

**MINDING YOUR OWN GAME: SELF-REGULATION AND
PSYCHOLOGICAL MOMENTUM AMONG GOLFERS**

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ABSTRACT

Psychological momentum (PM) is often regarded as an important phenomenon that influences athlete performance. Nevertheless, conceptualisations of PM are criticised for being speculative, vague and impractical for scientific inquiry. In contrast, self-regulation is a long-standing, well researched concept used to explain performance outcomes, yet not clearly integrated in current PM conceptualisations. Hence, this thesis explores self-regulation relative to PM. Golf was considered to be an appropriate context for the empirical inquiries on the basis that it serves as a metaphor for managing life's challenges. Three studies were conducted. The first study entailed a systematic conceptual analysis of PM based on previous conceptualisations and studies in relevant scientific literature. Self-regulatory processes were identified among the key psychological mechanisms and moderators related to PM. The second study aimed to identify key self-regulation strategies in PM experiences among 16 golfers. A mixed method approach including novel "walk-along" and "think aloud" data collection techniques was used. An inductive thematic analysis yielded a comprehensive typology of golfing strategies. Nevertheless, the study did not find consistent strategy patterns in positive or negative PM phases. The third study explored the self-regulation of identity (ego-regulation) in relation to PM phases. A staggered multiple-baseline single-case research methodology was used with five golfers (three professionals and two amateurs). Ego-regulation was manipulated through a mindfulness-based schema mode program tailored to golf (Mindfulness for Golf; MFG). Pre-, mid- and post-intervention data showed positive changes among the participants on two dimensions of PM as well as performance outcomes. Overall the results suggest that golfers use idiosyncratic self-regulation processes to facilitate performance, but these are not directly linked to PM phases. Nonetheless, there are promising indications that enhancing ego-regulation through the MFG program facilitates positive momentum among golfers. Based on the results of the studies in this thesis, and for the sake of scientific parsimony and pragmatism, it is recommended that self-regulation models incorporating motivation are used to explain momentum in athletic activity. In this view, PM has the function of describing, not influencing, goal-driven performance.

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PREFACE

Dedication

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CHAPTER 1. INTRODUCTION AND LITERATURE REVIEW

Goal-directed activity can have both positive and negative consequences for our health and well-being (Aarts, 2007). On one hand, a fanatical pursuit of, for instance, financial, academic, athletic or celebrity distinction, can lead to detrimental health consequences such as stress or substance abuse (e.g. Suldo, Shaunessy, & Hardesty, 2008). On the other hand, health-related goals, such as New Year resolutions, may never gain momentum (Marlatt & Kaplan, 1972). Two concepts in the psychology literature used to explain momentum in goal-directed activity are self-regulation and psychological momentum (PM).

1.1. Self-Regulation

Psychological processes that pertain to goal-driven behaviour, such as self-regulation, have been explored extensively in psychology (Graham & Weiner, 1996). Self-regulation is well recognised as being instrumental in the development and maintenance of momentum in socially desirable and healthy behaviour (Baumeister & Vohs, 2007; Rasmussen, Wrosch, Scheier, & Carver, 2006). Baumeister, Gailliot, De Wall and Oaten (2006) define self-regulation as “an important personality process by which people seek to exert control over their thoughts, their feelings, their impulses and appetites, and their task performances” (p. 1773). A failure in self-regulation has a detrimental impact on an individual’s health, adjustment, scholarly and work achievements, interpersonal relationships, all of which impact significantly on social and economic stability (Baumeister & Vohs, 2007; World Health Organization, 2000).

Despite the expected variances in content emphasis and research methodologies in studies on self-regulation, Karoly (1993) proposed the following multi-element definition as a conceptual framework for these purposes:

Self-regulation refers to those processes, internal and/or transactional, that enable an individual to guide his/her goal-directed activities over time and across changing circumstances (contexts). Regulation implies modulation of thought, affect, behavior, or attention via deliberate or automated use of specific mechanisms and supportive metaskills. The processes of self-regulation are initiated when routinized activity is impeded or when goal-directedness is otherwise made salient (e.g. the appearance of a challenge, the failure of habitual action patterns, etc). Self-regulation may be said to encompass up to five interrelated and iterative component phases: 1. goal selection, 2. goal cognition, 3. directional maintenance, 4. directional change or reprioritization, and 5. goal termination (p. 25).

This conceptual framework, as Karoly (1993) further outlines, distinguishes self-regulation, in psychological terms, as discrete from beliefs, attributions, preferences concerning freedom of choice or desirability of control, general intellectual capabilities, and biochemical or neurophysiological systems of internal state regulation (homeostasis).

According to Baumeister and Vohs (2007) self-regulation is directly linked to the motivation to achieve success, which requires self-discipline and devotion to the strategies that we develop for goal achievement. Motivational psychologists tend to be interested in what people choose to do, how long it takes before they initiate their choices (latency), how much effort they apply to these choices (intensity), how long

they persist in their endeavours, and what cognitions and emotions accompany the process with the choice (Graham & Weiner, 1996).

Despite previous complexities arising from confluence and conflict between motivation and self-regulation, Baumeister and Vohs (2007) argue that motivation has been neglected in self-regulation theory. By this account, cognitive psychology (being a dominant force of late) generally views self-regulation as “just a tool in service of motivation” (p. 2). Instead they proposed that motivation make up the fourth component of a self-regulatory process of which the other three include: standards (a marker for change), monitoring (self-evaluation in relation to the standards) and self-regulatory strength (willpower). In their view, these components are interactional and, when necessary, compensatory. For example, if motivation levels are high (based on a high standard), they can override a fatigued willpower. If all components are in sync, the person may experience extraordinary results. In this light, motivation may be the key factor for momentum in goal-driven behaviour. Notably, the term motivation and momentum both derive from the Latin *movere* (to move) (Momentum, 2012).

1.1.1. Motivation and Ego-Regulation

The concept of motivation is broad, multidimensional and has many sources. Barbuto Jr and Scholl (1998) outline five main sources of motivation: intrinsic process motivation (for internal gains such as to have fun); instrumental motivation (for external gains such as financial rewards); external self-concept-based motivation (for external/other affirmation of self-concept); internal self-concept-based motivation (for achieving an ideal self-concept); and goal internalised motivation (behaviour and attitudes based on internalised values).

With respect to self-concept-based motivation, the act of protecting the psychological self is widely regarded as a fundamental motivator that guides our social behaviour (Baumeister, Heatherton, & Tice, 1993; Brown, Ryan, Creswell, & Niemiec, 2008). This relates to egotism. This refers to the motivation to maintain or enhance favourable views about the self, which may be threatened when called into question by external agents or events (Jordet, Hartman, & Jelle Vuijk, 2011). For example, Mack et al. (2008) found that participants in a basketball shooting task used ego-enhancing and ego-protecting cognitive strategies to preserve their own ability ratings, regardless of performance outcomes. In light of this, ego-regulation is a part of self-regulation that pertains to the cognitive process of facilitating self-esteem, which relates to the cognitive strategy of boosting self-confidence (among other descriptors of self-esteem) or avoiding threats to the self-concept.

Support for the notion of ego-regulation is apparent in contemporary cognitive psychology. For example, in an update of the cognitive model, Beck and Haigh (2014) proposed a “self-expansive” mode, in which the central theme involves evaluation or devaluation of self whereby positive self-expansion is associated with higher self-esteem and negative self-expansion is associated with diminishing self-esteem (p. 10).

Beck’s theory of modes denotes an interaction of cognitive, emotional, motivational, and behavioural parts that can account for the pursuit of life goals and the management of other specific demands or difficulties (Beck, 1996; Beck & Haigh, 2014). Young et al., (2003) previously defined modes as “those schemas or schema operations – adaptive or maladaptive – that are currently active for an individual” (p. 37). Modes therefore reflect a gestalt of thoughts, feelings and behaviour as an

emotional and behavioural state at a specific point in time in a person (Young et al., 2003).

Modes are organised around a collection of schemas embracing simple or complex beliefs. A cognitive schema refers to “a pattern imposed on reality or experience to help individuals explain it, to mediate perception, and to guide their responses” (Young et al., 2003, p. 6). Moreover, these schemas may have direct relevance to the self in terms of a self-schema. Markus (1977) defines self-schemata as “cognitive generalisations about the self, derived from past experience, that organize and guide the processing of self-related information contained in the individual’s social experiences” (p. 64).

Schemas are mostly formed early in life, become reinforced and then persistently projected onto later life experiences even when they are not applicable. In this respect *Early Maladaptive Schemas* (EMSs) were postulated as “self defeating emotional and cognitive patterns that begin early in our development and repeat throughout life” (Young et al., 2003, p. 7). Accordingly, EMSs as a priori truths predispose an individual to maladaptive behaviour.

A number of EMSs have been identified mainly in the clinical domain (Young et al., 2003). Nevertheless, it seems we are all susceptible to maladaptive schemas to some degree depending on the context. The “failure” schema, for example, is associated with non-achievement and a sense of inadequacy in relation to the individual’s peers. The beliefs embraced in these schemas may be reactions to circumstances (e.g. conditional beliefs), imperative beliefs that operate on “musts” and “shoulds” such as “I should be a better golfer”, and beliefs pertaining to self-image and self-esteem. It follows that if maladaptive schemas and related beliefs are triggered in certain contexts, they can

disrupt task-performance, particularly when self-esteem is vulnerable as in the case of the self-expansive mode discussed earlier.

In this view, modes are fluid aspects of a person's personality. In other words they are parts of self that all people have; facets of identity that operate either separately or concurrently, ideally with awareness of each other. Hence, athletes may fluctuate between a positive and negative *momentum mode* depending on what schemas (particularly self-related schemas) are in operation during the game, and depending on their capacity to regulate their modes. According to Beck and Haigh (2014) the self-expansive mode is so devoted to goal attainment that it operates according to rules of conduct that safeguard "momentum when satisfaction diminishes (e.g., when work becomes onerous)" (p. 11). In this light, the capacity for self-regulation, particularly in relation to the self and identity are of central importance to momentum in goal-driven behaviour.

Nevertheless, self-regulation in relation to self-identity is contingent on self-awareness, which is mediated by the individual's capacity for self-consciousness. According to Fenigstein, Scheier and Buss (1975), self-consciousness refers to the tendency of persons to direct attention inward or outward. Earlier explanations of self-consciousness came from Mead (1934) who originally proposed the concept of the reflexive self, whereby the self is both the subject and object of consciousness. Self-as-a-subject is involved with external stimuli such as being engrossed in a task; whereas self-as-an-object is experientially involved with itself and is vulnerable to doubt in the face of others (Mead, 1934; Wicklund & Duval, 1971).

In sport, higher levels of self-consciousness during competition are associated with decrements in performance, such as when athletes choke under pressure

(Baumeister, 1984; Hill & Shaw, 2013). Choking in sport refers to the “significant decline in athletic performance under pressurised conditions” that is detrimental to the athlete’s performance in the short term, and in the longer term, possibly to sporting achievement, subjective well-being and athletic identity (Hill & Shaw, 2013, p. 103). Baumeister (1984) suggested that during pressure situations, for example in a sporting competition, arousal associated with these circumstances stimulates self-consciousness and interferes with task focus and performance. *Choking* (under pressure) or *collective collapse*, with respect to teams, have been associated with negative PM (Apitzsch, 2007; Hill & Shaw, 2013). Moreover, a loss of self-consciousness is somewhat associated with athletes’ reported experiences of peak performance, flow and positive momentum (Crust & Nesti, 2006; Swann, Keegan, Piggott, & Crust, 2012).

Therefore most, if not all, athletes seem to be susceptible to disrupted performance due to heightened self-consciousness. Nevertheless, in contrast to individuals with high dispositional self-consciousness, individuals with low dispositional self-consciousness tend to be more vulnerable to task performance disruption (Baumeister, 1984).

One explanation for these findings is that people with higher levels of self-consciousness are more accustomed to the experience and are therefore able to regulate their attentional processes toward a task (Baumeister, 1984). In this view, if an individual’s capacity for self-consciousness is increased, theoretically he or she could develop methods to regulate self-consciousness states so as not to disrupt task-performance, which could have a positive impact on momentum sequences experienced by athletes.

1.1.2. Self-Regulation and Athletic Performance

In general, self-regulatory processes are widely regarded as fundamental psychological mechanisms that influence an athlete's performance levels. Cervone et al. (2006) refer to self-regulatory processes as functional capacities of an individual, such as self-awareness, self-monitoring, self-evaluation and self-control (behavioural adjustment). Athletes competing at the highest levels of sport tend to devote substantial time and effort to using self-regulatory processes to set goals, prepare, plan, pay attention to task execution, as well as evaluate their own performances (Kirschenbaum, 1984). During sporting competition, higher levels of performance outcomes are achievable when an athlete's capacity to self-regulate are higher (Collins & Durand-Bush, 2014). In contrast, poor self-regulation processes are linked to errors in skill accomplishment, poor tactical decisions and conflict among team members (Collins & Durand-Bush, 2014). According to Kirschenbaum (1984), an athlete's competition outcomes reflect his or her capacity for self-directed thinking and behaviour. Therefore, competing athletes display the ability to self-regulate (Cleary & Zimmerman, 2001).

1.1.3. Self-Regulation and the Golf Context

Golf is generally recognised as a game of precision in which participants endure a spectrum of environmental (Finn, 2008), physical (Thomas & Over, 1994), and psychological demands for relatively long periods (Bois, Sarrazin, Southon, & Boiché, 2009). Components of self-regulation are frequently reported in research related to golf performance. For example, Thomas and Over (1994) identified focusing attention, refocusing attention, and commitment to clearly defined goals. McCaffrey and Orlick (1989) report that highly skilled professional golfers on tour tend to reflect on their performances and prepare systematically through planning in practice and play.

Golf has been depicted as a metaphor to the business realm in terms of the challenges faced by individuals in both of these contexts (Ceron-Anaya, 2010). Golfers and businesspersons both tend to develop careful strategies (physical and mental) to negotiate potentially hazardous circumstances in their endeavours. According to an article in *The New York Times*, in 1998, the more accomplished a company chief executive officer is at golf, the more likely he or she will yield higher profits for investors (Ceron-Anaya, 2010). Nevertheless, the golf metaphor is not exclusive to business as, golf could be a metaphor for many contexts in life, if not for life in general. Thus, the golf course is potentially an ideal “laboratory” for psychological studies, particularly studies pertaining to psychological skills that are crucial for the development and maintenance of enhanced task performance (Bois et al., 2009; Finn, 2008).

1.1.4. Enhancing a Capacity for Self-Regulation

Psychological skills are no longer seen only as predispositions, individual characteristics or personality traits inherent in athletes, but as psychological phenomena that are modifiable through specific training programs or interventions (Thomas & Fogarty, 1997). In this light, it seems plausible that people could develop self-regulatory processes to facilitate positive momentum and prevent negative momentum.

To develop self-regulatory processes, elite golfers tend to use techniques such as imagery. Imagery can help a golfer to focus attention and maintain deep concentration at appropriate times during play (Thomas & Over, 1994). Cohn (1991) found that golfers typically strived for narrow, task-directed attentional focus in the present (rather than for past or future events). During periods of peak performance, golfers reported

higher levels of self-confidence and were able to regulate emotions, thoughts and level of arousal (Cohn, 1991).

A key psychological function identified in self-regulation for enhancing and maintaining well-being, is an individual's quality of consciousness (Wilber, 2000). The primary capacities for a quality of consciousness are attention and awareness, which are attributes of mindfulness (Brown & Ryan, 2003). From a cognitive psychology point of view, executive functions that sustain an individual's capacity to self-regulate can be boosted through training or interventions such as mindfulness meditation (Hofmann, Schmeichel, & Baddeley, 2012).

1.1.4.1. Mindfulness

Mindfulness originated from Eastern contemplative customs, particularly Buddhism, as a practice to actively cultivate conscious attention and awareness. According to Buddhism, patterns of mind that keep people trapped in emotional suffering are, fundamentally, the same patterns of mind that frustrate our potential for a more deeply satisfying way of being (Teasdale & Chaskalson, 2011a). Buddha outlined a conceptual framework encompassing four noble truths that would help people to attend to these struggles. Teasdale and Chaskalson (2011a) outline these noble truths as follows: The first noble truth is that there is *dukkha*, a Pali word with no real adequate English translation (Pali is one of the ancient Indian languages in which the Buddha's teachings were first recorded). *Dukkha* is often translated as "inevitable suffering". There are various forms of *dukkha*; however, one of the most damaging aspects of *dukkha* is the tendency to identify with the varying and passing aspects of our experience (including moods, feelings, thoughts), as things that belong to, or are parts of some underlying and independently-existing, enduring self. To obtain possible freedom

from dukkha, it is not only important to fully understand it, but to acquaint oneself with it through direct inner experience.

The second noble truth is described by the Pali word *Tanhā*, which is usually translated as a sort of attachment to desire (the cause of dukkha) (Teasdale & Chaskalson, 2011a). Suffering is created through a fatal combination of unquenchable desires and our unwillingness to let these go. In this regard, the essence of Buddha's teaching can be summarized as: nothing whatsoever should be grasped at, or clung to, as "me" or "mine".

The third noble truth tells states that the termination of dukkha can be realised through the cessation of craving (Teasdale & Chaskalson, 2011a). Finally, the fourth noble truth consists of a Noble Eightfold Path - eight elements, each of which synergizes the other elements (Teasdale & Chaskalson, 2011a). One of the elements in the path to enlightenment is wise mindfulness, which can be enhanced through meditation practices. According to these teachings there are three main strategies embedded in mindfulness meditation to facilitate change: firstly to change what the mind is processing (content) and redirect attention to sensations or breathing. The idea is to cultivate a mental skill of intentional redirection of attention from wandering thoughts. Secondly, to change how the mind processes, which involves experiencing sensory stimuli with curiosity and interest rather than being immersed within, or automatically averted to phenomena like thoughts and feelings (Teasdale & Chaskalson, 2011a). This process intends to disrupt and transform habitual unhelpful configurations of processing. Thirdly, to change the view of what is being processed, which includes a process of letting go of, rather than identifying personally with, the experience (Teasdale & Chaskalson, 2011a). Mindfulness encourages attention to feelings,

thoughts and sensations as mental events in the field of awareness, without forming them as aspects of our sense of subjective self (Teasdale & Chaskalson, 2011a). If things can be seen clearly as they are, and if the individual can relinquish the tendency to identify personally with the experience, then the basic conditions for dukkha are removed (Teasdale & Chaskalson, 2011a).

Not all researchers agree on the intricate facets pertaining to Western conceptualisations of mindfulness (Chambers, Lo, & Allen, 2008). Notwithstanding, Brown and Ryan (2003) refer to mindfulness as “a state of being attentive to and aware of what is taking place in the present” (p. 822). Kabat-Zinn (1994) describes mindfulness as “paying attention in a particular way: on purpose, in the present moment, and non-judgmentally” (p. 4). Despite some variations most definitions tend to emphasise two main points: firstly, an individual’s attention to, and awareness of both internal and external experiences in the present time; and secondly, an individual’s acceptance and non-judgemental reactions to these experiences (Chambers, Lo, & Allen, 2008). Internal experiences may include perceptions, thoughts and feelings, bodily functions and sensations, while external experiences could refer to sights, sounds, smells and textures (Kabat-Zinn, 1994; Langer & Newman, 1979).

Chamber’s et al. (2008) point out that mindfulness refers to a quality of consciousness (attentional focus, mindful awareness) and not a practice or technique. The quality of consciousness, or capacity of mindfulness, can be enhanced through meditation, which Baer (2003) defines as “the intentional self-regulation of attention of moment to moment” (p. 125). Through mindfulness meditation the individual develops an accepting, compassionate relationship to experience, no matter what the experience (Teasdale & Chaskalson, 2011a; Teasdale & Chaskalson, 2011b). Moreover, Brown and

Ryan (2003) contend that people have different levels of strength and frequency to a mindfulness state (dispositional mindfulness).

Research on mindfulness has “increased exponentially over the last 20 years” and many practitioners have integrated mindfulness into psychotherapy by adopting mindfulness-based, and mindfulness-informed, interventions (Cigolla & Brown, 2011, p. 709). Despite some methodological challenges, empirical studies suggest that mindfulness training is effective for treating pain, anxiety, stress and depressive relapse (Kabat-Zinn, 1990; Segal, Williams, & Teasdale, 2002).

1.1.4.2. Mindfulness and Sport

With the Millennium came the introduction of mindfulness and acceptance-based models in sport psychology (Mahoney & Hanrahan, 2011). Western sport psychology started to draw on mindfulness research from clinical domains and apply it to athletic performance enhancement and psychological well-being (Gardner & Moore, 2004; Gardner & Moore, 2012). With this introduction came a shift in cognitive behavioural therapy (CBT), now often referred to as Third-Wave CBT (Hofmann, Sawyer, & Fang, 2010).

Mindfulness philosophy contradicts models of self-regulation based on Second-Wave CBT. For example, Kirschenbaum (1987) proposed a five-stage model of self-regulation for sport performance, which entails: 1. Problem identification (area where performance can be enhanced), 2. Commitment to change in the identified area, 3. Execution of change based on cybernetic principles; 4. Environmental management (managing feedback from external sources); and 5. Generalisation of these self-regulatory efforts to facilitate long-term success. Notably, in stage three change is based on the belief of many theorists that “people must: attend to relevant target behaviours

(self-monitor); evaluate performance against a standard (self-evaluate); generate relevant expectancies about a likelihood of continued success; and self-reinforce or self-punish contingent on favourableness of self-evaluation” (Kirschenbaum, 1987, p. S107).

In contrast, by embracing mindfulness philosophy, Third-Wave CBT rejects self-evaluation, self-reinforcement and self-punishment for the sake of self-acceptance (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996; Mahoney & Hanrahan, 2011).

Thus, in contrast to traditional psychological training in sport, which aims for athletes to develop methods to regulate thoughts and feelings towards an “ideal performance state”, mindfulness assumes no such state (Gardner & Moore, 2012). In this view, mindfulness ultimately aims for a reduction in cognitive self-regulation resources while promoting natural acceptance. This allows the athlete to attend to task demands, which is particularly relevant for closed skill sports, such as golf, where self-regulatory processes for focusing attention and maintaining deep concentration are crucial at an elite level (Baumeister, Reinecke, Liesen, & Weiss, 2008; Thomas & Over, 1994).

Reduced volitional control over thoughts and feelings suggests minimised left hemisphere cortical activity, resulting in greater automated, enhanced sporting performance. Electroencephalograph studies seem to support this hypothesis with respect to golf putting tasks (Babiloni et al., 2008; Baumeister et al., 2008; Crews & Landers, 1993).

Moreover, evidence is emerging to support the notion that mindfulness training enhances golfing performance. For example, Kaufman, Glass and Arnkoff (2009) conducted a study with 21 golfers to assess the *Mindful Sport Performance Enhancement program* (MSPE), a four-week program designed to enhance flow in

athletes. Kaufman et al. (2009) reported significant positive changes among the reports made by golfers' on their confidence and state levels of mindfulness, as well as flow, during games over a four-week period.

A follow up study with Kaufman et al.'s (2009) participants was carried out by Thompson, Kaufman, De Petrillo, Glass and Arnkoff (2011), who reported sustained increases in awareness levels and overall dispositional mindfulness along with reduced task-related anxieties and thoughts.

In another study, Bernier, Thienot, Codron and Fournier, (2009) concluded that athletes with a propensity towards mindfulness are more likely to experience Csikszentmihalyi's (1990) flow state. Bernier et al. (2009) studied seven young elite golfers who participated in a mindfulness and acceptance intervention. The golfers reported a capacity to heighten "physiological and mental states in situations where they need to increase their energy, motivation or focus" (Bernier et al., 2009, p. 328).

1.1.5. Self-Regulation and the Problem of Volition

Self-regulation rests upon the primary assumption that humans have personal agency and therefore have influence over their thoughts, feelings and behaviour. In a social cognitive theory of self-regulation, "human behaviour is extensively motivated and regulated by the ongoing exercise of self-influence" (Bandura, 1991, p. 248).

Karoly (1993) refers to the study of self-regulation as the "analysis of voluntary action management" (p. 24).

This assumption is controversial in the field of psychology. It is linked to the problem of volition and free will, which can be traced back to the late 1800s in James' conjectures about the self and *will* (Baumeister, 2008; Karoly, 1993). The problem pertains to the degree to which psychological causes play a role in human action, and

despite centuries of furious debate among philosophers and psychologists, it remains an unsolved, and probably unsolvable, issue (Baumeister, 2008). Over the years the debate fostered various standpoints from Freud's (1927) deterministic drives on one hand, and Sartre's (1992) radical freedom on the other. Throughout this period the concept of self-regulation was under threat of abandonment (Baumeister, 2008). During the positivistic wave, concepts about self-determined action were circumvented for the sake of scientific parsimony (Karoly, 1993).

Despite paradigmatic resistances, studies on self-determined behaviour have flourished over the last few decades, particularly in relation to the theories of reasoned action (Fishbein & Ajzen, 1975), goal-setting (Locke & Latham, 1990), self-efficacy (Bandura, 1997) and self-determination (Deci & Ryan, 1985). Karoly (1993) speculates on various potential influences for the regained momentum of scientific interest in self-regulation. These include modern technology, new methodologies, the demise of logical positivism, and cognitive psychology's achievements in clarifying mental information processes, systems theory and a wider scope of psychodynamic thinking.

In defence of psychological studies on self-determined behaviour Baumeister (2008) argues that concern about whether or not free will exists is not relevant in psychology. He suggests that it is probably best left to philosophers. Furthermore, he proposed that the expertise of psychologists lies in their ability to collect "evidence about measurable variance in behaviours and inner processes and identifying consistent patterns in them", while accepting well-recognised indications that some acts are freer than others (Baumeister, 2008, p. 15).

As methodical and legitimit as it may be to accept that there are variations in acts of freedom, this limits curiosity about which acts are freer than others. It is

important not to limit curiosity because, as Kuhn (1970) has explained, scientific curiosity produces knowledge that reshapes our assumptions in a dynamic way. Besides, the discovery of different kinds of self-determined behaviours and their respective consequences holds great appeal for many people. In elite sport for example, a carefully developed repertoire of self-determined behaviours may result in marginal performance enhancements. These marginal gains all contribute to goal achievement, which was the fundamental theory underlying David Brailsford's success of eight gold medals with British cyclists in the 2012 Olympics (Hall, James, & Marsden, 2012). Thus, any new (unconstrained) research on self-regulation should be a matter of necessity.

The idea that a series of marginal successes leads to overall success in a sporting event implies some kind of steady momentum. In fact the concept of momentum, as discussed in the next section, appeared in sport science literature in the late 70s (Adler & Adler, 1978).

1.2. Psychological Momentum

Homer once described momentum as “forces that move people to extraordinary action” (Cited in Adler, 1981, p. 9). Nevertheless, initial studies of momentum mostly pertain to physics with Galileo, Kepler and Descartes, and later with Newton and Einstein (Adler, 1981). In general it refers to the impetus gained by a moving object. Broadly though, momentum has been studied in relation to group, individual and economical movements (or performances) in contexts such as politics, economics, sport and organisations (Morgenstern, 2006).

In sport, momentum usually refers to the fluctuation in dominant performance between teams or individuals in competition. The notion that a competitor or a team has momentum is typically associated with some kind of psychological advantage and many

players, coaches and spectators believe it to be an important factor of sporting performance (Burke, Aoyagi, Joyner, & Burke, 2003). Momentum has subsequently become synonymous with PM following Iso-Ahola and Mobily's (1980) initial curiosity of the phenomenon. Iso-Ahola and Mobily (1980) defined PM as "an added or gained psychological power that changes a person's view of him/herself or others, or others' views of him/her and themselves" (p. 392). Notably, the premise upon which PM operates is on early success. In other words, perceptions of PM are triggered by successful performance outcomes, such as a goal in soccer, which leads to increased self-confidence, cognitive focus (attention and concentration) and effort (mental and / or physical) that results in further success (Hamberger & Iso-Ahola, 2004; Iso-Ahola & Mobily, 1980; Iso-Ahola & Blanchard, 1986; Iso-Ahola & Dotson, 2014; Savage, 2012). Iso-Ahola and Blanchard (1986) found that PM had a strong influence on competitive racquetball players' self-perceptions and perceptions of the opponent. In the break after their first game, racquetball players rated their confidence and perceived likelihood of winning the next game, while also rating skill level compared to their opponents. It was found that most of the players who won the first game went on to win the second game

Many athletes, coaches and spectators believe that an athlete has a psychologically-enhanced competitive advantage through previous performance outcome successes (Burke, Burke, & Joyner, 1999; Markman & Guenther, 2007). Gilovich, Vallone and Tversky (1985) found that 91 percent of basketball fans believed that a player who recently scored two or three times in a game was more likely to score again, in contrast to a player who recently missed scoring. Most fans believed that an

optimal strategy for the player would be “to pass the ball to someone who had just made several shots in a row” (Gilovich et al., 1985, p. 298).

Most of the studies exploring PM and the notion of early performance outcome success in sport have used basketball shooting tasks (e.g. Cornelius, Silva, Conroy, & Petersen, 1997; Koehler & Conley, 2003) or sequences of hoops (shots made) in a game (e.g. Gilovich et al., 1985), or game wins through a season (e.g. Arkes & Martinez, 2011). Other sporting contexts used for exploring PM include: tennis (e.g. Burke, Edwards, Weigand, & Weinberg, 1997; Jackson & Mosurski, 1997; O'Donoghue & Brown, 2009; Richardson, Adler, & Hanks, 1988; Silva, Hardy, & Crace, 1988; Taylor & Demick, 1994; R. S. Weinberg, Richardson, & Jackson, 1981; R. Weinberg & Jackson, 1989); volleyball (e.g. Burke & Houseworth, 1995; Eisler & Spink, 1998; Marcelino, Mesquita, Palao, & Sampaio, 2009; Schilling, 2009; Stanimirovic & Hanrahan, 2004); football (e.g. M. I. Jones & Harwood, 2008; Morgenstern, 2006; Redwood-Brown, O'Donoghue, Robinson, & Neilson, 2012; Reid & Crust, 2012; G. Young, 2011); table tennis (e.g. Briki, Den Hartigh, Hauw, & Gernigon, 2012; Gernigon, Briki, & Eykens, 2010); racquetball (e.g. Iso-Ahola & Mobyly, 1980; Iso-Ahola & Blanchard, 1986); handball (Moesch & Apitzsch, 2012); swimming (Briki et al., 2012); pocket billiards ; cycling (e.g. Briki, Den Hartigh, Markman, Micallef, & Gernigon, 2013; Perreault, Vallerand, Montgomery, & Provencher, 1998); rifle shooting (Kerick & Iso-Ahola, 2000); American football (Johnson, Stimpson, & Clark, 2012); ice hockey (Gayton & Very, 1993); golf (Livingston, 2012; Savage, 2012); and streaks of performance outcome successes indirectly related to PM have been explored in baseball (Albright, 1993).

Despite several studies providing evidence that a phase of successful performance outcomes result from PM in relation to early success (see Iso-Ahola & Dotson, 2014), this notion has met serious challenges. PM is related to the “hot hand” phenomenon in basketball. The “hot hand” refers to a belief that a basketball player who starts to shoot hoops (score) in succession, is starting a run and his or her chances of making the next hoop will increase (Gilovich et al., 1985). In their seminal article, Gilovich et al. (1985) found that despite basketball players’ and spectators’ strong beliefs in the “hot hand”, a basketball shooting task showed that shots made were not dependent on previous shots. According to Gilovich et al. (1985) shot sequences are random events that are probably misperceived due to “cognitive illusion” (p. 313) or “memory bias” (p. 310). Similar refutations of the “hot hand” phenomenon are common in scientific literature (see Arkes, 2013).

Nonetheless, studies that refute the “hot hand” phenomenon are accused of misrepresenting the concept by not considering it to be, according to Iso-Ahola and Hamberger (2004), a temporary phase during competition. In this respect the statistical procedures used to try and detect what is a somewhat infrequent occurrence among large data sets are likely to yield probabilities that suggest random occurrence (Arkes, 2013). Over and above previous studies with professional and college basketball players who provide justification for a belief in the “hot hand”, recent studies using appropriate statistical analysis do contribute support for the belief (Iso-Ahola & Dotson, 2014; Mace, Lalli, Shea, & Nevin, 1992).

Another obvious challenge to studies on PM concerns talent, skill level or athletic ability. If two athletes are in competition and one of them is superior in skill level, it is likely that he or she will appear to have momentum. To control for ability

level, Iso-Ahola and Blanchard (1986) used a method of analysing players within strata of skill levels and within a tiebreaker condition. On both accounts they found that racquetball players with early success were more likely to win overall. Similar results have been found with intercollegiate and elite tennis players (Ransom & Weinberg, 1985; Silva et al., 1988). Nevertheless, as PM is explored across different sports in both individual and team formats, it seems more and more evident that athletes' experiences of PM are individual, subjective and dependent on the sporting context (Adler & Adler, 1978; Briki et al., 2012). For example, Briki et al. (2012) found that table tennis players had different patterns of reactions to swimmers with respect to competitive anxiety and self-confidence, while watching videos of their recent performances.

In both views, whether the “hot hand” has a role in future performance outcomes or not, there does not seem to be a place for goal-directed activity, such as self-regulation, that accounts for the development or maintenance of PM. The first view suggests that PM is dependent on interpretations of performance outcomes (external events), while the second view denies the “force” of PM. Vallerand, Colavecchio and Pelletier (1988) pointed out that operational definitions of PM in terms of performance outcomes confound cause and effect variables. That is, PM hypothetically enhances performance, while also being the effect of increased performance. Hence, there is a risk of circular reasoning. Accordingly Vallerand et al. (1988) set out to unravel the confusion with the construction of the Antecedents-Consequence (AC) model of PM.

The AC model conceptualised PM as a perception of moving towards a goal, which prompted changes in motivation, a sense of control, optimism, energy and synchronisation (Vallerand et al., 1988). The AC model was the first comprehensive model of PM to distinguish various personal and situational antecedent triggers from

performance outcomes. It also included physiological arousal in the mix of moderating factors and, in so doing, it offered a biopsychosocial approach to PM. More specifically by introducing the concept of motivation, the model accommodated some aspect of self-determined action.

The first notable indication that self-regulatory mechanisms had some role to play in PM came with the notions of *positive inhibition* and *negative facilitation* (Silva et al., 1988). Positive inhibition refers to a negative change in momentum preceded by a positive circumstance. For example, on the second hole of the last round in the 2012 Masters Golf Tournament at Augusta National Golf Club, Georgia, Louis Oosthuizen established a clear lead on the field by scoring an albatross (three under par / double-eagle). Louis holed his 235 yard second shot and it was soon recognised by the media as one of the greatest shots ever witnessed in the history of this tournament. Nevertheless, this remarkable event seemed to disrupt Louis' ability to establish some kind of cadence as indicated in his later comments: "That was my first double-eagle ever. So it was tough over the next five holes to just get my head around it and just play the course... But I felt like I found my rhythm going down 11, and you know, played well from there" (accessed on 18 April 2012 from: <http://www.supersport.com>). In contrast, negative facilitation refers to a positive change in momentum preceded by a negative circumstance. Both circumstances imply that individuals adopt strategies to bring about change in momentum.

Later, Taylor and Demick (1994) aimed to build on the AC model by introducing the Multidimensional Model of Momentum in Sport. Taylor and Demick proposed a chain of six stages or elements that result in the development of momentum: "precipitating events and their relationships to change in immediate outcome; change in

cognition, affect, and physiology; change in behaviour; the resulting increase or decrease in performance consistent with the above changes; a contiguous and opposing change in the previous factors on the part of the opponent; and a resultant change in the immediate outcome” (Taylor & Demick, 1994, p. 51). Mack and Stephens (2000) conducted a study to test the first three stages of Taylor and Demick’s model and found that perceptions of PM may influence an athlete’s sense of self-efficacy but seemed to have no effect on persistence on a task. The study, however, did not assess any form of self-regulatory strategies in the process. While Taylor and Demick’s model has been acknowledged as being more amenable for empirical testing, it is based on macro concepts with much left to speculation on micro psychological processes.

The next conceptual model, the Projected Performance Model, was proposed by Cornelius, Silva, Conroy and Petersen (1997). Cornelius et al. (1997) embrace the distinction between performance and PM and contest that positive or negative PM are labels used to describe performance when there is a deviation from a perceived normative state of performance over a sustained period of time. Thus PM, as such, does not influence performance. Rather, Cornelius et al. (1997) identified three categories of factors that influence perceptions of momentum: personal variables, situational variables and self-ratings of performance. The findings from experimental basketball shooting contests indicate that perceptions of momentum were appreciably predicted by situational variables and self-ratings of performance, while changes in performance were noticeably predicted by situational variables alone (Cornelius et al., 1997). Like the previous models on PM, only modest support has been obtained for the Projected Performance Model and the tenets, particularly personal variables, impacting on PM remain equivocal (Young, 2011).

In a review of the literature on PM, Crust and Nesti (2006) argue that perceptions of PM probably mediate performance by means of cognitive and affective processes, but that these mediators remain speculative. They further contend that part of the problem is due to a lack of qualitative research, which could help shed more light in this regard. Subsequently two qualitative studies have emerged (Jones & Harwood, 2008; Young, 2011). Jones and Harwood (2008) conducted an in-depth qualitative study with five football players. An inductive thematic content analysis resulted in themes of triggers and outcomes for both positive and negative PM experiences, individual and team strategies that develop and maintain positive PM, as well as strategies to overcome negative PM. Similarly, Young (2011) identified five themes pertaining to athletes' experiences of PM, one of which he called created momentum (CM – strategies to alter performance leading to experiences of PM). Both studies allude to volitional personal variables relating to PM experiences, for example “controlling rhythm and tempo” (Young, 2011, p. 49). This implies that positive PM is experienced among players who are able to use constructive psychological skills to regulate their thoughts feelings and behaviour. Therefore, it could be expected that athletes report PM experiences that positively correlate with a capacity to self-regulate as they adjust to various challenges during play. Nevertheless, there is a lack of research that comprehensively identifies and explains the role of self-regulatory processes in PM conceptualisation.

1.3. Summary and Aims of Thesis

Momentum, or a lack thereof, in goal-driven behaviour can have negative or positive consequences for individuals and society (Aarts, 2007). Desired outcomes from goal-driven behaviour seem contingent on the capacity for people to self-regulate (Baumeister et al., 2006). There is strong evidence that self-regulatory processes are

fundamental for achieving athletic success (Hofmann et al., 2012). Furthermore, self-regulation models that integrate a motivation component are perhaps most comprehensive for explaining momentum in goal-directed activity. Based on the view that protecting the psychological self is a primary motivator, self-regulation models incorporating this aspect may be particularly appropriate in this regard. Moreover, the development of training programs and interventions, such as mindfulness (Hofmann et al., 2012), based on current self-regulation conceptualisation seem appropriate for enhancing human performance.

In contrast, while PM is often recognised as important in athletic performance, the concept seems numinous and has proved difficult to understand and study (Crust & Nesti, 2006; Iso-Ahola & Dotson, 2014). For all intents and purposes, we have not clarified what is “psychological” in momentum relating to goal-driven activity. One possible reason for this is that PM models do not provide a sound theoretical foundation practical for empirical study of volitional action. Without this, momentum in performance is explained as a mystical force lacking scientific value.

Exploration of self-regulatory processes relative to PM will help clarify the notion of PM. Furthermore, a deeper understanding of these factors in relation to momentum would assist applied psychologists to develop interventions that help people initiate, develop and maintain momentum for functional and healthy goal-driven action.

Finally, on the basis that self-regulation and PM are relevant to golfers, the golfing context is deemed appropriate for the empirical studies in this thesis.

1.3.1. Aims

The main aim of this thesis is to explore the role of self-regulatory processes relative to PM during goal-driven activity. This aim was attended to by three subsidiary

aims: firstly, to provide further conceptual clarity to PM with a specific aim of distinguishing self-regulatory processes within a conceptualisation of PM (chapter two); secondly, to identify key self-regulation strategies in relation to PM experiences of golfers (chapter three); and thirdly, to explore the role of ego-regulation processes during PM experiences of golfers (chapter four).

1.3.2. Note for the Reader

A diverse range of methodologies are used in the studies for these purposes. These include a conceptual analysis, which is rare in psychology (Machado & Silva, 2007; Petocz & Newbery, 2010), and mixed method approaches incorporating unique data collection techniques. The use of these methods are substantiated in the respective chapters but overall they facilitated the creativity required to explore the phenomena in question. Nevertheless, the “non-traditional” methodologies were difficult to report in “traditional” ways without disrupting the flow of discussion. Hence, some diversions to traditional report structure have been used.

CHAPTER 2. CONCEPTUAL ANALYSIS OF PSYCHOLOGICAL MOMENTUM

The first chapter of this thesis provided a brief introduction to psychological momentum (PM). Notably, it highlighted the complexities of defining PM and the lack of scientific support for the current conceptual models of PM (Crust & Nesti, 2006). Moreover, there are indications that human self-regulation processes link to PM; however, these are not clear in current conceptualisations of PM. For scientific progress on PM to take place, there is a need to “develop a clearer conceptualization of psychological momentum” (Crust & Nesti, 2006, p.1). More specific to this thesis, Crust and Nesti (2006) proposed that future research uses qualitative methods to explore specific cognitive, affective and behavioural changes associated with PM experiences. One method that is helpful, if not imperative or primary, as an alternative research method for clarifying concepts in science is conceptual analysis (Petocz & Newbery, 2010).

2.1. The Function of Conceptual Analysis

Conceptual analysis refers to “the analysis of concepts, terms, variables, constructs, definitions, assertions, hypotheses and theories” (Petocz & Newbery, 2010, p. 126). Thus, conceptual analysis is a process that enhances the pursuit of scientific knowledge inasmuch as it provides a foundation for scientific research through generating clarity, coherence, identification of assumptions, implications and meaning of words, and the logical relations between words (Baldwin, 2008; Petocz & Newbery, 2010).

Machado and Silva (2007) highlight that comprehensive scientific endeavours have always included three distinct subsets or clusters of activity: “*Observation/experimentation*” (for example, manipulating and controlling operationalised variables among participants according to a research design as in controlled experiments), “*Quantification/mathematization*” (for example, statistically quantifying relationships between variables as in correlational studies) and “*Theoretical/conceptual analysis*” (“the actions researchers engage in when they evaluate the language of their science” (p. 671). Machado and Silva (2007) acknowledge that psychologists do engage with conceptual analysis but not to the same degree as the other two activities. According to Petocz and Newbery (2010), conceptual analysis is largely ignored in psychology. Some psychologists regard conceptual analysis as an “obvious” part of scientific research that amounts to “verbal tyranny”, and which stifles creativity and frustrates constructive progress (Petocz & Newbery, 2010, p. 126). Nonetheless, there is no larger clue to the frustration of constructive progress than when research endeavours consistently conclude that more research needs to be done to clarify a conceptualisation of a concept. In Wilson’s (1963) words: “concept analysis gives framework and purposiveness to thinking that might meander indefinitely and purposelessly among the vast marshes of intellect and culture” (p. 52).

Every concept has a function and when the concept itself is unclear with respect to the attributes and definitions, its ability to assist in fundamental tasks is compromised (Rodgers, 1989). Moreover, theorists and researchers sometimes explain what they mean by introducing a new and unusual term (concept) but may fail to point out that the new term refers to an existing term used in a different way. This confuses matters, particularly if the new terms result in alternatives for an old concept – a synonym in fact

(e.g. progressive, continuous) (Chalker & Weiner, 1998). If we are unable to distinguish between a concept of interest and other, perhaps related, concepts of objects, events or phenomena, our communication becomes impaired, which in turn frustrates knowledge that is gained or applied (Rodgers, 1989). An example of a recently popular concept, which suffers clarity and may frustrate research in sport or performance psychology, is mental toughness (Richards, 2011). Richards (2011) argues that coping has an established, long track record in research and applied practice. Coping is somehow aligned with mental toughness, but from a practical point of view and based on the inconsistent clarification of mental toughness, there is no need to create “a new unwieldy multidimensional construct” (Richards, 2011, p. 294). Having reviewed both concepts Richards (2011) suggested that existing robust psychological concepts explored individually or in combination, may be more effective to accomplish the desires that the general concept of mental toughness was directed on achieving. It seems, therefore, that mental toughness shares a similar ethereal nature to PM.

2.2. A Brief Preamble to Conceptual Analysis: The Concept of Concepts

Over time various things, such as objects, events and phenomena, seem to take on different meanings. Theorists label these things as concepts to represent their mental images of reality. These concepts are, nevertheless, coloured by their perception, experience or philosophical conjure (Meleis, 2011). Concepts are dynamic and evolving (Rodgers, 1989; Stanovich, 2007).

In the evolutionary view, a concept is considered to be an abstraction that is expressed in some form, either discursive or non-discursive. Through socialization and repeated public interaction, a concept becomes associated with a particular set of attributes that constitute the definition of the concept.

Concepts are publicly manifested through certain behaviours, with linguistic behaviours being one significant form of manifestation. Concepts, therefore, are generally expressed in statements that indicate what are considered to be the attributes... Concepts, therefore, are continually subject to change. Rather than being characterized by fixed sets of necessary and sufficient conditions, and identified by appeal to strict rules of correspondence, the attributes of a concept appear as a cluster, situations or phenomena that are encountered are evaluated in reference to their resemblance, rather than strict correspondence, to the defined concept (Rodgers, 1989, p. 332).

Some concepts seem to have different meanings in different cultures. For example, in an analysis of the concept of teamwork, Gibson and Zellmer-Bruhn (2001) collected metaphorical descriptions of the notion of teamwork from four different cultures in the organisational context. Notable and predictable differences were apparent in the metaphorical descriptions between cultures. These differences seem to be based on values, orientations and practices.

Some concepts are homonyms; they seem to have different meanings depending on the context. Consider the following sentence: the man ducked when the bat flew over his head. The meaning of bat may be quite different at a cricket match or in a cave.

Some concepts gather momentum while others remain inert, but never to the point where they no longer exist, because the moment one thinks of a concept, it exists (in the mind at least). Perhaps this is the boundary of the existence of concepts. As Sartre (1992) explains, existence precedes, as well as rules essence.

2.3. Summary and Aims of the Study

The notion of PM in sport has become widely recognised by players, coaches and spectators as an important factor of sporting performance. It is often considered to be a key variable, if not the primary influencing factor in the direction and outcome of sporting endeavours (Burke et al., 2003; Smisson, Burke, Joyner, Munkasy, & Blom, 2007). Given the potential links to enhanced psychological functioning and optimal performance in athletes, PM in sport is of great appeal to sport psychologists (Crust & Nesti, 2006). Moreover, research that contributes to the development of elite athletes is an integral part of building a successful national sport system (Department of Sport and Recreation South Africa, 2009). Successful sport systems are internationally recognised as mechanisms for the social and economic well-being of a nation (Department of Sport and Recreation South Africa, 2009). In light of this, the current study aims to provide further conceptual clarity to PM. In so doing it provides a framework for discussion on PM in relation to general self-regulation theory and related concepts. Moreover, it serves as a framework for the studies in this thesis, and will hopefully contribute to research endeavours in PM. Additionally, it may assist practitioners in developing assessment and intervention strategies that could enhance an athlete's (or team's) capacity for PM.

2.4. Methodology

Rodgers' (1989) evolutionary framework for concept analysis was used in this study. In the view that concepts are dynamic and evolving, the evolutionary framework fosters an inductive method that is characterised by understanding concepts in context, particularly when they are dynamic and fuzzy, rather than universally distinct (Rodgers, 1989).

Rodgers' (1989) framework involves systematic steps that include: identifying and naming the concept of interest; identifying surrogate terms and relevant uses of the concept; identifying and selecting an appropriate realm (sample) for data collection; identifying the attributes of the concept; identifying the references, antecedents, and consequences of the concept, if possible; identifying concepts that are related to the concept of interest; and identifying a model case of the concept. While the goal is to develop and clarify concepts that are useful, conceptual analysis also aims to develop a definition or model that sustains usefulness, applicability and effectiveness over time (Rodgers, 1989).

Data for this study was gathered from a literature search using the key word "psychological momentum" through online academic databases, including Google Scholar, EBSCOhost (PsychARTICLES, PsychCRITIQUES, PsychEXTRA, PsychINFO and SocINDEX), Web of Science and ScienceDirect. The search yielded 6579 results. Peer reviewed journal articles represented the main form of data for this study. The results were limited to publications between the years 1970-2013 (in January 2013), written in English, and pertaining to sport. After duplicates were removed the remaining 83 publications were retrieved and imported into NVivo software (Qualitative Solutions Research, 2012) for thematic analysis (TA). According to Boyatzis (1998), TA involves systematic observation to make sense of superficially disparate qualitative information. Through TA qualitative data is encoded into themes or patterns that then, if necessary for specific studies, can be converted into quantitative data.

Rodgers' (1989) framework provided the guiding questions for establishing themes pertaining to the conceptualisation of PM. The references were perused several

times to identify implicit and explicit data units (words and sentences) pertaining to these themes. The researcher used a circular process of critical thinking and reference re-reading before data units were coded into parent nodes (higher order themes according to the guiding questions) and child nodes (lower order themes). Each coding was reviewed several times before being accepted into a relevant theme.

2.5. Results

2.5.1. Identify and Name the Concept of Interest

People observing a sporting event often notice an ebb and flow of dominant performance between teams or individuals competing against each other. Sports commentators sometimes describe the dominating team as having the “upper hand” (Jones & Harwood, 2008, p. 65) or being “on a roll” (Young, 2011, p. 114). In individual sports, such as golf, a player may score consecutive birdies¹ over a stretch of holes, thus gaining impetus relative to fellow competitors.

The notion of *momentum* in sport is widely recognised by players, coaches and spectators as an important factor in sporting performance. It is often considered to be a key variable, if not the primary influencing factor in the direction and outcome of sport endeavours (Smisson et al., 2007). Momentum, as a phenomenological concept of specific research value, was introduced to Sport Psychology by Adler and Adler (1978), who collected and analysed reports from players and observers of sports events to construct an explanation of momentum in sport. Iso-Ahola and Mobily (1980) were the first to introduce the term psychological adjunct to momentum, and described it in terms of a psychological force that impacted on interpersonal perceptions that altered athletes’ mental and physical performance. In subsequent sport psychology literature, the concept

¹ One stroke less than the standard / par on a hole

of momentum has been used interchangeably with PM. This study focuses on the concept of PM.

