The Self-Regulatory and Task-Specific Strategies of Elite-Level Amateur Golfers in Tournament Preparation

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Abstract

Little is known regarding the factors that are important for tournament preparation in golf. Eighteen elite amateur golfers and 12 expert coaches/practitioners were interviewed to identify the self-regulatory and task-specific strategies important for tournament preparation. Thematic analysis revealed four themes: (a) understanding tournament preparation; (b) planning; (c) tournament preparation strategies; and, (d) self-reflection. Players used specific strategies to optimise their physiological and psychological state, develop course strategy, and structure and implement preparatory routines. The findings of this study have implications for coaches and players in developing a system for preparation and could provide a framework to improve coaching curricula and guide further research.

Keywords: tournament preparation, self-regulation, golf, sport psychology, coaching

Golf tournaments occur over a period of days and comprise a series of rounds. Each round involves the golfer playing 18-holes in as few shots as possible. Golfers have the opportunity for preparation in the days preceding a tournament (pre-tournament preparation) and period before and after each round (within-tournament preparation). A substantial body of work has examined the components of successful shot preparation and execution within a round (Cohn, 1991; Cotterill, Sanders, & Collins, 2010; Nicholls, 2007). However, few studies have been dedicated to the identification of cognitive and behavioural factors that are important for pre- and within-tournament preparation. Of what limited research exists, Pilgrim, Robertson and Kremer (Pilgrim, Robertson, & Kremer, 2016) showed that amateur golfers use practice rounds before competition to chart each hole and plan the sequence of shots that will result in the lowest score. Additionally, McCaffrey and Orlick (McCaffrey & Orlick, 1989) found that professionals use specific warm-up programs and take shots on the putting green and practice range before rounds, as well as practice components of their game between rounds. However, it is presently unknown (a) how these and other activities are integrated to establish preparatory routines; (b) whether the activities used by professionals are reflected by amateur-level golfers; and, (c) which interpersonal qualities or skills are beneficial in the implementation of such routines.

McCaffrey and Orlick (McCaffrey & Orlick, 1989) interviewed club and tour professionals to explore the mental readiness and preparation strategies related to excellence in golf. Common strategies used by these players included: (a) setting practice goals, and daily/weekly tournament goals; (b) developing plans for practice and shot-making, and time schedules for preparation; (c) using focus plans to control thought processes; and, (d) evaluating performance to guide further efforts. The strategies reported reflect many of the qualities of self-regulation, which refers to the self-generated processes that are orientated toward achieving

goals (Schunk & Zimmerman, 2003). Self-regulated athletes proactively approach activities, meaning they show personal initiative and perseverance (Zimmerman, 2006). Thus, self-regulation is particularly relevant in individual sports such as golf, in which many hours are spent in training and competition (Anshel, 1995; Elferink-Gemser, Visscher, & Lemmink, 2008).

For the purpose of this study, we used Zimmerman's definition in which self-regulation is the degree to which athletes are metacognitively, motivationally, and behaviourally involved in their own learning or performance (Zimmerman, 1986, 2006). Specifically, we focused on metacognition, which is the awareness of one's own thinking, and consists of planning, self-monitoring, and reflection (Ertmer & Newby, 1996; Zimmerman, 2002). Before beginning a task, self-regulated athletes set specific goals and develop plans for how to achieve these goals using task-specific strategies (Ertmer & Newby, 1996; Kitsantas & Zimmerman, 2002). During the execution of their plan, these athletes use their strategies and periodically monitor the effectiveness of each strategy relative to their goals (Ertmer & Newby, 1996). After completing the task, self-regulated athletes reflect, and evaluate the success of the plan, and then use feedback to adapt their performance in a systematic way (Ertmer & Newby, 1996; Kitsantas & Zimmerman, 2002).

The cycle of self-regulation can be applied to the execution of a skill, an individual practice session, or even an entire competition. For example, in tournament golf, an important goal is to develop a course strategy that will provide the highest potential for success (Ericsson, 2001). To pursue this goal the golfer can use a practice round to learn the course, and then use this information to develop a strategy for shot-making and club selection (Pilgrim et al., 2016). The effectiveness of this strategy can then be monitored during each round, and if required, adjustments made based on the prevailing conditions (e.g., wind speed, precipitation). After the

tournament, the golfer can evaluate his or her plan, and record information to guide future preparation.

Golf coaching at an amateur level (excluding high-performance programs) is predominately focused on the technical analysis and refinement of golfers' swing patterns (Smith, Roberts, Wallace, & Forrester, 2012). Whereas less attention is given to other components of performance, such as tournament preparation, that could be important to scoring success. To develop more comprehensive learning environments, it is essential to develop a better understanding of the current practice of tournament preparation in elite amateur golf.

