View metadata, citation and similar papers at core.ac.uk
brought to you by CORE
provided by Leeds Beckett Repository

Running Head: CONNECTING ANALYSIS OF FLOW IN ELITE GOLF

Exploring the Interactions Underlying Flow States: A Connecting Analysis of Flow Occurrence in European Tour Golfers

Christian Swann[a], David Piggott[b], Lee Crust[a], Richard Keegan[c], & Brian Hemmings[d]

[a] University of Lincoln; [b] Leeds Metropolitan University; [c] University of Canberra
[d] St. Mary's University

Author Note

Christian Swann and Lee Crust are with the School of Sport and Exercise Science, University of Lincoln, Brayford Pool, Lincoln, LN6 7TS, UK; David Piggott is with the Carnegie School of Sport, Leeds Metropolitan University, Leeds, LS1 3HE, UK; Richard Keegan is with the Research Institute for Sport and Exercise, University of Canberra, Canberra, ACT 2601, Australia; Brian Hemmings is with the School of Sport, Health, and Applied Science, St. Mary's University, Twickenham, TW1 4SX, UK.

Correspondence concerning this article should be addressed to Christian Swann, School of Sport and Exercise Science, University of Lincoln, Brayford Pool, Lincoln, LN6 7TS. Email: cswann@lincoln.ac.uk; Telephone: (+44) 1522 886 030.

Abstract

Objectives: Research to date has identified a range of factors suggested to facilitate flow states in sport. However, less attention has focused on how those facilitating factors influence the occurrence of flow. Therefore, this study aimed to explore the specific ways in which such facilitators influenced flow occurrence in European Tour golf.

Design: Qualitative design.

Method: Ten full-time golfers from the European Tour (*M* age = 37; *SD* = 13.08) took part in semi-structured interviews investigating the occurrence of their flow states. Data were interpreted using an iterative process of thematic and connecting analyses.

Results: Ten facilitators of flow were identified, of which commitment and the caddie do not appear to have been reported previously. Twenty four connecting links were identified in the data, through which the caddie, effective preparation, and high-quality performance appeared to be most influential for flow occurrence. Confidence and concentration also emerged as key constructs underlying the flow experience in this setting.

Conclusion: A central contribution of this study is the identification of ways in which facilitating factors could influence flow occurrence in elite golf. This process adds detail to understanding of flow occurrence, and moves beyond simply identifying factors which are associated with the experience. As such, connecting analysis is proposed as an additional strategy for qualitatively investigating flow occurrence in sport. Results are discussed in relation to previous literature, and recommendations are identified for researchers, athletes, coaches and practitioners.

Keywords: optimal experience; peak performance; qualitative methods; caddie; mental toughness.

Exploring the Interactions Underlying Flow States: A Connecting Analysis of Flow Occurrence in European Tour Golfers

The flow experience (Csikszentmihalyi, 1975; 2002) is regarded as an optimal state during which individuals are challenged to their limits, but perceive that they have the skills to meet these demands and as a result, are reported to function at their fullest capacity in an effortless and enjoyable manner. Individuals experiencing flow also report being fully concentrated on the activity to the point that they become totally absorbed in it, and perceive a sense of control over what they are doing (Csikszentmihalyi, 2002). Flow states are associated with peak performance (Jackson & Roberts, 1992) and are believed to generate positive psychological outcomes such as enhanced wellbeing, improved self-concept and positive subjective experience (Csikszentmihalyi, 1975; 2002). Therefore, understanding the nature of flow and its occurrence is extremely valuable for athletes, practitioners, and researchers. To date, a range of factors have been reported to facilitate flow occurrence in sport. However, there is less clarity as to the specific ways in which those factors can influence its occurrence. Therefore, in this article our aim is to explore the ways in which facilitating factors are perceived to influence flow occurrence in the elite setting of European Tour golf.