2.5.2. Identify Surrogate Terms and Relevant Uses of the Concept

According to the *Oxford English Dictionary* online the term “psychological” is typically used as an adjective and is defined as “of, affecting, or arising in the mind; related to the mental and emotional state of a person” (Psychological, 2012). Some common synonyms for the term include: mental; cognitive; emotional, imaginary, intellectual and subjective. The prevailing antonyms for psychological are: body or physical. An example of a sentence with the term psychological is: Many coaches believe that psychological skills are important for enhancing sporting performance.

“Momentum”, as per the *Oxford English Dictionary* online, is an abstract concept that typically depicts or refers to the impelling forces of movement (Momentum, 2012). The term momentum has origins in the late 17th century from the Latin: *movimentum* and *movere* (to move) (Momentum, 2012). In general it is defined as the impetus gained by a moving object. Initial studies of momentum, in association with the studies of a body in motion, can be traced back to the realm of physics, notably starting with Galileo, Kepler and Descartes, and later with Newton and Einstein (Adler, 1981). In physics, momentum refers to the quantity of motion of a moving body measured as a product of its mass and velocity.

Nevertheless, prior notions of momentum can be traced back to Ancient Greek philosophers such as Homer, who described it in terms of “forces that move people to extraordinary action” (Cited in Adler, 1981, p. 9). Thus, in the metaphysical realm momentum may refer to the impetus and driving force gained by the development of a process or course of events (Momentum, 2012). As a broad concept, momentum has

been discussed in relation to group, individual and economical movements (or performances) in contexts such as politics, economics, sport and organisations (Morgenstern, 2006).

Some common synonyms for momentum include: drive; energy; thrust; impulse. The prevalent antonym for momentum is inertia (disinclination to move; lifelessness). An example of a sentence with the term momentum is: Since the break, the team seems to have lost their momentum.

As outlined in *The Oxford Dictionary of English Grammar* (Chalker & Weiner, 1998), merging the two concepts (psychological + momentum), with “psychological” as the modifier (also known as adjunct) to “momentum”, the former has a descriptive function (adjective) for the latter (abstract noun). Thus, it becomes a sub-category of the root concept “momentum”. One of the functions of the sub-class concept is to distinguish it from other sub-categories of momentum, such as physical momentum, career momentum, developmental momentum, and so forth. The boundaries of these sub-class concepts may merge and potentially require a comparative analysis to distinguish between them.

Possible synonyms for PM are: cognitive drive; emotional energy; subjective thrust. Possible antonyms may include: mental inertia; cognitive fatigue; subjective torpor. An example of PM in a sentence is: The golfer seems disengaged from his performance and although he continues to go through the motions of play, he seems to lack PM.

2.5.3. Identify and Select an Appropriate Realm (Sample) for Data Collection

This study focuses on PM in sport psychology. Thus, all the data is collected from selected research articles that have been extracted from scientific journals, articles and books in the realm of sport psychology, performance psychology and applied sport psychology.

2.5.4. Identify the Attributes of the Concept

The parent node of attributes was organised into three child nodes: properties of PM, mechanisms of PM, and moderators of PM. Table 1 presents an overview of the thematic analysis for the attributes of PM.

Table 1

Overview of thematic analysis for attributes of psychological momentum

Raw data themes	First order themes /child nodes	Second order themes / parent nodes
Abstract <ul style="list-style-type: none"> • Inferred from intrapersonal reports • Inferred from inter-personal observations • Inferred from performance outcomes 	Properties of psychological momentum	Attributes

Overview of thematic analysis for attributes of psychological momentum (continued)

Raw data themes	First order themes	Second order themes /
	/child nodes	parent nodes
<p>Subjective</p> <ul style="list-style-type: none"> • Based on intrapersonal perceptions • Based on inter-personal perceptions • In contrast to embedded norms <p>Dynamic</p> <ul style="list-style-type: none"> • Fluctuations in intensity • Fluctuations across time 	<p>Properties of psychological momentum (cont.)</p>	<p>Attributes (cont.)</p>
<p>Perception of intrapersonal factors</p> <p>Perception of interpersonal factors</p> <p>Perception of situational factors</p>	<p>Mechanisms of psychological momentum</p>	
<p>Change in cognitive factors</p> <ul style="list-style-type: none"> • Motivation • Sense of control • Attention, focus and concentration • Confidence: self-efficacy and competence 	<p>Moderators of psychological momentum</p>	

Overview of thematic analysis for attributes of psychological momentum (continued)

Raw data themes	First order themes /child nodes	Second order themes / parent nodes
Change in cognitive factors (cont.) <ul style="list-style-type: none"> • Quality of thoughts 	Moderators of psychological momentum (cont.)	Attributes (cont.)
Change in affective factors <ul style="list-style-type: none"> • Quality of emotions 		
Change in physiological factors <ul style="list-style-type: none"> • Arousal levels • Adrenaline levels 		

2.5.4.1. Properties

Three sub-themes were identified pertaining to the nature of PM: Abstract, subjective, and dynamic process.

PM is abstract. In sport, PM refers to a psychological phenomenon experienced or perceived by participants, such as athletes, coaches and spectators, engaged in sport (Young, 2011). Nevertheless, the psychological phenomenon is not directly observable and tends to be inferred from: observable actions in pursuit of a goal (Adler, 1981; Briki et al., 2013); an individual's level of performance (functioning) through objective performance outcomes (Iso-Ahola & Mobily, 1980); subjective interpretations of ongoing events within an event (Young, 2011); or subjective performance evaluations (Vallerand et al., 1988).

PM is subjective. The psychological forces that impel an individual towards an intended action are contingent on intrapersonal perception (Vallerand et al., 1988) or intra-team perceptions based on subjective individual or team norms (Adler, 1981;

Apitzsch, 2007). Early research in PM in sport was based on the assumption that early success perpetuates further successes. Related to this is the “hot hand” phenomenon that refers to an objective streak or run of performance outcomes. For example, a player with previous success in scoring (usually a goal in basketball) is more likely to have further successes in performance outcomes (Gilovich et al., 1985). While there is some support for the “hot hand” notion, for example Arkes and Martinez (2011) and Iso-Ahola and Blanchard (1986), many studies refute this belief, for example Gilovich et al. (1985) and Vergin (2000). In fact, Mizruchi (1991) found that basketball teams can suffer from prior success inasmuch as it decreases the drive for further success. Hence, early “failures” (opposition success) can spur on the need for success, which supports the notions of *positive inhibition* (negative performance outcomes following previous success) and *negative facilitation* (positive performance outcomes following previous failure) originally proposed by Silva et al. (1988).

PM is a dynamic process (Briki et al., 2013). In the view that PM is related to human behaviour and that there is a psychological component to this action in motion (momentum), PM fluctuates across time and in intensity. Adler (1981) refers to momentum as a “dynamic state of intensity” (p. 29), which reaches a plateau when optimal performance is achieved. Taylor and Demick (1994) refer to this fluctuation as “a positive or negative change in cognition, affect, physiology, and behaviour” (p. 54). While momentum can appear discrete, for example when an athlete displays a relatively short term elevation of performance like surging ahead, or coming from behind to overtake other competitors in the last 100m of a running marathon, it is primarily fluid. In boat racing, a cox and crew may gradually increase their lead from start to finish of a

six kilometre race. A longer run of momentum can be perceived over a sequence of games, an entire season, or career.

Therefore, PM seems to fluctuate on a negative and positive continuum (negative PM – neutral PM – positive PM) at various intensities over time. In the context of a sporting event, particularly of a competitive nature, negative PM has mostly been associated with the concept of *choking* (under pressure) or *collective collapse* with respect to teams (Apitzsch, 2007; Hill & Shaw, 2013). Choking, in sport, refers to the “significant decline in athletic performance under pressurised conditions” that is detrimental to the athlete’s performance in the short term, and possibly to sporting achievement, subjective well-being and athletic identity, in the longer term (Hill & Shaw, 2013, p. 103). In contrast, positive PM is mostly associated with Csikszentmihalyi’s (1975) flow state (Crust & Nesti, 2006). Csikszentmihalyi (1975) introduced the term flow to describe a pleasant and intrinsically rewarding state of effortless excellence, in which an individual is wholly absorbed in an activity with fully invested attention and optimal functioning.

With respect to PM as a process, Colman (2008) defines *process* as a sequence of events leading to some change or alteration in the state of a dynamic system. In psychology this may refer to a sustained phenomenon or one marked by gradual changes through a series of states, which accords with the notion that there are changes in psychological states among competitors during an event (Taylor & Demick, 1994). Hence, cybernetic or systemic principles underlie the interaction between the person and his or her environment. The homeostasis of a system (athlete) changes through *recursion* (reciprocal causation) and *feedback* in a circular fashion (Briki et al., 2013).

Notably the homeostasis of the system (individual / team) is contingent on the perception of events (causality) and feedback (reciprocal causality).

2.5.4.2. Mechanisms

From Iso-Ahola and Mobily's (1980) original conceptualisation of PM, it is the athlete's perceptions of self, others and competitive situation, which acts as the primary mechanism of PM. In the *Antecedents-Consequence (AC) model* of PM (Vallerand et al., 1988), PM is conceptualized as a perception of motion towards a goal, which in turn manifests changes in motivation, perceptions of control, optimism, energy and synchronization. The *Multidimensional Model of Momentum in Sport* (Taylor & Demick, 1994) proposed that the development of momentum is initiated through a chain of events starting with the perception of precipitating events that prompt changes in cognition, affect, and physiology. The *Projected Performance Model* of PM (Cornelius et al., 1997) embraces a distinction between performance and PM and contests that positive or negative PM are labels used to describe performance when there is a deviation from a *perceived* normative state of performance over a sustained period of time. Subsequent research further supports the link between PM and perception (Eisler & Spink, 1998; Miller & Weinberg, 1991; Smisson et al., 2007; Vallerand et al., 1988).

2.5.4.3. Moderators

Three main themes emerged in the data with respect to moderators of PM: cognitive, emotional and physiological. Athletes' cognitive, affective and physiological changes are well cited and speculated among theorists and researchers for their role in facilitating or frustrating PM (Crust & Nesti, 2006). Nevertheless, most of the constructs mentioned in the literature are "macro" concepts such as motivation and self-efficacy and little attention is given to the sources or underlying micro-components of

PM (Crust & Nesti, 2006). In addition to the data pertaining directly to PM, research focusing on choking and flow in sport enabled the uncovering of several inter-related cognitive, affective and physiological sub-themes themes as moderators of PM.

Cognitive and affective moderators of PM. Motivation emerged as a dominant theme in the data. Scientific endeavours to understand what motivates human action are vast, particularly in the field of personality. In personality the current trend for researchers (though not all) to explain human motivation is to refer to human thought processes and the role of affect in motivational states (Caprara & Cervone, 2000). A substantial amount of research has revealed that underlying thoughts and feelings is action “motivated, to a large degree, by beliefs and feelings about the self” (Caprara & Cervone, 2000, p. 339). Choking under pressure (in relation to negative PM) has been found to impact negatively on athletes’ sense of well-being and athletic identity (Hill & Shaw, 2013). This relates to the term egotism which refers to the motivation to maintain or enhance favourable views about the self, which may be threatened when called into question by external agents or events (Jordet et al., 2011). Mack, Miller, Smith, Monaghan and German (2008) found that participants in a basketball shooting task used ego-enhancing and ego-protecting cognitive strategies to preserve their own ability ratings regardless of performance outcomes. Furthermore, awareness of self, or self-consciousness, during competition is a factor associated with both flow and choking under pressure; when athletes experience higher self-consciousness during competition it tends to disrupt their performance (Hill & Shaw, 2013).

Moreover, an individual’s thoughts and feelings are also motivated by the goals they set. For Adler (1981), intentional motivation towards achieving a goal is a significant mediator for momentum. While Adler (1981) acknowledges that primary

unconscious human drives may influence momentum, he focuses on conscious intentionality of individuals as the initiator of momentum. In the view that motivation influences the direction of intensity and effort in the behaviour of athletes during performance, Young (2011) refers to achievement motivation (Nicholls, 1984) that assumes achievement goals influence achievement beliefs, which subsequently direct individuals' decision-making and behaviour in achievement contexts. The underlying assumption of this achievement is that individuals are intentional, rational and goal-orientated. This means that they choose to act in a certain way, particularly to demonstrate competence in performance and avoid a display of incompetence in their ability (Young, 2011). The link that Young (2011) makes between achievement motivation and perceptions of PM pertains to the sustained effort an individual exerts based on task-involvement or ego-involvement. Task-involved individuals do not distinguish between ability and effort and tend to have goals orientated towards developing a display of task mastery through learning and improvement. Ego-involved individuals, on the other hand, do distinguish between ability and effort. Rather than referring to self-referenced comparisons of past personal experience in a task to evaluate personal ability or competence (task-involved), ego-involved individuals tend to refer to others' performance as a comparative factor for their own ability. In general, ego-involved athletes would want to outperform others, but if they have low ability, they may reduce their effort, avoid the task, or even drop out (negative PM).

The second major theme to emerge in this section was *sense of control*. Vallerand et al. (1988) and Taylor and Demick (1994) emphasise perceived control as a significant factor that influences cognitive appraisals of internal (personal; for example, skill level, need for personal control, sport competition anxiety, motivation) and

external (for example perceived situational control, crowd behaviour, task difficulty, game/contest importance) variables, that then impact on perceptions of PM. In general, personal control refers to “an individual’s belief that events and outcomes in one’s life result from one’s own actions” (Smisson et al., 2007, p. 81). The need for control plays an important role in an individual’s understanding of his or her world and has a significant influence on a person’s performance achievements, perceptions of PM, and well-being (Apitzsch, 2007; Caprara & Cervone, 2000; Eisler & Spink, 1998; Hill & Shaw, 2013; Jones & Harwood, 2008; Mack et al., 2008; Miller & Weinberg, 1991; Young, 2011).

The next major theme was a group of concepts, which include *attention, focus and concentration*. A major finding from Young’s (2011, p. 47) research was that athletes tend to be aware of momentum, but that they focus on other things such as “staying in the moment” and “doing well” (factors pertaining to performance or the task at hand). Markman and Guenther (2007) found that a loss of focus on effective cues for positive performance coincides with negative PM. More specifically, choking is the result of disrupted attentional processing, particularly by distraction and self-focus (Hill & Shaw, 2013). Jones and Harwood’s (2008) study further supports these findings, in which participants reported that poor concentration was associated with negative PM on a task.

The next theme was *confidence*, which included the concepts *self-efficacy, self-confidence* and a *sense of competence*. These concepts have long been established in research, particularly self-efficacy, for their significance as sturdy and reliable predictors of individual athletic behaviour (Bandura, 1982; Mack & Stephens, 2000). Young (2011) identified confidence as a major personal (internal cognitive process)

indicator that PM was in operation for athletes. High levels of reported self-efficacy, self-confidence and a sense of competence are commonly associated with positive PM while low levels of the same are associated with negative PM (Burke & Houseworth, 1995; Jones & Harwood, 2008; Mack & Stephens, 2000; Mack et al., 2008; Young, 2011).

Shaw, Dziewaltowski and McElroy (1992) specifically tested the relationship between self-efficacy and PM and found that participants who experienced repeated success in a basketball shooting task reported a positive change in their perception of momentum. In contrast, participants experiencing repeated failures reported a negative change in their perception of momentum. More specifically, self-efficacy was a result of increased confidence arising from competitive success. Nevertheless, Morgenstern (2006) points out that the impellent for confidence can be from various sources, not only enhanced performance outcomes, and is likely to be linked with complex psychological factors related to athletes' characterisations.

The final theme was the *quality of thoughts and emotions*. An athlete's positive performance is often directly associated with positive thoughts and emotions (Apitzsch, 2007). In this case, perceptions of positive PM are often directly associated with positive thoughts and emotions, while negative PM is associated with negative thoughts and emotions (Mack et al., 2008; Young, 2011). Moreover, athletes can be distracted by irrelevant thoughts, particularly if the thoughts evoke anxiety related to their ability to perform (self-confidence and self-efficacy) (Apitzsch, 2007). An athlete's positive attitude (frame of mind), thoughts and emotions, prior to and during competition, are considered to be significant to the quality of performance, and hence, perceptions of PM or flow experiences (Jones & Harwood, 2008). Emotions such as anger, frustration,

sadness, competitive anxiety and stress are cited in the data as common feelings associated with negative PM perceptions (Apitzsch, 2007; Jones & Harwood, 2008). While this seems logical at face value, the data do not reveal great detail as to which attitudes, thoughts and emotions specifically link to positive or negative PM in general. It raises questions such as: What constitutes an irrelevant thought? Do meta-cognitive processes play a role in the process of PM? For example, with respect to thinking styles, Sternberg and Grigorenko (1997, p. 708) outline various cognitive styles that manifest different thinking patterns that, in turn, influence an individual's performance on tasks; "[c]ertain tasks are more optimally performed with certain styles". People tend to select styles of thinking to manage themselves in a manner in which they are comfortable (Sternberg & Grigorenko, 1997). In contrast to the notion that positive thinking directly links to higher performance levels (and by inference positive PM), Goodhart (1986) found that positive self-referent thinking (primed in participants) did not result in better performance in an achievement situation. Rather, negative thinkers tended to outperform positive thinkers in certain conditions. It follows that a great deal more research is required in this area to understand the association between athletes' thoughts and their perceptions of PM.

The concept of "self-talk" frequently appeared in the data. In striving for perfection, self-critical (as opposed to self-encouraging) thoughts can impact on an athlete's self-confidence, which can lead to choking (Hill & Shaw, 2013). Hardy, Hall and Alexander (2001) found that some athletes were motivated towards better performance following negative self-talk. Notwithstanding these findings, it seems that the relevant thoughts in relation to optimal performance and functioning are related to self-beliefs. Hence it is assumed that athletes' PM experiences will be contingent upon

key self-referent thoughts in the moments of sporting activities. Often though, these kinds of thoughts are deeply private and not easily (if ever) accessible to the researcher, particularly if quantitative research methodologies are used for understanding PM (Crust & Nesti, 2006).

Physiological moderators of PM. Taylor and Demick (1994) speculate that in order for perceptions of positive PM to occur, an athlete must obtain, or maintain, an optimal level of arousal for the task, thereby facilitating desired performance levels. These notions are consistent with Yerkes and Dodson's (1908) inverted-U hypothesis (Young, 2011). Taylor and Demick (1994) consider these changes in cognitions and physiology as critical in the development, maintenance or disruption of PM. Mack and Stephens (2000) found provisional support for Taylor and Demick's (1994) speculations regarding the relationship between arousal and PM. In describing feelings associated with PM, some of the co-participants in Young's (2011) study referred to levels of adrenaline in their experience of PM. That is, increased levels of adrenaline flow related positively to higher energy and performance and positive PM perceptions. Again, PM is linked with a "macro" concept, in this case arousal, which has a lengthy and rich history of research in sport psychology, particularly in relation to sporting performance (Young, 2011). While Young (2011) makes plausible theoretical links between arousal and PM, literature in this area remains sparse.

2.5.5. Identify References, Antecedents, and Consequences if Possible

Table 2 presents an overview of the thematic analysis for the antecedents and consequences of PM.

Table 2

Overview of thematic analysis for the antecedents and consequences of psychological momentum

Raw data themes	First order themes /child nodes	Second order themes / parent nodes
Intrapersonal triggers	Salient precipitating event	Antecedents
Interpersonal triggers		
Situational triggers		
Changes in athletic functioning	Change in Performance	Consequences
Changes in performance outcomes		
Changes in performance levels		

2.5.5.1. Antecedents

There is overwhelming consensus in the data that PM is the result of a precipitating event in the perceptual field of an athlete (or observer). These events are usually referred to as momentum starters or triggers, such as a previous successful outcome (Iso-Ahola & Mobily, 1980), big plays or critical situations in events (Adler, 1981; Taylor & Demick, 1994; Vallerand et al., 1988), or external or internal triggers (Young, 2011). Cornelius et al., (1997), on the other hand, specify performance changes as the precipitating factor for perceptions of PM. Specifically though, the precipitating events are what is salient or important to the athlete (or observer) and, as depicted in Young's (2011) thesis title: "*it can come from anywhere*". Notably, it is assumed that the salient precipitating event stands in relation to an athlete's purposeful striving (motivation) (Adler, 1981).

2.5.5.2. Consequences

Changes in athletic functioning (general performance) and corresponding performance levels, as well as performance outcomes were regarded as the primary consequence of PM (Adler, 1981; Iso-Ahola & Mobily, 1980; Taylor & Demick, 1994; Vallerand et al., 1988).

2.6. General Discussion

This study was guided by Rodgers' (1989) framework for conceptual analysis based on the notion that concepts evolve over time. It emerged from this study that PM in sport is an abstract, subjective (relative) and dynamic phenomenon experienced by athletes (and observers) during sporting activities. The key mechanism of PM was identified as the quality of an athlete's perception (an appraisal of sensory perceptions of salient features in the athlete's perceptual field) that in turn alters the athlete's psychological state. Several inter-related moderators of PM were identified under an umbrella theme of cognitive, affective and physiological factors. Broadly these included: motivation (towards ego and task related goals), need for control, cognitive capacities of attention, focus and concentration, confidence (self-efficacy, self-confidence and sense of competence), quality of thoughts (including self-talk) and emotions, and arousal levels. The primary antecedent for perceptions of PM is any internal or external (situational) event significant to the athlete in his or her perceptual field. Finally, the consequence of PM is the impetus for a quality of performance (positive or negative athletic behavioural functioning) that may or may not necessarily result in successful performance outcomes.

The results of this analysis indicate that PM is a multidimensional concept that incorporates several well researched concepts in sport psychology. Young (2011) makes

the point that “PM does not exist as a single stand-alone concept devoid of connection to other aspects of sport psychology” (p. 12). For example, Young (2011) provides three examples of where PM has potential links to classic sport psychology literature: self-efficacy (Bandura, 1982); arousal (Yerkes & Dodson, 1908) and achievement goal theory (Nicholls, 1984). Nevertheless, part of a concept’s attributes are formed in relation to other concepts and may be embedded in multidimensional conceptualisations, definitions or theories.

Notwithstanding, a primary aim for conceptual analysis in science is to ascertain whether the concept is useful in function for what it stands for. Iso-Ahola and Mobily’s (1980) initially defined PM as “an added or gained psychological power that changes a person’s view of him/herself or of others, or others’ views of him/her and themselves” (p. 392). Now, comparing that to the concept of self-efficacy, which refers to peoples’ beliefs about their competences to yield levels of performance (Bandura, 1982). High levels of self-efficacy help individuals to approach challenging situations more confidently, and enable them to experience higher levels of accomplishment and personal well-being (Bandura, 1997). Hence, self-efficacy fosters the capacity to achieve challenging goals by maintaining strong commitment to the challenge. Accordingly, they sustain their efforts or recover quickly when faced with failure or setbacks. Notably, one of the major sources for self-efficacy is through mastery experiences, while failures can destabilise it. Given that PM, according to Iso-Ahola and Mobily (1980), operates through perceived successes or failures it is difficult to distinguish a difference between these two concepts.

Moreover, in a social cognitive theory of self-regulation, self-efficacy plays a fundamental role in the self-regulation of motivation (Bandura, 1991). In this view,

humans are agents and motivation is generated through cognitive processes by means of forethought and beliefs (Bandura, 1982). Accordingly, humans set goals and strategically plan courses of action in line with the values embedded in these goals. When Adler (1981) discussed momentum in society, he suggested that intentional motivation towards achieving a goal is a significant mediator for momentum. Hence, he acknowledges that motivation influences the direction and intensity of athletes' efforts in their goal driven behaviour. In so doing, Adler's conceptualisation of momentum has a function that describes a process grounded in social cognitive theory. In other words, the psychological aspects (e.g. motivation) of Adler's model are described by the term momentum, without calling it PM.

Furthermore, Iso-Ahola and Mobily (1980) proposed that PM operates according to the foundational premise of early performance success, which is limited to, and determined by, certain competitive contextual time-frames. This suggests that PM is a discreet short-lived phenomenon that may shift from one individual to another, or between teams, or that may fluctuate in intensity during an event (Savage, 2012). The idea that PM shifts around implies that PM is somehow a force external to humans and their capacity to control it. Two main issues arise from this view: firstly, if PM is viewed as a time-bound discrete phenomenon, to prevent scientific confusion and frustration it needs to be distinguished from other processes that could equally explain the phenomenon such as flow, peak performance, peak experience, collective collapse and choking (see Apitzsch, 2007; Baumeister, 1984; Csikszentmihalyi, 1990; Privette, 1983); secondly, if PM is something that shifts around, it implies that PM is somehow outside of the individual and therefore cannot be assumed to be part of human volitional

activity. Thus conceptualising PM in this way, gives the term a function that may not be practical for scientific endeavours.

Another key issue is that if PM is conceptualised as a force, or at least the impetus of psychological processes towards the attainment of goals, then researchers are faced with a mammoth task of identifying all of these processes. In this case, it parallels the concept of psychology itself and becomes meaningless. With this in mind, it supports Richards (2011) argument that we don't need concepts that replace existing, robust, and well tested concepts, which are appropriate for explaining behaviour.

Nevertheless, in addition to finding strong support for the early success model, Iso-Ahola and Blanchard (1986) also found evidence that athletes' perceptions changed as a result of recent performance outcome successes, and proposed that these are contingent on subjective appraisals. According to Lazarus (1966; 1991), appraisals can be conscious, intuitive, automatic or unconscious with primary or secondary relevance. A primary appraisal relates to the extent that the goal has relevance, and therefore importance to an individual. The secondary appraisal refers to how well an individual perceives his or her ability to cope with circumstances in terms of a cognitive-evaluative process (Lazarus, 2006). This cognitive-evaluative process is, however, a fundamental part in self-regulation models.

Self-regulation refers to the capacity for humans to moderate their thoughts and emotions in goal-driven activity (Baumeister & Vohs, 2007). Baumeister and Vohs (2007) point out that one of the primary determinants for self-regulated outcomes are value-driven expectancies in the form of standards. These pertain to subjective standards that people develop as a means of appraising their performance towards various goals. Similar to the relevance of appraisals for coping, this conceptual analysis

has identified appraisals of personal and situational variables as a determinant of perceptions of PM. In this light, the differences between the function of self-regulation or PM are difficult to ascertain. They both seem to operate in the same way, which suggests a confluence between the concepts.

It could be argued that PM is associated with attaining high levels of task performance, while self-regulation is a kind of mediator for socially desirable behaviour along the way. Nevertheless, this relates to the notion of encompassing motivation as the neglected component in self-regulation theory (Baumeister & Vohs, 2007). As discussed in the first chapter, they proposed that motivation is the fourth component in addition to standards (a marker for change), monitoring (self-evaluation in relation to the standards) and self-regulatory strength (willpower). This again suggests that there are long established, well researched concepts to psychological forces behind goal driven behaviour, without needing to add PM to the mix.

It would be more practical to refer to PM as an adjective that describes performance according to a framework of self-regulation that includes motivation in its composition. The upshot of this practicality is that there is promising evidence that constant self-regulation training can enhance peoples' capacity to self-regulate, metaphorically similar to muscle strength training (Baumeister, Gailliot, DeWall, & Oaten, 2006). Constructs relating to self-regulation, or at least some sub-components of self-regulation, such as self-awareness, self-monitoring, self-evaluation and self-control (behavioural adjustment), are often reported as key psychological skills that can be trained to enhance athletes' performances (Birrer & Morgan, 2010; Hofmann et al., 2012). In contrast, there is little evidence to show that people can be trained to enhance PM. Part of this relates to the ways in which coaches develop tactics, such as when to

call time-outs in basketball (Gómez, Jiménez, Navarro, Lago-Penas, & Sampaio, 2011; Sampaio, Lago-Peñas, & Gómez, 2013), or how athletes can become more aware of PM phases in a game, and develop strategies to prevent negative PM and maintain positive PM (Jones & Harwood, 2008; Young, 2011). By the same token, the development of tactics and strategies is again part of self-regulation. For example, Hofman et al. (2012) explain how planning (strategies) through the brain's executive functions sustain an individual's capacity to self-regulate.

Finally, the relationship between PM and performance has been challenging for researchers to test empirically and a direct association between the two remains inconclusive (Young, 2011). Since research results have shown inconsistent evidence for direct performance outcomes from PM, and that momentum runs occur in terms of the probability of chance (Vergin, 2000), there is scepticism that this phenomenon even "exists". In their seminal article, Gilovich et al. (1985) conducted a survey among basketball spectators who mostly reported a belief that a player's chance of making a shot (scoring) is greater after making a previous shot. Basketball players themselves held this belief. Nevertheless the study revealed that a sense of being "hot" did not necessarily lead to making another shot in succession. In fact performance outcomes were independent from the belief in the hot hand, and occurred in line with coin tossing chance randomness.

This analysis clarified earlier that PM is a fluctuating phenomenon and therefore momentum runs (in terms of performance outcomes) can appear sporadically like heads or tails outcomes in coin flipping. That does not mean PM does not exist per se. PM can be experienced phenomenologically by the coin flipper (in terms of how he/she is experiencing his/her performance), while striving for some sort of outcome. Exploring

performance outcomes, through archival studies for example, will probably yield inconsistent results. Hence, while performance outcomes seem to be a logical consequence of PM, or perceptions of PM at least, they should only be considered as a secondary consequence. Performance outcomes can be explained by so many variables that the stability of the PM phenomenon will undoubtedly be fragile.

2.6.1. Summary

A systematic conceptual analysis provided a comprehensive outline of the functional psychological factors associated with PM. The results indicate that PM is a multidimensional concept that incorporates several well researched macro concepts in sport psychology such self-efficacy (Bandura, 1982). Nevertheless, when comparing aspects of current conceptualisations of PM, it was clear that there are some well tested psychological concepts, particularly self-regulation, which could equally, if not better serve the function of explaining impetus in goal-driven activity. Furthermore, if the function of PM is to explain discrete peaking, or in contrast rapidly declining performance states it could equally be explained by concepts such as flow or choking (Baumeister, 1984; Privette, 1983). Thus, for the sake of scientific parsimony and practicality, it is recommended that conceptualisations of PM pertain to a function of describing athletic performance. In this light, the current analysis supports the Projective Performance Model of PM (Cornelius et al., 1997).

2.6.2. Limitations

There are several limitations to this study. The first limitation inherent in philosophical inquiry of this nature, is that it relies on intellectual analysis rather than empirical inquiry (Botes, 2002). While efforts were made to report on empirically

validated findings within the data, a large part of the data constituted theoretical conjecture.

Secondly, the analysis was limited to broad functional aspects of PM. Studies and current conceptualisations of PM mainly include macro-psychological concepts such as perception, motivation, sense of control and so forth, without much detail on micro-psychological factors. Thus, the study is limited by not eliciting themes pertaining to detailed psychological processes in relation to PM. Additionally, it excluded organic structural factors that may be associated with PM. So while the study is comprehensive in outlining several associated psychological concepts of PM it lacks the detail possibly required for more intricate studies on PM.

Finally, the analysis serves as a general inquiry in many sporting contexts. It has been shown that PM is experienced differently across sporting individuals, teams and contexts (Briki et al., 2012). Thus, the study is limited by not distinguishing between different types of sport that may require specific functions related to optimal performance.

2.6.3. Future Directions

In line with the limitations, to enhance the validity of intellectual inquiry, conceptual analysis can be triangulated with empirical studies (Botes, 2002). In this regard Botes (2002) proposed a mixed method approach that incorporates qualitative and quantitative phases that verify or substantiate the literature review. Thus, the present study serves as the first phase, in combination with the alternative methods to either support or refute the current conclusions. By substantiating the research with mixed methods, hopefully a richer understanding of the intricacies relating to PM across different sports and athletes can be uncovered.

By conceptualising PM with a function of describing psychological processes (such as describing fluctuations of motivation during self-regulated activity) as recommended earlier, PM can be explored in relation to how a person's psychological state (mode) fluctuates. In other words, PM is associated with an athlete's fluctuating psychological state – a kind of momentum mode – that is contingent on self-regulating mechanisms embodied in the “system”, while negotiating the environment. For example, two recent models have emerged that embrace this notion. The first model, a theory of challenge and threat states in athletes (TCTSA; Jones, Meijen, McCarthy, & Sheffield, 2009), integrates appraisal theory and suggests that athletes' performance outcomes are contingent on their perception of a situation as a challenge or threat. Even more recently, though derived from extensive research, the “self-expansive mode” is now included in an update of Beck's original cognitive model (Beck & Haigh, 2014, p. 10). The self-expansive mode is a personality structure concerned with enhancing personal resources. In other words, an individual moves toward goals in line with subjective values and the achievement in this process is linked to positive self-esteem. Conversely, negative self-esteem is associated with movement in the other direction. In Beck and Haigh's (2014) words: “Obligations in the self-expansive mode consist of rules of conduct that serve to reinforce goal attainment by safeguarding momentum when satisfaction diminishes (e.g., when work becomes onerous)” (p. 11). Hence, future studies can explore relevant schemas attached to these modes, and the mode itself could be monitored in relation to momentum (impetus with respect to intensity and duration).

2.7. Conclusion

This study constituted a systematic conceptual analysis of PM using peer reviewed journal articles and relevant texts as data. The results outlined the properties of

PM as an abstract, subjective (relative) and dynamic phenomenon experienced by athletes (and observers) during sporting activities. The key mechanism of PM was identified as the quality of an athlete's perception (an appraisal of sensory perceptions of salient features in the athlete's perceptual field) that, in turn, alters the athlete's psychological state. Several inter-related moderators of PM were identified under an umbrella theme of cognitive, affective and physiological factors. The antecedent for perceptions of PM refers to any internal or external (situational) event in the athlete's perceptual field that he or she deems to be important and relevant to the context. Lastly, the consequence of PM is the impetus for a quality of performance (positive or negative athletic behavioural functioning) that may or may not necessarily result in successful performance outcomes.

While this analysis provides a broad and holistic outline of PM, and of how theorists and researchers imagine the phenomenon, these conjectures are impractical and nebulous for empirical exploration. Rather, in tentative support of Cornelius et al.'s (1997) views, practical enquiry would be better served by keeping PM as an adjective describing task performance. Future research could enhance the validity of these conclusions by using a mixed method approach.

CHAPTER 3. SELF-REGULATION STRATEGIES AND MOMENTUM PHASES

3.1. Introduction

The previous chapter outlined various psychological factors that have been proposed in conceptualisations of psychological momentum (PM) in sport. Nevertheless, self-regulatory mechanisms were not clear in PM conceptualisations. Moreover, a comparison between PM models and self-regulation models, particularly with a motivation component, suggest the latter to be more practical for explaining impetus in goal-driven activity. Still, in this case we should be able to distinguish self-regulatory processes as a factor in developing or maintaining positive momentum during purposeful activity. If not, PM may well be an influence distinct from self-regulatory processes in these activities. The study presented in this chapter makes further exploration into self-regulatory processes during momentum phases of performance in a natural setting. In this case, self-regulation strategies in relation to momentum in goal-driven behaviour are the specific focus.

3.1.1. Psychological Momentum: A Mystical Force?

Iso-Ahola and Mobily (1980) originally conceptualised PM as force that influenced an athlete to have perceptions of superiority over an opponent. In particular, IsoAhola and Mobily (1980) speculated that PM emanated from enhanced self-beliefs based on previous performance outcome successes. In this view, less emphasis is placed on the athlete's capacity to cope or self-regulate to facilitate PM. Rather, appraisals of a performance outcomes are perhaps more relevant.

Moreover, while Vallerand et al. (1988) and Taylor and Demick (1994) make reference to a change in cognitions, affect and physiology, the role of self-regulatory activity is unclear in this process. To add to the confusion around ascertaining the determinants of momentum sport performance, many researchers deny the force of PM and provide evidence that suggests streaks of positive or negative athletic performance outcomes occur randomly (Gilovich et al., 1985; Vergin, 2000). Consequently, researchers such as Shaw, Dzewaltowski and McElroy (1992) question the necessity for the construct and suggest that “social-cognitive determinants such as outcome determinants, cognized goals and internal standards should combine to create the behavior pattern often labelled *psychological momentum*” (p. 145). Nevertheless, that in itself prompts for inquiry into the dynamics between those social-cognitive elements and PM.

One criticism against the bulk of studies trying to prove or refute the influence of PM on performance outcomes is that they rely on individual and team performance outcome archival data, which is inappropriate for determining psychological impetus among athletes in the manifestation of momentum (Crust & Nesti, 2006). Besides, context is crucial for understanding PM. If there was any psychological force involved in the PM phenomenon it would more likely be found by studies involving the athlete’s themselves, in context. Hence, Crust and Nesti (2006) argue that qualitative research would improve the capacity to establish a deeper understanding of the psychological intricacies associated with PM.

3.1.2. Self-Regulation Strategies

Self-regulatory processes are particularly relevant to golfers. As mentioned previously, golf is generally recognised as a game of precision in which participants

endure a spectrum of environmental (Finn, 2008), physical (Thomas & Over, 1994), and psychological demands for relatively long periods² (Bois et al., 2009). Golfers, especially more accomplished golfers, spend much less time actually playing shots during a round of golf. Rather, they spend more time on mechanical or technical practice routines, reflecting on performance, self-encouragement or reprimand, pre shot imagining, regulating emotions and thoughts, pondering outcomes, planning and decision making, socialising or even escaping threats like wayward flying golf balls, dangerous wild life or lightning. Therefore, psychological competencies for self-regulation seem to be a crucial aspect for overall performance in golf and makes for an ideal topic for research among sport psychologists (Bois et al., 2009; Finn, 2008).

Among the various psychological skills and mental training techniques relating to golf performance, components of self-regulation are frequently reported in research. Some examples of these psychological processes include: the focusing and refocusing of attention and the commitment to clearly defined goals (Thomas & Over, 1994); and reflecting on performances and preparing systematically through planning, practice and play (McCaffrey & Orlick, 1989). The golfers in McCaffrey and Orlick's (1989) study often used imagery techniques and developed plans for focusing attention and maintaining deep concentration at appropriate times during play. Cohn (1991) found that during play, golfers typically strived for narrow, task-directed and oriented attentional focus towards the present rather than past or future events. Golfers have reported positive psychological states in which golf shots occur automatically (free of conscious thoughts to control movement) during periods of peak performance (Cohn, 1991). In these states, often referred to as being in flow or in the zone, golfers tend to

² A round of golf may take anything from around three to four hours if played in a traditional format and depending on how many players play together in the round

experience self-confidence and are able to regulate emotions, thoughts and level of arousal.

3.1.3. Research on Self-Regulation Strategies and Psychological Momentum

In response to Crust and Nesti's (2006) call for qualitative research on PM, a couple of studies have emerged in relevant scientific literature. Jones and Harwood (2008) conducted a study that included three phases of semi-structured and unstructured interviews with a convenience sample of five football players. The participants represented a UK University and competed regularly in a top level Inter-university league. The participants were deemed to have sufficient experience in football and of the PM phenomenon to report in-depth responses to their experiences of PM, as well as their intentional acts during momentum phases in football games. Jones and Harwood (2008) conducted an inductive thematic content analysis with the data that included coding the data into meaningful units. Further analysis resulted in a list of raw data themes that were grouped into first order and higher order themes. Jones and Harwood (2008) provide a table of the resulting themes that detail the triggers and outcomes for both positive and negative PM experiences, individual and team strategies that develop and maintain positive PM, as well as strategies to overcome negative PM. Extracted from this table are the themes elicited with respect to the participants' reported individual strategies to develop and maintain positive PM:

Goal setting; Preparation; Relaxation; Using trigger words; Physical preparation; Changing tactics; Use of time; Going back to basics; Building confidence; Maintaining concentration; Maximising effort; Controlling pace; Retaining Possession (Jones & Harwood, 2008, p. 63)

With respect to individual strategies to overcome negative PM, Jones and Harwood (2008) elicited the following themes from the participants' reports: Changing tactics; Controlling pace; Frustrating opponents; Managing pressure; Managing anxiety.

In another qualitative study on PM, Young (2011) conducted an existential phenomenological investigation into seven co-participants' experiences of PM. The co-participants (four females and three males) participated in "tennis, basketball, soccer and volleyball", at a high competitive level (p. 44). The athletes ranged in age from 19 years to 24 years ($M = 20.8$ years). Young's (2011) analysis resulted in five major themes: instantaneous momentum (IM), created momentum (CM – strategies to alter performance leading to experiences of PM), internal and external indicators (awareness) of PM, and resistance.

Young's (2011) category of CM themes is somewhat related to Jones and Harwood's (2008) group of strategies for developing and maintaining PM in that both refer to volitional personal variables relating to PM experiences of athletes. Participants in these studies believe they have some kind of agency, or self-regulatory process. In this regard, Young (2011) reports the following sub-themes of CM: "*finding a way, going back to basics, achieving early success, balancing effort and playing within limits, doing what we usually do, controlling rhythm and tempo, and trusting preparation*" (p. 55).

Jones and Harwood (2008) and Young (2011) both acknowledge the limitations of the qualitative nature of their research inasmuch as they rely on small participant samples to obtain rich accounts of each athlete's experiences. This means that the results need to be understood in strict context to the type of sport played by the participants. Another limitation is that they rely on retrospective accounts of sport

experience among the participants. Therefore, ecological validity is compromised on the basis that interviewing athletes during competition is troublesome.

A recent study, which does not pertain to PM but rather focuses on coping strategies, found that there was a dynamic interaction between stressors and coping that changes during phases of a golf game (Nicholls, Holt, & Polman, 2005; Nicholls & Polman, 2008). This implies that golfers do employ strategies that may influence the momentum of their performances. Golf is somewhat different to most sports in that the players often talk amongst each other in-between shots during competition. The time between shots therefore provides the opportunity for researchers to get closer to the action and, to gather data in real time. Hence, as a means to enhance ecological validity, this study aimed to identify the types of self-regulatory processes that are active during momentum phases in the golf context. This study builds on previous qualitative research in PM insofar as it provides further insight and knowledge for athletes, coaches and applied sport psychologists who are interested in developing specific interventions to enhance self-regulatory skills relative to momentum phases.

3.1.4. Aims of Study

The main aim of this study was to identify self-regulatory strategies that golfers use during specific momentum experiences while playing golf. This aim was attended to in two parts: the first is dedicated to constructing a typology of self-regulation strategies that, secondly, could be used as a framework for exploring these strategies in context (PM experiences).

3.2. Methodology

A qualitative research methodology formed the major guiding framework for conducting the overall study. Nevertheless, significant parts of the study, namely the

data analysis, besought a combination of both qualitative and quantitative data analysis. Therefore, the overall study is better described under the auspices of mixed method research.

Since the 1960s, mixed method approaches to research have emerged as a third alternative paradigm, and perhaps a compromise to, quantitative and qualitative approaches (Johnson, Onwuegbuzie, & Turner, 2007; Leech & Onwuegbuzie, 2009). Johnson et al. (2007) provide the following general definition of mixed method research:

...the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration (p.123).

A study conducted within the mixed method research paradigm involves mixing methods within a single study. Nevertheless, there are many ways for a researcher to creatively combine aspects from mono-methodological strategies to address research questions in a single study or series of a larger study (Leech & Onwuegbuzie, 2009). Some research can have a bias or dominant quantitative or qualitative foundation depending on what is deemed more suitable for the research question, or depending on the flexibility of a “purist” researcher. Leech and Onwuegbuzie (2009) present these notions on a continuum between not mixed and fully mixed research, whereby mixed research utilises quantitative and qualitative strategies in at least one of the following components of a single study: the research objective; type of data and operations; type of analysis; and type of inference.

Mixed methods research is grounded in the pragmatic philosophy tradition that values the exploration of practical outcomes as a primary purpose for research (Johnson & Onwuegbuzie, 2004). The logic of pragmatic inquiry permits the use of induction, deduction and abduction. In other words, themes and patterns can be discovered in the data (induction), theory can be applied to these discoveries and, in so doing, theory and hypotheses are tested (deduction). In this way, the most practical and reliable explanations for understanding research findings can be revealed (abduction).

According to Johnson and Onwuegbuzie (2004), the goal of mixed method research is to draw from the strengths of both quantitative and qualitative research methods. It aims to minimise the weaknesses of each paradigm for the sake of superior research. One of the major strengths of mixed method research is that it permits creativity and flexibility to research design and strategy that is more effective in providing understandings to research questions. In traditional quantitative or qualitative methodology, researchers are often stifled by having to follow strict design frameworks aligned to these paradigms (Johnson & Onwuegbuzie, 2004). Moreover, Johnson and Onwuegbuzie (2004) argue that the ideal of objective science is a myth based on researchers' socialisation and their subjective decision making during the process of research. Nevertheless, they proposed that the regulatory ideals of objective science facilitate the purposes of research; just as rigorous qualitative research incorporates trustworthiness strategies to validate findings.

3.2.1. Methodological Rigour

Efforts to enhance reliability and validity in this study were based on specific qualitative research verification strategies proposed by Morse, Barrett, Mayan, Olsen and Spiers (2008). Morse et al. (2008) argue that reliability and validity have become an

issue of post hoc evaluation processes, such as Lincoln and Guba's (1985) *confirmability*, but that these processes displace the responsibility away from the researcher. Rather, through dynamic verification processes responsibility for rigour rests with the researcher and is therefore enhanced.

Verification involves "checking, confirming, making sure, and being certain" (Morse et al., 2008, p. 9). The mechanisms of the verification process are dynamically integrated throughout the study in a manner that makes the analysis self-correcting. The verification processes include: methodological coherence (congruence between the research question and the study components); ensuring an appropriate sample (participants that are knowledgeable in the study topic); collecting and analysing data concurrently; thinking theoretically (evolution of new ideas that are verified by further data collection); and theory development.

3.2.2. Participants

Participants were canvassed by means of posters (Appendix B) placed, with permission, at relevant university and community golf clubs (Appendix A). The poster was also disseminated via email to distribution lists made available through the administrative bodies of these clubs. The poster gave a brief description of the research and invited interested parties to participate on a voluntary basis according to ethical guidelines as outlined in the Codes of Ethical Conduct of the Health Professions Council of South Africa (HPCSA), the Psychological Society of South Africa (PsySSA), and the Rhodes University Research Projects and Ethics Review Committee (RPERC). Individuals interested in participating were provided with further detail (Appendix C) about the study, and their rights as a research participants were

reaffirmed. All the participants provided informed consent (Appendix D), which included consent to interview recordings (Appendix E).

A convenience sample of 17 participants contributed to this study. The sample included 16 males and one female ranging from 18 to 62 years of age ($M = 33.5$; $SD = 15.3$). The average age for the male participants was 32.3 years ($SD = 15.0$) and the female was 52 years of age. The sample's handicaps ranged from 0 (scratch) to 23 ($M = 10.7$; $SD = 6.7$). The average handicap for the male participants was 10.3 ($SD = 6.7$) and the female played from an 18 handicap. All the participants were amateur golfers who spent time playing or practicing golf between two and 20 hours per week ($M = 6.4$; $SD = 4.3$).

3.2.3. Data Collection

Data for this study included digital recordings, field notes, scorecards, and correspondence. Participants' self-reports served as the primary means of data in this study. The efforts to understand human behavior throughout various domains in psychology rely on patients', clients' or participants' retrospective self-reports. But these global, summarised retrospective reports have limitations for accurate accounts of behaviour in the ongoing dynamic contexts of life (Shiffman, Stone, & Hufford, 2008). A major limitation of self-reports is that they are based on the assumption that people are able to provide accurate recollections of psychological factors associated with their actions (Nicholls & Polman, 2008). For example, with respect to research methods to assess coping strategies, Stone et al. (1998) found that participants were inclined to forget or over-report their strategies with retrospective reports. Another limitation of self-reports pertains to retrospective bias or increasing effort after meaning (Nicholls & Polman, 2008). In other words, knowledge of performance outcomes can distort the

accounts of individuals' efforts to achieve those outcomes (Brewer, Van Raalte, Linder, & Van Raalte, 1991).

To overcome limitations of retrospective reports, researchers are developing unique ways to gather in-the-moment data from participants. Stone and Shiffman (1994), for example, developed an ecological momentary assessment (EMA) technique whereby participants respond to prompts from palm top computers at specific intervals throughout the day. Nevertheless, the notion of responding to a prompt from a computer was deemed inappropriate for gathering data from golfers during a game. Alternatively, two relatively unique alternative methods for collecting real-time data were deemed appropriate for this study: Go-Along interviews and Think-Aloud commentaries. Furthermore, for quality control purposes and additional data, these data collection methods were enhanced with additional "post-game" semi-structured interviews (Oppenheim, 1992). It was decided to use all three data collection methods in line with Becker's (1958) recommendation that social scientists use as many kinds of evidence possible in an effort to enhance validity of a study.

3.2.3.1. Go-Along Semi-Structured Interviews

Go-along interviews are gaining popularity as a novel, yet valuable, tool in various research domains. These include ethnography, sociology, health, anthropology and geography (Garcia, Eisenberg, Frerich, Lechner, & Lust, 2012; Kusenbach, 2003). "Go-along", or similarly "ride-along" or "walk-along" depending on the setting, refers to a kind of in-depth qualitative interview method that researchers use while accompanying individuals on outings in a particular context that they are familiar with (Carpiano, 2009; Garcia et al., 2012; Jones, Bunce, Evans, Gibbs, & Hein, 2008; Kusenbach, 2003). Go-along interviews integrate questions and observation into the

relational space, the action space whether real or virtual, of researcher and participants to obtain responses that may usually be elusive with standard interviewing and observational methods (Garcia et al., 2012).

The obvious benefits of go-along interviews are that they can increase the ecological validity of the data gathered, particularly if dynamic dialogue can be facilitated with the participants while they are involved in the activity related to the research focus. As Garcia et al. (2012) point out, data are identified in context. Go-along interviews are also valuable for adding richness and depth to a researcher's findings (Trell & van Hoven, 2010). Trell and Van Hoven (2010) found a clear difference in information obtained from unique methods, such as walk-along interviews, compared to traditional interview techniques. Neither are inferior, but the insights gained are contingent on the knowledge sought in the aims of a study. Other benefits of go-along approaches are that rapport may be easier to establish with participants since there is less of a direct focus on them, and individuals may be more inclined to participate based on its appeal (Garcia et al., 2012).

Garcia et al. (2012) have highlighted that go-along interviewing does have challenges. For example, they point out that the method is susceptible to environmental challenges such as the weather and potential safety issues. Other challenges include managing confidentiality with co-participants and possibly their discomfort of having a researcher in their space. Additionally, while the researcher is able to gather valuable data with respect to environmental observations, these can be difficult to integrate into the transcribed verbal data. Nevertheless, facing these challenges is exactly what makes the choice of this method suitable for this study. These are the challenges golfers faced by golfers in their rounds, and therefore it enhances the ecological validity of this study.