The planning, self-monitoring, and reflection, as well as the task-specific strategies used by golfers in pre- and within-tournament preparation, remain unclear. There is also limited understanding of how routines for preparation are structured and developed. Therefore, the aim of this study was to identify the self-regulatory (metacognitive) and task-specific strategies used by elite amateur golfers before and during a tournament. A second aim was to determine how behaviours are integrated to develop preparatory routines.

Method

Participants

Purposeful sampling was used to recruit 18 players (14 males, four females; age range = 16-23; mean age (years) = 18.9; mean years of playing = 10.2; handicap index range = zero to plus five) and 12 expert coaches and practitioners (11 males, one female; age range = 33-60; mean age = 42.8; mean years of coaching = 14.9). Inclusion criterion for the players required that participants were either (a) a current member of an Australian Amateur National Squad (Tier one-two); or, (b) a current member of an Australian state high-performance program; and, (c) 15

years of age or older. Inclusion criterion for the coaches and practitioners was a current or previous working relationship with either of the player groups described above. This sample included eight coaches (four national and four state level) as well as four practitioners – individuals who coach or work with elite players by providing a specific service (i.e., sports science director, high-performance director, high-performance manager, sport psychologist).

Interview guide. Separate interview guides were used to elicit information from players and coaches/practitioners. Each guide was structured according to Rubin and Rubin's (Rubin & Rubin, 2011) guidelines for qualitative interviews. First, the 23 topic questions initiated and guided the conversation. Second, probe questions were used to explore aspects of the participants' experience that arose during the interview. Third, follow-up questions were delivered to investigate new topics that emerged in the interview process (Côté, 1999; Rubin & Rubin, 2011). The guides were piloted with three non-elite players to determine the appropriateness of the content topics, questions, and interview sequence.

Procedure

Each player and coach/practitioner was interviewed once. Eight face-to-face interviews were performed with players at the Peninsula Country Golf Club in Frankston, Victoria, during a Golf Australia camp (April, 2016). Ten voice-over-Internet protocol interviews were also undertaken with players (May-July, 2016) using the instant messaging client Skype (Skype Technologies S.A.R.L). Four face-to-face interviews and eight phone interviews were conducted with coaches/practitioners (May-June, 2016). For the face-to-face interviews, locations included the Golf Australia offices (Melbourne, Victoria) and participants' places of employment. The interviews lasted an average of 30 minutes and were performed by the first author. Many of the coach/practitioner interviews were longer in duration, however this was balanced by the shorter

duration of the player interviews. Elite athletes, particularly in golf, are a difficult population to access due to their training schedules and travel demands. For this study, the most convenient time to conduct interviews was during national or state development camps. In such settings, there were substantial time constraints and the need to balance the schedules of the participants with the needs of the research.

Informed consent was obtained from all participants. The Victoria University Human Ethics Committee provided approval for the study. With permission, interviews were audiotaped, and following each interview recordings were transcribed verbatim. During transcription, all identifying information was removed and participants were assigned a pseudonym to preserve anonymity (Dearnley, 2005). Players and coaches/practitioners were indicated by the code "P" and "C", respectively, followed by their gender and identification number (Dearnley, 2005).

Data reduction and analysis

Thematic analysis, a method of identifying, analysing, and reporting themes within data was used to analyse the interview transcripts (Braun & Clarke, 2006). First, the researcher read each of the transcripts, data was then analysed via the coding of individual data extracts (Boyatzis, 1998). The NVivo 10 analysis software (Qualitative Research Solutions International QSR; 2012) was used for the management and storage of textual data. This software enabled the first author to associated codes or labels with congruent sections of text (Braun & Clarke, 2006; Bringer, Johnston, & Brackenridge, 2004). Coded data were reviewed to identify areas of similarity between codes, and to sort codes into potential themes. The themes constructed were reviewed in relation to the coded data and the data set (Braun & Clarke, 2006). Trustworthiness checks, such as bracketing, audit trails, and triangulation, were used to enhance validity (Lincoln & Guba, 1985). Bracketing involved the recording of analytic memos to help "bracket" personal

experiences and biases (Cotterill, Sanders, & Collins, 2010; Nicholls, Holt, & Polman, 2005).

Audit and log trails were also maintained using time and date stamps. The use of multiple data

sources and stakeholders in golf (i.e., players, coaches/practitioners) allowed triangulation of

data sources by comparing the experiences of individuals from different viewpoints (Patton,

1990).

Results and Discussion

Four themes emerged from the analysis; these are presented in Table 1. Several sub-themes that

further explore different aspects of these central themes were also identified.