Flow Occurrence in Sport

Flow is frequently conceptualized as nine dimensions (Csikszentmihalyi, 2002; Jackson & Csikszentmihalyi, 1999). Flow usually occurs in situations of *challenge-skills balance*, where individuals subjectively perceive that they are required to extend beyond their normal capabilities, yet still believe that the task is achievable. Hence, individuals in flow require specific, *clear goals* to strive to achieve, while also receiving *unambiguous feedback* regarding their progression towards these goals. The individual experiences complete *concentration on the task at hand*, with no extraneous or distracting thoughts, which can also lead to *action-awareness merging*, whereby the person becomes totally absorbed or immersed

in the activity. A *loss of self-consciousness* can also occur in the form of an absence of negative thoughts or doubt, as can a *sense of control* over the performance or outcome of the activity, and a *transformation of time* (i.e., speeding up or slowing down). The combination of these first eight dimensions leads to the ninth, *autotelic experience,* which signifies that flow is an enjoyable and intrinsically rewarding experience.

Despite over 20 years of research, there remains uncertainty as to specifically when and how flow states occur. Instead, these experiences are still regarded by researchers and athletes as being elusive and unpredictable (Chavez, 2008). Indeed, flow "often eludes the seeker, presenting itself on relatively rare occasions" (Jackson, Martin & Eklund, 2008, p. 561), and flow has been described as one of the least understood phenomena in sport (Jackson & Csikszentmihalyi, 1999).

To investigate how flow occurs in sport, researchers have focused on qualitatively identifying the factors perceived to influence (i.e., facilitate, prevent, and disrupt) these states (see Chavez, 2008; Jackson, 1992, 1995; Russell, 2001). Ten factors have been identified as facilitating, preventing, and disrupting flow across a range of sports (Author 1 et al., 2012a). These factors include focus, preparation, motivation, arousal, thoughts and emotions, confidence, environmental and situational conditions, feedback, performance, and team play and interaction (Author 1 et al., 2012a). In their positive form, these factors facilitate flow. However, if they are absent (e.g., preparation) or inappropriate (e.g., arousal, focus), they can prevent the experience. Further, if certain factors develop in their negative form (e.g., inappropriate focus, loss of confidence) during the experience, then flow can be disrupted.

One possible reason for the elusive nature of flow is that researchers have generally (and necessarily) focused on identifying the factors that influence flow. However, researchers have rarely discussed *how* those factors specifically influence its occurrence. For example, Jackson (1995) did discuss that preparation and "knowing everything was in place allowed

the athlete to focus on the task" (p.147) were facilitative, and while the additional detail is useful, such statements were only clearly provided in two out of the ten facilitators identified. Studies have not explicitly explored or formalised the ways in which each influencing factor could affect flow. In turn, most knowledge of flow occurrence thus far has been based on associations, that is, understanding which factors have simply been present when flow has occurred previously (e.g., Chavez, 2008; Jackson, 1995; Russell, 2001). As Kimiecik and Stein (1992) noted:

> It is one thing to know, for example, that a flow experience is accompanied by focused concentration, feelings of control, and clear goals. It is quite another to know why or how the flow experience actually occurred… The former emphasizes description; the latter focuses on the mechanisms underlying the experience (p.148).

By investigating how each influencing factor affects flow, researchers could start to uncover the mechanisms and interactions that may underlie its occurrence.

One way of exploring such mechanisms could be through qualitative analysis strategies, because: "explanation is dependent on the analysis strategy used as well as the data collected" (Maxwell, 2004, p.255). To date, studies have used inductive content analysis to identify raw data codes, higher-order themes, and general dimensions which are categorised based on similarity, and represent factors facilitating flow (see Chavez, 2008; Jackson, 1992, 1996; Russell, 2001; Sugiyama & Inomata, 2005). While this approach has been useful for identifying the factors associated with flow occurrence, it is more difficult for researchers to explicitly explore how those factors actually influence flow.

An alternative approach could be "connecting" (Maxwell, 2012) or "linking" (Dey, 1993; Spencer et al., 2014) analysis. Instead of segmenting data and then *categorising* these segments to create a structure of similarities and differences, this analysis strategy segments the data and then *connects* these segments into a relational order (Maxwell, 2012). In turn,

connecting analysis attempts to explicitly identify relationships and interactions between constructs in the data:

> Categorising the data allows us to compare observations in terms of relations of similarity and difference... [But] in breaking up the data, we lose our sense of process – of how things interact or 'hang together.' To capture this information, we need to link our data as well as categorise it (Dey, 1993, p.152).