To gain deeper insight into peoples' perspectives, go-along interviews tend to be dynamic dialogue that can be prompted by the researcher, but often directed by the participants. In this study the main aim was to obtain specific information with respect to self-regulation strategies and PM, therefore the interviews were planned in terms of a semi-structured survey format (Oppenheim, 1992). Hence a go-along interview structure was tailored for this study.

For the go-along interviews in this study, the participants were invited to play golf with the researcher on the basis that they would be interviewed at appropriate times during the game. During golf games, the researcher observed the participants, focusing specifically on moments of perceived PM. PM was perceived in terms of a participant's overt verbal expressions or body language, or by fluctuations in their performance in terms of a run of "good" or "bad" shots, or scores, achieved on holes relative to their expected standard³. The co-participants' scores were recorded on scorecards. At the closest, most convenient time, the researcher prompted brief semi-structured interviews with the participants by commenting on his or her performance (based on performance outcomes) and then asking questions such as "What strategy are you using / did you use to...?". Sometimes the researcher would ask "How do you feel about your game?" and the responses indicated some kind of momentum experience (positive or negative). In this case, further interviewing focused on the experience of momentum and the types of volitional (self-regulation) processes at play.

In total, go-along interviews were conducted with all 17 participants during 21 games of golf (approximately ninety hours). The data included 15 pages of field notes

³ A golfer's standard is measured by his or her handicap. A handicap is a numerical representation of ability that determines the par for the respective player on each hole of a golf course.

documented in a journal, 21 scorecards and 77 digital recordings of verbal dialogue pertaining to the semi-structured interviews. The total time of the digital recordings was two hours and 18 minutes, ranging from less than one minute (0:11.6) to nine minutes and 38.5 seconds ($M = 1:45.9$ minutes; $SD = 1:29.1$ minutes).

3.2.3.2. Think-Aloud Commentaries

The think-aloud protocol was originally developed by Ericsson and Simon (1984) as a means to investigate memory structure. Ericsson and Simon (1984) identified three levels of verbal report protocols. At the first level of verbalisations, there are no intermediate cognitive processes, and individuals merely vocalise covert oral encodings without particular effort (e.g. calling out names of things on a desk.). At the second level of verbalisations, recoding processes are added to thought content, such as the description or clarification of an item (e.g. describing the shape and colour of the lamp on a desk). At the third level of verbalisations, individuals use cognitive processes to explain their thoughts or thought processes. At level 3, more than recoding information in the short term memory is required; links must be made to prior thoughts and information.

Researchers are not only concerned about the accuracy and vulnerability to bias of verbalisations but also that thinking aloud protocols could disrupt task performances (Gagne & Smith Jr, 1962; Nisbett & Wilson, 1977). In contrast to these findings Ahlum-Heath and Di Vesta (1986) found that controlled verbalisations improved participants' capacity to problem solve on the Tower of Hanoi task. In a review of several studies, however, Ericsson and Simon (1984) found no evidence that level 1 and level 2 verbalisations changed individuals' task performances compared to others that performed the same tasks silently, whereas level 3 verbalisations hindered performance.

Nicholls and Polman (2008) elected to develop a thinking aloud protocol to explore individuals' coping strategies in stressful contexts. The advantage of the thinking aloud technique over the EMA, for example, was that participants simply talk continuously, thus reducing the time delay in retrospective recall. Nicholls and Polman (2008) used the thinking aloud protocol with five adolescent golfers and accordingly found it to be a suitable method for obtaining verbalised coping strategies while in context.

In preparation for this part of the study, each participant was given prior training on a small digital recorder. Once they were au fait with the device, they were briefed to provide a running commentary on their games, as if they were "thinking aloud" in accordance with Ericsson and Simon's (1984) level 2 verbalisations. More specifically, the participants were requested to report the hole they were playing, and the strategies they had in mind regarding what they intended with each shot. In general, participants would switch the recorder on as they approached their next shot, provide a commentary as requested, hit their shot and give a brief comment following the shot, before switching the recorder off until approaching their next shot. The following transcription of an actual recording clip provides a typical (transcribed) example of how the co-participants commented on their game:

I'm on the third hole, it's a hundred and fifty meter par three and we've got a strong right to left wind. Usually I go short and right of the water so I'm gonna aim it out to the right and hopefully the wind will bring it across onto the green... [0.15.0... 0.30.4 practice swing... 0.40.1 shot...] Worker! OK so I hit it in the teeth and it bounced just [inaudible] fairway but it's run up just short of the green so it's worked out quite well.

Data of this kind were collected from five participants over 6 games of golf. The data included 79 commentary clips averaging 33 seconds ($SD = 19.3$ seconds), equating to forty-three minutes in total.

3.2.3.3. Post-Game Semi-Structured Interviews

All the digital recordings from the go-along interviews and the think-aloud commentaries were transcribed verbatim, and participants were given (by hand or email) their respective copies. Once participants were furnished with their in-game interview or commentary transcriptions, they were invited for a post-game semi-structured interview. In accordance with Morse et al.'s (2008) verification process, while these interviews served as a platform for participants to contribute to the dynamic process of checking to maintain quality checks of the data, it gave them the opportunity to clarify or provide a deeper understanding to their go-along interview responses or think aloud commentaries. Additionally these interviews gave the researcher an opportunity to prompt for richer and deeper reflections of the strategies that the participants reported during their rounds.

Data of this kind was collected from 6 participants. The interviews lasted between 16 to 33 minutes ($M = 28$ minutes; $SD = 6$ minutes), equating to two hours and forty-eight minutes in total.

3.2.4. Part 1: Analysis and Results

3.2.4.1. Organising Data

All data were transformed into an electronic format and saved in respective document files for each co-participant on a password protected computer. Additionally the data were imported into NVivo software (Qualitative Solutions Research, 2012) and saved as an NVivo project file. In NVivo, each piece of data, hereon referred to as a

“data bit” (for example one recording clip or scorecard) was saved in a data source file filed according to the respective data source (i.e. the co-participants). Each data bit was then classified according to its nature such as “scorecard”, “field note” and so forth. The interviews were classified into further categories of: Go-along Interview; Think aloud Interview; and Post-Game Interview.

3.2.4.2. Qualitative Analysis Procedures

On the basis that this study did not aim to test specific theory or replicate previous research, inductive thematic analysis (TA) served as the primary method for analysing data. Boyatzis (1998) describes TA as way of systematic observation to make sense of superficially disparate qualitative information. Through this process qualitative data can be encoded with the aim of eliciting themes or patterns that can then be quantified. Moreover, as Boyatzis (1998) explains, it is a flexible process that is not restricted by a researchers grounding philosophy. According to Boyatzis (1998), TA requires skills of the researcher(s) to sense themes, or meaningful codeable moments in a reliable way to develop insightful codes that contribute to the development of knowledge.

As discussed earlier, the data analysis for this study was an evolving process that developed over various phases. The data analysis also occurred concurrently with data collection once initial batches of data had been collected. In preparation for the data analysis, all the digital recordings were transcribed by the researcher using the transcribing facilities in NVivo software. The transcription process involved listening to each recording a number of times with the aim of capturing the interview discussions word for word. This included an attempt to represent the words with nuances of how they were expressed. Each recording was listened to in parts of about ten-seconds that

were looped until all the words were transcribed verbatim. At this initial stage there was no analysis of the data. Not only was the desire to interpret suspended (bracketed) by the researcher, but any attempt to interpret the texts were thwarted by a focus on the transcription procedure.

The first phase of data analysis involved encoding the data. This included reading and re-reading the interview texts with the aim of eliciting or identifying a *codeable moment* (Boyatzis, 1998). In this case a codeable moment included any words, phrases or sentences that expressed purposeful or intended action or behaviour of the co-participants. The codeable moments often occurred in the data in sentences containing phrases such as “I will try to...”, “I’m going to...”, “I want to...” and so forth. The following extract from an actual transcription provides a basis for an outline on the initial coding process:

Researcher: So Mark how do you make sense of what happened on the last hole?

Mark: Um... I think the tee shot I just took a three iron just to keep in the hole, it's not a long hole so I knew I'd have nothing more than eight iron in. Um... as you said, dragged my next shot and then that was... I mean I didn't have the greatest lie with the chip, so just tried to make solid contact and... and put it in bucket lid, distance away...

This extract details a conversation between two golfers well versed in golf terminology. It was assumed that the golfing terminology would not necessarily be understood by non-golfers. With that in mind, the intention was to elicit words and sentences that suggest volitional intent that could be understood by non-golfers (English speaking). In the extract the co-participant expresses intended action by saying he selected a specific golf club, a “three iron”, to hit his ball into a position for the next

shot that he would be comfortable with – “nothing more than an eight iron”. The mention of the words “to keep in the hole” and “nothing more than” implies a safe strategy or approach to the hole. This passage was then coded in a theme labelled “keep it in the hole”. During this phase of coding the actual words that the co-participants used would, wherever possible, be used as the label for the code.

Another consideration is that there are indications of more than one type of strategy, as was often the case with most of the reports by the co-participants. In this case Mark expressed that he wanted to “make solid contact and... and put it in bucket lid, distance away...”. This implies two further strategies: firstly, that he wanted to use technical skills (often referred to as mechanical skills in golf) to ensure the club struck the back of the ball squarely in the centre of the club-face; and secondly, that he wanted the ball to end up close to the hole for an “easy” putt suggesting some kind of target oriented focus. Hence, in this extract four original themes would be coded including: 1. multiple strategy; 2. keep in the hole; 3. make solid contact; and 4. target oriented.

The initial phase of coding, the manifest level, resulted in 255 “codeable moments” across 123 codes. The original list included codes such as “find my swing”, “safety first”, “visualise the shot” and a popular one “suspend thoughts from the past”. The codes were then examined for duplication or similarities. For example, the codes “avoid trouble”, “caution”, “safety first” and “calculate risk reward” would be merged to form one code. Each code was also re-read for “validity” as an expression that could suggest an intention for self-regulated behaviour. In some instances the co-participants reported strategies that they generally used on the golf course. These strategies were coded in the first phase of thematic coding but were excluded from further data analysis

on account that these strategies did not pertain to the strategies they were using in their current game (during data collection).

In preparation for the next phase of analysis the data were read several more times. The aim of this process was to best ensure that all the strategies reported had been coded in some way and that there were no duplicates of the same or similar strategy coded in one data bit. During this phase the data was further analysed for possible latent content. Boyatzis (1998) distinguishes between manifest content and latent content and refers to latent content as meanings that are not clearly evident but rather derive from deeper sub-conscious or even unconscious drives in participants. Eliciting themes from latent content requires caution, particularly with respect to the possibility that a researcher may be projecting meaning onto the data rather than eliciting “authentic” meaning. Nevertheless, various latent themes that are further discussed later in this section were elicited from the data. Each theme (type of strategy) was then scrutinised individually (within) and collectively (between) to identify possible patterns and higher order themes.

3.2.4.3. Results

Three higher order themes were established: self-ground (SG), self-other (SO) and self-self (SS) strategies. The boundary for each higher order theme was based on a relationship that the strategy referred to. In other words, in the SG theme, the strategies refer to the intended action that the golfer has in relation to the environment (for example weather and golf course conditions). The SO theme included strategies of the golfer in relation to his or her competitor (for example “I want to intimidate my opponent”). The SS theme referred to strategies of the golfer in relation to him- or herself (for example regulating thoughts, emotions or physical action not in relation to

the environment). Table 3 presents a list of lower and higher order themes of self-regulation strategies reported by the participants.

Table 3

Participant self-regulation strategies

Lower order theme / child node	Quantity	Higher order theme / parent node
Aggressive strategy	5	Self-ground strategy
Avoidant strategy	6	
Performance outcome strategy	14	
Task-relevant non-technical strategy	38	
Task-relevant technical strategy	13	
Intimidation tactics	4	Self-other strategy
Emulation	1	
Aim to win	3	
Channel emotions	2	Self-self emotional strategy
Keep calm	2	
Acceptance	4	Self-self cognitive strategy
Avoid disruptive thoughts	7	
Focus on the positives	11	
Reference to past errors	5	
Reference to past success	2	
Re-motivate	5	
Self-awareness response	2	
Self-preservation strategy	21	

Table 3 (continued)*Participant self-regulation strategies (continued)*

Lower order theme / child node	Quantity	Higher order theme / parent node
Self-promotion strategy	19	Self-self cognitive strategy (cont.)
Self-validation strategy	2	
Stay in present	7	
Suspend consciousness	3	
Back to basics	3	Self-self technical strategy
Establish rhythm	4	
Pre-shot routine	1	
Process oriented	2	
Technical or mechanical swing strategies	5	

3.2.4.3.1. Self-Ground Strategies

Aggressive SG strategy. This theme was coded when a participant reported a risky or unrealistic attempt to achieve a spectacular result. For example, on a short of average par four measuring 318 meters, one co-participant reported: “on the seventh hole now, downwind, downhill, taking a driver and going straight for the green”. Albeit a possibility that the co-participant was capable of hitting his drive on to the green, it is a narrow entrance into the green which is relatively guarded with dense bush and rough terrain. On the other four of the five references coded, the co-participants reported being ambitious with attempts to recover from the rough and usually commented that they should have played safe.

Avoidant SG strategy. This theme was coded when a co-participant reported an attempt to, as one co-participant simply reported: “keep away from that trouble”. On occasion, a co-participant would make reference to past personal experience as a reason to avoid trouble as indicated in this extract: “always had problems with this hole with [an] uncontrollable draw so I'm just gonna (going to) focus on tryna (trying to) get it in close to the green”.

Performance outcome SG strategy. The performance outcome strategy theme included all the reports that co-participants made about wanting to make a specific score on a hole. This could have been reported as an immediate goal on a hole as was the case with one of the co-participants who reported “let's see if I can at least get a par or bogey out of that” and words of a similar sort on several occasions. It could also have been more of an underlying goal for a larger segment of the game, for example, “I'm under... quite a lot of pressure now [be]cause I'm gonna (going to) try and play the rest of the nine in flat (level par)”, or over an entire game for example “I'm gonna (going to) try keep it under ninety-five. Its... it's my goal...”

Task-relevant non-technical SG strategy. This theme included references to reports by co-participants containing a focus on the target, and providing a description of where they would aim without giving technical or mechanical intentions. For example, one co-participant reported he would “try and put it as close to the pin as possible, starting it out right... we've got a strong right to left wind into us” on one occasion and “I'm just gonna (going to) try and chip it on and run it down... down the hill and try and get it as close to the hole as possible” on another occasion. These strategies that the co-participants reported, contained positive intentions. In contrast to

the avoidant strategies, co-participants were clear, albeit vague on how at times, about where they wanted to (as opposed to where they did not want to) hit their golf ball.

Task-relevant technical SG strategy. The final sub-theme in this category included references to reports by the co-participants containing technical intentions for a shot. This means that a co-participant would report making adjustments to certain physical aspects such as his or her stance, posture or golf swing in relation to the shot in context. For example, one co-participant reported that he “put the ball slightly further back in [his] stance”, had a “slightly wider stance”, and swung the club on a “flatter” swing plane.

3.2.4.3.2. Self-Other Strategies

The SO theme refers to strategies reported by co-participants when there was either a reference made to one or more competitors, or if there was a latent content suggesting an attempt to gain power in the relationship with a competitor. This category contained the least amount of reported strategies elicited from the data.

Intimidation tactics. The strategies that co-participants reported in this sub-theme contained latent content that suggested an attempt to gain power over their competitors. The most apparent example was when one co-participant reported wanting to be the first to hit onto a green as follows: “so I’m looking at tryna (trying to) get this in real close. I think it might be me to play first. If it is then I can put some pressure”. A less apparent example occurred with two of the co-participants who declared at the beginning of a game that they had only lost one match in their last 10 games. The least apparent example was from one co-participant who assumed an “expert role” by trying to point out faults in his opponent’s technique.

Emulation. On one occasion, a co-participant reported that his strategy was just to emulate a fellow golfer who had just hit a “perfect shot”.

Aim to win. On three occasions, co-participants reported the desire to win. One co-participant announced “I find I’m trying to hit the ball a lot harder now that I’m trying to beat (the opponent)” and in the other two reports the co-participants simply reported that they wanted “to win the hole” from the opponent.

3.2.4.3.3. Self-Self Strategies

The SS theme refers to strategies that co-participants reported volitional actions in relation to themselves as opposed to the environment or other golfers. There were three sub-themes contained in this category: 1. SS-emotional strategies; 2. SS-cognitive strategies; and 3. SS-technical strategies. Collectively these themes contained the most references elicited from the data.

Self-Self Emotional Strategies

Channel emotions. One co-participant reported “I try and channel my anger into hitting a longish drive”. In sum this theme entailed a response from a co-participant indicating that he or she draws on emotions. The other reference in this theme involved the co-participant building on positive emotions following a run of performance outcome success.

Keep calm. The two references coded in this theme contained the words “try keep calm”.

Self-Self Cognitive Strategies

Acceptance. This theme included responses that implied a cognitive act of accepting things as they are. The following phrases from the co-participant responses

provide examples for this theme: “these are Grahamstown greens, you've got to make peace with the fact that they don't always go straight” and “it's over its gone, there's nothing I can do to it now”.

Avoid disruptive thoughts. This theme includes co-participant responses that indicate an effort to direct their focus of attention away from thoughts that interfere with their performance. In this case, the co-participants are aware that the thoughts can disrupt their performance. Typically the references refer to avoiding thoughts about performance outcomes or the state of the game particularly in relation to a competitor or opponent. For example, one co-participant simply stated that he wanted to “forget about the score completely and try and put it out my mind”. In one instance, a co-participant remarked how he would try and avoid any thoughts that evoked anxiety. Nevertheless, the effort to avoid disruptive thoughts could be done by a deliberate attempt to focus on some other aspect. Thus, this theme could be merged with the following theme “Focus on the Positive” that contains references where co-participants reported directing their focus on aspects that they believed enhanced their experience on the golf course.

Focus on the positives. The coding for this theme was guided by the references co-participants made about directing their focus of attention to positive aspects that may enhance their golfing experience. For example, some co-participants commented on how they focus on things that enrich them, such as enjoying the beauty of nature and the privilege of being able to play the game. One co-participant responded “I feel really good, the uh... um... it's a beautiful day which we don't o... always get here and the course is in good shape, and we're doing something constructive”.

Reference to past errors. In this theme, coding referred to references made by co-participants about recalling past errors as a means to adjust their current strategy. In

other words, they cited memories that would potentially benefit them inasmuch as they could learn from the past experience as one co-participant reported “you can easily do funny things off that tee”.

Reference to past success. In contrast to the previous theme, the coding for this theme was guided by co-participant reports that indicated recalling memories about previous success to encourage good performance outcomes. On one hole, just after a co-participant chipped his shot into the hole from off the green for a birdie, he commented that he was confident because he “holed chips like that before”.

Re-motivate. The co-participant responses coded under this theme included expressions such as “start afresh” and “pick yourself up”. These strategies suggested that efforts to build game momentum had been thwarted in some way. In this extract a co-participant expressed the essence of the theme: “momentum's been killed all the time. Like this nine I started birdie and then I made a decent bogey into the wind and then a good par, and then I go and three-stab from a... a very easy place on the fourth. So now I feel as though I've got to start again”. The link to motivation was also expressed in another co-participants comments: “losing your motivation, start feeling down and almost like you have no motivation to keep yourself going. That's when you need to kind of pick yourself up again”.

Self-awareness response. While there were only two references coded in this theme, a decision was made to keep it since self-awareness is regarded as a key element of self-regulation. After much deliberation it was also decided that it could not fit “neatly” into any other sub-theme. In this theme the co-participant commented: “feeling a bit cold and disappointed but let's see... let's see how I can do this”.

Self-preservation strategies. This cluster of strategies was formed as a theme from reports that indicated an effort to preserve self-esteem. These entail strategies related to identity or the beliefs that people hold about themselves. All the themes within the higher order SS theme could arguably fit into this (or any identity regulation) category. Nevertheless, this theme is derived from more of a latent level in the data, so data bits were only coded in this category on the assumption that facilitating identity is one of the fundamental goals for people participating in golf.

A key element of this theme is that the researcher's dynamic interaction with the co-participants evoked a sense that the co-participant wanted to protect his or her identity. In one case for example, the co-participant commented that he had a difficult shot coming up and that he would see it as "a challenge". It was the sense in the entire context at that time on the golf course that gave the researcher a sense that he was not using that as a strategy to overcome fear or get into the right mental state, but rather to eradicate any judgements made about his golfing ability should he not hit a good recovery shot.

Other indicators that were used as a guide to identify these strategies were words such as hope or caution. If a participant highlighted that things were out of his or her control, by expressing hope that something would or would not happen, this was seen as part of a strategy to preserve identity. Often golfers would express the need for realistic plans on the golf course so as to relieve "pressure". As one co-participant expressed "I don't want to put pressure on myself. Just if I can break 90 I'll be OK".

Self-promotion strategies. Similar to the previous sub-theme, this cluster entails strategies related to identity or the beliefs that people hold about themselves. In this case these strategies refer to the efforts made by the co-participants to enhance their beliefs

about themselves. This could be expressed in more of a general underlying strategy or in an immediate way in the game when co-participants wanted to motivate themselves for a particular shot or hole. An example of a general response was: “I’ve been playing very good golf. I’ve come down from an eight to a five in three weeks. Um... I’ve played two of the best rounds I’ve had in my life, which was a seventy about three weeks ago and then last week I had a seventy-two...” A more immediate response was “...and then the last three holes, started hitting the ball a bit better. Made some good chips and some good putts. Made a birdie. So I felt at the turn of the nine that, you know, there’s a possibility of bringing this round back”.

Self-validation strategies. In the two instances that made up this lower-order theme, the co-participants made reference to how they perceived themselves as golfers and expressed how their performance on the golf course enabled these perceptions to persist. For example, one of the co-participants perceived himself as an individual that always strives for improvement, which in turn provided his main motivation to hit better shots. In the other incident the co-participant said he is a competitive golfer and was able to identify an opportunity for success prior to making a good shot.

Stay in the present. This theme tended to be elicited directly from co-participants expressing the words “stay in the present”. Other instances of this theme included phrases such as “trying to play shot by shot”. This was often part of a multiple set of strategies coinciding with “avoiding disruptive thoughts” as indicated in one of the co-participants’ response after his ball landed in an awkward position in the rough: “misfortune like that, um... is to put it away uh... as soon as you can and focus on your next shot”.

Suspend consciousness. This theme includes reports where co-participants expressed an effort to “release your mind and go unconscious”. The coinciding strategy in this extract was to direct focus on something specific and in this case the co-participant focussed on his breathing as a means to clear the mind.

Self-Self Technical Strategies

Back to basics. The coding for this theme was elicited from co-participants’ expressions of efforts to keep things simple or finding the fundamentals for establishing consistency in their games. These strategies followed phases during which they experienced poor personal performance.

Establish rhythm. This theme was closely allied to the previous theme but entailed co-participants’ reports specifically related to generating a smooth, slow rhythm in their golf swing. This was typically expressed in ways similar to the following co-participant’s response: “I’m concentrating on slowing down because in the wind one tends to tighten up and try and hit faster. So I’m thinking ‘keep it slow’”.

Pre-shot routine. Surprisingly, since it is such a popular term and practice in golf, only once did a co-participant report this strategy. Just through observation on the golf course was it apparent that many co-participants had some sort of pre-shot routine embedded in their games. Perhaps once the behaviour becomes a habit, it seems taken for granted and of no interest to report. This was a point not further discussed with the co-participants.

Process oriented. This theme contained reports reflecting efforts to focus on the process, in other words, the technical aspects of the game rather than focussing on the outcomes. As one co-participant reported “worrying less about the result now and more

about the actual process, I just want to make good contact with the ball and... and that sort of thing”.

Technical or mechanical swing strategies. The guide for coding at this theme was indicated when co-participants attributed a technical swing fault for a previous error and then expressed an effort to counteract this. For example, one co-participant remarked “so what I try to do is focus on turning my hips and you know, ending with my bel... buckle facing the hole”.

3.2.5. Part 2: Analysis and Results

3.2.5.1. Self-Regulation Strategies in Context

Having established a typology of self-regulation strategies in part one of this study, the second part involved analysing these strategies in contexts, namely during specific momentum phases that golfers experience during a game of golf. This part attends to the aim of identifying these self-regulation strategies in context. As discussed earlier the data bits were imported into NVivo software and coded in various nodes according to data collection method and self-regulation strategies. In preparation for this part of the data analysis, each data bit was coded according to a specific PM context as discussed in the next section.

3.2.5.2. Operationalising Psychological Momentum

PM, like most if not all psychological phenomena, is complex to measure in that it is not directly observable. In the conceptual analysis of PM, it was mentioned that PM tends to be inferred from: observable actions in pursuit of a goal (Adler, 1981; Briki et al., 2013); an individual’s level of performance (functioning) through objective performance outcomes (Iso-Ahola & Mobily, 1980); memory recollections from subjective interpretations of ongoing events within an event (Young, 2011); or

subjective performance evaluations (Vallerand et al., 1988). Most studies on PM have relied on performance outcomes as a way to operationalise PM. Yet, not only do different sports elicit unique strategies and techniques from its participants, the participants themselves will have unique understandings of whether or not they are experiencing PM. This is particularly relevant in golf. Golfers, in one instance, may be striving to shoot a particular score in relation to the golf course (first possible objective performance outcome). In another instance, golfers may be competing head-to-head against a single competitor or field of competitors (second possible performance outcome). Alternatively, a third case is that golfers may experience PM in relation to their personal satisfaction of their game regardless of the objective score. Accordingly, these three dimensions of PM are proposed as operationalisations of PM for this study: SG; SO and SS.

3.2.5.3. Self-Ground Dimension of Psychological Momentum

The first dimension to be considered pertains to the quantity of shots that a golfer makes to complete one or more holes. This can stretch from a single hole to part of a game, a full game or a number of games in a competition, a season of games and so forth. This represents the golfer's performance in relation to the golf course, the "ground", and hence is called the SG dimension.

The handicap system in golf allows for a comparison to be made between a golfer's expected performance and a performance under review, perhaps his or her hole-by-hole progress during a competition. The handicap system is a method of calculating

a golfer's standard in relation to par⁴ for the golf course. This system allows for golfers of different ability levels to compete against each other. Notably the handicap system allows a golfer's score to be adjusted on each hole based on a difficulty rating applied to each hole. The most difficult hole on a course is rated 1 and the easiest hole is rated 18. A golfer with a six handicap, for example, will be allowed an extra shot above par on holes ranked one to six. Therefore a net score is achieved on those holes. If a player does not get an extra shot, the gross score is the same as the net score. There are various scoring formats used in golf competitions. The traditional method is to record the gross score (the actual amount of shots a golfer takes on a hole) and adjust the score according to the individual's handicap (net score). Table 4 provides an example of how a golfer with a fifteen handicap could record his or her score according to the traditional format.

Table 4

Golf Scoring Example for a Player with a 15 Handicap

Hole	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Par	5	4	3	4	5	4	4	3	5	4	4	3	4	4	5	4	3	4
Ranking	16	2	14	8	4	6	12	18	10	1	5	15	7	11	17	3	13	9
Player Score (Gross)	4	5	4	6	5	5	4	3	6	7	4	2	4	5	5	6	5	7
Player Score (Net)	4	4	3	5	4	4	3	3	5	6	3	1	3	4	5	5	4	6

A player's net score that is less than par depicts a player performing better than his or her expected standard. To identify the PM phases during the round, the player's net score can be represented as a deviation from the standard using a points system: One positive point for every shot better than the expected standard; zero points for scores

⁴ Par represents a pre-determined amount of shots – score – that an “expert”, or zero handicap golfer would be expected to make on a hole. A typical championship golf course consists of 18 holes consisting of four par fives, 10 par fours and four par threes, making the total par for the course 72. If a player has a 10 handicap, for example, and scores 87 on a par 72 course, he or she will be five shots over par once the score is adjusted according to the handicap ($87-10 = 77$; $77-72 = 5$).

equivalent to the expected standard; and one negative point for every shot worse than the expected standard. Hence, a player's score can be tabled or graphically represented as presented in Table 5 and Figure 1.

Table 5

<i>Golf score as a deviation from a standard</i>																		
Hole	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Deviation from Std.	1	0	0	-1	1	0	1	0	0	-2	1	2	1	0	0	-1	-1	-2
Cumulative deviation	1	1	1	0	1	1	2	2	2	0	1	3	4	4	4	3	2	0

A visual inspection of provides an indication of peaks and troughs that represent momentum in a positive or negative direction. For example, following the cumulative deviation line, Player A appears to have a positive momentum sequence from holes 10 to 13 and a negative momentum sequence from holes 15 to 18.

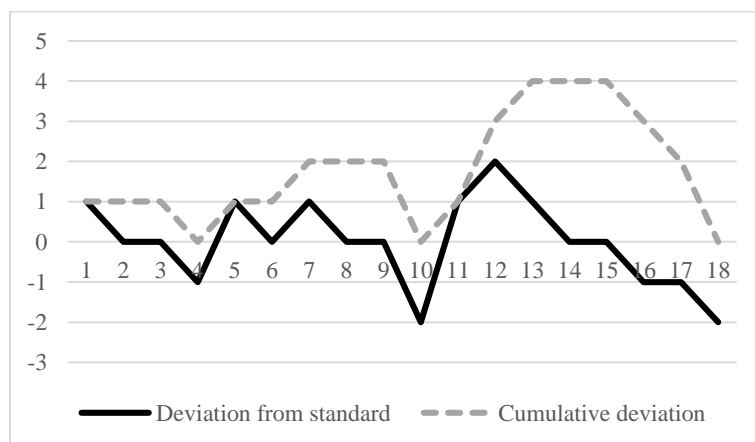


Figure 1. Graphic example of the self-ground dimension of psychological momentum

The SG method is, however, susceptible to many flaws. Firstly, this method does not take into consideration various environmental factors that can affect performance outcomes on the golf course. The most obvious factor is the weather. A golfer is less likely to play to an expected standard in bad weather conditions. On some occasions, usually difficult holes can play easier than the allocated ranking and easy

holes can be difficult. Another concern is that a player's handicap is usually calculated from an average of the best round he or she has had over a specified time or number of games. This means that a golfer who scores a net score equal to par or better has theoretically played better than his or her expected standard. Taking this into consideration, one may expect more runs of negative momentum using this method.

3.2.5.4. Self-Other Dimension of Psychological Momentum

On occasion, the primary competition format in golf can be a direct match between opponents. This format is usually referred to as match-play. In this format, holes are either won or lost and a tally such as one up, two up and so forth is kept. The player wins the match if he or she has won more holes in sum than there are holes left to play; for example, if a player is three holes up with two holes to play. Often both kinds of competition are happening at the same time; the player is playing the course (to make the best score possible) and also playing against an opponent (the SO theme). These two formats often call for different strategies. This is important for PM theory because a golfer could be all square against an opponent (indicating a neutral momentum phase) and at the same both players could be scoring runs of scores better than their usual standard (indicating a positive momentum phase).

To identify the PM phases during a golf round the player's score can be represented with one positive point for every hole won, zero points for a hole halved and one negative point for every hole lost. The player's score can then be tabled (Table 6) or graphically represented () as follows:

Table 6

Self-other scoring method

Hole	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Deviation from std.	1	-1	-1	-1	-1	0	1	0	0	-1	1	1	1	-1	0	0	0	-1
Cumulative deviation	1	0	-1	-2	-3	-3	-2	-2	-2	-3	-2	-1	0	-1	-1	-1	-1	-2

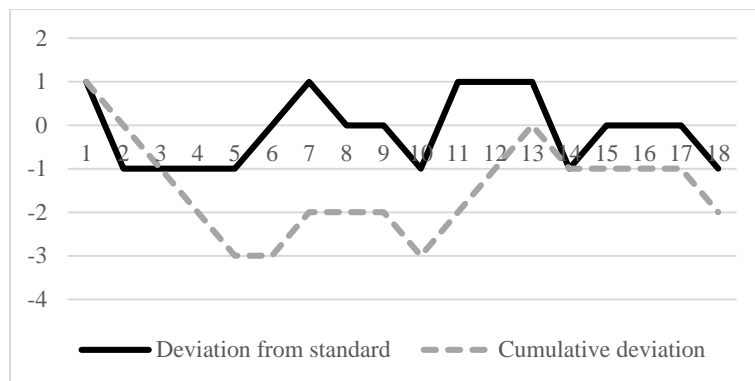


Figure 2. Example of self-other dimension of psychological momentum

This method of charting PM sequences has the benefit of overcoming some possible pitfalls embedded in the SG method of charting PM sequences. Firstly, the weather variable, as discussed in the SG condition, is of no concern since it is the same weather for all the players. Secondly, the same handicap system applies to each competitor and therefore SG negative momentum bias is of no concern in this condition. Moreover in this condition, when positive momentum is indicated with one golfer, the other golfer will be in a negative momentum sequence.

Often in a game of golf both the SG and the SO conditions will be taking place. In other words a golfer may be in a competition in a field where his or her net score (SG) is of importance but yet have a private match play (SO) situation going on with the people he or she is playing with. Therefore, the same player in the same round could generate both a “SG” and “SO” chart, and one chart could contradict the other. A

further complication is that often golfers play in a team format. There are various team formats but a common format is pairs of golfers competing in a better-ball format. Put simply, in a better-ball format only the better score of the pair counts on each hole. In this case there are many permutations, for example the team may be on a positive momentum sequence and yet each golfer in their own right performing below their expected standard.

3.2.5.5. Self-Self Dimension of Psychological Momentum

The SS dimension of PM refers to a golfer's personal satisfaction level in relation to his or her own standards. This has a different connotation to the objective SG and SO standards because it relates to the subjective standards that the golfer establishes for him- or herself. For example, a golfer may not be playing according to his or her handicap expected level, or may be losing a match against an opponent but can still be satisfied with his or her performance. One way to collect this data would be to record the golfer's self-satisfaction ratings on a ranking scale on each hole.

There were no formal, on-going self-satisfaction ratings of performance from the participants recorded in this study. The researcher's observations of the co-participants formed the basis for noting the SS dimension of PM. These observations included looking out for expressions of game satisfaction (an indicator of positive PM) or dissatisfaction (an indicator of negative PM) through verbal comments, body language or general demeanour. While the SS dimension was not used to operationalise PM in this study, the information gathered in this regard was used to confirm the SG or SO operational dimensions of PM in the coding process.

3.2.5.6. Organising Data, Procedures and Results

The primary competition format that co-participants were playing at the time of the interviews or commentaries served as the basis for the PM dimension. In other words, in a match-play format, the data bit would be classified as SO PM. Alternatively, any other format, where a golfer's score in relation to the golf course was the primary format, the data bit would be classified as SG PM. The data bits were also coded according to positive, neutral or negative PM phases depending on the context during which the interview or commentary took place in the round. These also included conditions when a co-participant was interviewed just prior to changing the PM condition; for example, prior to moving from a neutral PM sequence into a positive PM sequence. Table 7 presents the data clips organised according to PM phases.

Table 7

Coding of data according to momentum phase

Phase	Sources	References
Negative PM phase		
Self-ground dimension	34	49
Self-other dimension	9	20
Pre-Neutral self-ground dimension	1	4
Neutral PM phase		
Self-ground dimension	34	45
Self-other dimension	6	12
Post-Negative self-ground dimension	7	15
Post-Negative self-other dimension	1	2
Post-Positive self-ground dimension	1	1

Table 7 (Continued)

Coding of data according to momentum phase (continued)

Phase	Sources	References
Pre-Negative self-ground dimension	7	9
Pre-Negative self-other dimension	2	2
Pre-Positive self-ground dimension	3	4
Pre-Positive self-other dimension	2	6
Positive PM		
Self-ground dimension	5	12
Self-other dimension	4	10

3.2.5.7. Self-Regulation Strategies by Psychological Momentum

Contexts

A framework matrix query function in NVivo was used to reveal what strategies were more commonly reported during specific PM dimensions. Figure 3 indicates the main kinds of self-regulation strategies reported by the participants relative to their PM phase.

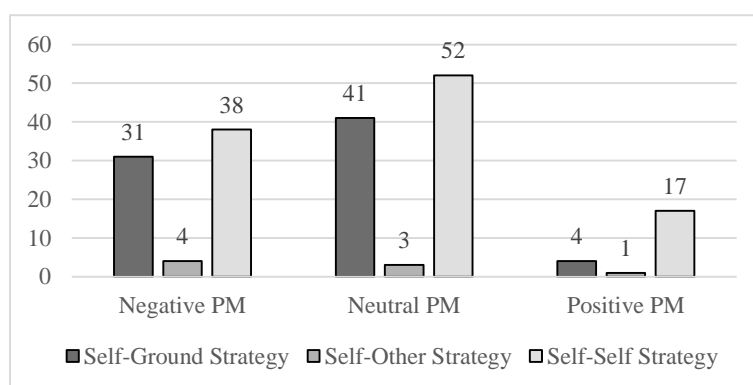


Figure 3. Strategies reported during psychological momentum contexts

A visual inspection of shows that there were more strategies reported during the Neutral PM dimension, fewer during the Negative PM dimension, and even less during

the Positive PM Dimension. These quantities are somewhat related to the frequency of occurrence of these phases within the co-participants' games while they were involved in the data collection phase. Moreover, from the SG Method of charting PM phases, it could be expected that Negative PM runs would occur more often than Positive PM runs. This is because a golfer's handicap is calculated from his or her best scores of a larger group of recent scores. This would be less likely from the SO method of charting PM phases. In that case there is a likelihood of equal occurrences of the Positive and Negative phases.

3.2.5.8. Ratios Strategies within Psychological Momentum Phases

Table 8 provides a breakdown of the relative percentage of strategies reported during a specific momentum phase.

Table 8

Ratios of strategies according to classification and momentum phase

	Self-ground	Self-other	Self-self
Negative PM Phase	42.5%	5.5%	52%
Neutral PM Phase	43%	3%	54%
Positive PM Phase	18%	5%	77%
Average	34.5%	4.5%	61%

Overall, SS strategies represented the highest proportion (61 percent) of reported strategies across all PM dimensions. Across all phases, SS strategies were reported most often, albeit marginally more than SG strategies in the negative and neutral PM phases. SO strategies were reported fewer times across all phases by some margin. Perhaps

significant, is that in the positive PM context, SS strategies were mostly reported by some margin.

3.2.5.9. Specific Strategies by Psychological Momentum Contexts

This part of the data analysis focussed on the specific strategies reported on during each PM phase. The NVivo framework matrix function was used to generate tables and graphs for visual inspection and analysis. These results were inspected for variances between strategies reported during different PM phases. In this analysis an emphasis was placed on analysing the data for differences between the positive and negative PM contexts to see if there was a specific strategy that occurred (was reported) more so in one context than the other. The results are discussed according to the SR strategy domain below.

3.2.5.10. Domain Specific Strategies in Negative and Positive Contexts

In this section the SG, SO and SS specific strategies are explored during all the dimensions of negative and positive PM phases.

Self-Ground Strategies

Tables 9 and 10 indicate specific SG strategies reported in the negative and positive PM phases respectively. In the negative PM phase SG strategies represented 42 percent, while in the positive PM phase they represented only 18 percent. These results suggest that SG strategies are less significant to a golfer during a positive PM phase. Hence it seems that a golfer will focus more attention towards the SG relationship for performance during a negative PM phase. It was interesting to note that not only were there very few SG strategies reported during the positive PM phases, but there were no reports of aggressive or avoidant strategies.

Table 9

Framework matrix for self-ground strategies during negative momentum phases

	Negative self-ground	Negative self-other
	PM phase	PM phase
Aggressive	3	
Avoidant	3	
Performance outcome oriented	4	1
Task relevant non-technical	12	1
Task relevant technical	6	

Table 10

Framework matrix for self-ground strategies during positive momentum phases

	Positive self-ground	Positive self-other
	PM phase	PM phase
Performance outcome oriented	1	1
Task relevant non-technical	1	
Task relevant technical	1	

Self-Other Strategies

Table 11 indicates the specific SO strategies that only represented around five percent in both the negative and positive PM phases. Based on the limited results in this category of analysis, these tables were included for interest sake rather than for extensive discussion or for any possible conclusions. Perhaps a point of interest is that there were no reports of winning strategies (wanting to beat the opponent or wanting to

win in relation to other competitors) during positive PM phases in contrast to two reports during negative PM phases. When prompted on this topic during the go-along interviews, the participants generally believed that focus on other players was detrimental to their own games as indicated in the following excerpt:

...I think from playing match play a lot at school, um... I've learned that the only way to do it is actually to block the match, the actual match out of your mind completely. I'll never f... concentrate on what's happening in the match play... Um... I try and just solely focus on ending each hole the best I can and then afterwards work out what else is going on. I find if you focus on what other people are doing around you, you lose track of what you're tryna do and what execution you're tryna have...

The participants were generally aware if they had momentum during the game and it may have been in relation to an opponent, but they would try and maintain SG or SS strategies.

Table 11

Framework matrix for self-other strategies during negative momentum phases

	Negative self-ground PM phase	Negative self-other PM phase	Positive self-other PM phase
Intimidation tactics		1	1
Emulation	1		
Winning		2	

Self-Self Strategies

SS strategies yielded the largest percentage of strategies reported by participants in both the negative and positive PM phases. In the negative PM phase, SS strategies represented 52 percent while in the positive PM phase they made up 77 percent of the strategies reported in these domains. Of the SS strategies, the cognitive strategies represented the bulk of strategies reported compared to the other sub-categories of emotional and technical SS strategies. It was interesting to note that during positive PM phases, there were no SS-emotional strategies reported and only one SS-technical strategy (process oriented) was reported. This implies that when things are going well less focus is placed on regulating emotions or technical swing issues.

Self-Self Cognitive Strategies

Table 12

Framework matrix for self-self cognitive strategies during negative momentum phases

	Negative self-ground PM phase	Negative self-other PM phase
Acceptance	3	
Avoid disruptive thoughts	2	
Focus on Positives	1	4
Reference to past errors	1	1
Re-motivate	2	
Self-preservation strategy	4	3
Self-promotion strategy	4	2

Table 12 (continued)

Framework matrix for self-self cognitive strategies during negative momentum phases (continued)

	Negative self-ground	Negative self-other
	PM phase	PM phase
Self-validation strategy	1	
Stay in the present	1	
Suspend consciousness		1

Table 13

Framework matrix for self-self cognitive strategies during positive momentum phases

	Positive self-ground	Positive self-other
	PM phase	PM phase
Avoid disruptive thoughts		1
Focus on Positives		1
Reference to past errors	1	
Re-motivate	1	
Self-preservation strategy	1	3
Self-promotion strategy	2	1
Stay in the present	3	1
Suspend consciousness		1

The most obvious discrepancy between SS-cognitive strategies in the negative (Table 12) and positive (Table 13) PM phases, is that golfers reported “stay in the

present” more often in the positive PM (SG) dimension. In the negative PM dimensions, golfers were more likely to report “acceptance” and efforts to focus on positives. In both phases strategies relating to the self-concept were evident and relatively common.

Self-Self Emotional Strategies

The SS-emotional strategies reported are significant by their absence of reports. Only one SS-emotional strategy was reported in the negative (SO) PM dimension: keep calm.

Self-Self Technical Strategies

Similar to the SS-emotional strategies, SS-technical strategies are also significant by their absence in both spectrums of negative and positive PM dimensions. Table 14 presents the SS-technical strategies reported in both negative and positive PM phases.

Table 14

Framework matrix for self-self technical strategies during negative and positive momentum phases

	Negative self-ground PM phase	Negative self-other PM phase	Positive self- ground PM phase
Back to basics	1		
Establish rhythm	2	1	
Process oriented			1
Tech. or mech. swing strategy	1	1	

3.2.5.11. Domain Specific Strategies in Specific Neutral Psychological Momentum Contexts

Thus far, the analysis focussed on possible differences in strategies reported by participants during positive and negative PM phases during a round of golf. Nevertheless, as mentioned earlier, while organising the data some of the data coded in the neutral PM dimension was deemed to be more significant to the study if it was collected at a specific point during a neutral PM phase. For example when a co-participant was interviewed just prior to changing the PM condition such as having moved into the neutral phase from a negative phase or perhaps just before moving into a positive phase.

Table 15 indicates that more SS-cognitive strategies were reported (59 percent) by participants before moving into a neutral PM phase from a negative PM phase. The majority of these SS-cognitive strategies suggest an effort to think positively about current circumstances or about the self. Nevertheless, the results also suggest that for some participants improved performance followed an effort to make a certain score (performance outcome) or to win the hole (winning). For example, one participant remarked “I’ll see if I can get it up and down for par” and another said “my only target on that hole was just a par to... to win that hole”. It seemed as though the participants were using self-motivation thoughts to turn the negative PM phase around.

Table 15

Strategies in the post-negative neutral momentum phase

	Post-negative neutral PM phase (Self-ground)	Post-negative neutral PM phase (Self-other)
Self-ground		
Performance outcome	2	
Task-relevant non-tech.	3	
Self-other		
Winning		1
Self-self cognitive		
Focus on positives	1	
Refer to past success	1	
Re-motivate	1	
Self-awareness reference	1	
Self-preservation	2	1
Self-promotion	2	
Self-validation	1	
Self-self technical		
Technical or mechanical swing strategy	1	

There was only one strategy reported (obtained) for moving from a positive PM phase to a neutral PM phase. This was a performance outcome SG strategy as follows: “let's see if I can at least get a par or bogey out of that”.

Table 16

Strategies in the pre-negative neutral momentum phase

	Pre-negative neutral PM phase (Self-ground)	Pre-negative neutral PM phase (Self-other)
Self-ground		
Aggressive strategy	1	
Task-relevant non-tech.	5	
Task-relevant technical	1	
Self-self cognitive		
Avoid disturbing thoughts		1
Self-preservation	2	
Self-self technical		
Establish rhythm		1

With respect to strategies reported just prior to a negative PM phase (Table 16), SG strategies were more prevalent. These results suggest that there is less effort in regulating cognitions, emotions and personal technical issues prior to a negative PM phase. Notably the SS-cognitive strategies reported in this circumstance suggest avoidance and self-preservation strategies which are “negative” strategies in contrast to the “positive” strategies as reported in the post-negative neutral PM phase.

Table 17 indicates the strategies that participants reported during a neutral PM phase just prior to moving into a positive PM phase. These results suggest SS-cognitive strategies are the most prevalent in this condition. This is similar to the positive movement from the negative to neutral PM phase as discussed earlier.

Table 17

Strategies in the pre-positive neutral momentum phase

	Pre-positive neutral PM phase (Self-ground)	Pre-positive neutral PM phase (Self-other)
Self-ground		
Performance outcome	1	
Self-self cognitive		
Acceptance		1
Avoid dis.thoughts	1	
Self-preservation	1	
Self-promotion		2
Stay in present		1
Suspend consciousness		1
Self-self emotional		
Channel emotions	1	
Self-self technical		
Pre-shot routine		1

3.2.5.12. Strategies by Context and Data Collection Method

In addition to the aims of this study, a comparison between the data collection methods was made. and provide a breakdown strategies reported during the Go-Along Interview and Think-Aloud Commentary conditions respectively.

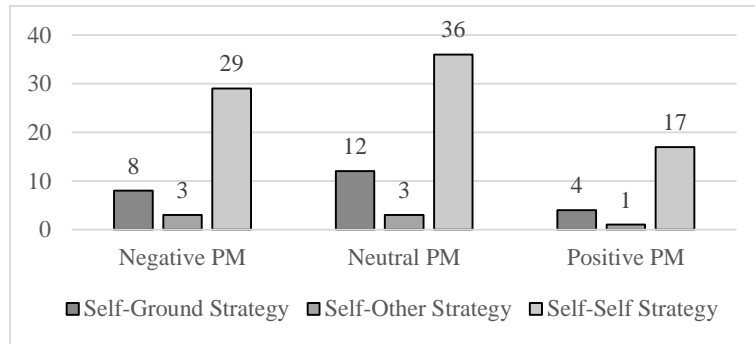


Figure 4. Strategies reported in the go-along interview condition

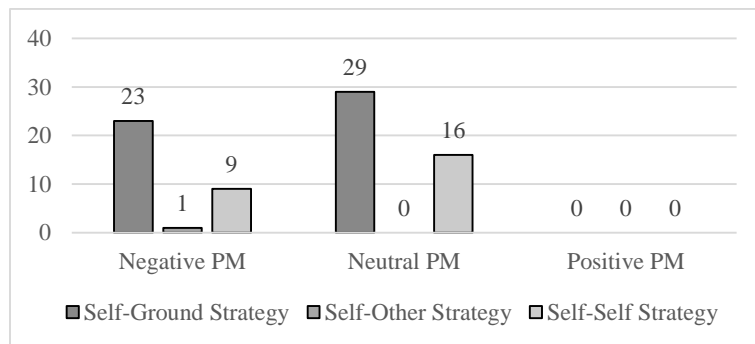


Figure 5. Strategies reported in the think-aloud commentary condition

The graphs show a clear discrepancy in the type and quantity of strategies reported. During the go-along interview condition, SS strategies represented 73 percent of all the strategies reported across all PM contexts while SG and SO strategies represented 21 and six percent respectively. In contrast, during the think-aloud commentary condition, SG strategies represented the highest proportion of strategies reported across all PM contexts. SG strategies represent 67 percent while SS and SO strategies represent 31 percent and two percent respectively. Notably, no positive PM phases occurred during the think-aloud condition for any of the participants and an inspection of the scorecards revealed that they performed below their expected standard.

3.3. Discussion

From a social cognitive psychology perspective, humans have agency and can therefore purposefully influence their performance on activities through self-regulatory

psychological processes (Bandura, 1991; Bandura, 2001). Nevertheless, there is a distinct lack of research attending to the role of these processes with respect to PM. Qualitative research has been identified as appropriate for studies of this kind and while some of these processes have been identified by Jones and Harwood (2008) and Young (2011) from footballers' self-reports, they rely on retrospective out of context recollections from the participants. This study aimed to build on these previous studies, but with enhanced ecological validity through novel methodology incorporating go-along interviews and think-aloud commentaries.

Data from interviews and commentaries were analysed using inductive TA over three phases. The first part of the study aimed to identify the types of strategies golfers particularly use while playing golf. The analysis of in-the-moment participant reports revealed a detailed and comprehensive typology of self-regulation strategies that includes three broad categories: SG, SO, and SS strategies. The SS category of strategies consists of a further three sub-categories: cognitive, emotional and technical strategies.

Whereas the typology was constructed as a means to explore strategies in context, in itself it provides a framework for golfers, golf coaches and applied golf psychologists to consider. As golfers become more aware of the kinds of strategies they use in various contexts, they can then develop ways to enhance the strategies that work and perhaps adjust those that are not helpful.