Table 1

Summary of themes and sub-themes reported by players and coaches/practitioners

Themes	Sub-themes
Understanding tournament preparation	Defining tournament preparation and its influence on performance The structure of competition and tournament preparation in golf
Planning	Goal setting Developing a plan for preparation
Tournament preparation strategies	Strategies to optimise the player's condition Strategies to increase the player's knowledge of the course Self-monitoring strategies
Self-reflection	Post-round reflection Post-tournament reflection

Understanding Tournament Preparation

This theme reflected the conceptual understanding of tournament preparation in golf. In particular, the defining components, perceived influence on performance, and structure of tournament preparation were discussed. This theme contained two sub-themes: "defining tournament preparation and its influence on performance" and "the structure of competition and tournament preparation in golf".

Defining tournament preparation and its influence on performance. Participants' responses provided considerable information regarding the specific terminology and components of tournament preparation in golf. Participant *CF001* illustrated these defining characteristics particularly well: "the mental and behavioural elements, and strategies, that best prepare the player to complete (CF001)." Tournament preparation required the contribution of physical, technical, psychological, and tactical factors. This is consistent with previous studies that have indicated the multidisciplinary nature of performance in golf (Doan, Newton, Kwon, & Kraemer, 2006; Farrally et al., 2003). All participants agreed that players' tournament preparation could meaningfully influence scoring: "to me it's the most important thing, if you don't prepare well, you don't really know how you're going to play (PM009)." It was reported that effective preparation increases players' self-confidence, thereby improving his or her ability to perform in competition. This finding is in agreement with previous research positing a positive relationship between confidence and general sports performance (Bandura, 1997), as well as performance in golf (Cohn, 1991; Douglas & Fox, 2002).

The structure of tournament preparation and competition in golf. According to the coaches/practitioners interviewed, players' training and competition was best conceptualised as a

cyclic model, represented by three phases: (a) a preparation phase, (b) a pre-competition phase, and, (c) a competition phase, with a transitional rest period between each cycle (see Figure 1).
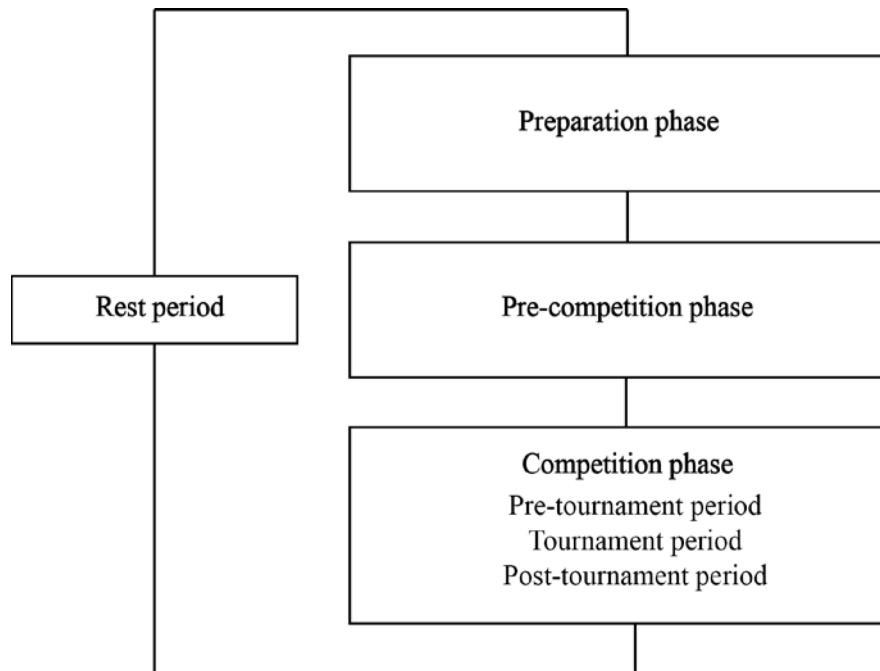

Figure 1. Model depicting: (1) the three cyclic phases of competition in elite-level golf; (2) the transitional period of rest between each complete cycle; and (3) the three progressive periods of the competition phase.

The length of each phase was different for each player, relative to his or her individual schedule. It was explained that if players were required to participate in several tournaments in succession, they could remain in the competition phase for an extended period. Two different functions of the preparation phase emerged. First, it was used to develop players' general athletic abilities, such as strength, power, and mobility. Second, it was considered the ideal period to refine or develop players' swing technique. The pre-competition phase was defined by a

reduction in the intensity of players' strength and conditioning, and an emphasis on improving

players' ability to perform in competition using scoring and simulation games. The final phase,

competition, consisted of players' tournament-specific preparation and performance. The

competition phase was characterised by three separate periods: (a) the pre-tournament period

(one week before the tournament until the first round of competition), (b) the tournament period

(the first until the last round of competition), and, (c) the post-tournament period (the last round

of competition until the start of the next cycle). Following the competition phase, players – with

the support of their coach – used a period of rest between each cycle to plan and structure

interventions for the next cycle.