This approach can increase understanding of the data, and allow the researcher to identify key relationships which tie the data together which we might otherwise be blind to (Maxwell, 2011).

Connecting analysis displays similarity to axial coding in the grounded theory method (Strauss & Corbin, 1998); however there are important differences in how those connections are generated. Strauss and Corbin (1998) propose the use of a paradigm model during axial coding - a predetermined organising scheme or conceptual plan, suggested to help the researcher think systematically about the data and pose questions about how categories of data relate to each other. The paradigm model has been criticised for being too prescriptive (Charmaz, 2006; Glaser, 1992; Kendall, 1999) as it does not let the conceptualisation lead the analysis, and the researcher may only see what fits into a predetermined conceptual plan. Charmaz (2006) recommended a less formalised approach to axial coding by reflecting on relationships between categories and concepts. While Charmaz's approach may be less prescriptive, it relies on the researcher's interpretation of possible relationships, rather than dealing with the analysis of relationships solely in the data (see Maxwell, 2011). Further, connecting analysis stems from a realist ontology (e.g., Sayer, 1992) which views causality in terms of causal mechanisms and processes rather than regularities, and sees contextual influences and mental processes as integral to causal explanation (Maxwell, 2004). This realist view of causation is also compatible with, and supports the use of, qualitative research

(see Maxwell, 2004). As such, connecting analysis has an explicit focus on mechanisms that cause phenomena, and aims to identify specific links and relationships in the data, without using a predetermined model. Therefore, connecting analysis could be understood as a realist revision of axial coding, and an alternative for exploring the ways in which facilitating factors are perceived to influence flow. By employing connecting analysis, it may be possible to tentatively propose underlying mechanisms of flow, and identify relationships for future testing (Popper, 1959).

It is suggested that flow may differ between sports and standards of performance (e.g., Chavez, 2008), and studying athletes from a single setting (i.e., one standard of athletes from one sport) could help researchers make clearer comparisons, and explore possible differences. This is likely to provide more specific understanding of flow occurrence in that context, and more relevant and specific information for athletes, coaches, and practitioners. More specifically, the self-paced nature of golf, with competitive rounds lasting up to 6 hours, means that there are often long periods of time between each shot. This time allows for reflection on the performance as well as over-thinking and distraction (Singer, 2002), meaning that golfers could be a particularly useful sample for exploring the occurrence of flow in terms of its facilitators and connections. Also, it is suggested that highly skilled individuals are more likely to achieve flow (Jackson, 1996) and that more can be learnt from studying elite athletes (Griffith, 1925). Therefore, this study was interested specifically in elite golfers.

While golf is receiving increasing attention in flow research (e.g., Author 1 et al., 2014; Nicholls, Polman & Holt, 2005; Pates, 2013; Pates & Maynard, 2000), it appears that only one study to date has explored factors facilitating flow specifically at the elite level. Author 1 et al. (2012b) interviewed professional golfers who had competed on the Challenge and Europro Tours (second and third tiers respectively), and part-time on the European Tour

(e.g., via invitations). Those golfers reported that flow was influenced by a range factors which have been reported previously (e.g., motivation, preparation, optimal arousal). They also reported a number of golf-specific facilitators of flow, including pre-shot routines, use of psychological interventions, and the importance of maintaining the player's physical state. These findings suggested that flow may occur differently in golf, possibly due to its self-paced. However, differences have been noted between standards of professional golfer (e.g., in mental factors relating to excellence; McCaffrey & Orlick, 1989), and studying more elite, full-time players on the European Tour could provide richer understanding, and applied recommendations for professionals or elite-amateurs aiming to reach the highest level.

Therefore, this study aimed to explore the specific ways in which facilitating factors were perceived to influence flow occurrence in full-time European Tour golfers. In doing so, we attempted to move beyond simply identifying factors associated with flow by adding detail and context to understanding of the factors influencing flow. In turn, this study sought to understand more about the occurrence of this elusive state, and responds to calls for investigation into the underlying mechanisms of flow (Kimiecik & Stein, 1992).