For the latter part of the study, three dimensions of PM were proposed to explore the self-regulatory strategies in context. These dimensions included: 1. The SG dimension that views PM in terms of the golfer (self) in relation to objective performance outcomes against the golf course (ground); 2. The SO dimension that

views PM in terms of the golfer (self) in relation to objective performance outcomes against other competitors (other); 3. The SS dimension that views PM in terms of the golfer (self) in relation to his or her own subjective satisfaction ratings of performance (self). Notably, these distinctions are important for future research on PM since different PM dimensions present different results. For example, a golfer's SG PM dimension can appear in complete contrast to his or her SO PM dimension. Nevertheless, it is speculated that all three dimensions of PM will be in operation; perhaps all at once, or at different times during a golfer's round. Future studies could explore these different dimensions within different kinds of sports.

For the purposes of clarity, it should be noted that PM dimensions were assigned similar labels to self-regulatory strategies (SG, SO and SS) in this study. As revealed though, this does not mean that a golfer playing in a specific competition format, thus determining the PM dimension, will necessarily use corresponding self-regulatory strategies. That is, a SG competition format, for example, does not determine the respective SG strategies. Rather, the participants used various strategies throughout the course of a golf game regardless of the competition format.

Nevertheless, all considered, SS strategies were the most commonly reported method of self-regulation among the participants. SS strategies, particularly SS-cognitive strategies, also represent the highest proportion of strategies reported during a positive PM phase. The most significant of these was "to stay in the present". The state of being attuned to the present is often regarded to be part of a flow state or being in the zone (Csikszentmihalyi, 1975; Stavrou, Jackson, Zervas, & Karteroliotis, 2007). Thus, the results of this study provide some support for the relationship between these peak states and the apex of a positive PM experience.

Managing emotions is regarded to be an important part of the human self-regulation process toward task achievement (Baumeister et al., 2006). SS-emotional strategies were significant in their absence of reports throughout this study. It could not be ascertained from this study whether the participants preferred not to report emotional regulation strategies or if they were not important to their accomplishments.

With respect to SG strategies, it emerged that aggressive or avoidant strategies appeared during negative PM phases but not positive PM phases. This relates, somewhat, to goal setting theory and challenge and threat states. In goal setting theory, if an athlete adopts an inappropriate goal, such as aggressive tactics to try and make up for poor performance outcomes, the performance is likely to worsen (Locke & Latham, 2002). Similarly, avoidant strategies suggest that the athlete is under threat, which tends to have negative effects on performance outcomes (Jones et al., 2009).

Participants reported fewer SO strategies during positive PM phases. That aside, SO strategies were least reported in all conditions. This could be due to culturally-constructed views that perceive the overt expression of interpersonal competitiveness as socially unfavourable (Lalwani, Shavitt, & Johnson, 2006). Most of the co-participants reported intentional disinterest in their competitors since this usually distracted their own games. Notably, participants reported how they developed their own repertoire of strategies over time, and that generally they found SO strategies to be unhelpful. Again this relates to goal setting theory: when people are confronted with task goals they apply knowledge and skills they have previously acquired that tends to be idiosyncratically beneficial to goal achievement (Locke & Latham, 2002).

Notably, the significantly few instances of exclusive strategies reported within positive and negative PM phases cannot sufficiently endorse any claim that specific

strategies are positively related to specific PM phases. Moreover, no conclusions are obvious with respect to specific strategies as antecedents or triggers to positive PM phases, nor as intercessions to negative PM phases among golfers. Rather, it seems that each participant adopted specific strategies in line with their own knowledge and skills and, in so doing, these strategies became markers on which to appraise their performance. Similarly, Jones and Harwood (2008) point out that perceptions of PM are subjective in nature and are contingent to what athlete's individually deem important. This notion is particularly significant to the balance hypothesis, which holds that zone states are more likely to occur when the perceived level of demand posed by a task matches a person's perceived ability or skills for completing the task (Csikszentmihalyi, 1990). Hence, golfers' strategies are linked to their perception of their abilities and, as with the perception of being in the zone, golfers are more likely to feel like they have momentum when they appraise their performance as competent in meeting the strategy (if appropriate). Studies such as Kennedy, Miele and Metcalf (2014) provide strong support for the balance hypothesis in this regard.

Despite Young's (2011) phenomenological account of PM including a theme of *created momentum*, the participants in his study reported being aware of momentum but not specifically preparing for it. The current study supports the latter and thus, suggests that if PM is a force, it is rather something that supervenes on a situation rather than something that generates a situation. In this view, Lazarus' (1966) conjectures on appraisals in relation to stress and coping are more relevant with respect to the antecedents to PM. As is the case with the AC model of PM in that an individual's sense of control is key to the perceptions of PM (Vallerand et al., 1988). Thus, if a golfer has a pre-performance self-regulation strategy in mind, this becomes the marker

for a post-performance appraisal that impacts on his or her sense of control (or self-efficacy perceptions perhaps). Nevertheless, as Adler (1981) initially proposed, an individual's effort (energy) to engage is the force based on the social-cognitive factors that in combination can be labelled as PM (Cornelius et al., 1997; Shaw et al., 1992).

3.3.1. Limitations

Whereas a strength of this study was the enhanced ecological validity through novel data collection methods, these methods have their own limitations. A clear difference was evident between the kinds of strategies reported in each method. The go-along method, as expected, seemed more conducive to gaining richer accounts of strategies by the participants. But even though they occurred in-the-moment, hence reducing the chance of memory distortions, there was still the possibility for participants to report in a biased manner. The think-aloud method revealed more superficial SG strategies among the participants. Accordingly the go-along method was associated more with SS strategies and the think-aloud method more with SG strategies.

Moreover, on one hand, the combined data collection method contributed to the construction of a more comprehensive self-regulation typology, thus gratifying the aims of scientific rigour through diverse data collection (Becker, 1958). On the other hand though, based on the participants lower performance during the think-aloud commentary condition, this method probably contributed to performance decrements. This contradicts Ericsson and Simon's (1984) review conclusion that level 2 verbalisation does not impair task performances. Unfortunately, in a study using think-aloud data collection with golfers, Nicholls and Polman (2008) did not comment in this regard. Perhaps there is something specific to golf that makes think-aloud inappropriate. On speculation, it could be that the time it takes to speak out loud one's strategies

(which are multiple in types and quantities) as the golfer approaches his or her ball is far more than the time it takes for a whole lot of silent cognitive processing. It seems understandable that this may interrupt the accustomed cognitive flow of the golfer and that the reports would be briefer and superficially expressed. Additionally, despite doing pre-game trials, the participants seemed more self-conscious when they were asked to record themselves as they went around the golf course.

Further limitations of this study are that data quantity was sacrificed for quality. The study relied on a small group of golfers for rich accounts of their experiences. Despite efforts to ensure that the data reached a saturation point (no more meaningful data could be collected), there is probably still scope for further studies of a similar nature to enhance the typology. Secondly, these strategies apply to golfers and any attempts to understand them in other sporting contexts should be made with caution.

3.3.2. Conclusion

Data pertaining to self-regulation strategies were collected from 16 golfers using novel go-along and think-aloud methods. Inductive thematic analysis was used to construct a comprehensive typology of self-regulation strategies organised into three main categories of the self in relation to: 1. the natural environment; 2. other people; and 3. cognitive, emotional and technical aspects of the self. The typology serves as a framework for further research but can also be considered by golfers and golf coaches as a means to assess and develop idiosyncratic self-regulation strategies to enhance performance. As part of this study, the typology was used to explore self-regulation strategies in PM contexts. NVivo framework matrices were used to organise data for visual inspection. No significant pattern indicating specific strategies in positive or negative PM contexts could be identified. The results suggest that golfers adopt

idiosyncratic strategies relative to their experience and skill level. It is unlikely that these strategies are direct triggers (antecedents) to perceptions of PM among golfers. Golfers don't seem to strategically plan for momentum per se, but it could be that self-regulation strategies have a more direct role in the maintenance of perceptions of PM momentum. With this in mind, and in line with the balance hypothesis (Csikszentmihalyi, 1990), golfers' self-regulation strategies are more likely to be a point of reference on which to appraise their performance. These subjective appraisals may then function as information that dynamically interact with other psychological variables, such as a sense of control, self-efficacy and motivation, hence facilitating a perception of PM. In this light the study lends support to Cornelius et al.'s (1997) Projective Performance Model that proposed PM to be a label for fluctuating performance appraisals.

CHAPTER 4. EGO-REGULATION, MINDFULNESS AND PSYCHOLOGICAL MOMENTUM

4.1. Introduction

The studies in the previous two chapters have explored self-regulation processes in relation to psychological momentum (PM). The conceptual analysis in chapter 2 found insubstantial grounds for distinguishing self-regulatory processes in current PM conceptualisations. Moreover, it was not clear that PM conceptualisations could equally be distinguished from self-regulation conceptualisations for explaining momentum in goal-driven behaviour. Nevertheless, the study in the chapter 3 was unable to identify, with any conviction, a pattern of self-regulation strategies linked to specific positive or negative momentum phases among golfers. This may suggest that PM is a valid concept over and above self-regulation models for explaining momentum in goal-directed activity.

Taking into consideration the results from the study in the previous chapter; however, golfers quite often adopt strategies with the motivation to enhance or protect the self-concept. As discussed in the introduction, the self-expansive mode, for example, contends that self-esteem plays a central role in the momentum of goal-driven behaviour (Beck & Haigh, 2014). This relates to ego-regulation, which is contingent on peoples' capacity for self-consciousness (Fenigstein et al., 1975). While self-consciousness tends to disrupt task performance, paradoxically, individuals with higher levels of self-consciousness tend to be less affected (Baumeister, 1984). In this view, if peoples' capacity for self-consciousness can be increased they may be able to develop ways to regulate their psychological states in relation to their self-identity and therefore be less disrupted on task-performances.

Schema mode theory provides a framework to understand this process (Young et al., 2003): Increased levels of self-consciousness entails awareness of schema modes with their relevant schemas and accompanying beliefs, and how these states are triggered in the process. In this process individuals become more accustomed to their modes and can therefore regulate their attention, remain task focussed, prevent negative momentum and maintain positive momentum during goal-driven behaviour. Research suggests that our capacity to regulate attention can be achieved through mindfulness meditation (Brown & Ryan, 2003).

From the outset the self-concept has been linked with PM. Iso-Ahola and Mobily (1980) defined Psychological Momentum (PM) as “an added or gained psychological power that changes a person’s view of him/herself or of others, or others’ views of him/her and themselves” (p. 392). Subsequently most theorists and researchers have proposed that an athlete’s perception of self in relation to achieving success has some link with PM (Eisler & Spink, 1998; Miller & Weinberg, 1991; Smisson et al., 2007; Vallerand et al., 1988). While these factors have been associated with PM it remains speculative.

Furthermore, no study has specifically focussed on the role of self-regulatory processes pertaining to perceptions of self or identity in conjunction with PM. Hence, this study explores the aspect of self-identity regulation (ego-regulation) as a component of self-regulation during momentum phases of goal-driven activity. In so doing it builds on the two previous studies in this thesis and contributes to lack of studies relating to the self-concept in relation to PM.

4.1.1. Aim of Study

The aim of this study was to explore ego-regulation processes during momentum phases of goal-driven activity. In lieu of this the study explores the role of mindfulness as a psychological skill for regulating psychological states (modes) in relation to self-consciousness and positive or negative PM experiences of golfers. Accordingly, the study addresses the following questions:

- What influence does a mindfulness-based schema mode program have with respect to self-consciousness and ego-regulation among golfers?
- Are subjective and objective ratings of momentum sequences influenced during and after a mindfulness-based schema mode program?
- Do subjective and objective ratings of golf performance change during and after a mindfulness-based schema mode program?

4.2. Methodology

A staggered multiple-baseline single-case research methodology was used for this study (Barker, McCarthy, Jones, & Moran, 2011; Kazdin, 2011). This methodology has been effectively used by various researchers exploring the efficacy of psychological skills interventions on performance (see Callow & Waters, 2005; Callow, Hardy, & Hall, 2001; Kendall, Hrycaiko, Martin, & Kendall, 1990; Mellalieu, Hanton, & Thomas, 2009; Pates, Oliver, & Maynard, 2001). Barker et al. (2011) argue that single-case research designs are particularly effective, scientifically rigorous and have made meaningful contributions in the realm of sport and exercise science. In particular, this study used a variation of the multiple-baseline methodology by including five participants. By including more participants the conclusions drawn from the data collected are strengthened since there is a replication effect (Barker et al., 2011).

Moreover, the staggered multiple baseline allows for an intervention (treatment variable) to be applied to different participants at different stages. If a consistent change in the dependent variable is observed directly after the intervention across all the participants, it strengthens the conclusions about the influence of the intervention. Single-case research can incorporate methods of comparison between variables and across multiple participants to enhance scientific rigour and, in this sense, it is more comparative to the conclusions drawn from experimental designs (Barker et al., 2011). Additionally, the study is ethically enhanced because participants make up both a control and intervention condition themselves, and no participant is excluded from a potentially performance enhancing intervention.

Furthermore, a mixed method approach was integrated into the methodology inasmuch as it allows creativity and flexibility to research design and strategy. This, in turn, enhances the validity of explanations for the research questions (Johnson & Onwuegbuzie, 2004). Qualitative aspects were included in this study on the view that it provides a richer account of phenomena under investigation (Edwards, Dattilio, & Bromley, 2004). Not only does this facilitate a deeper understanding for possible conclusions to be made from the results, it has the potential to contribute knowledge and validity to the theory that informs the study (Edwards et al., 2004). Hence, the study draws on the strengths of both quantitative and qualitative research methods while it aims to minimise the weaknesses of each paradigm.

A hermeneutical phenomenological approach was used for the qualitative part of this study. Both phenomenology and hermeneutic phenomenology are “concerned with the life world or human experience as it is lived” (Laverly, 2003, p. 7). A key distinction between these approaches is that in a phenomenological approach the

researcher “brackets” any biases that may influence the study, whereas in a hermeneutical phenomenological approach these biases are embedded in the process of interpretation (Lavery, 2003). In this view, our understanding is based on a fusion of horizons, whereby a person’s horizon consists of a set of “opinions and valuations,” which are constantly changing because we continually have to “test all our prejudices” by “encountering the past and in understanding the tradition from which we come” (Gadamer, 2004, p. 305). In Gadamer’s hermeneutics, “it is precisely in confronting other beliefs and other presuppositions that we can both see the inadequacies of our own and transcend them” (Warnke, 1987, p. 172).

4.2.1. Ethical Statement

All aspects of this study, including a pilot study, were conducted in the United Kingdom and ethical approval was granted by the Research Ethics and Advisory Group (REAG) of the School of Sport and Exercise Sciences (SSES), University of Kent.

4.2.2. Procedures

The study was conducted over five phases as follows:

- Phase 1: Participant recruitment (Jan 2014 – February 2014)
- Phase 2: Participant selection (February 2014 – March 2014)
- Phase 3: Pre-Intervention (March 2014 – April 2014)
- Phase 4: Intervention and Post-Intervention data collection (April 2014 – May 2014)
- Phase 5: Follow up, data analysis and write up (June 2014 – September 2014)

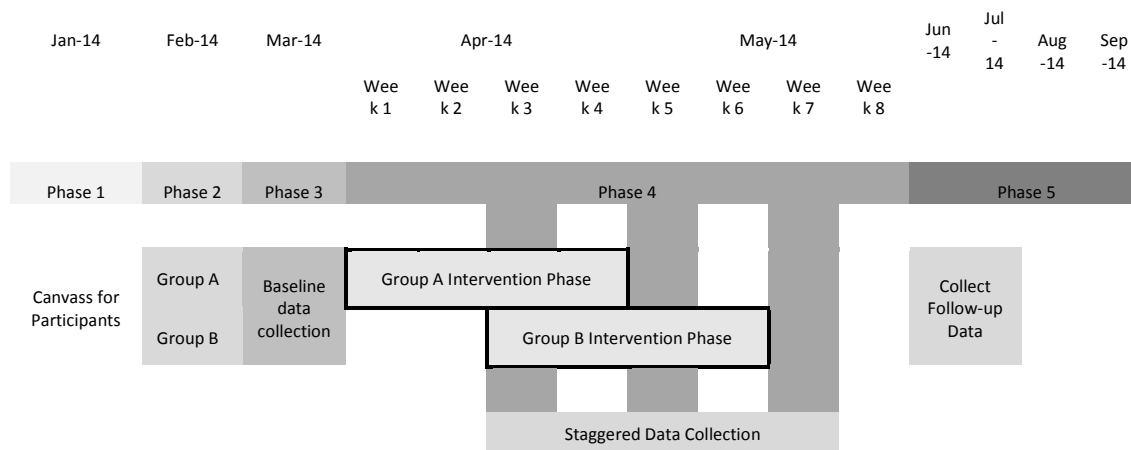


Figure 6. Outline of study

4.2.2.1. Phase 1: Participant Recruitment

Participants were recruited through direct telephone canvassing and poster advertisements. The posters were placed, with permission, at convenient university and community golf clubs (Appendices F and G). Individuals that expressed an interest in participating were sent a participant information letter (Appendix H). Selection interviews were held with individuals who met the selection criteria. Participants provided informed consent at the selection interview.

4.2.2.2. Phase 2: Participant Selection

Only golfers with an established performance ability were included in this study. This was based on the commonly acknowledged view that newly acquired skills improve rapidly to start but taper as optimal potential is reached (Anderson, 1982). Therefore natural development was less likely to pose as a confounding variable. Additionally, there would be less chance of practice effect during the study.

Only individuals over the age of 30 years were selected for the study. This was based on the view that schemas, while being fluid and changeable, are more entrenched in older individuals (Young et al., 2003). Thus, changes are less likely, but if change

occurs it suggests stronger validity for evidence for the effects of the intervention in this regard.

Participants selected were five male golfers aged between 36 and 62 years ($M = 53.6$; $SD = 10.7$). At the time of this study, three of the participants were members of the British Professional Golfers Association and therefore played off scratch (zero handicap). The other two participants were amateurs with handicaps of six and 15. In total, the handicaps ranged from zero (scratch) to 15. All the participants confirmed that they played or practiced golf on a regular basis (at least 6 hours a week excluding the UK Winter period: November - February).

At the initial part of the study none of the participants reported a direct experience of mindfulness meditation per se. Three of the participants related meditation to relaxation, mostly in relation to yoga practice. For example, one participant reported his experience in terms of a “relaxation exercise which is the yoga thing and you go through the body bit by bit finding tension, letting it go, that allows me to get into a um... more relaxed state physically”. He had, though, not been practicing the exercises for the last three years or so on the basis that he felt more relaxed in his life. One participant had no experience. Another participant did not know if he had previous experience with mindfulness meditation, but reported having consulted a sport psychologist around seven years prior. During these sessions he was trained in relaxation routines to release confusion around thoughts about technique.

4.2.2.3. Pre-Intervention Phase – Baseline Data Collection

Both quantitative and qualitative data were collected during this study. Baseline qualitative data were collected by means of semi-structured interviews on conclusion of the selection interview. These interviews aimed at collecting data relevant to SC and

previous mindfulness experience. The interviews lasted between 6 and 25 minutes ($M = 15.4$; $SD = 7.5$). At these interviews the participants were asked to respond to the following questions:

- How would you describe yourself as a golfer?
- Part of this study is to explore some kind of anxiety, for example during pressure situations or feeling self-conscious while playing golf. Could you say more about this, and how this affects your game?
- Have you had any previous experience with meditation and if so could you say more about that?

These questions were initiated by the researcher saying “I appreciate your participation in this research, thank you. I am going to ask you two questions in this interview. There are no right or wrong ways to respond but please try and give as much detail as possible.” Participants were encouraged to elaborate on their responses to these questions if more richness and depth was deemed necessary by the researcher.

Baseline quantitative data for mindfulness, SC and PM were collected by means of the *Mindful Attention Awareness Scale* (MAAS; Brown & Ryan, 2003), *Self-Consciousness Scale Revised* (SCSR; Scheier & Carver, 1985), and *Psychological Momentum Rating Scale for Golf* (PMRS-G; Appendix I).

4.2.2.3.1. Measures

The MAAS is a 15-item, self-report, trait-type, single-factor scale that purports to measure enhanced attention to and awareness of present experiences or reality. Items on the MAAS include statements such as “I find myself preoccupied with the future or the past”. Each item on the scale is rated by a score from one (almost always) to six (almost never) and a higher score indicates a higher level of mindfulness. The MAAS

score is the average of the sum of a person's responses (Range 1 – 6; Average 3.5). With respect to psychometric properties of the MAAS, Brown and Ryan (2003) reported high internal consistency ($\alpha = 0.82$) for the Maas together with favourable convergent and discriminant validity. Incremental validity for the MAAS was established through significant positive correlations with openness to experience, emotional intelligence and well-being measures, and negative correlations with rumination and social anxiety (Brown & Ryan, 2003). There was some indication that the MAAS could be used to distinguish individuals with different levels of mindfulness training, but a follow up study reported the need for caution on this aspect (MacKillop & Anderson, 2007). MacKillop and Anderson (2007), nevertheless, found evidence to confirm the validity on the single-factor structure of the MAAS on all fit indices. Of interest to the present thesis was the high correlation between self-regulation measures and the MAAS. In fact, Brown and Ryan (2003) found that higher trait mindfulness predicted higher levels of self-directed daily accomplishments. On the whole, the MAAS has shown to be a valid and reliable (test-retest) measure for dispositional mindfulness and has been used with college students, adults and clinical populations (Brown & Ryan, 2003).

The SCSR is a revised version of the Fenigstein et al.'s (1975) original Self-Consciousness Scale (SCS). The SCS was developed to assess the indicated differences between people in their predisposition to direct attention inward or outward. Three dimensions of SC are distinguished in the scale: private SC, public SC and social anxiety. Several studies have confirmed construct validity, test-retest stability and internal reliability on all three dimensions of the SCS (Burnkrant & Page Jr, 1984; Fenigstein et al., 1975; Scheier & Carver, 1985). Nevertheless, the revised version uses

language that is more appropriate for the general population (as opposed to college students), without jeopardizing the reliability or validity (Scheier & Carver, 1985). The SCSR consists of 22 items made up of three subscales: private SC (9 items), public SC (7 items) and social anxiety (6 items). Individuals respond to item statements by giving a rating from 0 (not like me at all) to 3 (a lot like me). Private SC statements refer to the tendency to think about and attend to the more covert, hidden aspects of the self; aspects that are personal in nature and not easily accessible to the scrutiny of other persons (e.g. privately held beliefs, aspirations, values and feelings). An example of a private SC statement is “I’m always trying to figure myself out.” Public SC refers to the tendency to think about those self-aspects that are matters of public display; qualities of the self from which impressions are formed in other peoples’ eyes (e.g. overt behaviour, mannerisms, stylistic quirks and expressive qualities). “I’m concerned about what other people think of me” is an example of a public SC item. Social anxiety pertains to a particular kind of reaction to a focus on the public self with the addition of apprehensiveness over being evaluated by others in a social context, or, a doubt about being able to create adequate self-presentations. An item example from the social anxiety sub-scale is “I get embarrassed very easily”.

The PMRS-G was designed for this study to measure momentum sequences based on a golfer’s subjective self-satisfaction rating (SSR) and objective performance rating (OPR) of shot for shot golfing performance. More specifically, the PMRS-G is used to chart SSRs and OPRs for each golf shot of a total of 25 shots on a driving range. For the golfing task, participants are given five minutes to warm up, which may include up to 5 practice shots. Thereafter, they are shown a target green 150 yards away and instructed to try and hit the target as many times in a row as possible. After each shot,

participants indicate their SSR from 1 (least satisfied) to 5 (most satisfied). The OPR score for the shot is also recorded either as 1 (on target), 2 (within 5 yards of the target) or 3 (>5 yards from the target). Sequences of three or more SSRs rated either 4 or 5 denote a positive run (resulting in a positive score), while sequences of three or more SSRs rated either 1 or 2 denote a negative run (resulting in a negative score). For example, if a participant has a run of five positive SSRs and a run of three negative SSRs during the 25 shots, the individual would have a net score of 2 (5-3), which is termed the SSR-PM score. For the OPR-PM score, sequences of three or more shots landing in the target area denote a positive run, while sequences of shots that missed the outer limit of the neutral zone denote a negative run. Hence, a positive score here also means the net momentum run was positive. In sum, PM is operationally defined as three or more SSRs or OPRs of a similar rating in a row.

The PMRS-G also includes two forms of qualitative data collection: a section (column) adjacent to the SSR and OPR scores for general comments based on researcher observations, and a section for a response an open-ended self-regulation question that prompts for a participant report on psychological strategies used during the task.

Prior to this study, the PMRS-G was pilot tested. This ensured that the instructions and wording were clear and comprehensible for participants, and that it was effective, feasible and practical for obtaining relevant data. Permission was granted from the management of a local driving range to cold-canvass among patrons to participate in the pilot study. An incentive (a free bucket of balls) was offered to the patrons willing to participate. Participants were nine male golfers between the ages of 21 and 67 years ($M = 49.2$; $SD = 16.6$) with handicaps between five and 16 ($M = 10.1$;

SD = 3.6). Participants provided informed consent. A total of 13 trials were collected for the pilot study. There were no problems administering the scale to any of the golfers and, after collaboration and discussion with the participants and colleagues, the PMRS-G was deemed fit for the purposes of the main study. The only amendment to the original scale was the addition of a weather rating scale. This was included so that scores on the scale could be related to weather conditions if necessary.

In total, with respect to quantitative data for the pre-intervention phase, participants provided one SCSR and MAAS baseline score, and multiple (at least three) PMRS-G baseline scores. In preparation for the staggered intervention phase, participants arranged themselves into two groups, Group A (two participants) and Group B (three participants) according to periods that suited their time schedules.

4.2.2.4. Intervention Phase

Intervention. A Mindfulness for Golf (MFG) program was purposely developed for this study. The MFG is a four-week brief mindfulness-based program that consists of four 90 minute workshops, scheduled to take place once a week. Workshops, based on team-based learning for small groups, were chosen for these purposes. Workshops were chosen because they provide a way to create an intensive educational experience in a short amount of time (Michaelsen, Parmelee, & McMahon, 2008). Furthermore, team-based learning is an effective way to teach hands-on skills because it offers participants a chance to try out new methods in a safe situation (Michaelsen et al., 2008).

The development of the MFG program was based on Kaufman et al.'s (2009) MSPE, which integrates elements of mindfulness training adapted from the work of Kabat-Zinn (1990) and Segal, Williams and Teasdale (2002). Further elements from

Williams and Penman (2013) were included. The main difference between the MFG and the MSPE is that, firstly, the former was tailored to golf. Secondly, MFG integrates aspects of Schema therapy (Young et al., 2003). In particular, the program introduces the concept of cognitive schemas or self-schemas that may disrupt golfing performance. Based on the trends among practitioners to integrate mindfulness and schema therapy, (see Bennett-Goleman, 2002), mindfulness exercises for schema exploration were integrated into the program.

With respect to the procedure of the MFG program, all participants received a manual (Appendix J). All the workshops were presented according to this manual, using power-point presentations. Apart from one participant being 30 minutes late for his first workshop, there was full attendance in all workshops. Standard mindfulness meditation exercises were introduced to, and practiced by, the participants in the workshops. For example, the nourishment meditation, approximately a five-minute exercise designed to enhance the experience of eating using something like chocolate, fruit or nuts (Williams & Penman, 2013). Other meditations included a three-minute breathing meditation (enhancing focus on the breath), a body-scan meditation (directing attention to phenomena such as sensations of temperature throughout the body) and a sounds and thoughts meditation (namely, directing focus to external and internal phenomena pertaining to sound and thought) (see Williams & Penman, 2013).

Specific mindfulness exercises introduced to the MFG program included a “motion mindfulness” and a “schema mindfulness” exercise. The motion mindfulness exercise was based on practices designed to integrate mindfulness into automated daily activities, such as, walking or driving. In this case, drawing on Gallwey (1986), the exercise involved swinging the golf club with intentional focus on intricate details such

as bodily sensations. The schema mindfulness exercise involved participants recalling significant life events that potentially developed or reinforced their self-schemas relative to sporting achievement. For example, one participant recounted missing a football penalty kick as a young schoolboy and then being laughed at by his peers. Participants were encouraged to engage with the feelings, sensations and thoughts in a mindful way while recalling these instances. Over and above the meditation exercises integrated into the workshops, the participants were encouraged to complete home-based exercises for at least 10 to 30 minutes a day for at least five of the days between workshops. Participants were requested to journal their home-based exercises as a means to track training levels and for discussion purposes.

All the workshops were facilitated by the principal researcher, a Counselling Psychologist (Registered with the Health Professions Council of South Africa) with over five-years of mindfulness experience, both in administering mindfulness interventions to clients (mindfulness-based psychotherapy) and practicing mindfulness personally (mindfulness informed psychotherapy; see Cigolla & Brown, 2011). Moreover, his formal training for applied psychotherapy included intense tuition in cognitive behavioural therapy that included a component of schema therapy. He further continued with post-graduate training in schema therapy. Moreover, he had over 40 years of golfing experience, which included a period of coaching as an assistant club professional in South Africa.

Data collection. All the workshops were digitally recorded for qualitative data. Nevertheless, some parts were not recorded, such as when the participants were involved with motion mindfulness exercises outside on the driving range. Overall, there were eight recordings lasting between 51 and 110 minutes ($M = 77.5$; $SD = 19.2$).

Midway through the MFG program further quantitative data were gathered by means of the PMRS-G.

4.2.2.5. Post-Intervention Phase

Participants provided qualitative and quantitative data at the conclusion of the MFG program. Qualitative data were collected by means of semi-structured interviews. These interviews aimed at collecting data relevant to SC and outcomes (golfing performance and general) from the MFG program. The interviews lasted between 13 and 29 minutes ($M = 20.4$; $SD = 6$). At these interviews the participants were asked to respond to the following questions:

- How would you describe yourself as a golfer now?
- Part of this study was to explore some kind of anxiety, for example during pressure situations or feeling self-conscious while playing golf. Could you say more about this, and how this affects your game now?
- With respect to golfing performance or life in general, have you experienced any changes since participating in the MFG program?

To confirm the participant satisfaction of the MFG program, participants were requested to complete a program evaluation form. In general, the participants reported high satisfaction with the content and presentation of the workshops (Appendix K). Finally, participants each provided one SCSR and MAAS score, and at least three PMRS-G scores.

4.2.3. Data Analysis

4.2.3.1. Quantitative Data Analysis

The extent to which baseline data do not overlap with subsequent intervention and post-intervention phases is a primary indicator of change (Parker & Vannest, 2009).

Four kinds of changes may be observed: changes in variability, level, trend or a combination of each other (Kazdin, 2011; Wolery & Harris, 1982). These changes are also valuable for establishing the extent of internal validity of the study (Wolery & Harris, 1982). Establishing a significance of this change is commonly done through visual inspection of data results, which tend to be plotted on graphs (Barker et al., 2011). Graphical representations of the data usually make visual analysis practicable and clear (Barker et al., 2011; Wolery & Harris, 1982). Visual analysis entails simply inspecting the data for apparent changes in the dependent variable over time, in relation to an intervention (Kinugasa, Cerin, & Hooper, 2004).

There is scepticism for using visual analysis without supplementing, or even replacing it to make inferences about the reliability or consistency to detect changes (Callow & Waters, 2005; Fisch, 2001; Kazdin, 2011). Visual analysis may be biased, subjective and a matter of taste of what is desirable (Kazdin, 2011). Conventional parametric statistics are, nevertheless, usually inappropriate for single-case research since they often fail to meet the assumptions of serial independency and the common occurrence of extreme outliers from small sample sizes (Parker & Vannest, 2009; Wolery & Harris, 1982). In this light, various non-parametric statistical procedures have been proposed for these purposes, such as, the split middle line of trend estimation, the Rn statistic and time series analysis (Callow & Waters, 2005; Fisch, 2001; Wolery & Harris, 1982).

In contrast, some researchers suggest that inferential statistical processes are problematic and that there is no consensus on which method, if any, is appropriate for single-case research (Mellalieu et al., 2009). Moreover, statistical significance is different to clinical significance (what is meaningful change to a participant), and may

be of little importance (Kazdin, 2011; Wolery & Harris, 1982). Mellalieu et al. (2009) argue that further statistical processes are less essential if visual analysis provides apparent evidence as follows:

(a) baseline performance is stable or in a direction opposite to that predicted for the intervention, (b) an effect is replicated within and across participants, (c) the fewer number of overlapping data points between baseline and intervention, (d) the sooner the effect occurs following the introduction of the intervention, (e) the larger the size of the effect in comparison to the baseline, and (f) the results are consistent with existing data and accepted theory. (p. 178)

It was deemed that initial visual inspections of graphical data representations in this study did not fully satisfy all the conditions. Moreover, as advised by Kazdin (2011), statistical tests are preferable for investigation of new research areas, when there are increased intra-subject variability, and where small changes may be important. These all applied to this study. Additionally, for social responsibility, studies (such as this) that contribute to the knowledge base of evidence-based practice require quantification of data. In this light, to supplement the visual analysis on relevant data and where standard parametric statistical analysis is deemed inappropriate, the nonoverlap of all pairs (NAP) (Parker & Vannest, 2009) method for establishing effect size in single-case research was used. NAP represents the number of non-overlapping comparison pairs between two data points, divided by the total number of comparisons. NAP is defined as “the probability that a score drawn at random from a treatment phase will exceed (overlap) that of a score drawn at random from a baseline phase” (Parker & Vannest, 2009, p. 359). The term exceed does not necessarily mean higher, because sometimes a lower score can be more desirable. Methods for calculating positive change

in either direction are available with NAP methodology. Parker and Vannest (2009) found NAP to be, in contrast to other overlap indices, a powerful method to discriminate typical single-case results with precision (confidence interval width).

4.2.3.2. Qualitative Data Analysis

Semi-structured interviews prior to, and post the MFG intervention, as well as each MFG workshop were transcribed using NVivo software (Qualitative Solutions Research, 2012). To increase quality control for the data, all the transcriptions were subject to peer review and member checking procedures (Boyatzis, 1998). Accordingly, the transcripts were sent to the relevant participants so they could confirm the accuracy of the captured texts.

In line with a phenomenological hermeneutical approach, the qualitative data were subject to analysis through theoretical lenses of mindfulness, SC and schema (mode) theory. Thus, the data were categorised and organised into relevant themes based on a directed content analysis approach. Hence, a theory driven, deductive approach was used to analyse the text (see Hsieh & Shannon, 2005). Accordingly, the texts were coded according pre-established nodes in respective categories of mindfulness, self-consciousness and schema (mode) theory. Coding was directed in terms of metaphors that indicated properties and change for the phenomena of interest. Thus, particular attention was paid to adjectives describing “how” and “what” changed with respect to the relevant constructs.

With respect to initial coding procedures, mindfulness nodes were based on the two core features: firstly, an individual’s attention to, and awareness of, both internal and external experiences in the present time; and secondly, the individual’s acceptance and non-judgemental reactions to these experiences. SC nodes were based on Fenigstein

et al.'s (1975) three dimensions: private SC; public SC and social anxiety. The primary nodes for schema (mode) theory included “significant events for maladaptive self-schema development”, “maladaptive self-schema triggers”, “embedded self-schema beliefs”, and “maladaptive coping strategies”. During the first round of coding, additional relevant, lower order themes were elicited from the texts. These were added to the respective parent node category. For example, “by products” was included in the mindfulness category, and “associated emotions” in the SC category. The texts were read several times, and the coding procedure ceased once no more metaphors / data units (sentences or words) were deemed appropriate for coding.

4.3. Results

4.3.1. Quantitative Results

4.3.1.1. Mindfulness: MAAS

The sample mean of MAAS scores at baseline was 4.13 (SD = .036) and this reduced slightly at the post-intervention phase (M = 3.95; SD = 0.55). As depicted in Table 18, four of the five participants in this study scored marginally lower on the MAAS in the post-intervention phase.

Table 18

MAAS scores for baseline and post-intervention phases

MAAS Scores	Baseline	Post-intervention
P1	3.93	3.80
P2	4.60	4.47
P3	3.73	3.07
P4	4.40	4.07
P5	4.00	4.33

4.3.1.2. Self-Consciousness: SCSR

The sample mean of SCSR scores at baseline was 34.8 (SD = 8.35). This score increased slightly at the post-intervention phase (M = 35.6; SD = 8.96). Table 19 provides a breakdown of participants' full scale and sub-scale SCSR scores.

Private SC. There were no consistent modifications according to the participants' ratings on the private SC Subscale from baseline to post-intervention phases. The sample mean score decreased non-significantly from baseline (M = 12.2; SD = 4.7) to post-intervention (M = 12.0; SD = 3.2). Both the baseline and post-intervention sample mean scores were below the private SC subscale norm of 15.5 (SD = 4.8). Despite an overall decline in the sample means, P4 had a significant increase in his score on this sub-scale.

Table 19

SCSR full and subscale scores at baseline (B) and post-intervention (P-I) phases

	SCSR Score		Private SC		Public SC		Social Anxiety	
	B	P-I	B	P-I	B	P-I	B	P-I
P1	41	38	18	16	15	13	8	9
P2	27	26	12	9	9	7	6	10
P3	46	47	14	15	20	19	12	13
P4	32	40	5	10	16	16	11	14
P5	28	27	12	10	8	8	8	9

Private SC. There were no consistent modifications according to the participants' ratings on the private SC Subscale from baseline to post-intervention phases. The sample mean score decreased non-significantly from baseline (M = 12.2;

SD = 4.7) to post-intervention (M = 12.0; SD = 3.2). Both the baseline and post-intervention sample mean scores were below the private SC subscale norm of 15.5 (SD = 4.8). Despite an overall decline in the sample means, P4 had a significant increase in his score on this sub-scale.

Public SC. The sample mean decreased from baseline (M = 13.6; SD = 5) to post-intervention (M = 12.6; SD = 5.1). The post-intervention score fell slightly below the public SC subscale norm of 13.5 (SD = 4.2). There were no significant modifications within the participants on the public SC subscale as depicted in the breakdown of participant scores in Table 20.

Social Anxiety. In contrast to the private and public SC results, the sample mean increased from baseline (M = 9; SD = 2.4) to post-intervention (M = 11; SD = 2.3), both scores falling above the social anxiety subscale norm of 15.5 (M = 8.8; SD = 4.3). While all the participants had increased scores on the social anxiety sub-scale, only P2 had a marked increase.

4.3.1.3. Psychological Momentum: PMRS-G (SSR-PM and OPR-PM)

Modifications of the participants PM scores were analysed by visual inspection of tabular and graphical representations according to the SSR-PM and OPR-PM subscales of the PMRS-G. To calculate NAP (effect size) scores, the data were arranged into four clusters (Data points 1, 2, 3 and 4). Data point 1 included the first cluster of baseline scores for all the participants. At data point 2, the participants in group A (P1 and P2) were midway through the MFG program, while group B (P3, P4 and P5) were at the start of the program. At data point 3, group A had concluded the MFG program, while group B were midway through. At data point 4 both groups had concluded the MFG program. Hence, group A provided one cluster of baseline data, and two clusters

of post-intervention data, On the other hand, group B provided two clusters of baseline, and one cluster of post-intervention data. Both groups provided one cluster of mid-intervention data.

SSR-PM. In total, the participants provided 22 SSR-PM scores ($M = 7.5$; $SD = 8.9$) during the baseline phase, 16 SSR-PM scores ($M = 12.2$; $SD = 7.9$) midway through the intervention, and 21 SSR-PM scores ($M = 13.9$; $SD = 7.9$) during the post-intervention phase. The consistent increase in mean scores and the positive linear trend ($y = 3.2x + 4.8$), based on these scores, indicates a significant increase in SSR-PM from baseline to post-intervention phases. The participants' scores are individually graphically represented in Figure 7.

NAP scores were calculated by hand from graphic representations of the participants' scores at the three specific data points (2, 3 and 4) in the study. The mean of the participants' NAP scores at data point 2 ($M = .71$; $SD = .20$) increased at data point 3 ($M = .81$; $SD = .12$), and at data point 4 ($M = .83$; $SD = .07$). The effect size (NAP) at data point 3 is most significant (>10 percent compared to data point 2), and this increase is marginally sustained at data point 4. A breakdown of SSR-PM NAP scores is presented in .

OPR-PM. The sample mean for participants' OPR-PM scores was 4.3 ($SD = 5.2$) for the baseline phase, 6.9 ($SD = 6.7$) for the intervention phase, and 5.9 ($SD = 4.3$) for the post-intervention phase. The positive linear trend ($y = 0.75x + 4.2$), based on these scores, indicates an increase in OPR-PM from baseline to post-intervention phases. The breakdown of scores are graphically represented in .

The mean of the participants' OPR-PM NAP scores at baseline ($M = .49$; $SD = .23$) increased at data point 3 ($M = .65$; $SD = .23$), and then reduced slightly at data

point 4 ($M = .63$; $SD = .31$). Similar to SSR-PM, the modification of the mean NAP score from data point 2 to data point 3 is most significant (>10 percent). A breakdown of OPR-PM NAP scores is presented in Figure 10.

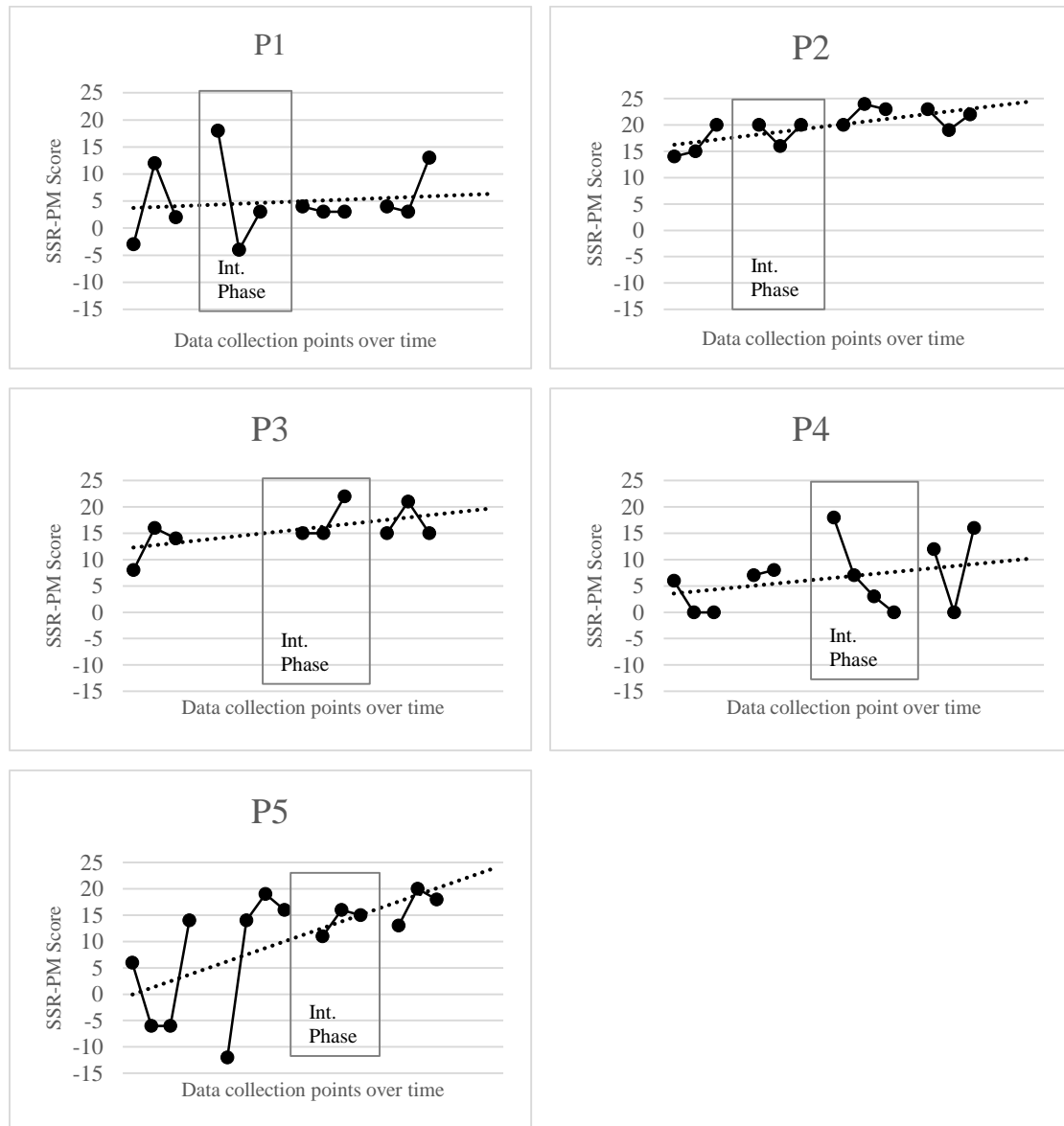


Figure 7. Participant SSR-PM scores for baseline (pre-intervention), intervention and post-intervention phases

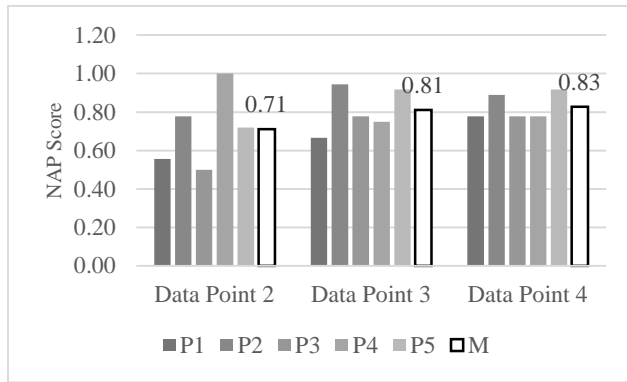


Figure 8. NAP analysis of SSR-PM scores at specific data collection points

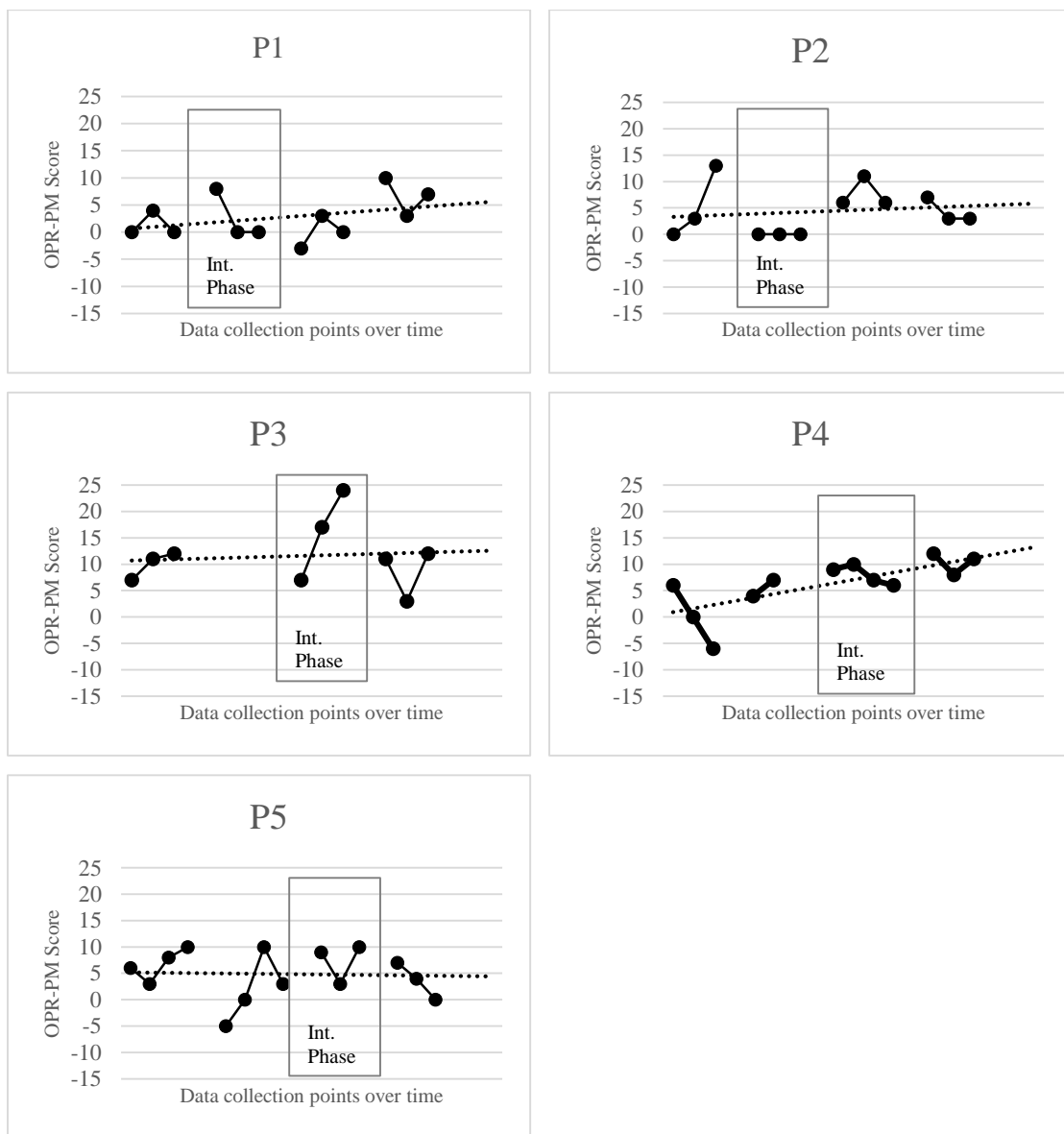


Figure 9. Participant OPR-PM scores over time for baseline (pre-intervention), intervention and post-intervention phases

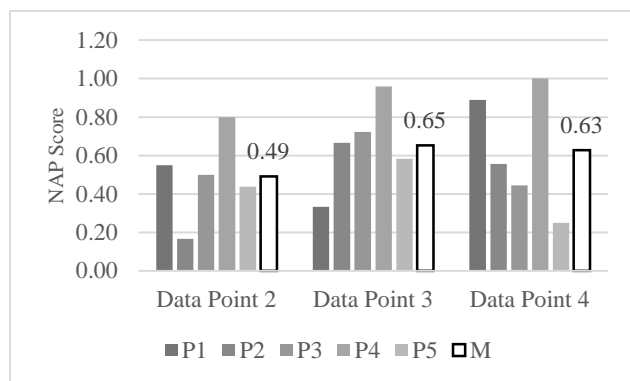


Figure 10. NAP analysis of OPR-PM scores at specific data collection points

As expected, there was a significant positive correlation (Pearson) between the participants' SSR-PM and OPR-PM scores (.359; $p < 0.001$). Nevertheless, despite the significant correlation, it was evident in this study that individuals can have low SSRs with high OPRs (or vice versa). Therefore, their experience of PM may be different to the individual that has both high SSRs and OPRs, or both low SSRs and OPRs scores. Hence, as a side note, researchers of PM should be cautious in stating conclusions based on only one dimension of PM.