Planning

        This theme describes the motives underlying players' tournament preparation and the

procedures used by players to establish a plan for their preparation. Two sub-themes were

identified, "goal-setting" and "developing a plan for preparation".

        Goal setting. Players and coaches/practitioners indicated that two different types of goals

are used in tournament preparation. Outcome or "scoring goals", were described as those relating

to the desired tournament result or outcome (i.e., score or ranking). Process goals were those

used by players to guide preparation in order to achieve a specific outcome. Outcome goals were

described by the players and coaches/practitioners in this study, but were not used by players.

Further, several players reported that they refrain from setting any types of goals; rather they

were "guided" by an understanding of what they need to do to be prepared. Two essential process

goals emerged that gave purpose to and guided players' behaviour in tournament preparation.

The first, was to optimise and maintain players' physiological and psychological state. The

second, to increase players' knowledge of the course (e.g., grass types, course conditions). This

helped the players to become more comfortable with the tournament course: "tournament preparation represents where you as a player become very comfortable with where you're playing ... every week you travel somewhere different, so making that place your home club (PM005)."

Developing a plan for preparation. Players and coaches/practitioners acknowledged that most players have a preferred sequence or plan for their preparation. This structure was different for each player and based on individual preference. Of particular interest was the relatively haphazard method of organising preparation described by the players in this study. Most players had an awareness of what strategies were important for them, but did not follow a systematic process by which to implement these strategies. Rather, these players reported an ad hoc style of preparation, in which behaviour was guided and adjusted by a personal assessment or "feeling". Despite this style of planning, coaches and players highlighted the importance of players being able to adapt their preparation based on the condition of the tournament venue:

> I think in a perfect world there is some structure to preparation... but there also has to be flexibility, because sometimes you've got a perfect plan and you can't achieve it, that causes stress, so structure? Yes, but rigid? No. (CM001).

Five central factors were reported to influence the planning and implementation of preparation strategies, these included: (a) the weather or climate of the venue; (b) the player's degree of access to the course; (c) the availability and quality of practice facilities; (d) the travel situation (i.e., individual versus group or team); and, (e) the player's level of experience or familiarity with the course. The climate of the venue was related to differences in players' pre-round routine or warm-up, such as players giving more emphasis to physically warming up in colder conditions. It was reported that course access could be limited due to either organised

competition (i.e., "pro-am" event) or unforeseen circumstances (i.e., inclement weather) that could impede and interrupt preparation. The quality and layout of practice facilities (i.e., practice range) were reported to vary considerably depending on the type (i.e., amateur versus professional) of tournament, and size of the venue: "most of the time the player can't complete their ideal warm-up... there is no bunker, or you can't practice pitching off the grass, that's where the flexibility and adaptability comes in (CM008)."

It was explained by players and coaches/practitioners that amateur-level players often travel as part of a group or team and in this situation, it was necessary to balance the needs of the individual with those of the group. Greater levels of experience with the tournament course was associated with players' spending less time on strategies to increase their course knowledge (i.e., course mapping), and more time practicing shot-types or skills that were important for the course.

Tournament preparation strategies

All participant groups discussed the different task-specific strategies used by players in tournament preparation. These strategies were used to either: (a) optimise players' physiological or psychological condition, or, (b) increase players' knowledge and understanding of the course.

Strategies to optimise the player's condition. Players and coaches/practitioners indicated that players use six preparation strategies to support an optimal performance state. These included: (a) travel management; (b) hydration and nutrition planning; (c) recovery protocols; (d) attentional regulation; (e) technical or "shot practice"; and, (f) mental and physical preparation. Coaches/practitioners indicated that it is important for players to structure their sleeping patterns for the in-flight and post-flight period to reduce jet lag and disturbances to sleeping patterns. Further, players and coaches/practitioners explained that players should

prepare balanced meals for travel and the tournament in order to optimise energy levels and promote recovery. Suitable hydration protocols for travel and the within-tournament period were also encouraged.