Method

Participants

The participants in this sample were ten male professional golfers who had all played full-time on the European Tour for at least one full season (Range = 1-24 seasons). Table 1 presents demographics of the participants who, hereafter will be referred to by number. Five players had won tournaments on the European Tour (*n* = 7); three had won on the Challenge Tour (*n* = 4); and two players had won tournaments on the Senior Tour (*n* = 31). Six of the sample had career-best world ranking positions inside the top 120 (Range = 18-116), including two who had represented Europe in the Ryder Cup.

[Insert Table 1 near here]

Procedure

Ethical approval for the study was granted by the school ethics committee at a British university. The participants were contacted through a range of gatekeepers, including personal connections of the first author (e.g., members at golf clubs where the players were based; *n* = 5); through contact with a sport psychologist (the fifth author; *n* = 2); and a management agency which was approached via email (*n* = 1). The two remaining participants were approached at tournaments which the first author attended, either before (e.g., in the clubhouse during practice days) or after they competed. The players were asked if they would be interested in participating in an interview regarding their flow states, and after agreeing, interviews were organised and conducted at a time and place that was convenient for them (most of which took place in clubhouses in the UK). All participants provided written consent after the researcher explained the purpose of the study, and data were collected until saturation point was reached (Coté, Samela, Baria & Russell, 1993). Interviews were conducted face-to-face and digitally recorded, while brief notes were also taken. Interviews lasted 53 minutes on average (*SD* = 24.9), and were transcribed verbatim.

Interview Guide

Development of interview guide. An interview guide was developed based on details provided by previous studies (Jackson, 1995; Russell, 2001), and addressing issues which emerged from a recent review (Author 1 et al., 2012a). This guide adopted a semi-structured, open-ended approach to allow the interviewee to elaborate and develop areas of perceived importance, while also using specific probing questions where necessary to gain further data (e.g., Sparkes & Smith, 2014). While following a general guide, a conversational and open-ended approach was adopted by the interviewer in order to develop rapport and allow new themes and discussions to emerge (cf. Potter & Hepburn, 2005). Also, before the

interview, the players were encouraged to challenge and clarify any assumptions or terminology used by the interviewer which did not correspond with their experiences.

Interview questions. The players were first asked if they were familiar with the term "flow." If not, other terms were used which researchers have previously employed interchangeably with flow, such as 'flowing', being in 'the zone', or in 'the groove' (Jackson, 1992, 1996; Jackson & Csikszentmihalyi, 1999). To check that these terms reflected the states we were specifically interested in (i.e., flow), the participants were then asked to provide one example of such a state which stood out in their memory. The interviewer judged whether or not this was flow (as defined by the research team[1]) based on their descriptions. Some participants used their own terms instead (e.g., "the bubble"), but all examples displayed similarity with previous descriptions and were judged to refer to flow.

After flow was introduced using the procedure described above, the participants were asked the following questions: (a) When flow has occurred for you previously, what were the main things that caused it to happen?; (b) Which factors facilitate these experiences?; (c) What are the most important factors for getting into flow?; and (d) What kind of things need to be in place before flow can occur? Consistent probes were used to encourage participants to explain how each facilitating factor influenced flow, for example "in what ways do you think that influenced flow?" In adopting an open-ended approach, these standard questions were used in all interviews but other themes and discussions were also allowed to emerge.

Pilot study. The guide was piloted with two elite golfers (who were not subsequently included as participants): one had competed professionally on the Challenge Tour, and the other represented England at elite amateur level with experience competing in The Open

[1] This definition was based upon awareness of those used by researchers previously (Jackson & Csikszentmihayi, 1999), definitions used in previous studies (Jackson, 1995, 1996), and athletes' quotes describing flow in previous research (Author 1 et al. 2012b, 2014; Jackson, 1996).

Championship. The pilot study led to changes in the sequencing of questions, and the use of more specific and direct probes (above) in order to follow up areas of interest that emerged.