In sum, participants' scores on both the SSR-PM and OPR-PM sub-scales increased from baseline to post-intervention phases. The results indicate that the MFG program had a positive effect with respect to participants' subjective and objective momentum sequences on the driving range task. This is confirmed by the NAP analysis, which reveals the most significant effect size at data point 3, when the participants were most engaged with the program.

4.3.1.4. Subjective and Objective Golf Performance Rating: PMRS-G (SSR and OPR)

In contrast to the previous analysis that focussed on momentum sequences, this analysis focussed on general golf performance. Hence, on each task the sum of the SSR and OPR scores were taken as respective measures to account for subjective and

objective golfing performance. Similar procedures were followed to analyse modifications of participants' SSR and OPR scores.

SSR. In total, the participants provided 550 SSR scores ($M = 3.5$; $SD = 1.2$) during the baseline phase, and 925 SSR scores ($M = 3.8$; $SD = 1.1$) for the combined intervention and post-intervention phases. The sample mean of SSR scores was 87.3 ($N = 22$; $SD = 16.8$) during the baseline phase, 94.4 ($N = 16$; $SD = 13.5$) during the intervention phase, and 99.5 ($N = 21$; $SD = 13$) during the post-intervention phase. The positive linear trend ($y = 6.1x + 81.533$) indicates an increase in SSR scores from baseline to post-intervention phases. Participants' SSR scores are graphically represented in Figure 11. The NAP analysis of effect sizes for the modification in SSR are depicted in Figure 12.

OPR. In total the participants provided 550 OPR scores ($M = 1.8$; $SD = 0.8$) during the baseline phase, and 925 OPR scores ($M = 1.7$; $SD = 0.8$) for the combined intervention and post-intervention phases. The sample mean of OPR scores was 44.3 ($N = 22$; $SD = 6.6$) during the baseline phase, 41.6 ($N = 16$; $SD = 6.9$) during the intervention phase, and 42.0 ($N = 21$; $SD = 4.7$) during the post-intervention phase. The negative linear trend ($y = -1.15x + 44.93$) indicates a decrease in OPR scores from baseline to post-intervention phases, which indicates a trend of improved performance. Participants' OPR scores are graphically represented in Figure 13. The NAP analysis of effect sizes for the modification in OPR scores are depicted in Figure 14.

Finally, there was a significant inverse correlation (Pearson) between participants' SSR and OPR scores (-0.467 ; $p < 0.001$). This was also expected, bearing in mind that a lower OPR score equates to better performance. Thus, participants reported higher satisfaction (SSR) with lower the OPR scores.

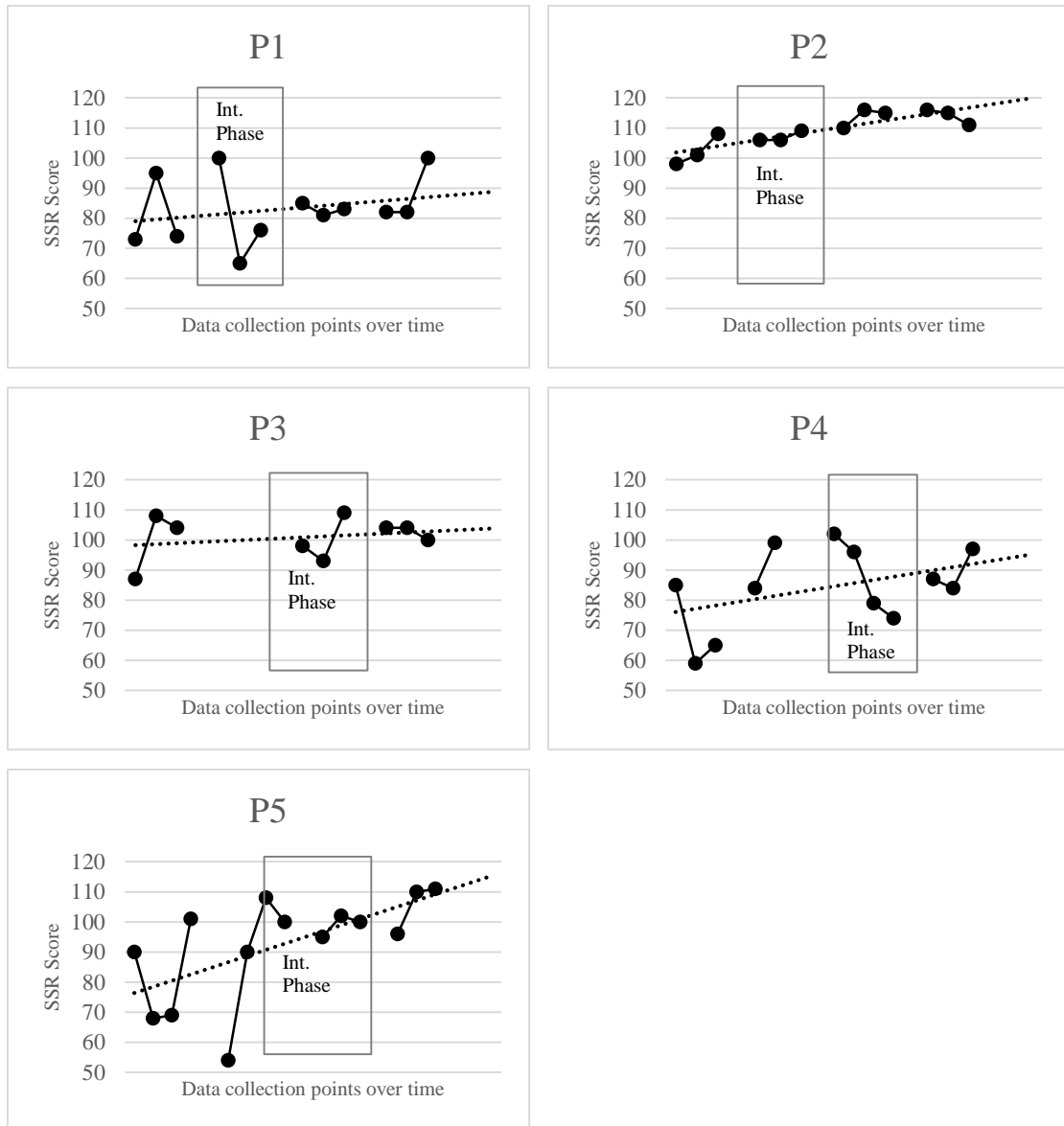


Figure 11. Participant SSR scores over time for baseline (pre-intervention), intervention and post-intervention phases

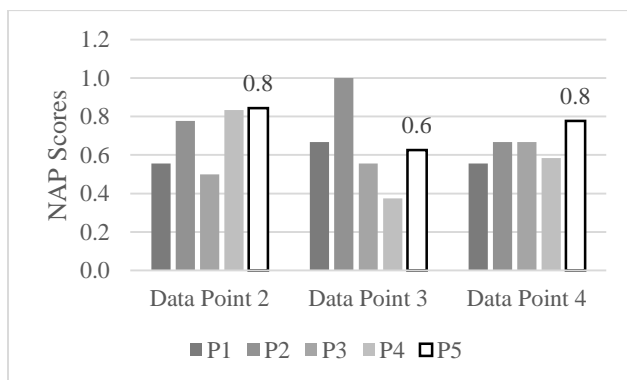


Figure 12. NAP analysis of SSR scores at specific data collection points

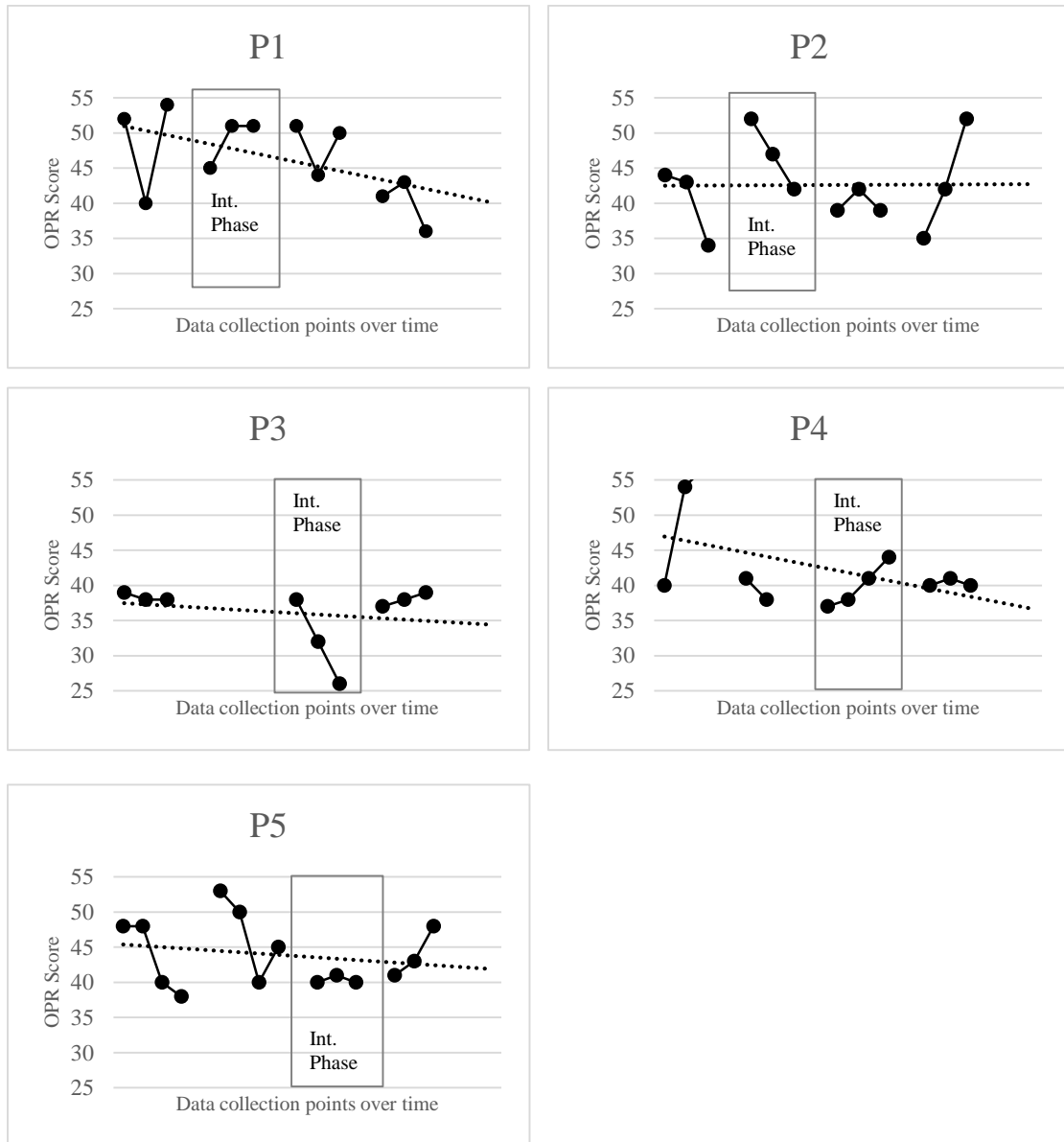


Figure 13. Participant OPR scores over time for baseline (pre-intervention), intervention and post-intervention phases

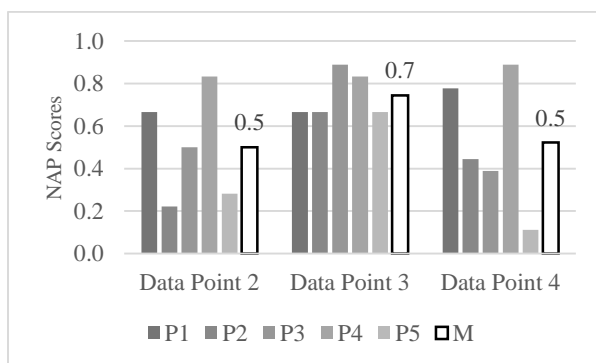


Figure 14. NAP analysis of OPR scores at specific data collection points

In sum, while the participants' satisfaction with their performance (SSR) generally increased from the baseline to post-intervention phases, it is unclear that this was due to the MFG program (NAP effect size was the lowest at data point 3 when all the participants were most engaged with the program). The results also revealed an improvement in objective golf performance (OPR) from baseline to post-intervention among the participants in general. Nevertheless, in contrast to SSR, the OPR NAP effect size was most significant at data point 3 suggesting that the MFG program had a positive effect on objective golf performance during the driving range task.

4.3.2. Qualitative Results

4.3.2.1. Mindfulness

The first theme, "attention and awareness", pertained to present attention to, and awareness of both internal and external experiences. In general, the participants reported an increase in moment-to-moment attention and awareness at the conclusion of the study. For example, P1 while recounting his golf from the previous weekend said:

...certainly in the last week or so, actually feeling it a little bit out on the course, just hearing the birds and hearing the wind, and hearing the boats in the sea and everything else, and I thought to myself 'hang on I'm not used to really hearing those'. So I think my awareness has increased.

Comments, such as "I'm more aware of my environment than I would've been", "a bit sharper", and "as opposed to being in that blind state" were frequent in the expressions of change relating to this theme.

The second theme, "non-judgemental acceptance", pertained to sentences, phrases or words expressing compassionate responses to internal and external stimuli.

Metaphors of positive change appeared less often in this theme. Only one participant made a direct reference to this theme in his post-intervention feedback as follows:

Yeah I've definitely noticed walking round the golf course playing golf that I'm appreciating where I am and what I'm doing. And if you like, very much appreciating very good shots, but not being near so down about the bad ones or the less good ones; just accepting.

Nevertheless, a sub-theme (child node) “relaxed state” was associated with this theme (parent node). For example, sentences such as “well I'm just so relaxed about this at the minute” or “I felt sort of quite relaxed comfortable playing and enjoying it” supported the notion of a relaxed state as a by-product of mindfulness.

In contrast to the first theme, where positive change was consistently reported by the participants, this theme yielded mixed reports. The by-products of increased attention and awareness did not all result in compassionate non-judgmental acceptance. These notions were contained in a sub-theme called “resistance”. This included expressions of rejection, rather than of acceptance, for internal or external stimuli. At times, this was reported in terms of distrust or frustration related to higher attention and awareness. For example, at the end of the MFG program one participant remarked “I don't want to be more mindful; I'm already mindful. I already over think and over-analyse...” In one of the workshops a participant expressed how disillusioned he was with society in general, but particularly with regards to disrespectful drivers and pedestrians. He said that becoming mindful of these things has made him angrier than before and feels the need to “punish” the people.

The final sub-theme, attached to the second parent node (non-judgemental acceptance), was “*dukkha*”. For example, one participant, in relating the agony (*dukkha*) of not meeting certain expectations, commented:

...it's not a place I like going because it's sort of a... in some ways personal to me, and I should be able to do certain things but there are limitations to what I can do and that just frustrates me.

While this theme does not describe change in terms of mindfulness, it was included in the results because of its association to SC and the overall study.

In sum, participants' MAAS scores indicate a marginal decrease in perceptions of their dispositional attention and awareness functioning from baseline to post-intervention phases of this study. In contrast, their qualitative accounts seem to indicate enhanced attention and awareness states. There were mixed results with respect to their qualitative reports regarding non-judgmental acceptance. While all the participants seemed to increase their attention and awareness states, there were degrees of resistance in accepting the experience non-judgmentally. Some participants reported a relaxed state with higher awareness and attention, while others experienced elevated and perpetuated discomfort.

4.3.2.2. Self-Consciousness

Prior to the MFG program, most of the participants provided qualitative reports affirming that they experienced SC at times. Moreover, that SC affected their golf to some degree, but mostly in a negative way. At this point, all the participants referred to SC in terms of a heightened awareness towards self-aspects on public display, and a concern about what impression they would make on others. For example, one participant remarked “I would always be self-conscious if there were a load of pros

there. More so than if it was amateurs”. Another participant related self-consciousness to failing others: “playing foursomes I always feel like I'm letting down my partner and I never ever play to the ability that I know I can and I do when I'm playing on my own. So I'm not particularly good in team events...” With respect to the theme of social anxiety, two participants reported a dislike for public speaking. One of the participants speculated that his dislike for making speeches caused him to self-sabotage himself, so as not to win major competitions, as follows:

...I must admit, I talked myself out of doing anything in the competition, in the sense that, remember I said to you there's this big competition where the winner has to make a speech at the end of it and there's a black tie do... this is in a few months... I'm never gonna win that one because I know I've got to make a speech... it was the same with this one. I thought "if you get to the final of it you get an audience walking around with you" - probably ten or fifteen people, not a big one... but... and you think "well in fairness I'm obviously playing better than they are because they're watching me play, but to my mind "don't really want people following me around, watching me" and I convinced myself I didn't want to win, I think.

While there were fewer coded references in the theme of private SC, the participants reported SC in terms of an awareness to private thoughts and feelings, particularly with respect to self-image and self-esteem. As simply stated by one participant:

I'm quite capable of enjoying playing in front of people, so there's a little bit of a show-off but at the same time I'm very self-conscious... If I'm playing badly I go into a... I very easlily go into a bad place. My self-image just crucifies me

Participants reported feelings of embarrassment, anxiety, nervousness, anger and frustration in relation to SC states.

With respect to change in SC over the course of the study, P1 believed that there were no radical changes from before the program. He indicated that he may be more aware of his physical self, but contended that he always had a reasonably high awareness of these factors. In regard to thoughts and feelings about himself in relation to others, he reported a higher awareness as follows:

...coming back to... you know that match a few weeks ago that I played where, like I told you at the time I was trying to impress the other guy, so I was very, very aware what I was doing internally. In an ideal world I'd like to not feel that level of anxiety.

Nevertheless, he believed it was too soon to say this was a result from the mindfulness program. P2 reported:

[I'm] less self-conscious about how other people might judge me and how I'm judging myself. And generally for me what I have found certainly over the last few times I've been playing is that, because I'm more relaxed and accepting about what I'm actually doing with the golf club, I'm generally playing better as a result and therefore have less reason to be self-conscious...

Prior to the MFG program, P3 reported some debilitating experiences on the golf course, which he linked to SC. He suggested that overall there were some changes, but that they were difficult to describe. He said:

...over the shyness and the embarrassment, the anxiousness in certain situations... I can get over these things now but there's still certain underlying

things there to be picked out to identify with to make... just heal it if that makes sense.

Nevertheless, he expressed an improvement in his golf while being assessed on the driving range task as follows: "...I actually play a lot better and the strike rates here have improved even in front of you today".

P4 reported no change in his experiences of anxiousness in relation to SC. He recalled a recent incident to explain how he still experiences the same discomfort. He was giving a playing lesson and purposely hit his drive to the wrong fairway to accompany his pupil. He then recounted the experience:

So I knock one onto the same fairway as he knocked it on, which I was fine about, and then when I got up to it and I'm now playing the second shot from the wrong fairway and there's one of my ex-members from (name omitted) walking up the fairway of the hole I'm now... on the fairway I'm now on, right I'm thinking "I really wish I wasn't on this fairway - I really wish I was on the right fairway" because he's now thinking I've hit a bad tee shot. So it's still that same sort of thing...

At the post-intervention interview, P5 once again reiterated a strong link between SC and his self-image. He said:

I know that being self-conscious, if my self-image is strong, I'm unbeatable. If my self-image starts to crumble I can be disastrous. So the ability in these tests to hit some good shots, the bad shot comes, a few bad shots follow and then the ability to not react and say 'OK just keep focussing' and then the

good shot comes back and then what I have learned through that is that once I get the feel of a good shot I can hit several good shots in a row.

In sum, participants' reports in relation to SC support the notion that there are three dimensions to the construct, namely: private SC, public SC and social anxiety. Among these themes there were more references to public SC, particularly as having a detrimental impact on golfing performance. While participants reported being less affected by SC at the post-intervention phase, similar to the results on mindfulness, there were no consistent changes how participants experienced SC. Nevertheless, based on both quantitative and qualitative reports, there were indications that mindfulness training increased the levels of global SC. Notably though, the participants consistently reported the relationship between SC and self-image / esteem. Hence, it was deemed appropriate to provide results from the qualitative analysis of SC in relation to self-schemas.

4.3.2.3. Self-Consciousness, Self-Schemas and Ego-Regulation

Self-schemas are “cognitive generalisations about the self, derived from past experience, which organize and guide the processing of self-related information contained in an individual's social experience” (Markus, 1977, p. 63). According to cognitive psychology the fabric of a schema is organised around a set of beliefs and conditional assumptions and can be described in terms of a self-expansive mode (Beck & Haigh, 2014). Hence, the main theme created for this analysis was the “golf self-schema mode”, which contained metaphors of self-descriptions as a golfer. For example, one participant described himself as a “fairly solid six handicapper” with a “pretty good swing” that putts well. Another participant said he was “competent but frustrated”, while another said he had the “ability to do lots of good things and a lot of

ability to do some very, very strange things out there”. In general, the participants all described a typically secure “golf self-schema mode”, but all named a weakness in some aspect of their games. For example, in relation to a discussion on SC, one participant reported a disruption to his sense of self as follows: “...certain aspects of my game, the short game generally and putting forms such a big, big part of me embarrassed.” He went on to describe the experience as one that renders him frozen “like a dystonia... where nothing moves”. These circumstances highlight a context in which a maladaptive schema is triggered and a corresponding behavioural response unsettles the individual’s golfing performance. Accordingly, three other themes were generated for coding purposes: maladaptive schemas, trigger context and behavioural response.

With respect to the maladaptive schema theme, the notion of failure was prominent. This manifested in various forms, for example, when one participant explained that “if the team match was eight all and mine was the last match and I lost it I'd feel pretty lousy about letting the team down”. The theme of failure was often represented in the participants’ metaphors relating to letting parents down, or about not meeting an expected standard. As one participant explained:

...every amateur expects you to be perfect with every shot. It's not a... it's not a hobby, if I play snooker it's a hobby, if I hit bad shots, if I play badly, it doesn't matter. When I play golf it does matter. It's my business.

A sub-theme of the maladaptive-schema pertained to schema-development. This comprised of metaphors describing childhood experiences that reinforced the failure schema. During the workshops, every participant recounted an experience that indicated the development and reinforcement of the failure schema. The following extracts provide an account of significant events contributing to a failure schema:

Extract 1:

I must have been about fourteen or fifteen, wanted to be a pro, played golf with this guy quite a lot and we stood on the second tee and my father never watched me play golf, didn't play golf, no one in the family played golf, and we stood on the second tee and I hit a tee shot. So he'd basically only ever seen me play the first hole, nothing else, and he's turned around to this guy I'm playing with and he went 'I must apologise for my son's golf'.

Extract 2:

I remember playing football as a kid at school, and I used to play in the school football team and I used to play in the year above me. Um... I was all right at football, nothing special, but I used to get put up into the group above and we were... we had a knock out match against a state school which is much bigger than ours sort of ten times our size. So we're expecting to get stuffed. And anyway by the end of the game we draw against them so it went to a penalty shootout. And all the lads were 'right who's gonna take the penalties?' And they said... the kid who's, you know, not quite the school bully but not far off said [to me] 'you're taking it'. [Participant shakes his head and whispers] 'No, I'm not taking one'. [Bully replies] 'Come on you're taking one'. [Participant replies]: how can I get out of this? I've got to take one. So a few of my mates in my year took one and they all scored. Um... I went up, blazed it over... Chris Waddle style, world cup 1990, blazed it over the bar... [Look of horror] 'Oh no'. Nobody could look at me as I walked back to the centre circle.

Now, the context in which the failure schema could be triggered among participants was associated with their game weaknesses. This was expressed in their

self-descriptions. For example, one participant said he felt self-conscious and anxious “...more so I suppose with the longer shots because I'm not as good with the longer shots as I am with the shorter shots.” He also commented on the pressure from the high expectations attached to being a professional. The relationship between SC and self-schemas was affirmed by the participant who relied heavily on self-image. He recounted an incident when his golf suddenly improved within a round of a tournament as follows:

... [as a coach] my self-image is much more secure and strong as opposed to the playing image which was where all this negative self-talk goes on. Yeah I'm quite aware that if I get my self-image right, I can surprise myself. But if my self-image clicks into the wrong place I might as well pack up and go home straight away. Self-image to me is very, very important – a crucial part.

Finally, participants' behavioural responses coupled with the triggering of a maladaptive failure schema varied according to flight, fright and freeze principles. One participant described how he would freeze on certain shots while playing golf. He went on to provide a metaphor as follows: “...like the rabbit in the headlight syndrome”. Nevertheless, on a broader scale there were also reports of avoidance (flight) behaviours. These varied from giving up golf to self-handicapping. For example, one participant suggested: “at times, I just want to walk away from it”. In contrast, a fight response was also recalled by one participant. While commenting on his mind-set in match-play format, he reported:

...right I've got a birdie, I'm gonna get another birdie. I'm on the charge, I'm not going backwards, I'm holding onto this lead, I'm gonna keep going and I'm gonna... I'm gonna smash it through the wall.

Thus far, the analysis has identified some aspects of human functioning, or, in this case, golf performance. This was done through the lens of schema mode theory. Nevertheless, these components (themes), in isolation, do not fully describe the process of functioning. To provide more clarity, these themes appeared in one of the participant's final report:

I mean to give you an idea of the weekend... I won my first game, nine and eight and I shot two under gross for the front nine... played really solid, seven pars, two birdies, um... just solid as... you know, no problem at all. And walked in early waited two hours for my next game who was against the guy who generally wins the club championship... really nice guy, and I never play well when I play with him. I always get this feeling I'm trying to impress him.

At this point the participant, who was engaged in his "secure" golfing schema mode experiencing positive PM, is confronted by the prospect of facing a well esteemed opponent. Not only does this elevate his SC on account of the match drawing a crowd, but he may also have to say a speech if he wins. This context triggers the failure schema, which results in him flipping to an "insecure" mode, and his momentum swings negatively as follows:

...and so when I was out on the course, I probably played the worst round of golf I've played in three years. I was smothering shots, I was pulling it... It was awful and I came off the course thinking "I don't know how I've gone from shooting two-under gross, looking solid as a rock in the morning to two hours later doing that.

In sum, among the participants' narratives there were several metaphors that lend support to the constructs and processes proposed in a schema mode theoretical

framework. The participants each described a “golfing schema mode” that was subject to fluctuations of golf performance, depending on the context. Notably, these fluctuations were contingent on levels of SC awareness. Usually negative performance would result when the self was perceived to be under threat. From this analysis, the predominant maladaptive schema associated with a threat to the self was a “failure” schema. Participants were able to provide recollections of significant events from their childhoods that, understandably, contributed to the development of the failure schema. Moreover, participants were able to recount maladaptive responses to the threat according to fight (overcompensation), flight (avoidance) and freeze (surrender) principles. Nonetheless, there were also accounts of a series of positive performances. This suggests that schemas play a role in both positive and negative momentum in performance.

4.3.2.4. Post-Intervention Qualitative Reports on Psychological Momentum and Golf Performance

There were mixed reports regarding PM and golfing performance experiences among the participants. In general, P1 could not detect any improvements with respect to PM and golfing performance. Nevertheless, P2 and P3 were more positive. P3 reported: “Um... quite interesting after the... the exercises with the 25 shots, I’ve become a little bit more focussed in certain areas and um... if I have that one particular theme running through, I actually play a lot better and the strike rates here have improved even in front of you today.” Incidentally, P3 had the best scores on the OPR-PM ratings. His predominant strategy on this task was to “hit one shot at a time”. One of the fundamental principles of mindfulness is to remain in the present, and this was clear in his discussion about momentum streaks in the post-intervention interview:

...there's a competitiveness in all of us stringing shots together. So what I class this roller coaster effect um... where you've got your big peaks and troughs, OK so your peaks and troughs are where you've got an ability to hit eight or ten really good shots and for some reason it just completely disappears. OK now I understand in my mind, now whether this is true or not, I think the competitive edge is there in all of us that we want to keep that run moving. So the effort and tension levels will slightly mount up thinking "God I'm doing really well here" as an example, "I'm just gonna reach a bit more for the next shot." And suddenly it breaks and it takes a while where you hit three or four iffy shots if you like, before you realise what's happened and then you start there. So the one shot at a time rule helps in as much as you're not trying to string the shots together as much.

Despite being the participant that had the most significant improvements with respect to objective performance outcomes in the task of this study, P4 believed there was no change in his golf. He concluded the final interview with the following question:

I mean was I supposed to see major differences or notice major differences? I know the other two have done lots of other things in the past like which maybe makes it easier for them to sort of do different things but was I supposed to have noticed...?

In contrast P5, was particularly optimistic about the benefits of mindfulness both for golf and life in general. In describing himself as a golfer, at the end of the study, he said:

“[t]hat's the interesting thing is that I'm coming through this feeling better about myself as a golfer. Um... what word would I use at the moment? Um... capable, I think is what I would say now.

4.4. Discussion

The purpose of this study was to explore ego-regulation processes during momentum phases among golfers. Specifically, the study focused on the role of mindfulness, as a psychological skill for regulating psychological states (modes), in relation to SC, and positive or negative PM experiences of golfers. Five accomplished golfers participated in a brief mindfulness-based intervention (MFG program) designed to influence ego-regulation and SC in relation to golf. A staggered multiple-baseline single-case research method was used to explore the relevant variables. Participants provided both quantitative and qualitative data at baseline, mid-intervention and post-intervention phases of the study. Despite several complexities in and of this study, the results indicate that the MFG program facilitated positive changes among participants on two dimensions of PM, as well as performance outcomes on a golf task. The complexities underlying these findings will be discussed, but first, the discussion focusses on the modification of mindfulness among participants.

On one dimension of mindfulness, the qualitative results indicate that participants' increased their capacity for attention and awareness as the study progressed. This contrasted with the quantitative results, which showed a small decline on this aspect. Additionally, there were mixed results with respect to their qualitative reports on the second dimension: non-judgmental acceptance. Some participants experienced a relaxed state with enhanced attention and awareness, while others were more resistant and experienced discomfort.

The lower scores on the MAAS suggest that participants were less mindful (dispositional) at the post-intervention phase. Moreover, it contradicts previous studies that report an increase in participants' mindfulness self-ratings post brief mindfulness interventions (e.g. Alberts & Thewissen, 2011; Zeidan, Johnson, Diamond, David, & Goolkasian, 2010). Nevertheless, Alberts and Thewissen (2011) used the Toronto Mindfulness Scale (TMS) (Lau et al., 2006) and Zeidan et al., (2010) used the Freiburg Mindfulness Inventory (Buchheld, Grossman, & Walach, 2001). Both studies included participants experiencing severe stress, anxiety and pain. It could be that people experiencing distress states are more likely to report increased mindfulness over a short spell of mindfulness training.

As a means of contrast to clinical samples, Kaufman et al., (2009) used the TMS, as a manipulation check for state mindfulness, with sporting participants. The golfers in their study had reduced scores (non-significant) on the curiosity subscale, but increased scores on the decentring (significant) subscale, through the study. Notably, among all the subscales of the Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004), the participants' scores only increased (significantly) on the 'describing' subscale. They had reduced scores on all the other trait aspects of mindfulness, which include observing, acting with awareness, and accepting without judgment. Mahoney and Hanrahan (2011) used the MAAS, with four athletes, before and after a brief mindfulness-acceptance based intervention. Three of the participants had marginally reduced scores at the post-intervention phase. Mahoney and Hanrahan (2011) proposed that reduced scores on post-intervention mindfulness measures could be that, through becoming more mindful, a person realises they were not as mindful as they once thought. In fact, a recent study shows that mindfulness practitioners tend to

score lower on mindfulness measures (Sauer, Lemke, Zinn, Buettner, & Kohls, in press). Sauer et al. (in press) also speculated that this may be due to their sensitivity for mindfulness states. This accords with evidence that people report differently on self-reports, as they experience cognitive changes (Spector, 1994). Hence, as Grossman (2008) explains, there are several limitations to the construct validity of mindfulness self-report measures.

In Bernier et al.'s (2009) single-case research on mindfulness and golf, no mindfulness manipulation checks were in place. The golfers in their study engaged in a longer program of mindfulness. It could be that, with longer mindfulness programs, participants may report higher levels of state, trait or dispositional mindfulness. Some experts on mindfulness argue that the benefits of mindfulness practice can take a long time to be apparent (Gardner & Moore, 2007; Kabat - Zinn, 2003). Thus, while some people report lower scores on a mindfulness scale over the short term, this may swing around over a longer period. This could explain why the participant, in the current study, with the most experience in mindfulness had a higher MAAS score at the post-intervention phase. One of his comments was that the program re-ignited his mindfulness skills he had previously learned.

This study highlighted the challenges of capturing the essence of Buddhist understandings of mindfulness. Baer (2011) and Grossman (2008) have previously highlighted these challenges. Moreover, as Sauer et al. (in press) have pointed out, there are concerns about the predictive validity for measuring mindfulness with the MAAS. Additionally, Walach, Buchheld, Buittenmüller, Kleinknecht and Schmidt (2006) have pointed out that the MAAS focuses on attention and awareness, and does not consider other aspects of mindfulness, such as “non-judgmental, accepting attitude, dis-

identification, insightful understanding, or an attitude of having no specific goals” (p. 1545). Nevertheless, in line with Grossman’s (2008) recommendations for exploring mindfulness, this study included a qualitative account of mindfulness. Hence, as will be further discussed later, a richer understanding of mindfulness was gained in this study.

4.4.1. Self-Consciousness

This part of the discussion attends to the first question in the aim of this study: What influence does a mindfulness-based schema mode program have with respect to self-consciousness and ego-regulation among golfers? Firstly, Festinger et al.’s (1975) three dimensions of SC, namely private SC, public SC and social anxiety were all confirmed by participants’ qualitative reports in this study. From a qualitative point of view, public SC seemed most prominent, typically having a negative influence on golf performance among participants. Quantitatively, the SCSR scores increased marginally implying that mindfulness training increased levels of participants’ (SC) awareness globally. This accords with Chambers et al.’s (2008) first fundamental constituent of mindfulness: an individual’s attention to, and awareness of both internal and external experiences in the present time. Furthermore, the participants’ qualitative reports tend to support this notion.

Of particular relevance to this study, was the link between SC and self-image / esteem. Participants consistently reported the relationship between SC and self-image / esteem, and accordingly reinforced the notion that the psychological self is highly vulnerable to threat (Brown et al., 2008). In light of this, not only did Beck and Haigh’s (2014) self-expansive mode theory provide a useful framework to understand this link, but participant reports in this study reinforced the plausibility of the theory. Participants described a “golfing schema mode” based on their perceptions of their strengths and

weaknesses as a golfer. Fluctuations in their golf performance were contingent to levels of self-conscious awareness. In particular, they experienced negative performance when the self was perceived to be under threat. The idea of failure conjured up the biggest threat and this led to maladaptive responses that disrupted their golfing performance to various degrees.

Nevertheless, from the scattered SCSR subscale results, it was clear that not all aspects of SC were influenced the same way among participants. On the view that private SC refers to the tendency to think about and attend to the more covert, hidden aspects of the self, one may expect individuals report higher scores on this subscale following mindfulness training; yet only two participants did. P4 had the most significant change, but his initial score was particularly low in comparison to the norm. Thus, this change could be explained by a regression towards the mean (Barnett, van der Pols, & Dobson, 2005).

Another concern was that some items on the SCSR subscales could be ambiguous. On the private SC subscale, for example, the item “I think a lot about myself” could imply introspection or egotism depending on idiosyncratic understandings of the items. Moreover, the statement “I’m quick to notice changes in my mood” may prompt people to report lower scores through the paradox of becoming more aware and realising they were not that way before.

With respect to public SC, the results of this study suggest a tendency for individuals to become less conscious about what other people think of them after mindfulness training. This contradicts the notion of becoming more aware of external stimuli. It could be that the participants were reporting in a socially desirable way, thus jeopardising the validity of these reports (King & Bruner, 2000). In contrast,

participants reported higher social anxiety post-intervention scores. The MFG program encouraged participants to be open and curious to uncomfortable feelings so, for example, on statements such as “It’s hard for me to work when someone is watching me”, or “I feel nervous in front of a group”, a respondent may report higher scores. Hence, in some cases, participants may be referring to less reaction from uncomfortable sensations triggered by the statements in the subscales. At other times, their scores may suggest greater SC with enhanced ego-regulation.

A further complexity relates to SC resistance. Increased levels of SC are positively associated with performance decrements under pressure situations, or what is commonly referred to as “choking under pressure” (Baumeister, 1984). In this view, it would be understandable for athletes to be wary of elevating their levels of SC. In this study, P1 was particularly sceptical of this, since he felt that it would interfere with his golf. Early in the study he said “I don't want to be more mindful; I'm already mindful. I already over think and over-analyse...” This concern emerged in his post-intervention interview again. This implies a misunderstanding of mindfulness, it does not take into account the self-regulation aspects of mindfulness; it implies elevated SC without non-judgmental acceptance. Moreover, this relates to experiential avoidance behaviour, where an athlete uses strategies to cope with discomfort arising from certain beliefs (Hayes et al., 1996). If self-conscious awareness is avoided, then there is no opportunity to develop a way of regulating the discomfort attached to it (Baumeister, 1984; Chambers, Gullone, & Allen, 2009). Hence, results on the SCSR scale could vary depending on the level of resistance to the intervention.

Despite various indications that SC levels were influenced through mindfulness training, participants in general could not say with conviction that changes were highly

noticeable. Notwithstanding, these changes would probably be difficult to notice, particularly over a short period. As one participant put it “I don't think that you'd see a quantifiable difference but I'd like to think that come back in twelve months' time and you would”. Mindfulness meditation encourages awareness of stimuli as well as a non-judgemental, compassionate response (Kabat-Zinn, 1990; Shapiro, Carlson, Astin, & Freedman, 2006). Hence, the dual process of mindfulness meditation may influence how individuals respond to the SCSR, depending on their idiosyncratic understanding of an item. Moreover, Scheier and Carver (1980) point out that different manipulations of self-awareness inspire people to focus on different aspects of the self. Thus, the MFG program had an influence on the participants' SC states, but the changes were marginal, inconsistent and seemed to be contingent on participants' idiosyncratic characteristics.

4.4.2. Mindfulness and Psychological Momentum

The second question posed in the aim of this study was: Are subjective and objective ratings of momentum sequences influenced during and after a mindfulness-based schema mode program? To address this question this study focussed on two dimensions of PM: SSR-PM and OPR-PM. The participants' scores on both dimensions improved from baseline levels. Moreover, the effect size of change was most significant when all participants were fully engaged with the mindfulness program. Thus, the MFG program had a positive effect in relation to PM.

A note aside regarding two dimensions of PM, it was evident in this study that individuals can have low SSRs with high OPRs (or vice versa) and therefore their experience of PM may be different to the individual that has both high SSRs and OPRs, or both low SSRs and OPRs scores. Hence, researchers of PM should be cautious in stating conclusions based on only one dimension of PM.

On the view that PM fluctuates on a continuum between a positive peak (where a flow state is experienced) and a negative trough (where a choking state is experienced), these results provide some support to Bernier et al. (2009) and Kaufman et al.'s (2009) studies with respect to flow. Their studies suggest that golfers are more likely to experience flow states after mindfulness training. Nevertheless, while the golfers in this study had higher scores on the PM subscales, they were not questioned about flow states nor did their reports indicate flow experiences during the driving range task.

With respect to SC, again on the basis that positive PM is a movement towards flow states, it may be expected that participants report a loss of SC as in previous studies (Bernier et al., 2009; Kaufman et al., 2009). Nevertheless, this was more complex than anticipated. The present study indicates that various dimensions of SC are affected in different ways among different people, similar to previous reports by Scheier and Carver (1980). There was no consistent direction of modification with respect to the participants' baseline and post-intervention reports on private SC or public SC. Only social anxiety subscale scores increased. Thus, it seems that a loss in SC is contingent to idiosyncratic criteria. This is also in accordance to the results from a systematic literature review showing that less than 30 percent of athletes report a loss of self-consciousness during experiences of flow (Swann et al., 2012).

The notion that a loss of SC is experienced differently, and to various degrees, among people, implies that a loss of SC is a by-product of self-regulation processes during peak performance. A significant aspect of the MFG program included exercises that encouraged the participants to accept experiences in a non-judgmental way. This may suggest that participants were somewhat subject to the Hawthorne effect of acting

in accordance to expected outcomes of the study (Barker et al., 2011). Nevertheless, it seems likely that participants were able to regulate their responses in a more accepting non-judgmental way, and hence report higher levels of satisfaction with their golf shots (at least). Support for this point comes from the fact that participants' SSR-PM NAP scores tended to continue improving, while their OPR-PM NAP scores started to decline at the post-intervention phase. In other words, participants experienced more sequences of higher golf related satisfaction, despite a tapering off of positive performance outcome sequences. Thus, self-regulation of attention and non-judgmental acceptance seem to be fundamental in regulating SC states, and influencing momentum of athletic performance. Incidentally, Aherne, Moran and Lonsdale (2011) found the regulation of attention to be a key factor in facilitating a sense of control and flow states among athletes.

With respect to the general increases in dispositional SC among the participants, these results support Baumeister's (1984) findings on the paradoxical effects of SC and choking. Individuals with higher levels of dispositional SC are less likely to choke under pressure. The reasoning behind this is that the more SC an individual is, the more adept to the individual is to the disrupting influences of SC, on the basis that he or she has developed ways to cope or regulate the experience. The simple aims of mindfulness are to enhance attention and awareness to present experiences, in an accepting way. In this study, schema mode theory provided a framework for part of this aim: to gain insight into the constructions of self-schemas and the power they have in our lives. In particular, with respect to the facilitation or disruption of momentum towards a goal. During the workshops, in appropriately safe moments, the participants were guided back to earlier times in their lives, critical moments, for them to recall certain

experiences that reinforced maladaptive self-schemas (e.g. part of identity associated with failure). By raising awareness of these past events, the participants were able to examine the thoughts, feelings and sensations associated with the events, in the present, without judgements from others and in a way they could accept “the self “ (themselves) more.

Thus, in attempt to answer the question for this part, there were abundant reports among the participants to support a multi-dimensional concept of SC as well as the basic components of a self in accordance with schema mode theory. Moreover, the predominant “failure” maladaptive schema among participants reinforces a well-established notion that a threat to the self is a powerful, if not the most powerful force in the disruption of optimal functioning (Brown et al., 2008). Nevertheless, based on the inconsistencies among participants’ reports it seems that SC is contingent on idiosyncratic criteria and contexts.

Despite the complexities mentioned above, the mindfulness intervention was geared towards manipulating ego-regulation and SC, and participants subsequently improved on dimensions of PM. Thus, there are promising indications that mindfulness may be a key factor for ego-regulation (in terms of schema mode theory) in relation to SC and consequently, the facilitation of enhanced golfing performance.

4.4.3. Golf Performance

Finally, while the focus of this study pertained more to PM of golfers, it was decided to explore golfing performance for interest, and for comparison purposes. Hence, the question “do subjective and objective ratings of golf performance change during and after a mindfulness-based schema mode program?” was included in the aim of this study. Golfing performance was measured by the PMRS-G. The resulting trends

indicate that participants improved on both SSRs and OPRs, in general, following the MFG program. As expected, there were significant correlations between the SSR and OPR subscale scores and therefore no conclusions can be made about causal directions between these scores. Hence, there is no evidence that PM in itself is a force that provides impetus to golfing performance.

Nevertheless, with respect to SSR-Sum scores, while there is still a positive increase in the mean NAP score at data point 3, the most significant positive change occurred at data point 2. It could be that the SSR baseline scores were not sufficiently stable for the NAP score to reinforce conclusions made about the impact of the MFG program on this variable. Taking into consideration that the OPR scores show a significant positive change (>20 percent probability) at data point 3, as was the case for SSR-PM and OPR-PM results, there is more evidence to suggest that mindfulness training is effective for enhancing golf performance than not.

4.4.4. Limitations and Future Directions

Numerous limitations emerged in this study, which in themselves provide many directions for future studies. Broadly, these limitations pertain to the tension between efforts to establish reliability and validity in the pursuit of general knowledge, and efforts to explore concepts for practical knowledge.

On one hand, this study was conducted according to a version of single-case methodology on the basis that case study research presents the opportunity to gather rich data for exploring concepts (Flyvbjerg, 2006). Nevertheless, with fewer participants it is more difficult to generalise the results, and general knowledge tends to be favoured over practical knowledge in science (Flyvbjerg, 2006). In this light, caution is necessary if the results in this study are to be generalised.

On the other hand, based on the scattered, unexpected and inconsistent results on and between the MAAS, SCSR and qualitative reports, it seems that opportunities for collecting enhanced rich data were compromised.

To elaborate on these limitations, firstly, participant baseline scores for PM and golf performance were relatively volatile and a longer baseline data collection period could have ensured more stability. If baseline scores are unstable it is difficult to draw conclusions about the intervention effect (Barker et al., 2011). Secondly, there was not sufficient time during the MFG workshops for each participant to fully appreciate the program. Each workshop was only 90 minutes; often we did not cover all the material in depth and some of the meditations were cut short. MFG was based on the reported success of previous, related, brief mindfulness-based interventions (see Kaufman et al., 2009). Nonetheless, a longer program, with longer workshops, may have provided more consistent and illuminating change among the participants. The participants alluded to this in their evaluations of the program. Thirdly, participants reported a drop off in self-directed mindfulness practice after the conclusion of the MFG program. A longer post-intervention phase would provide opportunities to collect data pertaining to long-term adherence to mindfulness training. Fourthly, the driving range task did not tap into higher levels of SC among participants. While the participants commented that they did feel some level of SC while being rated on the task, they would have experienced higher levels of SC if the task related to a weakness in their games. If the task was individually tailored to each participant's weakness, it could have identified the intervention effects more significantly.

Despite the limitations, the promising results in this study support the notion that mindfulness-based interventions enhance sport performance and individuals' well-

being. Thus, mindfulness-based interventions should be considered worthwhile and should therefore attract more research.

This research was unique insofar as it was the first study to explore SC in relation to PM. Moreover, the PMRS-G proved to be effective and useful for collecting data pertaining to golf performance and momentum sequences. In light of this, future studies could replicate this study, but with considerable amendments; namely by reducing the number of participants, increasing the time of each workshop, as well as the number of workshops, increasing baseline and post-intervention phases and collecting more golf task data accordingly. Golf tasks could be measured by tailoring the PMRS-G specifically to idiosyncratic needs of a golfer (perhaps for parts that he or she is experiencing difficulty).

Moreover, this was the first study (to the researcher's knowledge) to integrate schema therapy into an applied sport psychology intervention. Other studies could place more emphasis on schema therapy interventions with athletes to further understand modifications with respect to sporting factors, such as athletic identity, performance and so forth.

4.4.5. Conclusion

A staggered multiple-baseline single-case research method was used to explore ego-regulation processes in relation to momentum phases among golfers. Five accomplished golfers provided both quantitative and qualitative data at baseline, mid-intervention and post-intervention phases of the study. The intervention was a brief mindfulness-based program that integrated schema mode theory and mindfulness, and was tailored to golf. More specifically, it was designed to influence ego-regulation and SC in relation to golf. The participants experienced positive changes on two dimensions

of PM, as well as performance outcomes on a golf task during, and after, the MFG program. Overall, the results provide tentative support that enhanced ego-regulation through mindfulness-based training, particularly in higher SC states, has an important role in developing or maintaining positive momentum in golf performance.

CHAPTER 5. DISCUSSION

Momentum in our goal-driven activity can have positive or detrimental consequences to our well-being and achievements. The concept of self-regulation is widely considered to play a key role in our goal-driven endeavours. Nevertheless, there is confluence between current conceptualisations of momentum, namely psychological momentum (PM) in sport and models of self-regulation that integrate motivation. In this light, the purpose of this thesis was to explore the role of self-regulatory processes in relation to PM during goal-driven activity. Three studies attended to this aim: firstly, a conceptual analysis to provide conceptual clarity to PM and to identify how self-regulation theory is accommodated in these conceptualisations; secondly, a mixed method approach to identify key self-regulation strategies during PM experiences of golfers while playing golf; and thirdly, a staggered multiple single-case study to explore ego-regulation processes, such as mindfulness and SC, in facilitating PM experiences of golfers. Golf is considered appropriate because it is a very popular sport, played by millions around the world, because what applies to golf may apply to many other sports, and because golf can serve as a metaphor for managing many of life's challenges.

5.1. Summary of the Findings

The conceptual analysis in chapter two outlined the properties of PM as an abstract, subjective (relative) and dynamic phenomenon experienced by athletes (and observers) during sporting activities. The main consensus among researchers of PM is that it is experienced in terms of perceptions. It is widely acknowledged that these perceptions of PM are triggered by any internal or external (situational) event, but which are significant to athletes, in their perceptual fields. Hence, the key mechanism by which PM operates is the quality of an athlete's perception (an appraisal of sensory

perceptions of salient features in the athlete's perceptual field) that, in turn, alters the athlete's psychological state. The tendency among researchers has been to implicate some well researched psychological concepts, such as self-efficacy, as moderators of PM. Other well cited psychological components in the moderator category included: motivation (towards ego and task related goals), need for control, cognitive capacities of attention, focus and concentration, confidence (self-efficacy, self-confidence and sense of competence), quality of thoughts (including self-talk) and emotions, and arousal levels. While self-regulatory processes are alluded to as key factors in enhancing sporting momentum, the role they play was speculative and vague. Finally, performance outcomes are influenced as a consequence of PM perceptions.

The second study, presented in chapter three, was a mixed method study with the aim of identifying self-regulation strategies that golfers use during momentum phases while playing golf. To enhance the ecological validity of the study, data were collected using novel methods from participants during rounds of golf. The data were analysed in two parts. The first phase involved an inductive thematic analysis that resulted in a comprehensive typology of self-regulation strategies. The typology included three main categories of strategies: 1. the self in relation the natural environment (SG strategies); 2. The self in relation to other people (SO strategies); and 3. The self in relations to cognitive, emotional and technical aspects of the self (SS strategies). This typology served as a framework for the second phase of analysis, to explore self-regulation strategies in PM contexts. The PM contexts were operationalised according to two dimensions: SG and SO. The results revealed no significant pattern of specific strategies in positive or negative PM contexts. Rather, it seemed more likely that the participants used idiosyncratic strategies to perform according to standards

relative to their experience and skill level. Moreover, these strategies are unlikely to act as direct triggers (antecedents) to perceptions of PM among golfers.