Players and coaches/practitioners reported that long-haul travel and successive rounds of golf, could result in fatigue and predispose players to injury. To manage fatigue, the use of individualised recovery programs were described, involving a combination of stretching, cold-water immersion (e.g., ice bath), contrast therapy (e.g., hot and cold shower), and self-massage (e.g., foam rolling). The ability to monitor and regulate attention to meet situational requirements was considered essential for players to preserve mental energy. An important issue relating to attention was when to switch on and off, as highlighted by one coach:

> I try to get the players to learn how to switch on, switch off…. We don't want the player to switch on when they wake up, we're trying to keep them calm and relaxed, and then having the ability to switch on and off relative to the phase of their warm-up, onto the first tee, and switch off after their round. (CM003).

To optimise their pre-round condition, players described the use of preparation strategies; these included static stretching, self-massage, and dynamic mobility exercise. Again, the relative duration and content of these routines were different for each player. These findings are consistent with views that dynamic warm-ups increase club head speed, driving distance, and ball striking consistency (Fradkin, Sherman, & Finch, 2004), but contradict findings from other studies that suggest the avoidance of pre-round static stretching (Gergley, 2009; Moran, McGrath, Marshall, & Wallace, 2009). The coaches/practitioners in this study considered mental preparation an essential component of players' pre-round preparation. In particular, it was

suggested that players should use a variety of mental techniques to manage non-facilitative stress

and anxiety:

> They need to understand what the helpful cognitions are that they need to engage in and
>
> have a plan for re-setting and cueing for that to occur … it's like a tool-kit… rather than
>
> just one or two strategies… driven by having a healthy self-awareness. (CF001).
>
> This is in agreement with previous studies that highlight the importance of mental

preparation before a sports performance (McCaffrey & Orlick, 1989; Orlick & Partington, 1988).

Despite the coach's/practitioner's perspective, none of the players described the use of any

mental preparation strategies before a round. However, players were aware of the benefits of

these types of strategies and reported a desire to implement them in the future.

This was an unexpected finding, particularly given the widely publicized use of sport

psychology services (SPS) by professional golfers. When interpreting this finding, it is important

to recognize the profound differences in income scales between elite amateur and professional

golfers – tour professionals have the potential to earn considerable sums of money, whereas

amateurs survive on small incomes because they're not permitted to accept cash prizes or other

sources of remuneration. If income for these groups were comparable, it's likely the use of SPS

and more broadly – mental preparation strategies – would also be comparable. Due to amateurs'

limited capacity for self-funding, these players often depend on the support of governing bodies

(e.g., Golf Australia) for access to Sports Science and Sports Medicine (SS/SM) services. For

example, state high-performance (HP) programs in Australia (e.g., Golf Queensland) provide

players with access to SS/SM services as part of periodic team practice or during state

development camps. However, unlike other SS/SM services (e.g., technical coaching,

physiotherapy) that are often part of an ongoing development or monitoring program, SPS is

typically restricted to sporadic group education sessions. This ad hoc approach provides general

information about mental skills training, but few opportunities for ongoing skill development

(De Petrillo, Kaufman, Glass, & Arnkoff, 2009; Gilbert, Moore-Reed, & Clifton, 2017). There

are also limited opportunities for the practitioner to conduct formal needs assessments and to

observe players in different performance contexts (i.e., practice, competition) to guide

appropriate content delivery (Visek, Harris, & Blom, 2009). Previous work in collegiate sports

(e.g., basketball, baseball etc.) has reported similar practices, with coaches using sport

psychology as a type of "special event" for team practice (Zakrajsek, Steinfeldt, Bodey, Martin,

& Zizzi, 2013). Players included in HP programs are also generally allocated a personal SS/SM

budget that can be used to fund additional service provision. Such funding is self-prioritized by

players, usually to cover the costs of sports science (i.e., biomechanical swing analysis) and

injury management (i.e., physiotherapy) services (B. James, personal communication, November

14, 2017). This often results in limited (or no) residual funding available for SPS. Therefore, the

lack of mental preparation reported by players in this study could be due to (a) the financial

situation of elite amateur players; (b) the structure of SPS delivery in HP programs; and, (c)

players' tendency to prioritize other SS/SM services.

Athletes' willingness to engage with SPS is influenced by their attitudes toward such

services – determined by their personal characteristics (e.g., gender, age), as well as the culture

of the sports environment (Moreland, Coxe, & Yang, 2017). While personal characteristics are

important, the attitudes of significant others – such as those of the coach – could be even more

important in forging cultural norms that effect the behaviours of those within their sphere of

influence (Moreland et al., 2017). In Australian golf, National coaches assume an influential role

within state HP programs and possess strong relationships with their athletes. Thus, athletes'

tendencies to direct funding to specific areas of SS/SM could reflect a desire to adhere to the

normative expectations of their coach. Within the literature, numerous factors have been found to

influence coaches' attitudes toward SPS, these include previous experience with SPS, gender,

age, coaching experience and education (Wrisberg, Loberg, Simpson, Withycombe, & Reed,