Analysis

A research team (made up of all authors) was used to guide the analysis process, and offered a broader perspective on the text with the aim of critical evaluation rather than consensual assessment. The first author, who conducted the interviews, was most familiar with the data and enhanced this through a process of “in-dwelling” by reading and re-reading the transcripts (Maykut & Morehouse, 1994). Then an iterative approach to analysing the data was adopted. Inductive categorising analysis followed a process similar to that set out by Braun and Clarke (2006), whereby initial codes were identified within the data, before these were inductively sorted and combined into higher-order themes. The same process was followed in sorting those themes into substantive categories, which represented the factors perceived to facilitate flow occurrence and the dimensions of flow reported by these golfers.

Following procedures outlined by Dey (1993) and Maxwell (2012), connecting analysis was conducted whereby direct quotes within the transcripts were sought which described the specific ways in which these factors influenced dimensions of flow. These quotes were recorded separately to the thematic/categorising analysis, and the process was recursive, moving back and forth as needed throughout the process. When exploring the connections, primary emphasis was placed on the clarity of the link, as opposed to frequency of reporting (either the total number of that link, or by the number of participants reporting). As Braun and Clarke (2006) suggested, more instances do not necessarily mean a theme is more crucial. It was deemed important to identify the clearest quotes in the data in order to provide a more trustworthy illustration of the ways in which these factors influenced flow.

By checking the “connections”, and iteratively moving between thematic and connecting analyses, this process increased the first author’s sensitivity to the context in

which each theme was discussed. That is, the researcher obtained a better sense of how the themes and categories fit together hierarchically, as well as how these categories interacted with other facilitators and/or dimensions of the flow experience. As such, there was an element of interaction between categorising and connecting analyses, in that some connections shed further light on the context, make-up, and therefore coding, of certain themes and categories. During this process, other members of the team were provided with the transcripts and offered critical evaluation of the main analyst's interpretation of the data throughout via a process of regular peer debriefing (see below) until agreement was reached.

Establishing Trustworthiness

The term *trustworthiness* has been used by qualitative researchers to describe methods used to enhance quality and rigor in their research (e.g., Sparkes & Smith, 2009, 2014). A number of steps were taken in this study to establish trustworthiness. *Peer debriefing* was conducted throughout, between the first author (i.e., lead investigator) and the second, third and fourth authors who provided on-going guidance on the research process, critical evaluation of the data, and challenged the researcher's assumptions (Creswell & Miller, 2000). This process took place by way of formal meetings between members of the research team, and regular informal discussions with each member individually.

While peer debrief was primarily concerned with the on-going process of collecting and analysing the data, "critical friends" were asked to critique and provide feedback about the *results* of these processes (Smith & Caddick, 2012). The transcripts and a copy of the results were returned to the participants, who were asked if the themes and categories made sense, and whether the overall account was realistic and resonant with their experiences. This was seen as an opportunity for elaboration, affirmation, and disagreement, in order to enhance credibility, appropriateness, and believability of the researchers' interpretations (Smith & Caddick, 2012). Due to elite nature of this sample, who were often in the country

for short periods with busy schedules, this process took place via email. No modifications to the results or analysis resulted. Finally, the fifth author was not involved in the analysis so that he could offer a more independent and critical evaluation of the results, with the aim of enhancing transparency and trustworthiness. This author had extensive experience working as a sport psychologist with elite golfers, and was therefore, asked to comment critically on the findings in relation to his knowledge and experience of elite golf. Only minor amendments were suggested (e.g., inconsistencies in labelling of certain themes).

Results and Discussion

These players reported ten facilitating factors which positively influenced flow occurrence (see Appendix). Twenty four connections, or ways in which each facilitator could influence flow, were identified (e.g., effective preparation leading to enhanced confidence). Each dimension of flow (identified by these players) is presented below. The facilitators which influenced those dimensions are then described using direct quotes to illustrate the players' perceptions of how they connected. This section also draws upon relevant literature to explain why the facilitators might influence flow in these ways.