Chapter four presented a study using staggered multiple-baseline single-case research method. The aim of this study was to explore ego-regulation processes relative to momentum phases of golf performance. Specifically, the study focused on the role of mindfulness, as a psychological skill, for regulating psychological states (modes) in relation to SC and positive or negative PM experiences of golfers. Five golfers participated in a brief mindfulness-based program that was tailored to golf, and which integrated schema mode theory. The participants provided both quantitative and qualitative data at baseline, mid-intervention and post-intervention phases of the study. Two main aspects of mindfulness were considered in this study: the capacity for attention and awareness and non-judgmental acceptance. On the first aspect, while the qualitative findings indicate an enhanced capacity for attention and awareness through the study, no significant changes in mindfulness scores were observed. On the second aspect, non-judgmental acceptance, the qualitative reports showed mixed results.

With respect to SC, the participants' qualitative reports supported Festinger et al.'s (1975) tri-dimensional components of private SC, public SC and social anxiety. The participants acknowledged that these factors tended to disrupt their golf performance. Notably, the participants reported that their levels of SC were strongly linked to their fluctuating perceptions of psychological self. Through the study, the participants reported marginal increases on the SCSR, implying that mindfulness training may influence levels of participants' (SC) awareness globally. Nevertheless, the change was minor and no claims could be supported in this regard. While the participants generally reported increased scores on the social anxiety subscale from

baseline to post-intervention phases, there were inconsistent direction of modification on the private SC and public SC subscales.

With respect to PM, two dimensions of PM (SS and SG) were considered. The participants' scores on both dimensions improved from baseline levels. Moreover, the effect size of change was most significant when all participants were fully engaged with the mindfulness program. Similarly, participants' golfing performance scores as measured by the PMRS-G showed improving trends from baseline to post-intervention phases.

5.2. Synthesis and Explanation of Results

Iso-Ahola and Dotson (2014) point out that a basic model of PM is necessary, on the basis that previous models have been too vague and general; and “are not particularly useful for theoretical explanation of neither the phenomenon nor its empirical validation” (p. 24). Hence, the models have failed to generate further research pertaining to the psychological aspects of PM (Iso-Ahola & Dotson, 2014). The results of the conceptual analysis strongly supports this view.

In this thesis, PM was found to be a multidimensional concept that incorporates several well researched concepts in sport psychology. This view was supported by other researchers such as Young (2011), who makes the point that “PM does not exist as a single stand-alone concept devoid of connection to other aspects of sport psychology” (p. 12). For example, Young (2011) provides three examples where PM has potential links to classic sport psychology literature: self-efficacy (Bandura, 1982); arousal (Yerkes & Dodson, 1908) and achievement goal theory (Nicholls, 1984). Nevertheless, while conceptualisations of PM stand in relation to these other theories and concepts there seems to be confluence and conflict.

In chapter two, it was argued that Bandura's (1997) concept of self-efficacy could be used to explain momentum in task performances. According to Bandura (1982), self-efficacy refers to peoples' beliefs about their competences to yield levels of performance that exercise influence over events that are important or relevant to them. High levels of self-efficacy help individuals to approach challenging situations more confidently and tend to experience higher levels of accomplishment and personal well-being (Bandura, 1997). Hence, self-efficacy fosters the capacity to achieve challenging goals by maintaining strong commitment to the challenge. Accordingly, they sustain their efforts or recover quickly when faced with failure or setbacks. Notably, one of the major sources for self-efficacy is through mastery experiences, while failures can destabilise it. Given that PM, according to Iso-Ahola and Mobily (1980), operates through perceived successes or failures it is difficult to distinguish between the concepts of self-efficacy and PM.

Iso-Ahola and Dotson's (2014) updated model emphasises a critical antecedent component to the perceptions of PM. They argue that PM is "grounded and manifested in two altered perceptions: (a) oneself as a performer (without any social or competitive comparison); and (b) oneself as a performer relative to an opponent (i.e., perceived superiority over the opponent)" (Iso-Ahola & Dotson, 2014, p. 24). Accordingly, these perceptions set up a third perception that an athlete holds: the likelihood for achieving a future goal and all together PM is experienced as follows:

...when (a) one has a high sense of competence, confidence, efficacy and control in him/herself as a performer, and attributes success to him/herself; (b) perceives him/herself as superior to his or her opponent; and (c) perceives an increased likelihood of winning or being successful (Iso-Ahola & Dotson, 2014, p. 24)

Again, the conceptual distinction between the above model and self-efficacy is somewhat vague. Moreover, high levels of self-efficacy have not always been found to be associated with higher performance levels. For example, some individuals tend to coast (reduce effort) when they believe their skills are more than what is required for a task (Vancouver, Thompson, Tischner, & Putka, 2002). In contrast, sometimes lower beliefs of self-efficacy may facilitate stronger performance. For instance, in an experiment where participants' self-confidence was manipulated during a skipping task, it was found that where participants reported a decrease in self-confidence their performance increased (Woodman, Akehurst, Hardy, & Beattie, 2010). As it turns out, self-efficacy is a dynamic construct that can fluctuate according to situations and previous experience (Feltz, Short, & Sullivan, 2008). In this view, self-efficacy cannot be assumed as a prerequisite to PM, particularly with respect to previous success.

Nevertheless, in chapter three, three dimensions of PM were identified: The self in relation to ground (perception of performance outcomes in relation to idiosyncratic standards); to other (perception of performance in relation to a competitor); and to self (perceptions of performance/self-image in relation to idiosyncratic standards). In this light, this study supports Iso-Ahola and Dotson's (2014) dimensions by which PM operates; however, they maintain that the PM phenomenon rides on early success. The conceptual analysis in chapter two identified that antecedent triggers for PM are any internal or external (situational) event significant to the athlete in his or her perceptual field. That PM can come from anywhere, not just performance outcome success, was also found to be the case in Young's (2011) research. Furthermore, Silva et al.'s (1988) concepts of *positive inhibition* and *negative facilitation* contest the idea that early success is essential in the development of PM. Moreover, as indicated in chapter two,

momentum in performance is contingent to idiosyncratic subjective motivations of the athlete.

Furthermore, other factors, such as motivation, seem to have an influence on PM. In fact, motivation, was a factor proposed by Adler (1981) with respect to momentum in society. Adler (1981) suggested that intentional motivation towards achieving a goal is a significant mediator for momentum. Hence, he acknowledges motivation as the influence of direction and intensity of athletes' efforts in their goal driven behaviour. As Barbuto Jr and Scholl (1998) outline, motivation in itself is a broad multidimensional concept with several sources. Thus, successful performance outcomes cannot be the only factor that prompts an athlete to have perceptions of PM.

A key aim of the conceptual analysis was to identify self-regulatory mechanisms within current PM conceptualisations. Accordingly, several components were identified, particularly motivation, According to Baumeister and Vohs (2007) the self-regulatory process includes: internalised values or standards (a marker for change), monitoring (self-evaluation in relation to the standards) and self-regulatory strength (willpower). Furthermore, they provide a strong argument that motivation should be the fourth component insofar as it explains movement towards a goal if self-regulatory strength (willpower) is depleted.

Another factor identified in conceptualisations of PM was cognitive appraisals (e.g. Iso-Ahola & Blanchard, 1986). Cognitive appraisals are regarded as fundamental in the self-regulatory process as follows: primary appraisals relate to the extent that the goal has relevance and therefore importance to an individual; and secondary appraisals refer to how well an individual perceives his or her capability to cope with circumstances in terms of a cognitive-evaluative process (Lazarus, 2006). A

combination of all these self-regulatory components (in synchronised positive direction) may result in an athlete experiencing extraordinary results, similar to what is described in PM experiences. In light of this, it was tentatively concluded that the PM “force” could equally be explained by self-regulation models. If that were the case, PM could be retained with the function of describing performance rather than explaining it.

On the view that self-regulation theory could equally explain the “force” of PM, we should be able to identify which self-regulatory processes contribute towards developing or maintaining positive momentum during our purposeful activities. Part of the self-regulatory process includes cerebral executive functioning for planning or strategic thinking in goal-driven activity (Graham & Weiner, 1996; Hofmann et al., 2012). Hence, this was a key aim for the mixed method study presented in chapter three of this thesis. A comprehensive typology of golfing strategies was constructed to analyse them in context of positive and negative momentum phases that golfers experienced during games. Of the three primary categories of strategies reported, SS (cognitive, emotional and technical) strategies were the most commonly reported method of self-regulation among the participants. Of the three sub-categories SS-cognitive strategies represented the highest proportion reported during a positive PM phase. The most significant of these was “to stay in the present”, which is often regarded as part of a flow state or being in the zone (Csikszentmihalyi, 1975; Stavrou et al., 2007). Thus, the results of this study provide some support the relationship between these peak states and the apex of a positive PM experience. In contrast, it emerged that SG strategies, such as aggressive or avoidant strategies, appeared during negative PM phases but not positive PM phases. On this point, if PM experiences are discrete phases,

rather than one fluctuating continuous experience, then PM needs to be distinguished from concepts such as flow or choking (Baumeister, 1984; Privette, 1983).

With respect to SG strategies that correspond to negative PM phases, in goal setting theory, if an athlete adopts an inappropriate goal, such as aggressive tactics to try and make up for poor performance outcomes, the performance is likely to worsen (Locke & Latham, 2002). Similarly, avoidant strategies suggest that the athlete is under threat, which tends to have negative effects on performance outcomes (Jones et al., 2009). These notions have been accommodated in some recent models pertaining to athletic performance. For instance, the theory of challenge and threat states in athletes (TCTSA; Jones et al., 2009), as discussed in chapter two, as a possible direction for further study in relation to PM. The TCTSA integrates appraisal theory and suggests that athletes' performance outcomes are contingent on their perception of a situation as a challenge or threat. An athlete in a challenge state theoretically experiences positive emotions, increased energy levels and dedication with a consequence of improved performance (Blascovich, Mendes, Tomaka, Salomon, & Seery, 2003; Skinner & Brewer, 2004). In contrast, an athlete in a threat state is said to experience negative emotions, reduced energy, exerts less effort and consequently experiences performance decrements (Meijen, 2011; Wilson, Raglin, & Pritchard, 2002). Hence, the perceptions of challenge or threat are seen as a motivational force that influences the psychological state of the athlete, who can accordingly fluctuate in performance. In this case, again, the psychological of momentum can be explained by motivation.

Moving on to SO strategies. Participants reported fewer SO strategies during positive PM phases. That aside, SO strategies were least reported in all conditions. On one hand, the participants may have been reporting according culturally constructed

views that perceive the overt expression of interpersonal competitiveness as socially unfavourable (Lalwani et al., 2006). Nevertheless, in line with research that suggests an over awareness on an opponent disrupts performance, the participants tended to report intentional disinterest in their competitors (e.g. Singer, 1986). Notably, in accordance with goal setting theory, participants reported that with experience they found SO strategies to be unhelpful. According to goal setting theory, people apply knowledge and skills they have previously acquired that tends to be individually beneficial to goal achievement (Locke & Latham, 2002).

Based on the absence of specific strategies corresponding to any PM phase, as indicated by the results of the study in chapter three, it is unlikely that golfers develop particular strategies to develop or maintain momentum per se. On one hand, this suggests that self-regulation models may not be appropriate as a framework for explaining positive and negative momentum. Nevertheless, it is more likely that golfers adopt/develop specific strategies in line with their own knowledge and skills and, in so doing, these strategies become markers on which to appraise their performance. If their performance is higher than what they expect, they could experience PM. This supports Jones and Harwood's (2008) point that perceptions of PM are subjective in nature, and are contingent to what athlete's individually deem important. With respect to flow or "in the zone" states, the balance hypothesis suggests that an athlete is more likely experience these optimal states when the perceived level of demand posed by a task matches a person's perceived ability or skills for completing the task (Csikszentmihalyi, 1990; Kennedy et al., 2014). Hence, golfers' strategies are linked to their perception of their abilities and as with the perception of being in the zone, golfers are more likely to

feel (experience) momentum when they appraise their performance as competent in meeting the strategy (if appropriate).

This study supports Young's (2011) phenomenological theme of *created momentum*. The participants in his study reported being aware of momentum but not specifically preparing for it. This implies that if PM is a force, it is rather something that supervenes on a situation, than something that generates a situation. Accordingly, Lazarus' (1966) appraisal theory, in relation to stress and coping, is more relevant with respect to perceptions of PM. In the AC model of PM, the individual's sense of control is key to the perceptions of PM (Vallerand et al., 1988). Thus, if a golfer has a pre-performance self-regulation strategy in mind, this becomes the marker for a post-performance appraisal that impacts on his or her sense of control (or self-efficacy perceptions perhaps). Hence, the findings of the study in chapter three tend to support the tentative conclusions in chapter two. On this account, it is more likely, as Adler (1981) proposed, that an individual's effort (energy) to engage, is the "force". This effort, in combination with other social-cognitive factors, could then be labelled as PM, as proposed by Cornelius et al. (1997).

Still, if we accept that Adler is correct, these social-cognitive factors need to be clarified. Assuming that motivation is a fundamental component of self-regulation as Baumeister and Vohs (2007) argue, it needs clarification on what sources of motivation are relevant to PM phases. In chapter three, the two themes containing the most references in the SS Cognitive category of strategies were self-preservation and self-promotion. Of the 12 themes in this category, these two themes contained almost 50 percent of all the references. Hence, these results strongly support to the notion that maintaining or protecting the psychological self is a fundamental motivational source

that guides our behaviour, as previously contended by Baumeister et al. (1993) and Brown et al. (2008). Nevertheless, there were no consistent patterns of self-preservation or self-promotion strategies in relation to positive or negative momentum sequences. Thus, the study in chapter three indicates that individuals frequently adopt strategies to maintain and protect the psychological self, which indicates a motivational source. This motivational source though, may not manifest in sequences of positive or negative performance outcomes. If this is the case, it could be that PM better explains the “force” behind momentum sequences.

To gain further insight on this, the study in chapter four aimed to explore the role of ego-regulation and SC in relation to PM. Ego-regulation relates to the concept of egotism, the motivation to maintain or enhance favourable views about the self. The self may be threatened when called into question by external agents or events (Jordet et al., 2011). In chapter four, it was proposed that ego-regulation is important in relation to SC, insofar as it disrupts task-performance. A mindfulness-based program was used to manipulate awareness of self-schemas. Data pertaining to PM and golf performance were collected during a driving range task. The results of this study showed that the participants improved on the golf-task both in momentum and performance, during and after the mindfulness intervention. This provides tentative support to the notion that enhanced ego-regulation through the MFG program facilitated positive momentum sequences. Thus, the combination of self-preservation and self-protection as motivational sources, together with self-regulatory processes seems related to positive and negative momentum.

Nonetheless, there are several factors to discuss to explain the above. Firstly, mindfulness. According to most definitions of mindfulness, it entails two main

processes: 1. an individual's attention to, and awareness of both internal and external experiences in the present time and 2. The individual's acceptance and non-judgemental reactions to these experiences (Chambers, Lo, & Allen, 2008). With respect to the first aspect of mindfulness, the participants' qualitative reports indicated that they experienced increased levels attention and awareness. Now, focus and attention are fundamental aspects of enhanced golf performance (Baumeister et al., 2008; Cohn, 1991; Thomas & Over, 1994). Additionally, Aherne, Moran and Lonsdale's (2011) found the regulation of attention is a key factor in facilitating a sense of control and flow states among athletes. The results in this thesis, therefore, substantiate previous findings in this regard.

Nevertheless, the participants' qualitative mindfulness reports contradicted their quantitative mindfulness reports. The quantitative results at the post-intervention phase suggest that their capacity for focus and attention diminished. Similarly, this contradicts previous studies in which participants reported higher capacities of focus and attention after mindfulness training (e.g. Alberts & Thewissen, 2011; Zeidan et al., 2010). An explanation for this is that these studies used different mindfulness measures, and that participants were experiencing severe stress, anxiety and pain (e.g. Alberts & Thewissen, 2011; Zeidan et al., 2010). It could be that people experiencing distress states are more likely to report increased mindfulness over a short spell of mindfulness training.

In contrast to clinical populations, mindfulness manipulation checks have been used in sport. For example Kaufman et al. (2009) used the TMS to monitor state mindfulness. Participants in this study had reduced scores (albeit non-significant) on the curiosity subscale, but significantly increased scores on the decentring subscale through

the study. On a different scale, the Kentucky Inventory of Mindfulness Skills (KIMS) (Baer et al., 2004), participants tended to have reduced scores on all but one (describing) subscales, at the post-intervention phase. In another study, participants had marginally reduced scores on the MAAS at the post-intervention phase (Mahoney & Hanrahan, 2011). A possible explanation for these, and similar, results is that through becoming more mindful, a person realises they were not as mindful as they once thought, and consequently reports lower scores (Mahoney & Hanrahan, 2011). This view is further supported by a recent study that found mindfulness practitioners, compared to people less experienced in mindfulness practice, to score lower on mindfulness measures (Sauer et al., in press).

Another issue with respect to monitoring mindfulness pertains to small and intricate changes over time. Experts on mindfulness encourage people to persist with meditation because the benefits of mindfulness practice can take a long time to be apparent (Gardner & Moore, 2007; Kabat - Zinn, 2003). The mindfulness intervention reported in this thesis was brief in comparison to what is commonly suggested (Kabat - Zinn, 2003; Segal et al., 2002; Williams & Penman, 2013). Thus, in the short term some people may become more aware that they are not as mindful as they once thought, and report lower scores. This view is supported in this thesis inasmuch as the participant with the most experience in mindfulness had a higher MAAS score at the post-intervention phase. All considered, even if enhanced focus and attention does facilitate better golf performance, the higher levels of SC would still need to be managed in order for golf performance not to be disrupted.

Before discussing the second aspect of mindfulness, a brief mention is necessary with respect to monitoring mindfulness in research. While there is evidence for the

reliability and validity of the MAAS, there is also some concern over the predictive validity for measuring mindfulness with the MAAS (Sauer et al., in press). Walach et al. (2006) have argued that the MAAS focuses on attention and awareness and does not consider other aspects of mindfulness, such as “non-judgmental, accepting attitude, dis-identification, insightful understanding, or an attitude of having no specific goals” (p. 1545). Hence, this thesis supports the view that there are several limitations to capturing the essence of Buddhist understandings of mindfulness and its multifaceted nature. Therefore, in line with Grossman’s (2008) recommendations, qualitative reports in conjunction with quantitative reports would serve better in studies relating to mindfulness.

Returning to the second main aspect of mindfulness, acceptance and non-judgmental attitude. The results in this thesis indicate that individuals tend to vary in their openness and persistence for enhancing mindfulness. Metaphors that expressed less openness and perseverance for mindfulness were captured in the theme of “resistance” (see chapter four). The first aspect of resistance pertained to a disinclination of becoming more SC. Participants believed that by increasing levels of SC, their golfing performance would suffer. For example, one participant expressed that he did not want to become more mindful because it would raise too much awareness of his physiological sensations while playing golf. He believed that this would cause him to “fiddle” with his technique in search of the “perfect” swing. The second aspect of resistance pertained to the drop-off in home-based exercises towards the culmination of the MFG program. For example, at the beginning of the program some participants reported that they were about 80 percent engaged with meditation practices at home and this figure dwindled to between 30 or 40 percent by the fourth workshop. These results

accord with previous studies in which participants show a resistance and perseverance with mindfulness meditation (see Langdon, Jones, Hutton, & Holttum, 2011).

Langdon et al. (2011) conducted a grounded theory qualitative study that, partly, explored challenges in mindfulness-based cognitive therapy. Most of the participants in their study found mindfulness practice challenging because it requires effort and discipline. Over and above these challenges, participants cited daily practical activities and certain mental states as an obstacle to meditation. For example, one participant ironically commented that she would get too anxious while meditating and would therefore avoid it. Notably, when participants avoided the practice, they would tend to be self-critical for not doing it. Similarly, the participants in chapter four of this thesis also expressed guilt and self-criticism for not keeping up with the home-based exercises.

The topic of resistance to psychological change has been covered extensively in psychology (see Beutler, Moleiro, & Talebi, 2002; Newman, 1994). While a full discussion on resistance is beyond the scope of this thesis, resistance to mindfulness may be relevant to self-regulation and PM, depending on the theoretical framework informing the exploration (Epstein, 1988). For instance, a Gestalt psychology view of resistance is the avoidance of uncomfortable or threatening feelings and sensations that, in turn, frustrate self-awareness and general functioning (Perls, Hefferline, & Goodman, 1951). In chapter four, schema mode theory was used as a framework to explore ego-regulation and SC in relation to PM. One way of understanding resistance, in schema mode theory, is according to coping styles (behaviour) that individuals develop in relation to perceived threats. The self-expansive mode, for example, is concerned about threats to self-esteem, and if a maladaptive schema, such as a “failure” is triggered, a

person will develop a coping style in relation to this (Beck & Haigh, 2014; Bennett-Goleman, 2002; Young et al., 2003). Hence, resistance may pertain to a coping style to avoid the uncomfortable feelings associated with maladaptive schemas. According to Young et al. (2003), from early childhood individuals develop three spheres of coping styles: overcompensation, avoidance and surrender, which pertain to the fight, flight and freeze principles. Briefly, by overcompensating to an EMS, a person responds in the opposite way to how he or she would as child when the schema was developed. For example, if a person was made to feel like a failure in childhood, he or she overcompensates and behaves as highly competent person in adulthood. With an avoiding coping style, an individual will tend to arrange his or her life in a way that the EMS is not triggered. For example, an individual may not enter a sporting event to escape the possibility of appearing as a failure. In surrendering to an EMS, a person would accept the schema as true and behave in ways to confirm the schema while experiencing the accompanying emotional pain.

Young et al. (2003) proposed that the coping styles individuals develop, in relation to an EMS, tend to be consistent; however, sometimes individuals presenting with the same EMS may have contrasting coping styles. There are three broad coping styles, which are apparent through specific behaviours or strategies that individuals express called *coping responses* (Young et al., 2003). Hence, the strategies that individuals develop have relevance to self-regulation and momentum in goal-driven activity. The results in both chapters three and four indicate that participants have all three kinds of responses (avoidance, surrendering and overcompensation) in relation to a specific schema depending on the context. For example, to avoid the triggering of a failure schema at the beginning of a round, a golfer may use “safe” strategies (see

chapter three), but then flip into a repertoire of aggressive strategies if he or she is losing to an opponent. As it turned out, during the MFG program (chapter four), it was apparent that a “failure” maladaptive schema was, in some way, implicated among the participants’ self-schemas. To recap, one participant who was particularly sensitive to a failure schema, went from playing well above his usual standard by using an aggressive (overcompensating) approach in the morning, but when faced against an esteemed golfer in the afternoon, he seemed to surrender to a failure schema, and ended up losing badly. As indicated in schema mode theory, changes in the environment and internal cues prompt a shift in mode state, particularly if the individual is oversensitive to such cues (Lobbestael, van Vreeswijk, & Arntz, 2007).

The process of switching a repertoire of strategies, depending on the context, is represented by the concept of mode flipping in schema mode theory. Schema modes reflect a gestalt of thoughts, feelings and behaviour as an emotional and behavioural state at a specific point in time in a person (Lobbestael et al., 2007). A schema mode can be distinguished from a schema by considering a schema as a one-dimensional theme, whereas modes are more encompassing of several schemas and/or coping strategies (Lobbestael et al., 2007). Another consideration is to understand a schema as an enduring trait, whereas modes are contextually relevant emotional states arising from many triggers associated to the individual in that instant (Kellogg, 2009). Modes themselves can trigger other modes to emerge in different intensities and patterns (Kellogg, 2009).

Whereas mode flipping is more frequent and intensive among people experiencing difficulties with more serious psychological disorder (Young et al., 2003), this phenomenon has been apparent in individuals with sub-syndrome anxiety (Kingma,

2010). Moreover, the notion that individuals can use an overcompensation strategy, for example aggressive strategies in the face of failure that enhance performance, is in line with the concept of negative facilitation. In this light, and based on the observations from the second and third studies in this thesis, schema mode theory is a plausible framework for understanding self-regulation strategies, particularly unhelpful strategies with respect to resistance and developing or maintaining PM. Notwithstanding, schema mode theory and research is scarce in performance psychology and further studies are necessary to substantiate these findings.

The next concept to discuss in relation to golfing performance and PM phases is SC. To recap, the participants in chapter four increased their scores on the PM and golf performance sub-scales of the PMRS-G. This suggests that they became less self-conscious, based on the view that a loss of SC is associated with peak experiences of golf performance (Bernier et al., 2009; Kaufman et al., 2009). Nevertheless, there were inconsistent results in this thesis to support this. While the participants acknowledged Festingstein et al.'s (1975) tri-dimensional components of SC (private SC, public SC and social anxiety), the study in chapter four indicates that various dimensions of SC are affected in different ways, and among different people, as Scheier and Carver (1980) have previously contended. In general, the participants increased in SC globally, albeit marginally, but particularly on the social anxiety sub-scale. These results are what could be expected from the mindfulness intervention that was aimed at increasing awareness of internal psychological and physical phenomena. Nevertheless, there were inconsistent movements with respect to the participants' baseline and post-intervention reports on private SC or public SC. Thus, it seems that a loss in SC is contingent to idiosyncratic criteria. This is also in accordance to the results from a systematic

literature review showing that less than 30 percent of athletes report a loss of self-consciousness during experiences of flow (Swann et al., 2012).

The notion that a loss of SC is experienced differently and to various degrees among people suggests that a loss of SC is a by-product rather than an antecedent to peak performance. In other words, a loss of SC can be seen as is an experience when efforts for ego-regulation do not disrupt performance. In this view, in line with Baumeister's (1984) findings, a person becomes more adept at regulating SC through being more self-aware. Baumeister (1984) found that individuals with higher levels of dispositional SC are less likely to choke under pressure. In this view, higher levels of SC allow an individual develop automatic strategies to cope or self-regulate in a way that SC does not disrupt task performance. This view fits with the aims of a mindfulness-based schema mode therapy intervention, such as the MFG program. The MFG program aimed at assisting participants gain insight into the construction of their self-schemas, particularly with respect to the facilitation or disruption of momentum towards a goal. Briefly, the process involved encouraging the participants to recall significant events in their childhood during which maladaptive schemas were developed or reinforced. By raising awareness of these past events, the participants were able to examine the thoughts, feelings and sensations associated with the events, in the present, without judgements from others, and in a way they could accept "the self" (themselves) more. This could explain why some participants reported feeling less SC while they were being observed and rated during the golf task as the study progressed (chapter four). In other words, the participants had an opportunity to develop new ways of relating to, and regulating their selves and this reflected in their golf performances.

Not only did participants experience golf performance improvements in general, they also reported higher levels of satisfaction with their golf shots (at least). The MFG program entailed many exercises that encouraged participants to be accepting and non-judgmental. So it could be that the participants were reporting in accordance to the outcomes of the study as the Hawthorne effect predicts (Barker et al., 2011).

Nevertheless, the effect size of change, as indicated by the NAP scores, during mid-intervention suggest that the intervention was effective in facilitating a non-judgmental acceptance of self. A more accepting attitude towards self suggests that participants were less concerned about achieving high standards. This relates to perfectionistic concerns, which refers to “nagging self-doubts, excessive concerns over others expectations, and overly negative reactions to perceived failures” (Smith, Saklofske, Yan, & Sherry, in press, unpaginated). Perfectionistic concerns make up one of two higher order components of perfectionism, which is regarded as a multidimensional personality trait (Hewitt, Flett, Besser, Sherry, & McGee, 2003; Smith et al., in press). The other higher order component includes perfectionistic strivings, which encompass an enduring demand of high standards for the self (Smith et al., in press). Notably, current models of perfectionism indicate that perfectionism can be healthy if high perfectionistic strivings correspond with low perfectionistic concerns (Smith et al., in press). Thus, the lowered perfectionistic concerns, accompanied with improved golf performance among the participants in chapter four of this thesis, lends support to the notion of healthy perfectionism in current perfectionism models.

Moreover, the increase in non-judgmental self-acceptance among the participants relates to the issue of self-talk as a means for self-regulation in task performance. Despite inconsistencies in definitions of self-talk (Hardy, 2006), for the

purposes of this discussion, self-talk refers to “what people say to themselves either out loud or as a small voice inside their head” (Theodorakis, Weinberg, Natsis, Douma, & Kazakas, 2000, p. 254). Additionally, this self-talk is “...for the purpose of self-regulation (rather than communication)” (Diaz, 1992, p. 62). Self-talk was identified as a sub-theme of cognitive moderators of PM in the conceptual analysis in chapter two and it provided the basis for participants to report strategies in chapter three. In sport psychology, self-talk is widely acknowledged to play a key role in successful sport performance and is often included in psychological skills training for athletes (Hardy, Jones, & Gould, 1996). As alluded to earlier, sometimes self-talk can be self-critical and lead to low self-esteem, performance anxiety and consequent poor performance in goal-driven activity, particularly among perfectionists (Bourne, 2011). Nevertheless, self-talk is a vague theme lacking clarity in the literature on PM (see chapter two).

In this thesis, perfectionistic self-talk was a common theme, frequently encountered with respect to achieving golfing standards among the participants. Several of the participants’ accounts of their golfing experiences substantiated concepts within the schema mode theoretical framework. To explain, perfectionism is accommodated in terms of a maladaptive schema in Schema therapy. While Young et al. (2003) have identified various domains for maladaptive schemas, one domain pertains to overvigilance and inhibition, which includes schemas arranged around beliefs about suppressing feelings and choices or meeting high expectations of performance. Within this domain there is a schema concerning unrelenting standards/hypercriticalness, which refers to beliefs about meeting extremely high internalised standards, usually to evade disapproval or shame. Hence, this schema may operate in tandem with the failure schema, as seemed apparent among the participants in chapter four. As Young et al.

(2003) point out, many schemas can be operative at any given time, which is one of the reasons they decided to include the mode concept. Young et al. (2003) defined a schema mode as “those schemas or schema operations – adaptive or maladaptive – that are currently active for an individual” (p. 37). Moreover, according to schema theory, we all have these schemas to some degree (Young et al., 2003). While there are also various modes that have been identified, the one that seems most relevant for the unrelenting standards/hypercriticalness schema is the internalised demanding/critical parent mode. When an individual is in the demanding/critical parent mode, the self-talk is related to the internalised demanding/critical directions from a previous significant caregiver during childhood (Lobbestael et al., 2007). Thus, the self-talk pressures the individual to meet excessively high standards on the basis that there is a “right way” to be, and that is to be “perfect or achieve at a very high level, to keep everything in order, to strive for high status, to be humble, to put other needs before one’s own or to be efficient or avoid wasting time. The person feels that it is wrong to express feelings or to act spontaneously” (Lobbestael et al., 2007, p. 85). Thus, using schema mode theory as a framework to explain the results from chapter four, the intervention gave the participants an opportunity to relate differently to their internalised perfectionistic schemas. In so doing, they were able to weaken the perfectionistic schema and develop a kinder compassionate attitude towards self (less perfectionistic concerns), without compromising their motivation or performance on the golfing task.

Using schema mode theory as a lens, momentum in goal-driven activity is contingent on modes in operation whereby certain active schemas lead to fluctuations or flipping between positive momentum and negative momentum. On the basis that participants provided accounts of their golfing experiences that lend support to the

constructs within schema mode theory, and that they improved their scores on the PMRS-G following the mindfulness-based schema mode intervention (MFG program), it follows that the schema mode theoretical framework may be useful to understand momentum with respect to performance psychology. In this view, PM would not be considered as the essential force behind fluctuations in performance, but rather it would describe the quality of psychological processing that influences an individual's state (mode) during goal-driven behaviour. Accordingly, a mode operates on a continuum between a positive peak (an ideal mode whereby flow may be experienced) and a negative trough (a debilitating mode whereby choking may be experienced). Bernier et al. (2009) and Kaufman et al.'s (2009) studies, both found that participants were more likely to experience a flow state following a mindfulness training program. In the view that the concept of flow functions as a descriptor of human experience, and perceptions of positive PM are correlated with experiences of flow (see chapter two), the results in this thesis show that self-regulatory processes (such as mindfulness) indicate that PM describes an experience, rather than creates one. Hence, models for human functioning or performance such as schema mode theory or TCTSA are potentially useful to explore the concept of PM further.

Finally, with respect to golf performance and PM. As expected there were high positive correlations between all the sub-scales of the PMRS-G (measures of subjective and objective golfing performance outcomes and PM scores). This indicates that if a golfer improves on his or her performance outcomes, there are more likely to be sequences of positive outcomes. The same if a golfer worsens on his or her performance, there are more likely to be sequences of negative outcomes. By the same token, because correlations do not imply causal direction (Thompson, Diamond,

McWilliam, Snyder, & Snyder, 2005), it could be argued that a sequence of good or bad performance outcomes are likely to result in good or bad performance respectively. Nevertheless, by considering performance outcomes as the primary antecedent for perceptions of PM, it precludes the body of literature that suggests humans derive motivation from various sources (Barbuto Jr. & Scholl, 1998; Baumeister & Vohs, 2007). Moreover, in this thesis three dimensions of PM were considered. It was found that individuals can have low SSRs with high OPRs (or vice versa) and, therefore, their experience of PM may be different to the individual that has both high SSRs and OPRs, or both low SSRs and OPRs scores. Thus, using only one dimension of PM (relating to performance outcomes) is unlikely to fully capture the multidimensional nature of PM experiences among athletes.

CHAPTER 6. CONCLUSION

Three studies were conducted to explore the role of self-regulatory processes in relation to PM during goal-driven activity. The first study, a conceptual analysis (chapter two) aimed to demystify the concept of PM, while providing clarity on how human self-regulatory processes are, or can be, accommodated in a model of PM. The analysis outlined the properties of PM as an abstract, subjective (relative) and dynamic phenomenon experienced by athletes (and observers) during sporting activities. In support of previous criticisms of models of PM in general, the conceptual analysis revealed that many of the psychological components incorporated in these models are broad and vague (Crust & Nesti, 2006; Iso-Ahola & Dotson, 2014). While self-regulatory processes, among many psychological factors, were alluded to in previous PM conceptualisations, the conceptual analysis failed to clarify their role in PM. Moreover, nor could the analysis clearly distinguish PM from certain other psychological concepts, namely self-efficacy (Bandura, 1997), which may explain momentum in sporting performance equally well.

Nonetheless, the conceptual analysis (chapter two) identified that athletes' perceptions of PM are widely believed to have a fundamental influence on sporting performance (Crust & Nesti, 2006; Iso-Ahola & Dotson, 2014). Moreover, PM is considered subjective insofar as it is contingent on peoples' idiosyncratic perception of events as they unfold in a sporting context (Iso-Ahola & Blanchard, 1986). Idiosyncratic perception is related to Lazarus' (1966) appraisal theory insofar as peoples' perceptions are contingent on how they appraise a situation according to what is relevant and important to them in context. The second aspect of idiosyncratic perception, is that it relates to standards (internal and external) that people evaluate

themselves against. These two aspects are particularly relevant to self-regulation theory. Baumeister and Vohs (2007) point out that one of the primary determinants for self-regulated outcomes are value-driven expectancies in the form of standards. In this light, there is confluence between these concepts of self-regulation and PM.

On a different view, if self-regulation pertains to the management of behaviour, while PM pertains to the “force” behind behaviour, each concept has their respective function for explaining performance on goal-driven behaviour. Nevertheless, Baumeister and Vohs (2007) proposed that motivation is the missing ingredient in a model of self-regulation. This could, however, explain the force behind momentum in goal-driven behaviour. To explore this further, the second study (chapter three) aimed to identify self-regulation strategies that golfers use during momentum phases while playing golf. This resulted in a comprehensive typology of strategies that golfers tend to use while playing golf. Nevertheless, no significant pattern of specific strategies in positive or negative PM contexts could be ascertained. This suggested that self-regulation strategies could not be used to explain PM and that the “force” of momentum remained a mystery. That aside, the two most common strategies reported by the participants in this study housed in themes of self-protection and self-promotion. This gave credence to the notion that protecting the psychological self from threat is a primary motivational source in human behaviour. Indeed, changes in perceptions of self are well cited in speculation of a motivational source related to PM (Iso-Ahola & Mobily, 1980; Iso-Ahola & Dotson, 2014; Taylor & Demick, 1994; Vallerand et al., 1988). Moreover, several theoretical models of human behaviour are based on the assumption that the self-concept is a primary motivational source in our activity; for example the theory of challenge and threat states in athletes (TCTSA) and more recently

the “self-expansive mode” within a schema-mode theoretical framework (Beck & Haigh, 2014; Jones et al., 2009).

The third study was designed around the assumption that a primary motivational source in humans is organised around maintaining and protecting the psychological self. Hence, the concept of ego-regulation was introduced and explored against the backdrop of schema mode theory. Ego-regulation, in this respect, referred to the regulation of schemas through enhanced SC, which was manipulated by means of a specifically designed mindfulness-based schema mode program (MFG). The participants’ baseline, mid-intervention and post-intervention results, on a driving range task, revealed that the MFG program had a positive influence on their subjective and objective ratings for PM and golf performance. Nevertheless, there were mixed results regarding the psychological factors (self-regulatory) related to these enhanced PM and performance results.

Firstly, two aspects of mindfulness were considered: 1. Attention and awareness to present internal and external stimuli and 2. Non-judgmental acceptance of these stimuli (Chambers, Lo, & Allen, 2008). On the first aspect, in general, while the participants’ qualitative reports indicated an increase, their quantitative reports indicated a decrease at the post-intervention phase. Previous studies have had similar results. It has been explained that, through mindfulness training, individuals become more sensitive to their capacity for mindfulness, and tend to report lower scores (Mahoney & Hanrahan, 2011; Sauer et al., in press). Another explanation could be that a longer intervention may have resulted in higher quantitative scores. Most mindfulness-based interventions are designed to last at least eight weeks on the basis that mindfulness practice can take a long time to be apparent (Gardner & Moore, 2004; Kabat - Zinn,

2003; Segal et al., 2002; Williams & Penman, 2013). Support for this was indicated in this thesis by the participant with the most experience in mindfulness; he was the only person with a higher MAAS score at the post-intervention phase (chapter four).

Still, if the participants did experience higher levels of attention and awareness during and after the intervention, this alone could explain the improved golf performance and PM scores on the driving range task, because these qualities are fundamental to golfing performance (Aherne et al., 2011; Baumeister et al., 2008; Cohn, 1991; Thomas & Over, 1994). This notion is somewhat supported by the second study (chapter three), insofar as the SS-cognitive strategy mostly reported during positive PM phases was “to stay in the present”. Similarly, the participant who had the best results on the golf task in the third study (chapter four) predominantly used the related strategy of “take one shot at a time”.

With respect to the second aspect of mindfulness, acceptance and non-judgmental attitude, the participants varied in their openness and persistence for enhancing mindfulness. The participants, who expressed resistance to being more mindful, were concerned that heightened awareness (higher levels of SC) would disrupt golfing performance. On the other hand, some of the participants displayed resistance through less persistence with meditation practices towards the end of, and beyond, the MFG program. Similarly, previous studies have reported that some people show resistance and reduced perseverance with mindfulness meditation (Langdon et al., 2011). Over and above challenges that individuals face in mindfulness practice, non-compliance leads to some individuals expressing self-criticism and feeling guilty (Langdon et al., 2011). This was found to be the case in this thesis (chapter four).

Resistance, in schema mode theory, pertains to coping styles (behaviour) that individuals develop in relation to perceived threats (to the self). The self-expansive mode, for example, is concerned about threats to self-esteem, and if a maladaptive schema, such as a “failure” is triggered, a person will develop a coping style in relation to this (Beck & Haigh, 2014; Bennett-Goleman, 2002; Young et al., 2003). Hence, resistance may pertain to a coping style to avoid the uncomfortable feelings associated with maladaptive schemas. Now, a person can develop coping responses in relation to these styles according to the fight, flight and freeze principles. The results in the second and third studies of this thesis (chapters three and four), indicate that participants have all three kinds of responses (avoidance, surrendering and overcompensation) in relation to a specific schema depending on the context. As discussed in chapter four, a “failure” schema was evident among the participants. There were several accounts from participants indicating that they would flip from one mode to another, depending on which schema was active for them during a specific context. In the face of “failure”, some of the participants would enter into a “demanding/critical parent mode”. Sometimes, in this mode, participants would express unrelenting standards, implying perfectionism; to the point that the self-critical talk rendered them vulnerable to the “failure” schema. At other times, participants were very eager to please. In one instance, a participant was concerned that he wouldn’t produce the “right” results for the study.

In the above study, the intervention encouraged higher levels of SC, particularly with respect to participants’ schemas and schema modes. Through this process, the participants developed a different way to relate to the sensations and feelings that accompanied these schema configurations. Specifically, the mindfulness intervention encouraged them to be non-judgmental and accepting. This was partially based on their

increased, albeit marginal, scores on the SCSR, and their significantly increasing SSR subscale scores through the study. In accordance with Baumeister's (1984) findings, the participants seemed more adept at regulating SC (schema configurations and accompanying phenomena) through being more self-aware. With this in mind, it was argued that this facilitated improved performance on the golf-task. In support of this, the participants reported feeling less SC while they were being observed and rated during the golf task as the study progressed.

To sum up, several self-regulatory functions were identified and explored in relation to PM phases among golfers during play, and in driving range tasks. Notwithstanding, self-regulatory processes alone could not explain momentum sequences in the golfers' performances. One exception, is if motivation is added to self-regulatory theory, as Baumeister and Vohs (2007) proposed. In this thesis, the notion of enhancing, maintaining and protecting the self was explored as a potential motivational source in this regard. Mindfulness, as a key self-regulatory mechanism, in relation to SC modes, was manipulated. The results show that golfers' momentum sequences can be explained through a mindfulness-based schema mode theoretical lens. Additionally, this thesis supports criticisms of previous PM conceptualisations, insofar as they are too broad and vague (Crust & Nesti, 2006; Iso-Ahola & Dotson, 2014).

While the findings in this thesis lend partial support for Iso-Ahola and Dotson's (2014) current model of PM, that self-perception is a fundamental aspect of PM, it rejects the notion of early success. This is based on several accounts from the participants in this thesis, who reported an array of idiosyncratic strategies based on their experience and skill level for managing their golf games. These strategies changed in context. Therefore, it lends support the notions of negative facilitation and positive

inhibition previously found to contradict the early success model (Silva et al., 1988). Moreover, PM does not necessarily need to be experienced by an athlete in relation to opposition. The golfers, discussed in chapter three, were particularly averse to using SO strategies. According to this thesis, a complete model of PM would include three dimensions of PM (SG, SO and SS; see chapter three). Additionally, sequences of performance outcomes do not necessarily imply PM. From the third study in this thesis (chapter four), there were high positive correlations between general golf performance and PM scores. It would be expected that if a golfer improves on his or her performance outcomes, that there would be sequences of positive outcomes, and vice versa. By the same token, because correlations do not imply causal direction (Thompson et al., 2005), it could be argued that a sequence of good or bad performance outcomes would, most likely, result in good or bad performance respectively. Nonetheless, by accepting performance outcomes as the primary antecedent for perceptions of PM, it undermines the evidence that humans derive motivation from various sources (see Barbuto Jr. & Scholl, 1998).

Thus, for the sake of preventing conceptual confluence, scientific parsimony and practicality, there is no need to add a PM model to explain momentum sequences in goal-driven activity. If the concept of PM is retained, it would be better to conceptualise it with the function of describing performance. Hence, this thesis supports Cornelius et al's (1997) suggestion that PM is a constructed label that is used to describe an experience in relation to performance. By conceptualising PM in this way, it can be integrated to current theories that provide clear frameworks for explaining psychological aspects to performance, such as TCTSA and the self-expansive mode.

This thesis has shown that a mindfulness-based schema mode theoretical framework can be appropriate for these purposes, but more research would be necessary in this regard.

6.1. Strengths and Limitations

The overall strength of this thesis lies in the creative methodological designs and strategies that were integrated into the studies. In general, the mixed method approach provides a pragmatic approach that accommodates flexible strategies. Hence, it is more effective in providing understandings to research questions. (Johnson & Onwuegbuzie, 2004). The conceptual analysis was a first of its kind in research on PM. The analysis comprised of a systematic intellectual inquiry to generate clarity and coherence to the concept. Additionally, the analysis identified assumptions, implications and meanings of words, as well as the logical relations between words within previous conceptualisations. Thus, in accordance with Petocz and Newbery's (2010) arguments, it moves forward in providing clearer foundations to enhance the pursuit of scientific knowledge. Moreover, it provides a useful map for further studies on PM, as it did for the latter studies in this thesis. In this case, it was useful for outlining self-regulatory processes that could then be explored, in greater detail, in relation to PM.

Furthermore, in addition to Crust and Nesti's (2006) call for more qualitative inquiry to understand psychological mechanisms in PM, this thesis used novel methods such as walk-along interviewing and think aloud techniques to gather data. Previous qualitative studies on PM used retrospective accounts of athletes' experiences of PM mostly. The novel methods here, in contrast, enhance ecological validity of participants' reports insofar as they occur during action. From these data collections, a comprehensive typology of self-regulation strategies (for golf) was constructed. This typology builds on previous research aiming to understand golfers' coping strategies in

context (e.g. Nicholls & Polman, 2008). Moreover, using cutting edge research software, these strategies could be analysed in specific PM dimensions and phases. Hence, this was the first study to explore participants' psychological factors in relation to PM phases, through real time field surveys and observations.

In the third study (chapter four), two innovative instruments were designed to manipulate and measure the variables under consideration. These were the MFG program (brief mindfulness-based schema mode intervention tailored to golf) and the PMRS-G for measuring PM and golf performance outcomes on a golfing task. Some of the results in chapter four, pertaining to the integration of schema mode theory and sport performance enhancement, indicate that this is a viable and potentially valuable approach for applied sport psychologists to consider. Nevertheless, for the purposes of this thesis, these instruments facilitated a means for greater insight into theoretical understandings pertaining to self-regulation and PM in golf, and perhaps goal-driven behaviour in general.

Nevertheless, there are several limitations to these studies. Firstly, there is an inherent problem with conceptual analysis (chapter two), insofar as it relies on intellectual analysis rather than empirical inquiry (Botes, 2002). While efforts were made to report on empirically validated findings within the data, the data mainly constituted theoretical conjecture. Thus, despite the systematic review of words and meanings, the conceptual analysis remains conjecture about conjecture.

Secondly, remaining with the conceptual analysis, the focus was limited to functional aspects of PM based on macro psychological concepts such as perception, motivation, sense of control and so forth. Hence, the micro processes underlying these aspects remained vague. Moreover, no organic (brain) structural themes were elicited

form the analysis, so the resulting framework only serves, appropriately, as a functional psychosocial framework for PM theory.

Thirdly, in relation to the functional psychosocial orientation of the conceptual analysis; apart from a brief mention of physiological factors (i.e. arousal) relating to PM, no physiological factors were explored in relation to the variables under consideration. A biopsychosocial approach is sometimes considered to be more comprehensive as an approach to understanding athletic functioning (Blascovich et al., 2003). Nevertheless, due to budgetary and time constraints, it was decided to focus on the psychosocial aspects alone. Future studies could consider expanding similar studies into the physiological domain.

Fourthly, related to the functional psychosocial orientation of this thesis, self-reports served as the means to gather data on the variables under examination. As discussed in the thesis, self-reports can be problematic for gathering accurate accounts of psychological factors among participants in the ongoing dynamic contexts of life (Nicholls & Polman, 2008; Shiffman et al., 2008). Self-reports are also vulnerable to social desirability and retrospective bias (Brewer et al., 1991; Nicholls & Polman, 2008; Wiechman, Smith, Smoll, & Ptacek, 2000). In chapter three, novel methods of data gathering (go-along along interviewing and think aloud commentary) were introduced as a means to overcome these limitations. The comparison analysis between the results from these two methods revealed that each method elicited a different pattern of reported strategies. Participants were more inclined to report SS strategies in the go-along interviewing condition, whereas they were more inclined to report SG strategies in the think-aloud interviewing condition. On one hand, the inconsistency of results from these two data collection strategies can be seen as a limitation. On the other hand,

taken together, they provide comprehensiveness, insofar as it reveals that golfers may use different strategies during different parts of a game.

Related to the limitation of self-reports, there are several concerns to measuring mindfulness in according to Buddhist understandings of mindfulness and its multifaceted nature (Baer, 2011; Grossman, 2008). While the MAAS has shown to be a reliable and valid measure of mindfulness, it only captures one aspect of mindfulness (awareness and attention in the present) (Walach et al., 2006). More recently, there is concern over the predictive validity for measuring mindfulness with the MAAS (Sauer et al., in press). In line with Grossman (2008), it is recommended that future studies consider a broader spectrum of quantitative mindfulness measures in conjunction with qualitative reports on this variable.

The fifth limitation is inherent in qualitative study. For the sake of obtaining detailed data, qualitative studies tend to have fewer participants and therefore it is more difficult to generalise the results to larger populations (Flyvbjerg, 2006). Due to the qualitative priorities for exploring the aims of this thesis, the relevant studies had small participant samples. Despite the depth of knowledge obtained from the data, these results are to be used with caution if they are generalised. This is particularly relevant to the context of this study, which pertained mainly to individual golfers. PM is experienced differently across individuals, teams and sporting contexts (Briki et al., 2012). Thus, apart from a brief consideration in the conceptual analysis of these differences, the main focus of this thesis apply to the individual golfer, which may have no relevance to other sporting contexts.

Despite the focus on individual golfers, it was apparent from the studies in this thesis that, even within individual sports, the individuals, among themselves, have

idiosyncratic differences. In light of this, the driving range task, in chapter four, did not address more “vulnerable states” among the participants. In other words, the task could have been idiosyncratically designed so that participants would each face a weakness in their games. If the task was individually tailored to each participant’s weakness, it may have identified the intervention effects more significantly.

The notion of idiosyncrasy also applies to the different kinds of schemas that are activated in different contexts for different athletes. There are a few issues related to this that were not addressed in this thesis. Firstly, there was only one female participant in the one study, and no female participants in the other study, so no gender differences were explored. Moreover, data pertaining to schemas and schema modes were limited since they were discussed in general, not individually in detail, with participants. More dedication to each participant may have facilitated a deeper understanding of each participant’s schema spectrum, as well as how this may have impacted on their momentum phases during golf. Further data regarding these variables could have been collected by means of self-report questionnaires such as the *Young Schema Questionnaire* and the *Schema Mode Inventory* at baseline and post-intervention phases of the study in chapter four (Young et al., 2007; Young & Brown, 1990).