2010; Zakrajsek, Martin, & Zizzi, 2011). Given that sport psychology is included in all

Australian HP programs, it is reasonable to assume that coaches are open to and willing to

implement such services. However, as is the case with other sports (Voight & Callaghan, 2001;

Wilson, Gilbert, Gilbert, & Sailor, 2009), coaches prioritize other SS/SM services and allocate

most funding to these areas – with SPS reserved for special occasions. This could indicate a lack

of understanding regarding how effective SPS provision should operate. Further education and

reference to published models of SPS provision (e.g., The Youth Sport Consulting Model) that

emphasize an ongoing, integrated approach to mental skills training could improve current

practice (Visek et al., 2009).

Players and coaches reported that technical or shot practice had different functions

depending on the period of the tournament it was performed. Shot practice in the pre-tournament

period was used by players to re-calibrate their carry distances for each club, based on the

atmospheric conditions (e.g., elevation, climate) of the venue. Also, players used this period to

practice skills (i.e., bunker shots) or shot-types (i.e., different ball flights) that were required for

the course. As one participant explained: "I'll practice things that I need to work on for the

week ... it could be a lot of shots from 160 m, and the next week it could be a lot of shots from 75

m out of the bunker" (PM004). Players also used a combination of driving, iron play, putting,

and bunker shot practice before each round to warm-up, and prepare the body for performance.

Post-round, it was common for players to use shot practice to fine-tune shot-types that negatively

affected scoring during a round: "If something felt terrible on the course ... maybe I wasn't

reading the greens well, or I wasn't chipping very well, then I'd do a little bit of work on that ...

just to get a bit of confidence with what I'm doing (PM009)."

   Strategies to increase the player's knowledge of the course. Participants reported the

use of two main strategies by players to increase their course knowledge, and align their game

with the requirements of the course; these were anticipatory planning and the practice round.

Players and coaches/practitioners described anticipatory planning as players preparing before

arrival at the venue by using Internet-based tools (i.e., Google Maps) to survey the course and

identify the essentials skills or shot-types. Some players used the advice of their coach or others

who had experience with the tournament course, or those of a similar design. Players could use

this information to begin to develop a course strategy, and to adjust clubs or bag composition

(i.e., including/excluding clubs). Three separate functions of the practice round were identified.

The first was to allow players to map the course, described as using a range finder to measure out

the course, identifying hazards, assessing the shape and slope of the greens, locating approach

paths, and designating areas where it was 'safe to miss', and recording this information in their

yardage book. The second was to use this information to develop a strategy for each hole. One

player described his method of planning: "I use a highlighter to highlight all the areas I want to

hit the ball on the course; it's kind of like a pathway that I'm trying to develop for how I want to

play the course (PM007)." Coaches/practitioners recognised that a player's strategy for the

course should be prepared according to the individual strengths and weaknesses of his or her

game. The third function was to help players acclimatise to the novel or defining conditions of

the course (i.e., grass types.).

Self-monitoring of strategies. Players' ability to monitor preparation and performance was considered by coaches/practitioners and players to be an important aspect of tournament preparation. Several players recalled situations in which they had adapted their preparation in response to changing task constraints, such as unexpected weather condition or an acquired shot-shape. It was explained that if an obstacle or change in circumstances was noticed, adjustments should be made to avoid disruptions to the player's performance. In some instances, this could involve specific adjustments to strategies: "One morning I might feel a little tight through my legs, so I'll spend more time on that during my warm-up (PF004)."

Self-reflection

This theme contained any reference by participants to players reflecting on a certain aspect of their performance. Two specific sub-themes were identified 'post-round reflection' and 'post-tournament reflection'.

Post-round reflection. The coaches/practitioners in this study highlighted the use of a post-round reflection period or "debrief" as a way for players to evaluate the positive and negative contributions to their performance. As one participant explained: "I like them to realise what they did well, what they could have done better and how they can improve for the next day, whether it be a mental aspect, a result aspect, on any front (CM003)." Further, it was reported that an important function of this reflection was to allow the player to evaluate and adjust his or her course strategy in-between rounds: "If there's one hole that I feel like a shot doesn't work for, or it's not the right shot, then I'll write it down and go over it later in the afternoon ... re-assess the game plan (PF004)".

Post-tournament reflection. Coaches/practitioners described post-tournament reflection as players evaluating their performance and preparation relative to their tournament outcomes.