High Confidence

These golfers reported that increased confidence was important for their flow states, as Player 7 described:

> The confidence that I had in my own game...and the belief that I could play any shot when required, brings you to a point where you walk on the first tee and I shake your hand and look you in the eye and say "play well today", in the full knowledge that...I know that you know that I'm going to beat you...That's exactly what the zone is.

This confidence "set the scene" for flow, and led to an absence of negative thoughts and/or emotions, and optimal arousal (see below). Research has suggested confidence to be a significant predictor of flow states (Koehn, 2013), while high confidence is necessary for

challenge appraisals (Jones, Meijen, McCarthy & Sheffield, 2009). Therefore, these connections increased confidence which helped the players perceive the situation to be a challenge (facilitating flow) rather than a threat (preventing flow; Csikszentmihalyi, 2002).

High-quality performance was a primary source of confidence for these golfers. Player 3 suggested that: “It [flow] normally does start with a birdie…it starts with something good and you almost carry that little bit of confidence forward for a few holes, then with that you start flowing.” Performance accomplishments are reported to elicit the most powerful effects on confidence (Bandura, 1997; Vealey & Chase, 2008), meaning that high-quality performance could be an important precursor for flow occurrence.

Effective practice and preparation was important for developing confidence before their performance if, for example, their warm-up had gone particularly well before the round: “When...you’re warming up really well on the range, the days you walk to the first tee you know, feeling like you’re swinging it [the club] well...I think [it’s] a bit of a confidence thing isn’t it” (Player 2). Similarly, physical/mental preparation is a salient source of confidence in athletes (Vealey, Hayashi, Garner-Holman & Giaccobi, 1998), suggesting that optimal preparation could be a relatively controllable, yet highly relevant, factor through which golfers can facilitate flow.

Optimal environmental and situational conditions could give the player confidence if, for example, they were playing on a course that they have previously performed well on: “With golf courses that I like you have this feeling that you’re doing to do well, and if you’re obviously playing well you will do well” (Player 2). Similarly, environmental comfort and situational favourableness are reported to be sources of sport confidence (Vealey et al, 1998), which in turn provides a foundation for flow occurrence.

The caddie was helpful for maintaining the player’s confidence throughout the performance which, again, could facilitate flow states. This was especially relevant after

setbacks: “You hit a wayward shot, or you just three putted…that’s where a caddie helps you...he tries to keep your confidence levels up and he’s like “next hole, next hole is fine”” (Player 2). Lavallee, Bruce and Gorely (2004) reported that the role of the caddie included building and maintenance of the player’s short-term confidence, and in this way, caddies seem to be important for maintaining and maximising flow states (see Author 1 et al, 2014).

Positive feedback increased confidence for these players, and in particular, intrinsic feedback was reported to be relevant for flow occurrence:

> Not so much hitting a good shot but getting a feeling: “oooh that felt easy to do...that was an easy move.” And then you stand up on the next shot, you make that move again, and the ball does exactly the same thing. The more of those layers upon layers you get in a round of golf the more…you trust your swing; once that’s in place then you just trust what you’re doing (Player 8).

High-quality performance was the main source of this feedback (see below); suggesting that feedback helped the golfer recognise performance accomplishments (Bandura, 1997). In turn, feedback enhanced the player’s confidence, facilitating flow.

Commitment was also important for building confidence and, in turn, facilitating flow. This theme described the professionalism, commitment, and self-management that these golfers saw as necessary to compete at the highest level, and is suggested to be particularly important for elite athletes (Scanlan, Russell, Wilson & Scanlan, 2003). One aspect of commitment for these players was a refusal to let potential distractions get in the way of what they wanted to achieve: “It’s about being structured and being organised, and being selfish and saying “no”, and clearing the decks. A lot of the best players are good at that…just saying “no…I’m not doing this, I’m not doing that” (Player 8). By doing this, the players were able to prevent the distractions which could inhibit flow. Commitment was also relevant in their lives outside of golf, where social support (Vealey et al, 1998) seemed to

provide these players with stability and confidence. For example, Player 7 described: “that inner confidence…belief and knowledge that those people around you are there with your best interests at heart.” Commitment to improvement also provided the player with confidence, as Player 7 described:

> There have been times where I’ve played golf at top level, in Open Championships...where you feel that you’re in control. You can see the flag, and it doesn’t matter where it is on the green...you see the shot that you want to hit, you can see the flight of the ball, and you know that you’re going to hit it exactly down that line...That’s what being in the zone is…but it’s getting to that level of confidence which is the hard bit and that...only comes through hard work and dedication.