Finally, a limitation of the study in chapter four relates to the duration of the study, and of the brief mindfulness-based schema mode intervention (MFG program). As the participants pointed out in the program evaluation reports, the workshops were too short to present detailed psychoeducation on all aspects in the program. The intervention was based on the reported success of previous related brief mindfulness-based interventions (see Kaufman et al., 2009). As indicated by experts in mindfulness though, longer workshops may provide more reliable and informative change among the

participants (Gardner & Moore, 2004; Kabat - Zinn, 2003; Williams & Penman, 2013). Moreover, with respect to the duration of the study in chapter four, participants' baseline scores for PM and golf performance were relatively volatile. If baseline scores are unstable, it is more difficult to draw conclusions about the intervention effect (Barker et al., 2011). Therefore, a longer baseline data collection period could have ensured more stability. With respect to the post-intervention phase, the participants reported a drop off in self-directed mindfulness. A longer post-intervention phase would provide opportunities to collect data pertaining to long-term adherence to mindfulness training. Hence, if more time was available to the study and the participants, both may have benefitted from a longer time allocations.

6.2. Directions for Future Study

The conceptual analysis of PM in this thesis provided a broad psychosocial functional framework for understanding PM. Future studies could focus on more micro processes, within these macro processes, to establish further distinction (if possible) between concepts. For example, a synonym for momentum on a task may be persistence. Persistence is a topic that has attracted research within the domain of self-regulation (e.g. Miller, Behrens, Greene, & Newman, 1993). In this light, a comparative conceptual analysis can be done between the concepts PM and persistence. Similarly, as Privette (1983) has distinguished between peak performance, peak experience and flow, PM could be distinguished from any of these concepts or, in contrast, to choking or collective collapse.

Secondly, the mixed method approach to understanding self-regulatory processes relating to PM can be applied to various other appropriate sporting contexts. For example, the think aloud commentary technique for understanding strategies in

context, could be used in sports such as middle to long distance running, snooker, rifle-shooting to name a few. Typologies for strategies could be constructed and compared to the typology constructed in chapter three of this thesis. Accordingly, these strategies could be compared with momentum phases within the respective sports. It may be that other sports do show specific patterns of strategies that pertain to momentum phases.

To address some of the limitations, a replication of the study in chapter four could be done using a longer baseline, intervention and post-intervention phases. This would entail a more comprehensive MFG program. More specifically, it could be done with even fewer participants so as to dedicate more time to each participant. In so doing, it could focus more specifically on each participant on a case by case basis. Accordingly, this would allow interventions to be tailored to each participant's weaknesses and relevant schemas or schema modes.

Moreover, based on the results of this thesis, it was suggested that PM is conceptualised in terms of describing psychological processes (such as describing fluctuations of motivation during self-regulated activity) and the resulting performance, rather than as a force influencing performance. In this view, several opportunities are open for further study, for example, PM can be explored in relation to how a person's psychological state (mode) fluctuates. In this thesis, two specific theoretical frameworks / models were proposed in this regard: TCTSA and the self-expansive mode (Beck & Haigh, 2014; Jones et al., 2009). PM could be studied in relation to an athlete's fluctuating psychological state – a kind of momentum mode – that is contingent on self-regulating mechanisms embodied in the “system” while negotiating the environment. In particular, the concept of mode flipping is relevant to PM, hence future studies can

explore relevant schemas attached to these modes and the mode itself could be monitored in relation to momentum (impetus with respect to intensity and duration).

The introduction of mindfulness-based schema mode theory into sport, in itself, requires a great deal more research. In this regard, individual case studies using this framework would assist in helping us to understand the more intricate psychological processes related to momentum in goal-driven behaviour.

Another limitation pertained to the lack of physiological aspects considered in relation to PM. Subsequent directions in sport psychology have encompassed a more holistic biopsychosocial approach to understanding sport performance (Blascovich et al., 2003). In this regard, for example, physiological reactions could be monitored in relation to participants' accounts of experiences when discussing schema activation experiences. Some advances have been made with respect to understanding physiological responses related to challenge and threat states of athletes prior to competition, but little is known about how long it takes for physiological responses to change in relation to the switching from one mode to the other (Meijen, 2011). For example, during schema activation, increased levels of energy may come from neuroendocrine activity such as adrenaline, testosterone or cortisol (Filaire, Alix, Ferrand, & Verger, 2009; Kivlighan, Granger, & Booth, 2005). Additionally, cortisol has been found to interfere with athletic performance and hence, may have a role in disrupting momentum in performance (Bateup, Booth, Shirtcliff, & Granger, 2002; Filaire et al., 2009). In the same vein, increased levels of cortisol have been linked to a threat states, during which the regulation of cognitive processes such as attention and perception are negatively influenced (Erickson, Drevets, & Schulkin, 2003). Studies

aimed at monitoring these changes may provide more insight into the physiological aspects related to momentum shifts in sport.

6.3. Implications for Applied Practice

There may be implications for applied practice with respect to self-regulation and PM based on the results of this thesis. Notably, athletes develop idiosyncratic self-regulatory mechanisms related to these perceptions, which, in turn, relate to PM experiences relevant to each individual alone. Therefore, any recommendations that were made pertain to individualistic interventions facilitated by suitably trained professionals. Nevertheless, these may not be appropriate for all athletes or all sports.

Firstly, the thesis supports the notion that PM is partly facilitated by an athlete's ongoing and fluctuating perceptions of himself or herself, while participating in sport. In this view, ego-regulatory mechanisms are relevant insofar as they contribute towards sequences of performance outcomes, which are construed in terms of PM. Nevertheless, ego-regulation functions at a deeper (sub-conscious) level than ordinary sport relevant self-regulatory strategies that athletes, or in this case, golfers develop based on their experience and skill level. Accordingly, during ego-enhanced phases, an athlete is likely to experience positive momentum in performance, while in ego-diminished phases an athlete may experience negative momentum in performance. These ego-regulatory functions are not necessarily facilitative of positive momentum in all contexts. Thus, it is important for athletes to develop ego-regulatory psychological skills to develop and maintain positive momentum in sporting performance.

Performance enhancement practitioners are encouraged to focus on interventions that facilitate ego-regulation. This may include increasing an athletes' resources relating to self-efficacy or sense of control through interventions, such as positive imagery or

self-talk techniques (Feltz et al., 2008). More specifically, the study in chapter four of this thesis shows promising signs that athletes, through mindfulness, can access and regulate thoughts feelings and sensations that accompany certain disruptive schemas. Hence, it is recommended that athletes, themselves, and sport practitioners consider integrating mindfulness-based interventions into their relevant psychological skills training regimens. Sport psychologists may consider enhancing these interventions by integrating therapy models that address the self-concept, such as schema mode therapy.

A key psychological skill to be developed, in accordance with the above recommendations, involves the athlete's ego-regulation. This function can extend beyond the attention and awareness of internal and external stimuli, to an awareness of the kinds of strategies athletes develop to protect or maintain their psychological self. In chapter three, these were represented by themes of self-protection, self-promotion and self-validation. Sports psychologists could work with athletes to raise awareness of, and explore, the patterns of strategies they use in different contexts. If a schema mode framework is used to understand the strategies in context, the strategies can be linked to certain schemas or modes. Research on PM has indicated that perceptions of PM are triggered by various factors that are relevant to the athlete during competition (Young, 2011). On the view of this thesis, perceptions of PM are not what are triggered. Rather, schemas are triggered or activated. How the athlete responds or relates to these events can influence performance positively or negatively. Accordingly, athletes could use mindfulness exercises to develop alternative ways of relating to these modes in context, particularly if they are maladaptive to positive momentum during their performances.

REFERENCES

- Aarts, H. (2007). Health and goal-directed behavior: The nonconscious regulation and motivation of goals and their pursuit. *Health Psychology Review, 1*(1), 53-82.
- Adler, P. (1981). *Momentum: A theory of social action*. Beverly Hills, CA: Sage.
- Adler, P., & Adler, P., A. (1978). The role of momentum in sport. *Urban Life, 7*(2), 153-176.
- Aherne, C., Moran, A. P., & Lonsdale, C. (2011). The effect of mindfulness training on athletes' flow: An initial investigation. *Sport Psychologist, 25*(2), 177-189.
- Ahlum-Heath, M. E., & Di Vesta, F. J. (1986). The effect of conscious controlled verbalization cognitive strategy on transfer in problem solving. *Memory & Cognition, 14*(3), 281-285.
- Alberts, H. J., & Thewissen, R. (2011). The effect of a brief mindfulness intervention on memory for positively and negatively valenced stimuli. *Mindfulness, 2*(2), 73-77.
- Albright, S. C. (1993). A statistical analysis of hitting streaks in baseball. *Journal of the American Statistical Association, 88*(424), 1175-1183.
- Anderson, J. R. (1982). Acquisition of cognitive skill. *Psychological Review, 89*(4), 369-406.
- Apitzsch, E. (2007). Collective collapse in team sports: A theoretical approach. In F. Boen, & B. De Cuyper (Eds.), *Current research topics in exercise and sport psychology in europe* (pp. 35-46). Uitgeverij: Lannoo.

- Arkes, J. (2013). Misses in “hot hand” research. *Journal of Sports Economics, 14*(4), 401-410.
- Arkes, J., & Martinez, J. (2011). Finally, evidence for a momentum effect in the NBA. *Journal of Quantitative Analysis in Sports, 7*(3), Article 13.
- Babiloni, C., Del Percio, C., Iacoboni, M., Infarinato, F., Lizio, R., Marzano, N., . . . Eusebi, F. (2008). Golf putt outcomes are predicted by sensorimotor cerebral EEG rhythms. *The Journal of Physiology, 586*(1), 131-139.
- Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice, 10*(2), 125-143.
- Baer, R. A. (2011). Measuring mindfulness. *Contemporary Buddhism, 12*(01), 241-261.
- Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: The kentucky inventory of mindfulness skills. *Assessment, 11*(3), 191-206.
- Baldwin, M. A. (2008). Concept analysis as a method of inquiry. *Nurse Researcher, 15*(2), 49-58.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122-147.
- Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes, 50*(2), 248-287.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52(1), 1-26.
- Barbuto Jr., J. E., & Scholl, R. W. (1998). Motivation sources inventory: Development and validation of new scales to measure an integrative taxonomy of motivation. *Psychological Reports*, 82(3), 1011-1022.
- Barker, J., McCarthy, P., Jones, M., & Moran, A. (2011). *Single-case research methods in sport and exercise psychology*. Oxon: Routledge.
- Barnett, A. G., van der Pols, J. C., & Dobson, A. J. (2005). Regression to the mean: What it is and how to deal with it. *International Journal of Epidemiology*, 34(1), 215-220.
- Bateup, H. S., Booth, A., Shirtcliff, E. A., & Granger, D. A. (2002). Testosterone, cortisol, and women's competition. *Evolution and Human Behavior*, 23(3), 181-192.
- Baumeister, J., Reinecke, K., Liesen, H., & Weiss, M. (2008). Cortical activity of skilled performance in a complex sports related motor task. *European Journal of Applied Physiology*, 104(4), 625-631.
- Baumeister, R. F. (1984). Choking under pressure: Self-consciousness and paradoxical effects of incentives on skillful performance. *Journal of Personality and Social Psychology*, 46(3), 610-620.
- Baumeister, R. F. (2008). Free will in scientific psychology. *Perspectives on Psychological Science*, 3(1), 14-19.

- Baumeister, R. F., Gailliot, M., DeWall, C. N., & Oaten, M. (2006). Self-regulation and personality: How interventions increase regulatory success, and how depletion moderates the effects of traits on behavior. *Journal of Personality, 74*(6), 1773-1802.
- Baumeister, R. F., Heatherton, T. F., & Tice, D. M. (1993). When ego threats lead to self-regulation failure: Negative consequences of high self-esteem. *Journal of Personality and Social Psychology, 64*(1), 141-156.
- Baumeister, R. F., & Vohs, K. D. (2007). Self-Regulation, ego depletion, and motivation. *Social and Personality Psychology Compass, 1*(1), 115-128.
- Beck, A. T. (1996). Beyond belief: A theory of modes, personality, and psychopathology. In P. Salkovskis (Ed.), *Frontiers of cognitive therapy* (pp. 1-25). New York: Guilford Press.
- Beck, A. T., & Haigh, E. A. (2014). Advances in cognitive theory and therapy: The generic cognitive model. *Annual Review of Clinical Psychology, 10*, 1-24.
- Becker, H. S. (1958). Problems of inference and proof in participant observation. *American Sociological Review, 23*(6), 652-660.
- Bennett-Goleman, T. (2002). *Emotional alchemy: How the mind can heal the heart*. New York: Three Rivers.
- Bernier, M., Thienot, E., Cordon, R., & Fournier, J. F. (2009). Mindfulness and acceptance approaches in sport performance. *Journal of Clinical Sport Psychology, 25*(4), 320-333.

- Beutler, L. E., Moleiro, C., & Talebi, H. (2002). Resistance in psychotherapy: What conclusions are supported by research. *Journal of Clinical Psychology, 58*(2), 207-217.
- Birrer, D., & Morgan, G. (2010). Psychological skills training as a way to enhance an athlete's performance in high-intensity sports. *Scandinavian Journal of Medicine & Science in Sports, 20*(2), 78-87.
- Blascovich, J., Mendes, W. B., Tomaka, J., Salomon, K., & Seery, M. (2003). The robust nature of the biopsychosocial model challenge and threat: A reply to wright and kirby. *Personality and Social Psychology Review : An Official Journal of the Society for Personality and Social Psychology, Inc, 7*(3), 234-243.
- Bois, J. E., Sarrazin, P. G., Southon, J., & Boiché, J. (2009). Psychological characteristics and their relation to performance in professional golfers. *The Sport Psychologist, 23*(2), 252-270.
- Botes, A. (2002). Concept analysis: Some limitations and possible solutions. *Curationis, 25*(3), 23-27.
- Bourne, E. J. (2011). *The anxiety and phobia workbook*. Oakland, CA: New Harbinger Publications.
- Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. London: Sage.

- Brewer, B. W., Van Raalte, J. L., Linder, D. E., & Van Raalte, N. S. (1991). Peak performance and the perils of retrospective introspection. *Journal of Sport & Exercise Psychology, 8*, 227-238.
- Briki, W., Den Hartigh, R. J. R., Hauw, D., & Gernigon, C. (2012). A qualitative exploration of the psychological contents and dynamics of momentum in sport. *International Journal of Sport Psychology, 43*(5), 365-384.
- Briki, W., Den Hartigh, R. J. R., Markman, K. D., Micallef, J., & Gernigon, C. (2013). How psychological momentum changes in athletes during a sport competition. *Psychology of Sport & Exercise, 14*(3), 389-396.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*(4), 822-848.
- Brown, K. W., Ryan, R. M., Creswell, J. D., & Niemiec, C. P. (2008). Beyond me: Mindful responses to social threat. In H. A. Wayment, & J. J. Bauer (Eds.), *Transcending self-interest: Psychological explorations of the quiet ego* (pp. 75-84). Washington, DC: American Psychological Association.
- Buchheld, N., Grossman, P., & Walach, H. (2001). Measuring mindfulness in insight meditation (vipassana) and meditation-based psychotherapy: The development of the freiburg mindfulness inventory (FMI). *Journal for Meditation and Meditation Research, 1*(1), 11-34.

- Burke, K., Edwards, T., Weigand, D., & Weinberg, R. (1997). Momentum in sport: A real or illusionary phenomenon for spectators. *International Journal of Sport Psychology*, 28(1), 79-96.
- Burke, K. L., Aoyagi, M. W., Joyner, A. B., & Burke, M. M. (2003). Spectators' perceptions of positive momentum while attending NCAA men's and women's basketball regular season contests: Exploring the antecedents-consequences model. *Athletic Insight—The Online Journal of Sport Psychology*, 5(3), unpaginated.
- Burke, K. L., Burke, M., & Joyner, A. (1999). Perceptions of momentum in college and high school basketball: An exploratory, case study investigation. *Journal of Sport Behavior*, 22(3), 303-309.
- Burke, K. L., & Houseworth, S. (1995). Structural charting and perceptions of momentum in intercollegiate volleyball. *Journal of Sport Behavior*, 18(3), 167-182.
- Burnkrant, R. E., & Page Jr, T. J. (1984). A modification of the fenigstein, scheier, and buss self-consciousness scales. *Journal of Personality Assessment*, 48(6), 629-637.
- Callow, N., Hardy, L., & Hall, C. (2001). The effects of a motivational general-mastery imagery intervention on the sport confidence of high-level badminton players. *Research Quarterly for Exercise and Sport*, 72(4), 389-400.
- Callow, N., & Waters, A. (2005). The effect of kinesthetic imagery on the sport confidence of flat-race horse jockeys. *Psychology of Sport and Exercise*, 6(4), 443-459.

- Caprara, G. V., & Cervone, D. (2000). *Personality: Determinants, dynamics, and potentials*. Cambridge: Cambridge University Press.
- Carpiano, R. M. (2009). Come take a walk with me: The “Go-along” interview as a novel method for studying the implications of place for health and well-being. *Health & Place, 15*(1), 263-272.
- Ceron-Anaya, H. (2010). An approach to the history of golf: Business, symbolic capital, and technologies of the self. *Journal of Sport & Social Issues, 34*(3), 339-358.
- Cervone, D., Shadel, W. G., Smith, R. E., & Fiori, M. (2006). Self-Regulation: Reminders and suggestions from personality science. *Applied Psychology, 55*(3), 333-385.
- Chalker, S., & Weiner, E. (Eds.). (1998). *The oxford dictionary of english grammar*. Oxford: Oxford University Press.
- Chambers, R., Gullone, E., & Allen, N. B. (2009). Mindful emotion regulation: An integrative review. *Clinical Psychology Review, 29*(6), 560-572.
- Chambers, R., Lo, B. C. Y., & Allen, N. B. (2008). The impact of intensive mindfulness training on attentional control, cognitive style, and affect. *Cognitive Therapy and Research, 32*(3), 303-322.
- Cigolla, F., & Brown, D. (2011). A way of being: Bringing mindfulness into individual therapy. *Psychotherapy Research, 21*(6), 709-721.

- Cleary, T. J., & Zimmerman, B. J. (2001). Self-regulation differences during athletic practice by experts, non-experts, and novices. *Journal of Applied Sport Psychology, 13*(2), 185-206.
- Cohn, P. J. (1991). An exploratory study on peak performance in golf. *The Sport Psychologist, 5*(1), 1-14.
- Collins, J., & Durand-Bush, N. (2014). Strategies used by an elite curling coach to nurture athletes' self-regulation: A single case study. *Journal of Applied Sport Psychology, 26*(2), 211-224.
- Colman, A. M. (2008). Process. Retrieved from www.oxfordreference.com.wam.seals.ac.za/view/10.1093/acref/9780199534067.001.0001/acref-9780199534067-e-6674
- Cornelius, A., Silva, J. M., Conroy, D. E., & Petersen, G. (1997). The projected performance model: Relating cognitive and performance antecedents of psychological momentum. *Perceptual and Motor Skills, 84*(2), 475-485.
- Crews, D. J., & Landers, D. M. (1993). Electroencephalographic measures of attentional patterns prior to the golf putt. *Medicine & Science in Sports & Exercise, 25*(1), 116-126.
- Crust, L., & Nesti, M. (2006). A review of psychological momentum in sports: Why qualitative research is needed. *Athletic Insight: The Online Journal of Sport Psychology, 8*(1), unpaginated.

- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety: The experience of play in work and games*. San Francisco: Jossey-Bass.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper & Row.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.
- Department of Sport and Recreation South Africa. (2009). *A case for sport and recreation*. Retrieved from [http://www.srsa.gov.za/MediaLib/Home/DocumentLibrary/Case%20for%20Sport%20-%20Oct%202009%20\(Final\).pdf](http://www.srsa.gov.za/MediaLib/Home/DocumentLibrary/Case%20for%20Sport%20-%20Oct%202009%20(Final).pdf)
- Diaz, R. M. (1992). Methodological concerns in the study of private speech. In R. M. Diaz, & L. E. Berk (Eds.), *Private speech: From social interactions to self-regulation* (pp. 55-81). Hillsdale, NJ: Lawrence Erlbaum.
- Edwards, D. J., Dattilio, F. M., & Bromley, D. B. (2004). Developing evidence-based practice: The role of case-based research. *Professional Psychology: Research and Practice*, 35(6), 589-597.
- Eisler, L., & Spink, K. S. (1998). Effects of scoring configuration and task cohesion on the perception of psychological momentum. *Journal of Sport & Exercise Psychology*, 20(3), 311-320.
- Epstein, M. (1988). The deconstruction of the self: Ego and 'egolessness' in buddhist insight meditation. *The Journal of Transpersonal Psychology*, 20(1), 61-69.

- Ericsson, K. A., & Simon, H. A. (1984). *Protocol analysis*. Cambridge, MA: MIT-press.
- Erickson, K., Drevets, W., & Schulkin, J. (2003). Glucocorticoid regulation of diverse cognitive functions in normal and pathological emotional states. *Neuroscience & Biobehavioral Reviews*, 27(3), 233-246.
- Feltz, D., Short, S., & Sullivan, P. (2008). Self efficacy in sport: Research and strategies for working with athletes, teams and coaches. *International Journal of Sports Science and Coaching*, 3(2), 293-295.
- Fenigstein, A., Scheier, M. F., & Buss, A. H. (1975). Public and private self-consciousness: Assessment and theory. *Journal of Consulting and Clinical Psychology*, 43(4), 522-527.
- Filaire, E., Alix, D., Ferrand, C., & Verger, M. (2009). Psychophysiological stress in tennis players during the first single match of a tournament. *Psychoneuroendocrinology*, 34(1), 150-157.
- Finn, J. (2008). An introduction to using mental skills to enhance performance in golf: Beyond the bounds of positive and negative thinking. *Annual Review of Golf Coaching*, 255-269.
- Fisch, G. S. (2001). Evaluating data from behavioral analysis: Visual inspection or statistical models? *Behavioural Processes*, 54(1), 137-154.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Victoria: ARRB Group Limited.

- Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, 12(2), 219-245.
- Freud, S. (1927). *The ego and the id*. London: Hogarth Press.
- Gadamer, H. (2004). *Truth and method, trans* [1960] (J. Weinsheimer, G. Marshall Trans.). New York: Continuum.
- Gagne, R. M., & Smith Jr, E. C. (1962). A study of the effects of verbalization on problem solving. *Journal of Experimental Psychology*, 63(1), 12-18.
- Gallwey, W. T. (1986). *The inner game of golf*. London: Pan Books Limited.
- Garcia, C. M., Eisenberg, M. E., Frerich, E. A., Lechner, K. E., & Lust, K. (2012). Conducting go-along interviews to understand context and promote health. *Qualitative Health Research*, 22(10), 1395-1403.
- Gardner, F. L., & Moore, Z. E. (2004). A mindfulness-acceptance-commitment-based approach to athletic performance enhancement: Theoretical considerations. *Behavior Therapy*, 35(4), 707-723.
- Gardner, F. L., & Moore, Z. E. (2007). *The psychology of enhancing human performance: The mindfulness-acceptance-commitment (MAC) approach*. New York: Springer Publishing Co.
- Gardner, F. L., & Moore, Z. E. (2012). Mindfulness and acceptance models in sport psychology: A decade of basic and applied scientific advancements. *Canadian Psychology/Psychologie Canadienne*, 53(4), 309-318.

- Gayton, W. F., & Very, M. (1993). Psychological momentum in team sports. *Journal of Sport Behavior, 16*(3), 121-124.
- Gernigon, C., Briki, W., & Eykens, K. (2010). The dynamics of psychological momentum in sport: The role of ongoing history of performance patterns. *Journal of Sport & Exercise Psychology, 32*(3), 377-400.
- Gibson, C. B., & Zellmer-Bruhn, M. E. (2001). Metaphors and meaning: An intercultural analysis of the concept of teamwork. *Administrative Science Quarterly, 46*(2), 274-303.
- Gilovich, T., Vallone, R., & Tversky, A. (1985). The hot hand in basketball: On the misperception of random sequences. *Cognitive Psychology, 17*(3), 295-314.
- Gómez, M. A., Jiménez, S., Navarro, R., Lago-Penas, C., & Sampaio, J. (2011). Effects of coaches' timeouts on basketball teams' offensive and defensive performances according to momentary differences in score and game period. *European Journal of Sport Science, 11*(5), 303-308.
- Goodhart, D. E. (1986). The effects of positive and negative thinking on performance in an achievement situation. *Journal of Personality and Social Psychology, 51*(1), 117-124.
- Graham, S., & Weiner, B. (1996). Theories and principles of motivation. In D. C. Berliner, & R. C. Calfee (Eds.), *Handbook of educational psychology* (pp. 63-84). London: Routledge.

- Grossman, P. (2008). On measuring mindfulness in psychosomatic and psychological research. *Journal of Psychosomatic Research*, 64(4), 405-408.
- Hall, D., James, D., & Marsden, N. (2012). Marginal gains: Olympic lessons in high performance for organisations. *HR Bulletin: Research and Practice*, 7(2), 9-13.
- Hamberger, M., & Iso-Ahola, S. E. (2004). Psychological momentum and athletic performance: A critical review of research. *Journal of Contemporary Athletics*, 1(3), 207-226.
- Hardy, J. (2006). Speaking clearly: A critical review of the self-talk literature. *Psychology of Sport and Exercise*, 7(1), 81-97.
- Hardy, J., Hall, C. R., & Alexander, M. R. (2001). Exploring self-talk and affective states in sport. *Journal of Sports Sciences*, 19(7), 469-475.
- Hardy, L., Jones, J. G., & Gould, D. (1996). *Understanding psychological preparation for sport: Theory and practice of elite performers*. Chichester, UK: John Wiley & Sons Inc.
- Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology*, 64(6), 1152-1168.
- Hewitt, P., Flett, G., Besser, A., Sherry, S., & McGee, B. (2003). Perfectionism is multidimensional: A reply to. *Behaviour Research and Therapy*, 41(10), 1221-1236.

- Hill, D. M., & Shaw, G. (2013). A qualitative examination of choking under pressure in team sport. *Psychology of Sport and Exercise, 14*(1), 103-110.
- Hofmann, W., Schmeichel, B. J., & Baddeley, A. D. (2012). Executive functions and self-regulation. *Trends in Cognitive Sciences, 16*(3), 174-180.
- Hofmann, S. G., Sawyer, A. T., & Fang, A. (2010). The empirical status of the "new wave" of cognitive behavioral therapy. *The Psychiatric Clinics of North America, 33*(3), 701-710.
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*(9), 1277-1288.
- Iso-Ahola, S. E., & Blanchard, W. J. (1986). Psychological momentum and competitive sport performance: A field study. *Perceptual and Motor Skills, 62*(3), 763-768.
- Iso-Ahola, S. E., & Dotson, C. O. (2014). Psychological momentum: Why success breeds success. *Review of General Psychology, 18*(1), 19-33.
- Iso-Ahola, S. E., & Mobily, K. (1980). Psychological momentum: A phenomenon and an empirical (unobtrusive) validation of its influence in a competitive sport tournament. *Psychological Reports, 46*(2), 391-401.
- Jackson, D., & Mosurski, K. (1997). Heavy defeats in tennis: Psychological momentum or random effect? *Chance, 10*(2), 27-34.
- Johnson, A. W., Stimpson, A. J., & Clark, T. K. (2012). Turning the tide: Big plays and psychological momentum in the NFL. *MIT Sloan Sports Analytics Conference, Boston, MA. 1-8.*

- Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14-26.
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research, 1*(2), 112-133.
- Jones, M., Meijen, C., McCarthy, P. J., & Sheffield, D. (2009). A theory of challenge and threat states in athletes. *International Review of Sport and Exercise Psychology, 2*(2), 161-180.
- Jones, M. I., & Harwood, C. (2008). Psychological momentum within competitive soccer: Players' perspectives. *Journal of Applied Sport Psychology, 20*(1), 57-72.
- Jones, P., Bunce, G., Evans, J., Gibbs, H., & Hein, J. R. (2008). Exploring space and place with walking interviews. *Journal of Research Practice, 4*(2), Article D2.
- Jordet, G., Hartman, E., & Jelle Vuijk, P. (2011). Team history and choking under pressure in major soccer penalty shootouts. *British Journal of Psychology, 103*(2), 268-283.
- Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. New York: Dell Publishing.
- Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life*. New York: Hyperion.
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice, 10*(2), 144-156.

- Karoly, P. (1993). Mechanisms of self-regulation: A systems view. *Annual Review of Psychology, 44*(1), 23-52.
- Kaufman, K. A., Glass, C. R., & Arnkoff, D. B. (2009). Evaluation of mindful sport performance enhancement (MSPE): A new approach to promote flow in athletes. *Journal of Clinical Sport Psychology, 3*(4), 334-356.
- Kazdin, A. E. (2011). *Single-case research designs: Methods for clinical and applied settings*. Oxford: Oxford University Press.
- Kellogg, S. (2009). Schema therapy: A Gestalt-Oriented overview. *Gestalt, 10*(1), 10-11.
- Kendall, G., Hrycaiko, D., Martin, G. L., & Kendall, T. (1990). The effects of an imagery rehearsal, relaxation, and self-talk package on basketball game performance. *Journal of Sport & Exercise Psychology, 12*(2), 157-166.
- Kennedy, P., Miele, D. B., & Metcalfe, J. (2014). The cognitive antecedents and motivational consequences of the feeling of being in the zone. *Consciousness and Cognition, 30*, 48-61.
- Kerick, S. E., & Iso-Ahola, S. E. (2000). Psychological momentum in target shooting: Cortical, cognitive-affective, and behavioral responses. *Journal of Sport & Exercise Psychology, 22*(1), 1-20.
- King, M. F., & Bruner, G. C. (2000). Social desirability bias: A neglected aspect of validity testing. *Psychology & Marketing, 17*(2), 79-103.

- Kingma, G. (2010). *The integration of self through self awareness: An individual case study within a schema mode therapy framework*. (Unpublished Master's thesis). Rhodes University, Grahamstown.
- Kinugasa, T., Cerin, E., & Hooper, S. (2004). Single-subject research designs and data analyses for assessing elite athletes' conditioning. *Sports Medicine*, 34(15), 1035-1050.
- Kirschenbaum, D. S. (1984). Self-regulation and sport psychology: Nurturing an emerging symbiosis. *Journal of Sport Psychology*, 6(2), 159-183.
- Kirschenbaum, D. S. (1987). Self-regulation of sport performance. *Medicine & Science in Sports & Exercise*, 19(5), S106-S113.
- Kivlighan, K. T., Granger, D. A., & Booth, A. (2005). Gender differences in testosterone and cortisol response to competition. *Psychoneuroendocrinology*, 30(1), 58-71.
- Koehler, J., & Conley, C. (2003). The "hot hand" myth in professional basketball. *Journal of Sport & Exercise Psychology*, 25(2), 253-259.
- Kuhn, T. S. (1970). Logic of discovery or psychology of research. In I. Lakatos, & A. Musgrave (Eds.), *Criticism and the growth of knowledge* (pp. 1-23). Cambridge: Cambridge University Press.
- Kusenbach, M. (2003). Street phenomenology the go-along as ethnographic research tool. *Ethnography*, 4(3), 455-485.

- Lalwani, A. K., Shavitt, S., & Johnson, T. (2006). What is the relation between cultural orientation and socially desirable responding? *Journal of Personality and Social Psychology, 90*(1), 165-178.
- Langdon, S., Jones, F. W., Hutton, J., & Holttum, S. (2011). A grounded-theory study of mindfulness practice following mindfulness-based cognitive therapy. *Mindfulness, 2*(4), 270-281.
- Langer, E. J., & Newman, H. M. (1979). The role of mindlessness in a typical social psychological experiment. *Personality and Social Psychology Bulletin, 5*(3), 295-298.
- Lau, M. A., Bishop, S. R., Segal, Z. V., Buis, T., Anderson, N. D., Carlson, L., . . . Devins, G. (2006). The toronto mindfulness scale: Development and validation. *Journal of Clinical Psychology, 62*(12), 1445-1467.
- Laverty, S. M. (2003). Hermeneutic phenomenology and phenomenology: A comparison of historical and methodological considerations. *International Journal of Qualitative Methods, 2*(3), 21-35.
- Lazarus, R. S. (1966). *Psychological stress and the coping process*. New York: McGraw-Hill.
- Lazarus, R. S. (1991). *Emotion and adaptation*. Oxford: Oxford University Press.
- Lazarus, R. S. (2006). *Stress and emotion: A new synthesis*. New York: Springer Publishing Company.

- Leech, N. L., & Onwuegbuzie, A. J. (2009). A typology of mixed methods research designs. *Quality & Quantity, 43*(2), 265-275.
- Lincoln, Y. S., & Guba, E. (1985). *Naturalistic inquiry*. London: Sage.
- Livingston, J. A. (2012). The hot hand and the cold hand in professional golf. *Journal of Economic Behavior & Organization, 81*(1), 172-184.
- Lobbestael, J., van Vreeswijk, M., & Arntz, A. (2007). Netherlands journal of psychology, 2007, number 3 shedding light on schema modes: A clarification of the mode concept and its current research status. *Netherlands Journal of Psychology, 63*(3), 69-78.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting & task performance*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist, 57*(9), 705-717.
- Mace, F. C., Lalli, J. S., Shea, M. C., & Nevin, J. A. (1992). Behavioral momentum in college basketball. *Journal of Applied Behavior Analysis, 25*(3), 657-663.
- Machado, A., & Silva, F. J. (2007). Toward a richer view of the scientific method: The role of conceptual analysis. *American Psychologist, 62*(7), 671-681.
- Mack, M., Miller, C., Smith, B., Monaghan, B., & German, A. (2008). The development of momentum in a basketball shooting task. *Journal of Sport Behavior, 31*(3), 254-263.

- Mack, M., & Stephens, D. (2000). An empirical test of Taylor and Demick's multidimensional model of momentum in sport. *Journal of Sport Behaviour*, 23(4), 349-363.
- MacKillop, J., & Anderson, E. J. (2007). Further psychometric validation of the mindful attention awareness scale (MAAS). *Journal of Psychopathology and Behavioral Assessment*, 29(4), 289-293.
- Mahoney, J., & Hanrahan, S. J. (2011). A brief educational intervention using acceptance and commitment therapy: Four injured athletes' experiences. *Journal of Clinical Sport Psychology*, 5(3), 252-273.
- Marcelino, R., Mesquita, I., Palao, J., & Sampaio, J. (2009). Home advantage in high-level volleyball varies according to set number. *Journal of Sports Science and Medicine*, 8(3), 352-356.
- Markman, K. D., & Guenther, C. L. (2007). Psychological momentum: Intuitive physics and naive beliefs. *Personality and Social Psychology Bulletin*, 33(6), 800-812.
- Markus, H. (1977). Self-schemata and processing information about the self. *Journal of Personality and Social Psychology*, 35(2), 63-78.
- Marlatt, G. A., & Kaplan, B. E. (1972). Self-initiated attempts to change behavior: A study of new year's resolutions. *Psychological Reports*, 30(1), 123-131.
- McCaffrey, N., & Orlick, T. (1989). Mental factors related to excellence among top professional golfers. *International Journal of Sport Psychology*, 20(4), 256-278.

Mead, G. H. (1934). *Mind, self, and society from the perspective of a social behaviorist*.

Chicago: University of Chicago Press, Ltd.

Meijen, C. (2011). *Approaches to competition: Challenge and threat states in athletes*.

(Doctoral dissertation). Retrieved from <http://eprints.staffs.ac.uk/1882>

Meleis, A. I. (2011). *Theoretical nursing: Development and progress*. (5th ed.).

Philadelphia, PA: Lippincott Williams & Wilkins.

Mellalieu, S. D., Hanton, S., & Thomas, O. (2009). The effects of a motivational general-arousal imagery intervention upon preperformance symptoms in male rugby union players. *Psychology of Sport and Exercise, 10*(1), 175-185.

Michaelsen, L. K., Parmelee, D. X., & McMahon, K. K. (2008). *Team-based learning for health professions education: A guide to using small groups for improving learning*. Sterling, VA: Stylus Publishing, LLC.

Miller, R. B., Behrens, J. T., Greene, B. A., & Newman, D. (1993). Goals and perceived ability: Impact on student valuing, self-regulation, and persistence. *Contemporary Educational Psychology, 18*(1), 2-14.

Miller, S., & Weinberg, R. (1991). Perceptions of psychological momentum and their relationship to performance. *The Sport Psychologist, 5*(3), 211-222.

Mizruchi, M. S. (1991). Urgency, motivation, and group performance: The effect of prior success on current success among professional basketball teams. *Social Psychology Quarterly, 54*(2), 181-189.

- Moesch, K., & Apitzsch, E. (2012). How do coaches experience psychological momentum? A qualitative study of female elite handball teams. *Sport Psychologist*, 26(3), 435-453.
- Momentum. (2012). *Oxford English dictionary online*. Retrieved from <http://0-www.oed.com.wam.seals.ac.za/>
- Morgenstern, U. (2006). *The impact of momentum on team performance: A myth or reality?* (Master's thesis). Retrieved from <http://eprints.nottingham.ac.uk/edissertations/>
- Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2008). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods*, 1(2), 13-22.
- Newman, C. F. (1994). Understanding client resistance: Methods for enhancing motivation to change. *Cognitive and Behavioral Practice*, 1(1), 47-69.
- Nicholls, A. R., Holt, N. L., & Polman, R. C. (2005). A phenomenological analysis of coping effectiveness in golf. *The Sport Psychologist*, 19(2), 111-130.
- Nicholls, A. R., & Polman, R. C. (2008). Think aloud: Acute stress and coping strategies during golf performances. *Anxiety, Stress, & Coping*, 21(3), 283-294.
- Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review*, 91(3), 328-346.
- Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, 84(3), 231-259.

- O'Donoghue, P., & Brown, E. (2009). Sequences of service points and the misperception of momentum in elite tennis. *International Journal of Performance Analysis in Sport, 9*(1), 113-127.
- Oppenheim, A. N. (1992). *Questionnaire design, interviewing and attitude measurement*. London: Continuum.
- Parker, R. I., & Vannest, K. (2009). An improved effect size for single-case research: Nonoverlap of all pairs. *Behavior Therapy, 40*(4), 357-367.
- Pates, J., Oliver, R., & Maynard, I. (2001). The effects of hypnosis on flow states and golf-putting performance. *Journal of Applied Sport Psychology, 13*(4), 341-354.
- Perls, F., Hefferline, R., & Goodman, P. (1951). *Gestalt therapy: Excitement and growth in the human personality*. New York, NY: Julian.
- Perreault, S., Vallerand, R. J., Montgomery, D., & Provencher, P. (1998). Coming from behind: On the effect of psychological momentum on sport performance. *Journal of Sport & Exercise Psychology, 20*(4), 421-436.
- Petocz, A., & Newbery, G. (2010). On conceptual analysis as the primary qualitative approach to statistics education research in psychology. *Statistics Education Research Journal, 9*(2), 123-145.
- Privette, G. (1983). Peak experience, peak performance, and flow: A comparative analysis of positive human experiences. *Journal of Personality and Social Psychology, 45*(6), 1361-1368.

- Psychological. (2012). *Oxford English dictionary online*. Retrieved from <http://0-www.oed.com.wam.seals.ac.za/>
- Qualitative Solutions Research. (2012). *NVivo* (10th ed.). Doncaster: QSR International Pty Ltd.
- Ransom, K., & Weinberg, R. (1985). Effect of situation criticality on performance of elite male and female tennis players. *Journal of Sport Behavior*, 8(3), 144-148.
- Rasmussen, H. N., Wrosch, C., Scheier, M. F., & Carver, C. S. (2006). Self-Regulation processes and health: The importance of optimism and goal adjustment. *Journal of Personality*, 74(6), 1721-1748.
- Redwood-Brown, A., O'Donoghue, P., Robinson, G., & Neilson, P. (2012). The effect of score-line on work-rate in english FA premier league soccer. *International Journal of Performance Analysis in Sport*, 12(2), 258-271.
- Reid, J., & Crust, L. (2012). Psychological momentum in elite female soccer: Perceptions of players and coaches. *BASES Student Conference*, University of East London.
- Richards, H. (2011). Coping and mental toughness. In D. Collins, A. Button & H. Richards (Eds.), *Performance psychology: A practitioner's guide* (pp. 281-300). London: Churchill Livingstone.
- Richardson, P. A., Adler, W., & Hanks, D. (1988). Game, set, match: Psychological momentum in tennis. *The Sport Psychologist*, 2(1), 69-76.

Rodgers, B. L. (1989). Concepts, analysis and the development of nursing knowledge:

The evolutionary cycle. *Journal of Advanced Nursing*, *14*(4), 330-335.

Sampaio, J., Lago-Peñas, C., & Gómez, M. A. (2013). Brief exploration of short and mid-term timeout effects on basketball scoring according to situational variables.

European Journal of Sport Science, *13*(1), 25-30.

Sartre, J. (1992). *Being and nothingness* (H. 1. Barnes Trans.). Oxon: Routledge

Classics.

Sauer, S., Lemke, J., Zinn, W., Buettner, R., & Kohls, N. (in press). Mindful in a

random forest: Assessing the validity of mindfulness items using random forests methods. *Personality and Individual Differences*.

Savage, K. J. (2012). *Making the cut: Psychological momentum on the PGA tour*

(Doctoral dissertation). Retrieved from <http://drum.lib.umd.edu/handle/1903/13037>

Scheier, M. F., & Carver, C. S. (1980). Private and public self-attention, resistance to change, and dissonance reduction. *Journal of Personality and Social Psychology*,

39(3), 390-405.

Scheier, M. F., & Carver, C. S. (1985). The Self-Consciousness scale: A revised version for use with general populations. *Journal of Applied Social Psychology*, *15*(8), 687-

699.

Schilling, M. F. (2009). Does momentum exist in competitive volleyball? *Chance*,

22(4), 29-35.

- Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York: The Guilford Press.
- Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of Clinical Psychology, 62*(3), 373-386.
- Shaw, J. M., Dzewaltowski, D. A., & McElroy, M. (1992). Self-efficacy and causal attributions as mediators of perceptions of psychological momentum. *Journal of Sport & Exercise Psychology, 14*(2), 134-147.
- Shiffman, S., Stone, A. A., & Hufford, M. R. (2008). Ecological momentary assessment. *Annual Review of Clinical Psychology, 4*, 1-32.
- Silva, J. M., Hardy, C. J., & Crace, R. K. (1988). Analysis of psychological momentum in intercollegiate tennis. *Journal of Sport & Exercise Psychology, 10*(3), 346-354.
- Singer, R. N. (1986). Sports performance: A five-step mental approach. *Journal of Physical Education, Recreation & Dance, 57*(4), 82-85.
- Skinner, N., & Brewer, N. (2004). Adaptive approaches to competition: Challenge appraisals and positive emotion. *Journal of Sport and Exercise Psychology, 26*(2), 283-305.
- Smisson, C. P., Burke, K. L., Joyner, B., Munkasy, B. A., & Blom, L. C. (2007). Spectators' perceptions of momentum and personal control: Testing the antecedents-consequences model. *Athletic Insight: The Online Journal of Sport Psychology, 9*(1), 1-10.

- Smith, M. M., Saklofske, D. H., Yan, G., & Sherry, S. B. (in press). Perfectionistic strivings and perfectionistic concerns interact to predict negative emotionality: Support for the tripartite model of perfectionism in Canadian and Chinese university students. *Personality and Individual Differences*.
- Spector, P. E. (1994). Using self-report questionnaires in OB research: A comment on the use of a controversial method. *Journal of Organizational Behavior, 15*(5), 385-392.
- Stanimirovic, R., & Hanrahan, S. J. (2004). Efficacy, affect, and teams: Is momentum a misnomer? *International Journal of Sport and Exercise Psychology, 2*(1), 43-62.
- Stanovich, K. E. (2007). *How to think straight about psychology* (8th ed.). Boston: Allyn and Bacon.
- Stavrou, N. A., Jackson, S. A., Zervas, Y., & Karteroliotis, K. (2007). Flow experience and athletes' performance with reference to the orthogonal model of flow. *The Sport Psychologist, 21*(4), 438-457.
- Sternberg, R. J., & Grigorenko, E. L. (1997). Are cognitive styles still in style? *American Psychologist, 52*, 700-712.
- Stone, A. A., Schwartz, J. E., Neale, J. M., Shiffman, S., Marco, C. A., Hickcox, M., . . . Cruise, L. J. (1998). A comparison of coping assessed by ecological momentary assessment and retrospective recall. *Journal of Personality and Social Psychology, 74*(6), 1670-1680.

- Stone, A. A., & Shiffman, S. (1994). Ecological momentary assessment (EMA) in behavioral medicine. *Annals of Behavioral Medicine, 16*(3), 199-202.
- Suldo, S. M., Shaunessy, E., & Hardesty, R. (2008). Relationships among stress, coping, and mental health in high-achieving high school students. *Psychology in the Schools, 45*(4), 273-290.
- Swann, C., Keegan, R. J., Piggott, D., & Crust, L. (2012). A systematic review of the experience, occurrence, and controllability of flow states in elite sport. *Psychology of Sport and Exercise, 13*(6), 807-819.
- Taylor, J., & Demick, A. (1994). A multidimensional model of momentum in sports. *Journal of Applied Sport Psychology, 6*(1), 51-70.
- Teasdale, J. D., & Chaskalson, M. (2011a). How does mindfulness transform suffering? I: The nature and origins of dukkha. *Contemporary Buddhism, 12*(01), 89-102.
- Teasdale, J. D., & Chaskalson, M. (2011b). How does mindfulness transform suffering? II: The transformation of dukkha. *Contemporary Buddhism, 12*(01), 103-124.
- Theodorakis, Y., Weinberg, R., Natsis, P., Douma, I., & Kazakas, P. (2000). The effects of motivational versus instructional self-talk on improving motor performance. *Sport Psychologist, 14*(3), 253-271.
- Thomas, P. R., & Fogarty, G. J. (1997). Psychological skills training in golf: The role of individual differences in cognitive preferences. *The Sport Psychologist, 11*(1), 86-106.

- Thomas, P. R., & Over, R. (1994). Psychological and psychomotor skills associated with performance in golf. *The Sport Psychologist, 8*(1), 73-86.
- Thompson, B., Diamond, K. E., McWilliam, R., Snyder, P., & Snyder, S. W. (2005). Evaluating the quality of evidence from correlational research for evidence-based practice. *Exceptional Children, 71*(2), 181-194.
- Thompson, R. W., Kaufman, K. A., De Petrillo, L. A., Glass, C. R., & Arnkoff, D. B. (2011). One year follow-up of mindful sport performance enhancement (MSPE) with archers, golfers, and runners. *Journal of Clinical Sport Psychology, 5*(2), 99-116.
- Trell, E., & van Hoven, B. (2010). Making sense of place: Exploring creative and (inter) active research methods with young people. *Fennia-International Journal of Geography, 188*(1), 91-104.
- Vallerand, R. J., Colavecchio, P. G., & Pelletier, L. G. (1988). Psychological momentum and performance inferences: A preliminary test of the antecedents-consequences psychological momentum model. *Journal of Sport & Exercise Psychology, 10*(1), 92-108.
- Vancouver, J. B., Thompson, C. M., Tischner, E. C., & Putka, D. J. (2002). Two studies examining the negative effect of self-efficacy on performance. *Journal of Applied Psychology, 87*(3), 506.
- Vergin, R. C. (2000). Winning streaks in sports and the misperception of momentum. *Journal of Sport Behavior, 23*(2), 181-197.

- Walach, H., Buchheld, N., Buttenmüller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring mindfulness—the freiburg mindfulness inventory (FMI). *Personality and Individual Differences, 40*(8), 1543-1555.
- Warnke, G. (1987). *Gadamer: Hermeneutics, tradition, and reason*. Stanford, CA: Stanford University Press.
- Weinberg, R. S., Richardson, P., & Jackson, A. (1981). Effect of situation criticality on tennis performance of males and females. *International Journal of Sport Psychology, 12*(4), 253-259.
- Weinberg, R., & Jackson, A. (1989). The effects of psychological momentum on male and female tennis players revisited. *Journal of Sport Behavior, 12*(3), 167-179.
- Wicklund, R. A., & Duval, S. (1971). Opinion change and performance facilitation as a result of objective self-awareness. *Journal of Experimental Social Psychology, 7*(3), 319-342.
- Wiechman, S. A., Smith, R. E., Smoll, F. L., & Ptacek, J. (2000). Masking effects of social desirability response set on relations between psychosocial factors and sport injuries: A methodological note. *Journal of Science and Medicine in Sport, 3*(2), 194-202.
- Wilber, K. (2000). *Integral psychology*. Boston, MA: Shambhala Publications.
- Williams, M., & Penman, D. (2013). *Mindfulness: A practical guide for finding peace in a frantic world*. London: Piatkus.

- Wilson, G. S., Raglin, J. S., & Pritchard, M. E. (2002). Optimism, pessimism, and precompetition anxiety in college athletes. *Personality and Individual Differences*, 32(5), 893-902.
- Wilson, J. (1963). *Thinking with concepts*. Cambridge: Cambridge University Press.
- Wolery, M., & Harris, S. R. (1982). Interpreting results of single-subject research designs. *Physical Therapy*, 62(4), 445-452.
- Woodman, T., Akehurst, S., Hardy, L., & Beattie, S. (2010). Self-confidence and performance: A little self-doubt helps. *Psychology of Sport and Exercise*, 11(6), 467-470.
- World Health Organization. (2000). *Obesity: Preventing and managing the global epidemic*. Geneva: World Health Organization.
- Yerkes, R. M., & Dodson, J. D. (1908). The relation of strength of stimulus to rapidity of habit-formation. *Journal of Comparative Neurology and Psychology*, 18(5), 459-482.
- Young, G. (2011). *"It can start from anything": An existential phenomenological investigation of athletes' experiences of psychological momentum* (Doctoral dissertation). Retrieved from http://trace.tennessee.edu/utk_graddiss/1044/
- Young, J., Arntz, A., Atkinson, T., Lobbestael, J., Weishaar, M., Van Vreeswijk, M., . . . Klokman, J. (2007). *The schema mode inventory*. New York: Schema Therapy Institute.

Young, J. E., & Brown, G. (1990). *Young schema questionnaire*. New York: Cognitive Therapy Centre of New York.

Young, J. E., Klosko, J. S., & Weishaar, M. E. (2003). *Schema therapy: A practitioner's guide*. New York: Guilford Press.

Zeidan, F., Johnson, S. K., Diamond, B. J., David, Z., & Goolkasian, P. (2010). Mindfulness meditation improves cognition: Evidence of brief mental training. *Consciousness and Cognition, 19*(2), 597-605.