Most of the players interviewed did not engage in any form of reflection. Coaches/practitioners explained that it is common for players, and sometimes coaches, to ignore preparation as a factor that could affect performance, and instead attribute negative outcomes to a technical or swing issue:

> They come back and speak to the coach, and they (the coach) go straight into technical mode, there's no review of preparation ... when it comes down to it 'let's put your swing on video, let's work on this shot, which may or may not be relevant to the tournament you played' ... it's just random; it's how it's always been done. (CM001).

An important aspect of self-regulation is an individual's ability to attribute causation regarding one's success or failure (Kitsantas & Zimmerman, 2002). An attribution pattern in which task failure is attributed to controllable factors is beneficial because it reassures athletes the issue is correctable, thereby preserving self-efficacy (Cleary & Zimmerman, 2001). In golf, the swing pattern can be classified as relatively controllable. Players often adjust their swing pattern with the guidance of their coaching team. However, during a tournament or a series of tournaments, amateur players have limited access to their coaching team. The swing in this period remains controllable but external feedback from which to adjust is not available. Thus, it may be more adaptive for players to focus their reflection on factors they can directly control, such as tournament preparation and course strategy. When the player transitions to a non-competition period the parameters of their swing could be given more focus. Coaches indicated that players should record their reflection over an extended period. By compiling a database of information relating to previous tournaments, it was reported to allow players to identify how different factors influence their performance, which in turn, provides them with a more accurate "standard" by which to compare their performance for subsequent competition:

They need to track patterns that work well for them and what things can hurt their

performance ... then they can look at that objectively and establish a plan for working on

those things and how they're going to change their preparation or performance for the

next tournament. (CM005)

Coaches also reported that for players to develop skills in reflection, and tournament

preparation, coaches should supervise efforts to learn by using deliberate methods at first, and

transition to an autonomous style of execution. That is, these skills should be demonstrated and

explained by coaches, to demonstrate when and why to implement such methods, and over time

responsibility should be gradually given to the player: "You've got to create a framework for

them to work from, for people to start considering how they're going to use it, and then once

they find value in it, then it becomes automated (CF001)" This is consistent with Zimmerman

and Bonner's (Kitsantas & Zimmerman, 2002; Zimmerman & Bonner, 1996) model of strategic

learning, in which the development of cognitive-motor skills occurs over four progressive

phases: (a) observation; (b) imitation; (c) self-control; and, (d) self-regulation. The first phase,

observation, involves learning through observation or using the verbal instructions of a model

who possesses expertise, such as a player learning how to set tournament goals from his or her

coach. In the second phase, imitation, the learner executes the cognitive-motor skill with the

supervision and feedback of a teacher-model (i.e., coach). Emulative performance enables

learners to develop internal process standards of correct performance. This could be particularly

relevant in state or national development camps, or for group travel situations, in which the

coach has the opportunity to observe and educate players in a performance-based environment.

During the third and fourth phases of learning, self-control and self-regulation, individuals

