stanford, CA: Stanford University Press.
- Slovic, P., Finucane, M., Peters, E., & MacGregor, D. G. (2002). The affect heuristic. In T. Gilovich & D. Griffin (Eds.), *Heuristics and biases: The psychology of intuitive judgment* (pp. 397-420). New York: Cambridge University Press.
- Slovic, P., & Peters, E. (2006). Risk Perception and Affect. *Current Directions in Psychological Science*, 15, 322-325. doi:10.1111/j.1467-8721.2006.00461.x
- Smith, D., Wright, C. J., & Cantwell, C. (2008). Beating the bunker: The effect of pettlep imagery on golf bunker shot performance. *Research Quarterly for Exercise and Sport*, 79(3), 385-391.
- Sparks, A. C. (2001). Myth 94: Qualitative health researchers will agree about validity. *Qualitative Health Research*, 11(4), 538-552.
- Sparks, A., & Smith, B. (2009). Judging the quality of qualitative inquiry: Criteriology and relativism in action. *Psychology of Sport and Exercise*, 10, 491-497.

- Stanovich, K. E., & West, R. F. (2000). Individual differences in reasoning: Implications for the rationality debate? *Behavioral and Brain Sciences*, 23, 645–726.
- Starks, H., & Brown Trinidad, S. (2007). Choose Your Method: A Comparison of Phenomenology, Discourse Analysis, and Grounded Theory. *Qualitative Health Research*, 17, 1372-1380.
- Starmer, C. (2000). Developments in non-expected utility theory: The hunt for a descriptive theory of choice under risk. *Journal of Economic Literature*, 38(2), 332–383.
- Stenbacka, C. (2001). Qualitative research requires quality concepts of its own. *Management Decision*, 39(7), 551–556.
- Stern P. (1994) Eroding grounded theory. In *Critical Issues in Qualitative Research Methods* (Morse J., ed.), Sage, Thousand Oaks, CA, pp. 212–223.
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). Thousand Oaks, CA: Sage.
- Stoerber, J. & Crombie, R. (2010). Achievement goals and championship performance: Predicting absolute performance and qualification scores. *Psychology of Sport & Exercise*, 11(6), 513-521.
- Sugden, Robert. (1986). New developments in the theory of choice under uncertainty,” *Bulletin of Economic Research*, 38, 1-24.
- Taylor, J. A., Shaw, D. F. (2002). The effects of outcome imagery on golf putting performance. *Journal of Sports Sciences*, 20, 607-613
- Tesch. R. (1990). *Qualitative re.search analysis types and software tools*. New York: Falmer.
- Thatcher, J. and Day, M.C., 2008. Re-appraising stress appraisals: the underlying properties of stress in sport. *Psychology of Sport and Exercise*, 9, 318–335.

- Thomas, P. R., & Fogarty, G. J. (1997). Psychological skills training in golf: The role of individual differences in cognitive preferences. *The Sports Psychologist*, 11, 86-106.
- Thomas, P. & Over, R. (1994). Psychological and Psychomotor skills associated with performance in golf. *The Sports Psychologist*. 8, 73-86.
- Thompson. C.J.. Locander, W.B.. & Pollio. H.R. (1989). Putting consumer experience back into consumer research: The philosophy and method of existential phenomenology *Journal of Consumer Research*, 16(2). 133-146.
- Tice, D. M., Bratslavsky, E., & Baumeister, R. F. (2001). Emotional distress regulation takes precedence over impulse control: If you feel bad, do it! *Journal of Personality and Social Psychology*, 80, 53-67.
- Tobin, G. A., & Begley, C. M. (2004). Methodological issues in nursing research: Methodological rigor within a qualitative framework. *Journal of Advanced Nursing*, 48(4), 388-396.
- Tod, D., Iredale, F., & Gillet, N. (2003). 'Psyching-up' and muscular force production. *Sports Medicine*, 33, 47-58.
- Tversky, A. (1972). Elimination by aspects: A theory of choice. *Psychological Review*, 79, 281–299.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157), 1124.
- Tversky A, Kahneman D. (1981). The framing of decisions and the psychology of choice. *Science* 211, 453–58.
- Tversky, A., Sattath S., & Slovic, P. (1988). Contingent weighting in judgment and choice. *Psychological Review*, 95, 371-84.
- Tversky A, & Simonson I. (1993). Context-dependent preferences. *Management Science*, 39,

1179–89.

- Valle, R. S., Halling, S. (1989). *Existential-phenomenological Perspectives in Psychology: Exploring the Breadth of Human Experience*. Plenum Press, New York.
- Valle, R. S., & Mohs, M. (2006). Transpersonal awareness in phenomenological inquiry: Philosophy, reflections, and recent research. *Alternative Journal of Nursing, 10*, 1-16.
- Van der Zalm J.E. & Bergum V. (2000) Hermeneutic phenomenology: providing living knowledge for nursing practice. *Journal of Advanced Nursing 31*, 211–218.
- van Manen M. (1990) *Researching Lived Experience*. State University of New York Press, New York.
- Van Manen, M. (1997). Phenomenological pedagogy and the question of meaning. In D. Vandenberg (Ed.), *Phenomenology & education discourse* (pp. 41-68). Johannesburg, South Africa: Heinemann.
- Vidich, A. J., & Lyman, S. M. (2000). Qualitative methods: Their history in sociology and anthropology. In N. K. Denzin & Y. S. Lincoln (2nd ed.), *Handbook of qualitative research* (pp. 37–84). Thousand Oaks, CA: Sage.
- Weber E. U., Johnson E. J. (2009). Mindful judgment and decision making. *Annual Review of Psychology 60*:53–86
- Wegner, D. M. (1994). Ironic processes of mental control. *Psychological Review, 101*(1), 34-52.
- Willis, P. (2001). The “things themselves” in phenomenology. *Indo-Pacific Journal of Phenomenology, 1*(1), 1-14.
- Wilson H. & Hutchinson S. (1991) Triangulation of qualitative methods: Heideggerian hermeneutics and grounded theory. *Qualitative Health Research 1*(2), 263–276.
- Woolfolk, R.L., Murphy, S.M., Gottesfeld, D. and Aitken, D. (1985). Effects of mental

rehearsal of motor activity and mental depiction of task outcome on motor skill performance. *Journal of Sport Psychology*, 7, 191-197.

Wu, G., & Gonzalez, R. (1998). Common consequence conditions in decision making under risk. *Journal of Risk and Uncertainty*, 16, 115–139.

Wulf, G., Lauterbach, B. & Toole, T., (1999). The learning advantages of an external focus of attention in golf. *Research Quarterly for Exercise and Sport*, 70, 120-127.

Wulf, G., Su J. (2007). An external focus of attention enhances golf shot accuracy in beginners and experts. *Research Quarterly for Exercise and Sport*, 78(4), 384-389.

Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inference. *American Psychologist*, 35, 151–175.