APPENDIX

Appendix A: Permission Request Letter



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To Whom It May Concern:

REQUESTS FOR RESEARCH PARTICIPANTS RECRUITMENT

I am currently busy with a PhD in Psychology. For part of this project I need a small group of golfers that can voluntarily participate in a study about psychological momentum, self-regulation and mindfulness. The research project has been reviewed and approved by the Rhodes University Psychology Department's Research Projects and Ethics Review Committee (RPERC). To assist me with the recruitment of participants for the study I request the following:

1. Your written permission for me to place an advertisement on your members' notice board (see advertisement attached).
2. That you disseminate an electronic copy of the attached advertisement to the members of your golf club via an email distribution list.

Further details regarding the recruitment of participants are detailed in the advertisement attached, but if you require further details or have any queries regarding the study please contact feel free to contact me on 0824542808 or grahamkingma@yahoo.co.za

Yours truly,

Graham Kingma
Counselling Psychologist
PhD Student
Psychology Department
Rhodes University
6140

Appendix B. Participant Recruitment Advertisement



RHODES UNIVERSITY
Where leaders learn

GRAHAM KINGMA

DEPARTMENT OF PSYCHOLOGY

VOLUNTEER GOLFERS REQUIRED

For a PhD study in Psychology:

This research project has been reviewed and approved by the Rhodes University Psychology Department's Research Projects and Ethics Review Committee (RPERC).

The above mentioned research requires a small group of golfers to voluntarily participate in a study about psychological momentum, self-regulation and mindfulness.

Participants are required to be keen golfers over the age of 18 years.

The participants' involvement in the study is expected to last around nine months from March 2013. During this time they will take part in some focus group discussions, be observed and interviewed (when appropriate) while playing a number of golf games with the researcher. Additionally the participants will take part in a mindfulness training program. The mindfulness training program will entail a 90 minute training session once a week for six weeks (six sessions). During this time participants will be encouraged to practice mindfulness techniques (meditation mainly) for about 10 to 30 minutes per day.

If you would like to participate in the study, require further details or have any queries regarding the study please contact Graham Kingma on 0824542808 or grahamkingma@yahoo.co.za

Appendix C. Participant Information Letter



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DEPARTMENT OF PSYCHOLOGY

PARTICIPANT INFORMATION LETTER

PHD IN PSYCHOLOGY

*Minding Your Own Game: Self-Regulation and Psychological Momentum Experiences
among Golfers.*

Dear Participant

We are asking you to help in a study about the self-regulation processes associated with golfers when they experience momentum shifts in their games and the role of mindfulness as a psychological skill in self-regulation processes associated with shifts in psychological momentum when playing golf. This research project has been reviewed and approved by the Rhodes University Psychology Department's Research Projects and Ethics Review Committee (RPERC), and is under the co-supervision of Prof. Charles Young and Mr. Gary Steele in the Psychology Department at Rhodes University.

Participation is completely voluntary and subject to you signing an informed consent agreement prior to the study. Participants are required to be over the age of 18 years and be an "avid" golfer – they dedicate at least six hours a week developing their golf skills through playing, practicing or any relevant tasks associated in this regard. Ideally, though not a pre-requisite, the participants will have a single figure handicap, or be part of a team that competes at a local or provincial level, or plays professionally.

The participants' involvement in the study is expected to last around nine months. At the start of this process they will be required to participate in one or two focus group sessions for one hour to discuss psychological momentum, self-regulation and mindfulness. After that the participants will take part in a series of golf games with the principal researcher, or research assistant if necessary. During these games the participants will be under observation by the researcher for specific moments of shifts in psychological momentum and interviewed (when deemed appropriate) for reports on these experiences in relation to self-regulation processes. These interviews will be tape recorded or noted in an interview journal.

After about three months into this process, the participants are required to partake in a mindfulness training program. This entails a 90 minute training session once a week for six weeks (six sessions). During this time participants will be required to practice mindfulness techniques (meditation mainly) for about 10 to 30 minutes per day. The training program will culminate with a group interview to evaluate the program and report on personal experiences related to the program.

All participants' information will be kept confidential. Participants are free to withdraw from the study at any stage of the process.

If you have any queries regarding the study please feel free to contact me on 0824542808 or grahamkingma@yahoo.co.za

Yours truly,

Graham Kingma

Appendix D. Informed Consent Document



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DEPARTMENT OF PSYCHOLOGY

AGREEMENT BETWEEN STUDENT RESEARCHER AND RESEARCH PARTICIPANT

I, _____ agree to participate in the research project of Graham Kingma on *Minding your own game: A qualitative study of self-regulation processes associated to psychological momentum experiences among golfers*.

I understand that:

1. The researcher is a student conducting the research as part of the requirements for a PhD degree at Rhodes University. The researcher may be contacted on 0824542808 or grahamkingma@yahoo.co.za. This research project has been reviewed and approved by the Rhodes University Psychology Department's Research Projects and Ethics Review Committee (RPERC), and is under the co-supervision of Prof. Charles Young and Mr. Gary Steele in the Psychology Department at Rhodes University. Prof. Young may be contacted on 046 603-8502 or C.Young@ru.ac.za and Mr. Steele may be contacted on 046 603-8504 or G.Steele@ru.ac.za.
2. The researcher is primarily interested in the self-regulation processes associated with golfers when they experience momentum shifts in their games. The researcher is also interested in the role of mindfulness as a psychological skill in self-regulation processes and how this may influence shifts in psychological momentum during sports participation.
3. My participation will involve spontaneous interviews with the researcher during a series of pre-arranged convenient golf games over a period of 9 months. I also agree

to participate in a mindfulness training program which is expected to take place about 3 months into the commencement of my participation in the project. The mindfulness program will last 6 weeks and I am requested to attend the training once a week for ninety minutes and adhere to relevant homework exercises which are expected to take between ten and thirty minutes a day for the duration of the mindfulness program. Part of the mindfulness program includes participating in a focus group to evaluate the program and report on personal experiences related to the program.

4. I may be asked to answer questions of a personal nature, but I can choose not to answer any questions about aspects of my life which I am not willing to disclose.
5. I am invited to voice to the researcher any concerns I have about my participation in the study, or consequences I may experience as a result of my participation, and to have these addressed to my satisfaction.
6. I am free to withdraw from the study at any time – however I commit myself to full participation unless some unusual circumstances occur, or I have concerns about my participation which I did not originally anticipate.
7. The report on the project may contain information about my personal experiences, attitudes and behaviours, but that report will be designed in such a way that it will not be possible to be identified by the general reader.
8. Should you require feedback with respect to this research project you may contact the researcher on 0824542808 or grahamkingma@yahoo.co.za.

Signed on (date):

Participant: _____ Researcher: _____

Appendix E. Participant Consent to Recordings

Rhodes University - Department of Psychology

**USE OF TAPE RECORDINGS FOR RESEARCH
PURPOSES**
-
PERMISSION AND RELEASE FORM

Participant name & contacts (address, phone etc)	
Name of researcher & level of research (Honours/Masters/PhD)	
Brief title of project	
Supervisor	

Declaration (Please initial/tick blocks next to the relevant statements)		
1. The nature of the research and the nature of my participation have been explained to me	verbally	
	in writing	
2. I agree to be interviewed and to allow tape-recordings to be made of the interviews	audiotape	
	videotape	
3. I agree to take part in and to allow tape-recordings to be made.	audiotape	
	videotape	
4. The tape recordings may be transcribed	without conditions	
	only by the researcher	
	by one or more nominated third parties:	
5.1 I have been informed by the researcher that the tape recordings will be erased once the study is complete and the report has been written.		
5.2 OR I give permission for the tape recordings to be retained after the study and for them to be utilised for the following purposes and under the following conditions:		
Signatures		
Signature of participant		Date
Witnessed by researcher		

Appendix F. Participant Recruitment Advertisement



School of Sport and Exercise Sciences, University of Kent, Medway Building,
Chatham Maritime, Kent. ME4 4AG.

VOLUNTEER GOLFERS REQUIRED

We are looking for a small group of golfers to voluntarily participate in a study about psychological momentum, self-regulation and mindfulness.

Participants are required to be relatively experienced golfers. That means they are over the age of 18 years and have preferably have single figure handicap or have previously played to a single figure handicap. We are particularly looking for male golfers who often experience anxious feelings particularly in front of an audience or perhaps under pressure conditions.

As a golfer in this study you are expected to participate for about three months from March/April 2014 to June/July 2014. During this time you will be asked to complete a few questionnaires, participate in some interviews and take part in a driving range exercise. Additionally you will take part in a mindfulness training program. The mindfulness training program will entail a 90 minute training session once a week for four weeks (four sessions). Over this period you will also be encouraged to practice mindfulness techniques (meditation mainly) in their own time for about 10 to 30 minutes per day.

This study is part of a PhD study in Psychology and has been reviewed and approved by the Faculty of Sciences' Research Ethics and Advisory Group (REAG), University of Kent.

If you would like to participate in the study, require further details or have any queries regarding the study please contact:

Graham Kingma: Mobile: 07742 294897; Email: gk212@kent.ac.uk

Appendix G. Permission Letter



School of Sport and Exercise Sciences, University of Kent, Medway Building,
Chatham Maritime, Kent. ME4 4AG.

To Whom It May Concern: (To gatekeepers such as golf club managers, university department head etc.)

PERMISSIONS

We are looking for a small group of golfers to voluntarily participate in a study about psychological momentum, self-regulation and mindfulness. This is for part of a PhD in Psychology, which has been reviewed and approved by the Research Ethics and Advisory Group (REAG) of the Faculty of Sciences, University of Kent. To assist me with this project I would like to obtain your permission for the following:

1. To place an advertisement on notice boards at the driving range and clubhouse (see advertisement attached).
2. To request that an electronic copy of the attached advertisement is sent to the members of your driving range and golf club via an email distribution list.

If you require further details or have any queries regarding the study please contact feel free to contact me on 07742 294897 or gk212@kent.ac.uk

Yours truly,

Graham Kingma

Commonwealth Scholar / PhD Student

Appendix H. Participant Information Sheet

Participant information sheet

School of Sport and Exercise Sciences
Medway Building
Chatham Maritime
Kent ME4 4AG



Name of researchers

Graham Kingma (Commonwealth Scholar)
Dr Carla Meijen (Supervisor)

Title of project

The Role of Mindfulness in Ego-Regulation and Psychological Momentum Experiences among Golfers

General information/ invitation to take part

We are asking you to help in a study that explores how golfers regulate their thoughts, feelings and behaviours when they experience a run of positive or negative momentum while playing golf. This research project has been reviewed and approved by the Research Ethics and Advisory Group (REAG) of the School of Sport and Exercise Sciences, University of Kent. Participation is completely voluntary and subject to you signing an informed consent agreement prior to the study.

Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask if there is anything that is not clear, or if you would like more information.

What is the purpose and background of the study?

Gaining momentum in a sporting event is regarded as a key element for positive performance outcomes among athletes and coaches. While there is abundant information about what events can trigger momentum runs or streaks among athletes, not much scientific evidence is available about how athletes facilitate this process themselves. In general, we are interested in how golfers regulate their thoughts, feelings and sensations during momentum runs. This particular study, which is part of an overall PhD project, has a specific aim to explore the role of mindfulness, as a psychological skill for regulating self-consciousness modes (psychological states) during positive or negative psychological momentum experiences of golfers.

Do I have to take part?

If you do decide to take part you will be given this information sheet to keep (and be asked to sign an informed consent form) and you can still withdraw at any time without giving a reason and you can ask not to have your data included in the data analysis.

What does the study involve?

As an interested participant you are required to provide preliminary informed consent for the initial selection procedure. This includes a short interview (about 20 minutes), completing a questionnaire about self-consciousness (about 10 minutes) and a driving range task (about 30 minutes). The driving range task entails hitting 25 shots where you try and hit a target 150 meters out as many times in a row as possible. After each shot you will be asked for a rating of how satisfied you are with the shot you have just hit. The actual result of the shot will also be recorded according to a scale. After the 25 shots you will be asked to make some comments in relation to the exercise.

If you are selected for the study and are interested in participating further your participation will entail the following: At the start of the process research participants will be requested to complete a mindfulness questionnaire (about 10 minutes) and participate in the driving range task two more times. Thereafter participants are requested to partake in a mindfulness meditation programme. This programme entails a 90 minute session once a week for four weeks (four sessions). During this time participants will be encouraged to practice mindfulness techniques (meditation mainly) for about 10 to 30 minutes per day. During the mindfulness programme participants will be asked to complete the driving range exercise nine more times (three times, bi-weekly over six weeks). About two weeks after the programme a follow up interview will take place during which the same questionnaires will be administered as per the start of the participants' involvement in the study.

Are there any benefits or risks for my participation in the study?

There is a growing amount of research in Sport and Exercise Science that suggests an enhanced capacity for mindfulness in athletes improves their performance levels. Participants in this research will receive a free training programme to enhance mindfulness. They will also be provided with golf balls for the driving range task at no cost. Therefore by participating in this research you have the chance of improving your standard of golf. There are no anticipated physical or emotional risks for the participants in this study. Nevertheless, the study will be conducted by an experienced practitioner and should any adverse effects arise from and during the study, appropriate steps will be taken to alleviate any concerns. Moreover, participants are free to withdraw unconditionally at any time of the study.

How long does it take?

Participation in this study is expected to last about three months from March/April 2014 to June/July 2014.

Where will my participation in this study take place?

The mindfulness programme sessions will take place at the University of Kent (exact location to be confirmed). The driving range activities will take place at your local driving range. Other interviews will take place at either of these two places.

Who can take part?

Male golfers over the age of 18 years can take part. Ideally the participants will have a single figure handicap, or be part of a team that competes at a local or provincial level, or play professionally. However only golfers with an official handicap of 12 or less can take part. Notably, the participants will often experience anxious feelings particularly in front of an audience or perhaps under pressure conditions.

What will we do with the information?

All the information collected will be analysed to see what psychological patterns, changes or processes occur in participants during the study. This data will be used in various study reports that include the PhD thesis and articles in academic journals.

Will I know the results of this study?

If you are interested in finding out more about the results of this project, you can leave your e-mail address with the researcher and we will send you an e-mail with the main findings of the project.

Will the information be confidential?

All data collected during the study and any personal information will be stored securely within School of Sport and Exercise Sciences premises in accordance with the Data Protection Act 1998 and the University's own data protection requirements. Moreover, any information will be stored electronically and be password protected by the researchers of this project (all hard copies of data / information will be destroyed). Anonymity will also be preserved by not reporting any identifying data of any participants. No data will be passed on to any third party.

Who can I contact regarding this research project?

If you're interested in participating, would like to have more information, or if you have specific questions, you can contact Graham Kingma on 07742 294897 or send an email to gk212@kent.ac.uk

Thank you for your time!

Appendix I. PMRS-G

Psychological Momentum Rating Scale for Golf

Subscales:

Self-Satisfaction Rating (SSR): Golfer's post shot subjective rating of his or her performance on the shot completed

Objective Performance Rating (OPR): The actual result of the shot in relation to a target (e.g. a pin on a green)

Instructions for 25 ball shot exercise

Note for researcher / research assistant: Please familiarize yourself with this scale before commencing any research exercise.

Arrange to meet the participant at the driving range at a convenient time. Inform the participant that he will be taking part in an exercise that requires him to hit golf shots to a target about 150 meters away. Request that the participant brings his own golf equipment that is relevant for the task as he or she sees fit. The driving range balls will be provided (paid for by the researcher). Prior to meeting, instruct the participant not to hit practice shots on the day of this exercise.

At the driving range read the following out loud to the participant?

You may have five minutes to warm up, which may include up to 5 practice shots. When you are ready you are required to try and hit the target green that is 150 yards out there (point to the green and confirm that the participant recognizes the target). You have 25 shots to try and hit that green as many times in a row as possible. If you miss the green it ends the run and the sequence will start at one again with your next shot. Keep going until you have hit all 25 shots regardless. You can go at your own pace. After each shot please indicate to me your satisfaction rating of the shot between one and five. One means you are least satisfied with the shot and five means you are most satisfied with your shot. Have I explained the exercise clearly or do you have any questions?

(Give the participant a chance to clarify anything and clarify any queries raised)

In the space below make a note of any queries or questions the participant raises.

Name:						Date:						Club Used					
Weather Rating:	Easy	1	2	3	4	5	6	7	8	9	10	Difficult					

Tick the relevant boxes below and jot down any significant comment in the space available

Please note: On the green Edge/Close to green Green missed by +/- > 5 y

	SSR 1	SSR 2	SSR 3	SSR 4	SSR 5	OPR 1	OPR 2	OPR 3	Comments
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

Objective Performance Rating (OPR): 1 = green hit; 2 = edge of green/close to green; 3 = green missed by +/- 5 yards or more.

Self-Regulation question

Ask the participant the following question and record the response in the space below:

During this exercise what did you do to try and hit the green as many times in a row as possible?

Scale Scores

Abbreviations: Psychological Momentum (PM); Momentum (M)

SSR Frequency: Positive PM – Sum of the sequences when 3 or more shots are rated 4-5; Negative PM - Sum of the sequences when 3 or more shots are rated 1-2.

Positive PM		Negative PM	
-------------	--	-------------	--

SSR Intensity: Positive PM – Average number of shots in positive momentum sequences; Negative PM – Average number of shots in negative momentum sequences.

Positive PM		Negative PM	
-------------	--	-------------	--

OPR Frequency: Positive M – Sum of the sequences when 3 or more shots are rated 1; Negative M – Sum of the sequences when 3 or more shots are rated 3.

Positive M		Negative M	
------------	--	------------	--

OPR Intensity: Positive M – Average number of shots in positive OPR Frequency sequence; Negative M - Average number of shots in negative OPR Frequency sequence.

Positive PM		Negative PM	
-------------	--	-------------	--

Appendix J. Mindfulness for Golf Program Manual

Mindfulness for Golf



Workshop Manual

NAME:	
DATE:	

Graham Kingma

Counselling Psychologist (South Africa)

Commonwealth Scholar

PhD Student, Psychology Department, Rhodes University, Grahamstown, South Africa

Commonwealth Split-Site PhD Scholar, School of Sport and Exercise Sciences, University of Kent, England

UK Contact Details

Email: gk212@kent.ac.uk

Cell: 07742294897

SA Contact Details

Email: grahamkingma@yahoo.co.za

Cell: +2782 454 2808



Mindfulness for Golf: Theme 1

Welcome to the Mindfulness for Golf program. It is a privilege to have you participate in this programme because I always learn so much from the people that have been part of my scholarly and career activities. I hope you will gain as much benefit from these workshops as I'm sure I will, and that your participation in this programme contributes positively towards your golfing experiences and perhaps your general well-being.

The Mindfulness for Golf Program consists of four workshops lasting 90 minutes. The workshops are scheduled once a week for the next four weeks and are designed to introduce some key psychological concepts that are not only related to daily life but that could enhance your golfing performance.

At each workshop you will be given a section of the Mindfulness for Golf program manual. Each workshop has a certain theme to it and the details of that theme will be provided in those manual documents. That said, this is the first theme that we will engage with today.

Theme One: Introducing Mindfulness for Golf

Aims of this theme:

1. Acquaint group members with each other and agree on group norms
2. Provide orientation and rationale for the workshops
3. Introduce the concept of mindfulness
4. Experience and discuss the nourishment meditation exercise
5. Discussion on key mental factors associated with golf and how mindfulness may relate to them
6. Experience and discuss the mindfulness breathing exercise
7. Body Scan Exercise and Discussion
8. Discussion of home based practice for the next week
9. Wrap-up summary and discussion concluding with the three-minute time-out breathing exercise

1. Acquaint group members with each other and agree on norms

Working in a group can be daunting for some people. To get the best out of group work we need to establish trust and the best way to do this is to show high regard and respect for ourselves and each other. While these are some of the characteristics that mindfulness tends to enhance in us we can start by establishing group norms such as confidentiality for personal and private matters. Please feel free to jot down the norms we agree on for our group.





Mindfulness for Golf: Theme 1

2. *Orientation and Rationale for the Workshops*

A workshop is a single, time limited unit of an educational program designed to teach or introduce to participants practical skills, techniques, or ideas which they can then use in their work, part time activities or life in general. The workshop method has been chosen for these purposes since it provides a way to create an intensive educational experience in a short amount of time. Workshops can be a great way to teach hands-on skills because it offers participants a chance to try out new methods in a safe situation. At the same time, feedback, from both the facilitator and co-participants or peers in the group provide an atmosphere for mutual understanding and support.

One of the key psychological concepts that the Mindfulness for Golf Program introduces is mindfulness itself. Moreover this program provides a brief but intensive practical introduction to mindfulness techniques, mainly meditation, tailored to golf. During the workshops we will engage with various mindfulness exercises that you are encouraged to engage with in your own time.

Research on mindfulness is growing extensively and there is a lot of excitement around the accumulating evidence for the benefits of mindfulness in many domains of life. You will be given various references to these studies as we progress with the workshops. Recent research evidence suggests that mindfulness is a valuable psychological skill that can be learned to enhance golfing performance. For example, Kaufman, Glass and Arnkoff (2009) conducted a study with 21 golfers in order to assess the Mindful Sport Performance Enhancement (MSPE) program for its effect on some important psychological skills for performance in golf. The golfers participated in MSPE, a four-week program, and not only were there significant positive changes among the golfers' reports on their psychological skills but they were able to increase their levels of state flow in games during the four weeks. Accordingly, the Mindfulness for Golf program draws heavily from the MSPE program but has more golf specific exercises incorporated into the program. It must be noted however, that like the MSPE most of the content draws on some of the prominent work on mindfulness in general, notably from Williams and Penman (2011), Kabat-Zinn (1990), Segal, Williams and Teasdale (2002). The references for their work are provided at the end of this manual.

A second key psychological concept that you will be introduced to is cognitive schemas. Part of my training as a psychologist in South Africa was in Schema Therapy (ST), which was originated by Jeffery Young (Young, Klosko, & Weishaar, 2003). I was fortunate enough to receive training in ST from Professor Dave Edwards who is a highly regarded Cognitive Psychologist and a prolific author in that field. Without going into great detail about ST, previous clients have reported that it is an "accessible" form of therapy that can be effective for dealing with many issues in life. After all, as a golfer myself, we face various issues on the golf course all the time. Golf is somewhat a metaphor of life, I think.

Of late there are more and more practitioners emerging that integrate mindfulness and ST. It seems fitting therefore for me to integrate and share some parts of ST in the Mindfulness for Golf program.

In sum, your participation in these workshops will provide you with an opportunity to learn some new techniques that are showing exciting results for enhancing golfing performance. You may then choose to integrate them into your own game or perhaps share with others that may benefit from your new knowledge. Moreover, by participating and providing feedback you are also contributing your experiences and expertise to scientific discovery which ultimately intends to enhance all of our lives.



Mindfulness for Golf: Theme 1

3. Introduction to Mindfulness

In the space below jot down how you understand the term mindfulness. If you have not heard the term before or don't really know, feel free to give your own creative idea of what you think it might be:



The notions of mindfulness can be traced back to the ancient teachings of Buddhism. Briefly, Buddha had the insight that patterns of mind that keep people trapped in emotional suffering are, fundamentally, the same patterns of mind that stand between all of us and the flowering of our potential for a more deeply satisfying way of being. From this insight Buddha developed a conceptual framework for a way of being that incorporated four noble truths.

The first noble truth is that there is *Dukkha*, a Pali word with no real adequate English translation. (Pali is one of the ancient Indian languages in which the Buddha's teachings were first recorded.) *Dukkha* is often translated as "inevitable suffering". There are various forms of *dukkha* but one of the most damaging aspects of *dukkha* is the tendency to identify with the varying and passing aspects of our experience, our moods, our feelings, our thoughts and so on, as things that belong to or are parts of some underlying independently existing enduring self. For the possibility of freedom from *dukkha* it is important to fully understand it, by getting to know it through acquaintance, directly, from the inside, from experience.

The second noble truth is described by the Pali word *Tanhā*, usually translated as craving or attachment to desire (The cause of Dukkha). It is this fatal combination of the unquenchability of the desire, such as the desire for sensual pleasures, or the desire to be or not to be a certain self, coupled with our unwillingness to simply let go of it that creates suffering. The essence Buddha's teaching in this regard can be summarized as: 'Nothing whatever should be grasped at or clung to as "me" or "mine" (Buddha).

The third noble truth tells us that the cessation of *dukkha* is possible, and it is to be realized through the cessation of craving.

The fourth noble truth consists of the Noble Eightfold Path - eight elements, each of which synergizes the other elements. One element is wise mindfulness.

In summary, there are three main strategies embedded in mindfulness meditation to facilitate change:

Strategy 1: Change what (content) the mind is processing and redirect attention to sensations or breathing for example (change the habitual pattern of immersing with past memories attached to thoughts). The idea is to cultivate a mental skill of intentionally redirecting attention from wandering thoughts.



Mindfulness for Golf: Theme 1

Strategy 2: Change how the mind processes. Leave the 'input' to the mind the same, but to change the configuration of processes, or 'shape' of the mind, through which that material is processed. Experience with curiosity and interest rather than immersed within or automatic aversion. This process intends to disrupt and transform habitual unhelpful configurations of processing.

Strategy 3: Change the view of what is being processed. This includes a process of letting go to identify personally with experience. In mindfulness we attend to feelings, thoughts and sensations as mental events in the field of awareness, rather than from them as aspects of our sense of subjective self. If we can see things clearly as they are, if we can let go of our tendency to identify personally with experience, then we remove a basic condition for the arising of the configurations that support *dukkha*.

For a detailed outline of this background to mindfulness please see Teasdale and Chaskalson (2011a; 2011b).



Some ways to further understand mindfulness are as follows:

The awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment (Kabat-Zinn, 2003, p. 145).

A flexible state of mind in which we are actively engaged in the present, noticing new things and sensitive to context (Langer, 2000, p. 220).

Mindfulness is therefore some kind of cognitive or mental processing that research has shown can be developed through meditation. Meditation therefore is the mental training tool to enhance our capacity for mindfulness. Mindfulness meditation is not an activity to for relaxation per se although a relaxed state can be the product of living mindfully. That said, mindfulness meditation is more like going to brain gym and at times can be quite frustrating and demanding. After all it is extremely difficult to change a habit or develop new habits for that matter.

Mindfulness meditation is a way of developing new habits, new neuronal pathways. On a positive note, neuroscience now provides evidence that this is possible throughout life: our brains are relatively plastic even with aging. Deeply entrenched cognitive patterns (habits) can be called cognitive schemas. These schemas are helpful in many ways because they reduce our effort for doing things such as driving a motor car. But schemas operate in clusters and some can be maladaptive for our efforts to succeed with some tasks. Some schemas can be so deeply entrenched from an early age that they perpetuate various patterns in important aspects of our lives such as social relationships. Mindfulness can help us become aware of these patterns and provide an alternative way for coping with or managing the powerful emotions that accompany schemas. In other words, to maintain or build positive schemas while finding ways to disrupt the plights of negative or maladaptive schemas.



Mindfulness for Golf: Theme 1

Can you think of some automatic schema patterns in your life? Examples may include activities like brushing your teeth or taking out the garbage or anything you consider as a mundane task. Please make a note of at least one because you may want to refer to it during your home based exercises over the next week.



4. *The Nourishment Meditation Exercise*

For this exercise you may want to set aside about five minutes of “quiet” space for yourself. In other words try and eliminate anything that may distract you such as a phone. For nourishment you could select some bite sized food that you enjoy like chocolate maybe or perhaps some healthy options such as dried fruit or nuts. Additionally you may want a pen and note pad to jot down some of your reactions. The idea is to expand your sensual appreciation in a mindful way of this food. As a guide you can follow the steps below allowing **at least** 30 seconds on each phase:

Pre-eating phase

During this phase your exploration of the food will use all your senses, sight, sound, touch and smell. Hold the food bit in the palm of your hand. Cast your attention on the food with utmost curiosity, as if it were the first time you have ever seen such a thing. What are some of the things that you would not normally notice? Does it weigh much? How many colours, shapes and shadows can you see? If you take the food between your fingers, explore the texture. What kind of temperature does it seem to hold? When you hold it up to your nose can you sense a scent? If there was no scent, perhaps you could take notice of that too. Sometimes there is no such thing where we expect there to be.

Eating phase

This phase now includes, among the previously used senses, your capacity of taste. Move the food towards your mouth taking note of what muscles are working. At what point does your mouth open? Is anything else going on? Increase your curiosity at this activity while you place the food on your tongue. Before you start to chew, take a few moments to experience the sensations that the food evokes on your tongue and other parts of your mouth. Examine the shape of the food with your tongue.

Having delayed the chewing for a reasonable time, start to bite down on the food. Pay curious attention to the reactions of your taste buds. Explore the texture with your teeth and take note of the places it goes in your mouth. Try and delay swallowing the food, perhaps making note of your intentions to swallow. Where does the intention to swallow come from? As you swallow try and sense everything as it moves to your stomach. Even after you have swallowed try and discover what is happening or how many times you may need to swallow. Did the food change temperature?



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Post-eating phase

It's now time to fully experience all the after effects of the process. Using all the senses once again to examine any after taste, tingling sensations, and automatic intentions such as wanting to reach for more and so on.

And finally, you may want to jot down anything that particularly stood out for you during this exercise below:



5. *Key mental skills for golf*

Having experienced a taster into mindfulness with the previous exercise, this part gives us some time to reflect on how mindfulness as a mental skill could relate to some of the key mental skills a golfer would usually want for enhanced performance. Use the space below to make notes if you want.



6. *Mindfulness Breathing Exercise*

The breath is commonly regarded among mindfulness teachers as a key object of focus. A breath of air is fundamental for our immediate living. Other nourishment such as food and water we can survive without for some days or perhaps weeks but not that long without air. While we have some voluntary control over our breathing it tends to occur naturally. This is a stark reminder that some things can go on without us having to control them. However, a focus on breathing grounds you in the present, the here and now it



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Provides an indicator of your feelings. For example, short breaths may indicate nervousness while long deep breaths suggest a calm. The breath is that constant presence to return to from a mind that has wandered somewhere past, somewhere future maybe as an escape from uncomfortable feelings. Notably though, deep controlled breathing has the capacity to reduce your stress levels.

The following exercise is a brief meditation exercise that can be used at any time when you have a spare three minutes. The full benefit of the exercise is usually experienced in some quiet, alone, comfortable space but once you are familiar with it you can take it anywhere with you. On the golf course there are usually many opportunities for you to meditate on-the-go. We will deal with on-the-go meditation techniques in more detail later on in the program.

For now, find a comfortable position for you to settle into. If you are sitting on a chair it may help to have your legs uncrossed and feet placed flat on the floor. Try and sit with an erect posture and head up facing straight ahead, without being stiff, perhaps with your back slightly away from a backrest. Remember if anything is not comfortable for you, rather assume a posture that is comfortable for you. It is not important to try and stick to the specifics but rather to engage with the spirit of the exercise. You may want to close your eyes but if not try and focus on a place down in front of your eyes. Find a restful place for your hands. If you are lying down or standing up try and find a comfortable position in which you could maintain attention and focus, a sense of being fully awake for each moment without feeling tense or stiff.

As you feel more settled into your posture gently bring your attention to your breath without trying to change its rhythm. All you need to do now is fully experience your breath, how it feels to breathe. Take note of sounds, temperatures, movements and sensations in your body. As your breath moves in and out open up your curiosity for where it goes and how it leaves. If you place your attention on your belly, notice how your belly rises as you breathe in and how it falls when you breathe out. Try not to control anything and just accept things the way they are. Perhaps notice the gaps between the cycles of breathing, between the ins and outs.

You may find that during this exercise your mind has wandered to another place. This is a point for insight, this is your capacity to notice that the mind wanders. That's what it does, a bit like a butterfly. There is no need for concern, just gently bring your mind back to focus on your breathing. Once again increasing your curiosity for each breath.

Sometimes it may be helpful to count your breaths as a way to keep your attention on breathing. If it takes you say five seconds to breathe in and out you will have about 36 breaths in three minutes. Sometimes you can be quietly counting in your mind only to discover moments later that you are no longer counting and you are immersed with some thought. That's ok. The point is it's an opportunity to take note and redirect your focus back to your breathing, without self-reproach but rather with curiosity, like what's this or what's that?


And finally, you may want to jot down anything that particularly stood out for you during the brief mindfulness breathing exercise below:



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7. *Body Scan Exercise and Discussion*

The mindfulness body scan meditation is a longer lasting meditation and can take anything from around ten to 45 minutes depending on your preferences and time you have available. The body scan meditation builds on the previous breathing awareness exercise to include a deliberate attention on your physiology and body. For today, we will do a 15 minute body scan meditation guided by the workshop facilitator. Once again, please use the space below to note anything you may want to discuss or refer back to after completing this exercise.



8. *Discussion of home based practice for the next week*

Before the next workshop I would like to encourage you to set aside some time, at least five of the next seven days, to practice some of the mindfulness exercises you have been introduced to today. As a suggestion, three of each exercise over the next week would be ideal. That is, three nourishment mindfulness exercises; three breathing awareness mindfulness meditations; and three body scan meditations. Additionally, I would like to refer back to a schema pattern you may have noted in section three above. For this I would suggest you developing your own mindfulness way of doing this usually “automatic” activity. It would be great if you could share with us next time how you developed this.

I have provided you each with a notebook for you to use as a journal for noting your daily meditation activities. This could be the date, what kind of meditation you did, for how long and perhaps anything that you want to make note of. It is entirely up to you what you want to write in these journals and how you want to use them.

Please note that if you would like someone to guide you through similar meditations to what we practiced today please visit the following website for the “chocolate mediation” and “three-minute breathing meditation” (Williams & Penman, 2011):

<http://franticworld.com/free-meditations-from-mindfulness/>

For a recording of a 45 minute Body-Scan Meditation (Siegel, 2009) please visit:

<http://www.mindfulness-solution.com/DownloadMeditations.html>

9. *Wrap-up summary and discussion*

As a group we can discuss how we would like to wrap up. A brief reflection on today’s workshop can be included and perhaps a three-minute breath meditation to close.



Mindfulness for Golf: Theme 1

References

- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, 10(2), 144-156.
- Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. New York: Dell Publishing.
- Kaufman, K. A., Glass, C. R., & Arnkoff, D. B. (2009). Evaluation of mindful sport performance enhancement (MSPE): A new approach to promote flow in athletes. *Journal of Clinical Sport Psychology*, 3(4), 334-356.
- Langer, E. J. (2000). Mindful learning. *Current Directions in Psychological Science*, 9(6), 220-223.
- Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York: The Guilford Press.
- Siegel, R. D. (2009). *The mindfulness solution: Everyday practices for everyday problems*. Guilford Press.
- Teasdale, J. D., & Chaskalson, M. (2011a). How does mindfulness transform suffering? I: The nature and origins of dukkha. *Contemporary Buddhism*, 12(01), 89-102.
- Teasdale, J. D., & Chaskalson, M. (2011b). How does mindfulness transform suffering? II: The transformation of dukkha. *Contemporary Buddhism*, 12(01), 103-124.
- Williams, M., & Penman, D. (2011). *Mindfulness: A practical guide to finding peace in a frantic world*. London: Piatkus.
- Young, J. E., Klosko, J. S., & Weishaar, M. E. (2003). *Schema therapy: A practitioner's guide*. Guilford Press.



Mindfulness for Golf: Theme 2

NAME:	
DATE:	

Welcome to theme two of the Mindfulness for Golf program.

Theme Two: Building Mindfulness Momentum

Aims of this theme:

1. Re-grouping phase and discussion of home-based work
2. Mindfulness of body and breath meditation exercise
3. Discussion of cognitive schemas and schema modes in relation to golf
4. Mindfulness of sounds and thoughts meditation exercise
5. Introduction to motion mindfulness
6. Discussion of home based practice for the next week
7. Wrap-up summary and discussion concluding with the three-minute time-out breathing exercise

1. *Re-grouping phase and discussion of home-based work*

For this part of the workshop we spend a few moments catching up with each other and sharing anything you would like to share from the past week, particularly in relation to your mindfulness work. While there is no obligation to share, it sometimes helps to voice any frustrations or difficulties with each other because often you will experience a sense of support. A sense that we all have similar experiences. But if not, it is an opportunity to develop compassion and empathy, two fundamental properties of mindfulness.



Any thoughts you would like to note?



Mindfulness for Golf: Theme 2

2. *Mindfulness of body and breath meditation exercise*

The mindfulness meditation exercise of body and breath is an extended meditation building on the breath awareness meditation from last week. This meditation is designed to ground you in the present and will last about ten minutes. To introduce you to this meditation either the facilitator or a pre-recorded soundtrack will guide you through it. While there are similarities between this exercise and the body-scan exercise this is a shorter meditation without using scanning imagery. Once again, please use the space below to note anything you may want to discuss or refer back to after completing this exercise.



3. *Discussion of cognitive schemas and schema modes in relation to golf*

I am yet to meet a golfer that is not baffled by or has not expressed a frustration for his or her day to day fluctuations in golfing performance. It usually goes something like this:

“The other day I came out here and everything went right. I felt in control and I could see the lines on the greens and make good judgements on club selection. It was great; there was no effort at all and I remained calm throughout. Needless to say, I had an excellent score and my handicap will probably suffer. Today however, I cannot believe how out of control I feel. Nothing is going right. I feel like I’m focussing and making an effort to apply all my golfing skills. In fact I’m using the same swing thoughts as I did the other day. I seem to be making bad decisions, I feel frustrated and my score is so much worse. How is it possible that it can be so different?”

Of course there are so many variables to take into consideration when trying to understand a change in our golfing performance. One obvious example is that golf courses vary in difficulty not only between courses but with the same golf course from day-to-day. Golf courses are seldom the same, they are mostly living entities that also have “moods”. They can also be changed by the green-keeping staff or management so that we play off different tee positions to different pin locations on the green. I’m sure that an entire book chapter can be dedicated to how a golf course changes over relatively short space of time. Additionally, the weather plays a significant factor on the playability of the course. Some people argue convincingly that the weather influences our own moods and this can have a profound effect on our functioning on tasks. However, a debate on how the weather and other celestial bodies influence us is beyond the scope of our workshop. What about luck? That seems to change from day-to-day too. I’m sure you are able to fathom many more reasons for a change in your golfing performances.



Mindfulness for Golf: Theme 2

Few, if any golfers will deny that our *state of mind* plays a large influence on our golfing performances. There is certainly enough research evidence to indicate that our motivation levels, attitude, attributions and various other psychological factors have a role to play in a golfer's game. However, I would like to focus on the notion of *inner peace*. But particularly the view that mental events and associated feelings from a negative state of mind tend to upset inner peace and disrupt a golfing experience accordingly. One theory that sheds light on this notion comes from cognitive psychology: cognitive schemas, as introduced in the previous workshop. To refresh, I referred to schemas as deeply entrenched cognitive patterns (habits) that can be helpful in many ways because they reduce our effort for doing things such as driving a motor car. More specifically, Jeffery Young and his colleagues propose that cognitive schemas are significant for our perception and explanation of reality and experiences. Hence they provide us with cognitive stability while influencing our reactions to ongoing events.

Schemas that we develop therefore seem highly functional for our daily lives. However, not all schemas are functional, they can be positive or negative, adaptive or maladaptive, and may be formed early or later in life. As mentioned previously, negative or maladaptive schemas can disrupt our efforts to succeed in tasks and in important aspects of our lives such as social relationships. Jeffery Young called these Early Maladaptive Schemas (EMS). Of particular importance are the schemas that relate to our self-identity called self-schemas. From early in our lives there are people, such as parents, caregivers and mentors that have a significant role in shaping these schemas. We don't have a single self-schema, we have a host of them and certain schemas are activated in different situations. This is somewhat like having multiple selves. We can be quite different from one context to another.

Various EMS's have been identified however an in-depth discussion on the various labels and categories of schemas is beyond the scope of this workshop. However, an example could be something like a failure schema; a person with a failure schema will have a deep seated belief that he or she will inevitably fail in all spheres of achievement and will sense feelings of inadequacy in relation to others. Another example could be the insufficient self-control or self-discipline schema that usually accompanies people with the inability to behave in a controlled way and who have a low frustration tolerance to pursue personal goals. Now these are quite extreme examples and we don't all have these schemas but we can have bits of them and they can be triggered with some aspects of our golf game.

Moreover, schemas tend to operate in clusters and different clusters can prompt a different mode depending which schema is prominent at a given time. As different schemas are triggered during the course of time depending on what events come to pass, a person will flip from one mode to the next. The mode will have certain characteristics which can usually be quite easily described by using similes, for example "he is behaving like an angry child" (the angry child mode). This often indicates that a schema has been triggered and a mode has emerged almost like a coping mechanism to deal with the uncomfortable feelings associated with the disruptive schema. For golf, it would be important to identify which mode is in operation and is it facilitating or disrupting your desired performance?

Can you think of any schemas that may be triggered when you play a round of golf?

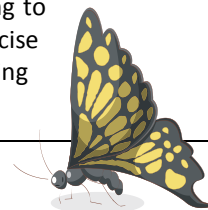




Mindfulness for Golf: Theme 2

4. *Mindfulness of sounds and thoughts meditation exercise*

The mindfulness of sounds and thoughts meditation exercise further builds on the breath awareness meditation and body and breathing meditation exercise that we did earlier in this session. This meditation is designed to familiarise you with the way thoughts and sounds enter your sensual awareness realm. The meditation guidance provided in this exercise will help to facilitate a new way of relating to your thoughts and other sensations from your surroundings. It is also a relatively short exercise lasting around ten minutes. Once again, please use the space below to note anything you may want to discuss or refer back to after completing this exercise.



5. *Introduction to motion mindfulness*

We have arrived now at a place where we can start to integrate mindfulness into action, in this case our golf swing. This exercise will be done outside on the driving range for about 20 minutes. I suggest you bring along a mid-iron, like a six or seven iron. If you don't have that available any club will do. We won't be hitting any balls in this exercise, but rather we will experience mindful golf club movement. The facilitator will guide you through this exercise. As usual there is a space for you to make notes provided below.





Mindfulness for Golf: Theme 2

6. *Discussion of home based practice for the next week*

As mentioned last week I would like to encourage you to set aside some time, at least five of the next seven days, to practice some of the mindfulness exercises you have been introduced to so far. As a suggestion, at least two of the following: nourishment mindfulness exercise; brief breathing awareness meditation; body scan meditation; breath and body meditation; sound and thought meditation; and the golf swing motion mindfulness exercise. You could also build on the mindfulness way of doing your “automatic” activity (schema pattern) that we talked about last week. Once again we will open our workshop next week with a discussion on our mindfulness experiences.

Please note that if you would like someone to guide you through similar meditations to what we practiced today please visit the following websites for some options:

<http://franticworld.com/free-meditations-from-mindfulness/>

<http://www.mindfulness-solution.com/DownloadMeditations.html>

7. *Wrap-up summary and discussion*

Brief reflection on today’s workshop coupled with three-minute breath meditation to close.



Mindfulness for Golf: Theme 3

NAME:	
DATE:	

Welcome to theme three of the Mindfulness for Golf program.

Theme Three: Consolidating Mindfulness

Aims of this theme:

1. Re-grouping phase and discussion of home-based work
2. Sitting meditation and discussion
3. Reflection on cognitive schemas and schema modes: consolidating mindfulness and schemas
4. Motion mindfulness exercises on the driving range
5. Discussion of home based practice for the next week
6. Wrap-up summary and discussion concluding with the three-minute time-out breathing exercise

1. *Re-grouping phase and discussion of home-based work*

As usual we start with a few moments of catching up with each other and sharing anything you would like to share from the past week, particularly in relation to your mindfulness work.



Any thoughts you would like to note?



Mindfulness for Golf: Theme 3

2. *Sitting meditation and discussion*

The sitting meditation and discussion will last around 30 minutes. This practice is a consolidation of all we have learned so far, allowing you to creatively integrate whatever aspects you find beneficial to your meditation practice. We will start with a briefing but the meditation will be done without any guidance. On completion of the meditation we can share or note our thoughts, comments or insights from this practice.



3. *Reflection on cognitive schemas and schema modes: consolidating mindfulness and schemas*

In our previous workshop we discussed the concepts of cognitive schemas and schema modes. In this part of the workshop we will spend some time discussing the practice of using mindfulness to identify and work with those schemas that may disrupt your golfing performances. During the discussion I will talk about the usefulness of mindfulness with respect to important factors relating to changing schema patterns namely: identifying schemas or schema modes; re-parenting using compassion; and integrating prompts for change in day-to-day life.

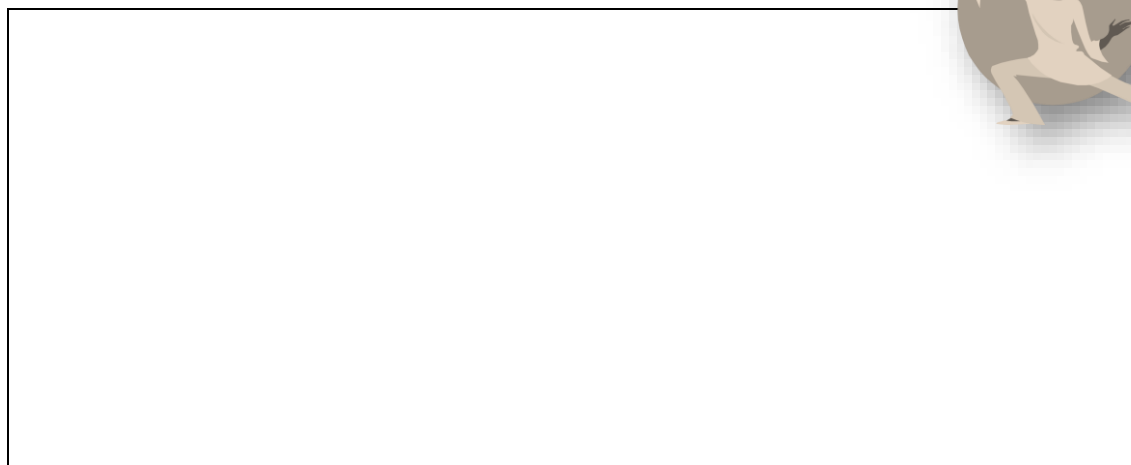




Mindfulness for Golf: Theme 3

4. *Motion Mindfulness exercises on the driving range*

For this part of today's workshop we will re-group on the driving range and build on our previous session of motion mindfulness.



5. *Discussion of home based practice for the next week*

Once again I would like to encourage you to set aside some time, at least five of the next seven days, to practice some of the mindfulness exercises you have been introduced to so far. At this point you may want to select from the various exercises you have been introduced to, a schedule for your own practice. This can be discussed as a group.

6. *Wrap-up summary and discussion*

Brief reflection on today's workshop coupled with three-minute breath meditation to close.



Mindfulness for Golf: Theme 4

NAME:	
DATE:	

Welcome to theme four of the Mindfulness for Golf program.

Theme Four: Reflecting on your Foundation for Mindful Golf

Aims of this theme:

1. Re-grouping and discussion of home-based work
2. Group meditation and discussion
3. Extended Motion Mindfulness exercises on the driving range and discussion
4. Wrap-up three-minute breathing meditation
5. Workshop reflections and discussion for continued practice
6. Program conclusion

1. *Re-grouping phase and discussion of home-based work*

As usual we start with a few moments of catching up with each other and sharing anything you would like to share from the past week, particularly in relation to your mindfulness work.



Any thoughts you would like to note?



Mindfulness for Golf: Theme 4

2. Group Meditation and Discussion

For today, we will spend about 20 minutes on a mediation exercise. The format of exercise can be decided upon by the group.

this

Any thoughts you would like to note?



3. Extended Motion Mindfulness exercises on the driving range and discussion

In this exercise we will spend some more time integrating mindfulness into your golf game. This is a flexible exercise in that you can direct how and what you would like to focus on. As usual there is a space for you to make notes provided below.



4. Wrap-up three-minute breathing meditation

As a precursor to the conclusion of the program we can resume with the three-minute breathing meditation.



Mindfulness for Golf: Theme 4

5. *Workshop reflections and discussion for continued practice*

The mindfulness for golf program has introduced you some fundamental meditation exercises for developing mindfulness as a cognitive function. These exercises are based on some of the thoughts and guidance of a few influential thinkers. For example, one of the most famous philosophical quotes, attributed to Socrates, was “an unexamined life is not worth living”. Similarly, as Buddha lay dying next to his closest disciple Ananda, his guidance was: “Be a light unto yourself”. While these ideas have been around for a long time there is renewed interest in the gains that can be experienced from using some of the practices for enhancing your life in general, namely mindfulness meditation. More specifically these gains are being recognised more and more in clinical populations, particularly in addressing anxiety and depression. However, the gains have also been recognised for enhancing performance in sport. Nevertheless, more research is always necessary to fully understand all the processes involved in this.

Many other programs and books involving mindfulness meditation advocate a dedication towards meditation practice and usually they provide guidance over eight weeks as an introduction. That is for you to decide on how much introductory guidance you require. I believe part of being mindful is the capacity to creatively develop your own practice by incorporating what you think works for you and discarding what doesn't. This I will leave for you to discuss at this point or to report back in the program feedback documents which I will provide.

6. *Program conclusion*

This philosophy embraced in this program encourages people to find out what is true for themselves rather than blindly accepting an authority's words. That said, on this view you can find it within yourself to accept or reject what you have learned about or experienced with respect to mindfulness and paradoxically you will be making a mindful decision.

You have kindly given up your valuable time to contribute towards scientific knowledge. I am most grateful for this and feel privileged to be part of your contribution.

Thank you again.

Wishing you every bit of golfing happiness.

Graham

Appendix K. MFG Program Evaluation

The following table indicates the number of participants that gave a respective rating for the various aspects of the MFG program.

Content	Excellent	Good	Needs Improvement
Covered useful material	4	1	
Practical to my needs and interests	3	2	
Well organised	2	3	
Presented at the right level	4	1	
Effective activities	2	2	1
Useful visual aids and hand-outs	2	3	
Instructor's Presentation Skills	Excellent	Good	Needs Improvement
knowledge	5		
Style	5		
Covered material clearly	5		
Responded well to questions	5		

In response to the question “how could this program be improved?” the participants replied:

- Simply by us, the participants, having more time to do the required exercises
- Each session probably needs to be longer - or more sessions with less to cover each week is required
- Possibly extend the session to allow for time to chat & maybe work on timekeeping so we can fit in all activities. Alternatively, take out some of the activities to keep the session length as it is

In response to the question “any other comments or suggestions?” the participants replied:

- Great value to me personally in recalling past training & something with great potential in golf and life in general
- More structured golf "target" trials. Weather / wind has a significant impact on results probably
- Having read the first part of the Williams book, I wonder if supplying chapter 1-3 prior to the workshops may have given me a better understanding prior to the first workshop
- Easy during discussions to get off the subject
- As discussed, slightly longer between sessions, however I realise this would be asking for 16 weeks commitment

Overall, three of the participants rated the training as excellent, one rated it as good and the other participant ticked between the excellent and good boxes.