practice and perform skills by themselves to develop a routine process and level of skill
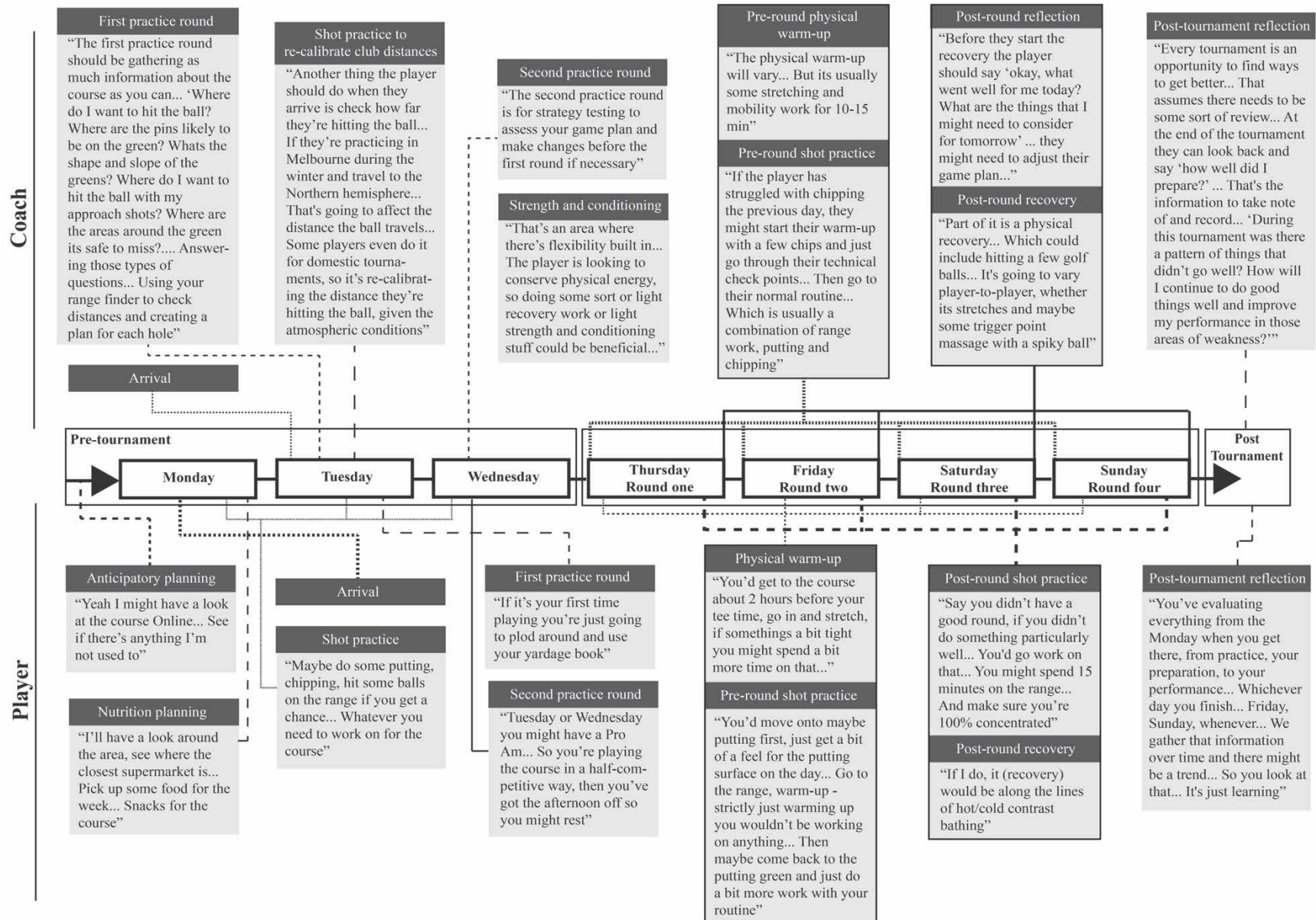
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Figure 2. Example of the specific behaviours and timings of such behaviours for a coach and player participant in tournament preparation. Examples provided are for a four-round domestic tournament that beings on Thursday and concludes Sunday. Note the tournament is separated into three periods: (a) the pre-tournament period (one week before until the first round of competition); (b) the tournament period (the first until the last round of competition; and, (c) the post-tournament period (the last round of competition until the start of the next competition cycle).

Summary

This study aimed to identify the metacognitive and task-specific strategies important for pre- and within-tournament preparation in elite amateur golf. There was clear evidence of the specific strategies used by players to optimise their physiological and psychological state before and during a tournament. There was also evidence of another group of strategies that were positioned to increase players' course knowledge and assist in the development of course strategy. Various self-regulatory processes, such as planning, goal setting, self-monitoring, and reflection were described. However, in some cases, these were considered important by coaches/practitioners, but not discussed by players. Players' preparation and competition were described as a three-phase cyclic mode, represented by preparation, pre-competition, and competition phases. The competition phase was the focus of this study, and was further separated into pre-tournament, within-tournament, and post-tournament periods.

The findings presented have several implications worth highlighting. First, the selection of strategies in tournament preparation should recognise the requirements of the golfer. A structure built around the individual could have more success than a generic routine in correctly preparing the golfer to perform. Second, the sequencing and planning of strategies should be based on the specific constraints of the tournament course, and should be monitored and adjusted based on the golfer's situational appraisals. According to Gagne (Gagne, 1984) metacognitive skills have much in common with procedural skills (those related to a technical task) suggesting that practice is essential for the development of expertise in self-regulation. For this reason, superior metacognitive skills can only be developed from extended periods of structured feedback and performing the strategies in meaningful contexts (Ertmer & Newby, 1996). Therefore, it is not sufficient to demonstrate to players the metacognitive and task-specific

strategies that experts use to prepare for a tournament; rather such knowledge should be included in education programs and curriculums. The golf coach or practitioner should look to support the development of self-regulatory processes and to educate players on the benefits and proposed outcomes of such processes. Once this development has reached a stable state, the player should then be encouraged to deliberately practice to ensure this process becomes autonomous.

The researchers involved in this study recognise that the sample included only elite-level amateur players, and a relatively small number of interviews. As a result, more work needs to be undertaken to compare the metacognitive and task-specific strategies of players of different skill levels, to examine whether similar themes emerge from different groups of participants. An individualized and evidence-based system of preparation could better prepare players to perform and enable them to transition to higher levels of development. It could also provide a framework to improve coaching curriculum and guide further research.

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