Heightened Concentration

These golfers reported heightened concentration during flow, with Player 1 describing its relevance: “The term “being in the zone” means that obviously you’re completely focused on what you’re doing...Your mind’s full with just the task in hand at that particular moment.” Concentration on the task at hand is a central characteristic of flow states (Jackson & Csikszentmihalyi, 1999), and with this dimension present, flow was more likely to occur (e.g., rather than being prevented by focusing on inappropriate or distracting cues; Jackson, 1995).

Effective practice and preparation helped the players focus appropriately during the performance, for example, by preparing specific targets on each hole beforehand: “It’s all about preparation. If you’ve got specific targets...and you pick them out for every single shot...as soon as you stand on the tee the target is there, and that’s it. You don’t have to focus on anything else” (Player 5). In turn, less thought was required on the course, making it easier to focus on the task at hand, and facilitating flow.

Performance objectives also facilitated the heightened concentration that was important during flow. These goals or objectives increased concentration, as illustrated by Player 2: “All the guys at the top of the leaderboard, they’re focusing a lot more, [and] harder because they’re trying to win; [whereas] at the start of the week the focus is not quite as good.” Goals are commonly reported to direct attention onto the task at hand (Locke & Latham, 2006) and help to avoid distraction, making the golfer more likely to experience flow (Jackson & Csikszentmihalyi, 1999).

Optimal environmental and situational conditions could also enhance the golfer’s focus, which in turn made flow more likely to occur. Player 5 described this connection:

> Sometimes [when] you’re playing a golf course without seeing it [before], you could almost play the course better because you’re not thinking about where the crap is on every hole....You’re not thinking about “ah I can’t hit it [to the] right here...All you’re thinking about is your target and that’s it.

Whereas playing well on the course previously enhanced confidence (see above), not playing the course before encouraged clarity of thought and focusing on the task at hand. Although these perceptions of the course may appear contradictory, both could facilitate flow.

The caddie could also help the player maintain focus during the performance, and facilitated flow by avoiding potential disrupting or preventing factors. To illustrate, Player 3 discussed how: “He stops people from distracting you…he is almost like a little shield for you, really trying to keep the stuff that you know is a bit negative away from you.” Similar themes were reported by Lavallee et al (2004) in their investigation into the role of caddies. Thus, preventing/avoiding inhibiting factors helped maintain appropriate focus during flow.

Psychological skills were used to facilitate, and in some cases *manage* flow states. Interestingly, some players maintained flow by avoiding disruption or conscious interference,

by taking their mind away from the importance of the situation and, paradoxically, concentrating *away* from the task at hand. Player 7 described:

> One particular example…of really being in the zone [was in] The Open Championship where I nearly won it....I remember coming off the tenth green after holing a massive putt and I said to…my caddy…"make sure you don't stop talking to me from now on. Don't leave me, and don't talk about golf"…And we did talk some absolute cobblers [nonsense]. But…I was relying on the subconscious which was doing the job, and making sure that the conscious was out of the way.

Psychological skills helped the player focus which made experiencing flow more possible. Pre-shot routines were particularly useful: "Every pre-shot routine...you're trying to get into that zone, definitely. You're trying to be as concentrated on your specific target…as what you can be" (Player 5). Extensive literature supports the use of pre-shot routines for concentrating on the task at hand (e.g., Singer, 2002; Cotterill, 2010), and this skill has been reported as a facilitator of flow in elite golf previously (Author 1 et al, 2012b).

Perceived level of challenge could also increase the golfer's concentration. Player 8 described that: "When a situation is so demanding it sort of forces me to concentrate, and forces me to focus on what I'm doing." Supporting this connection, challenge states involve the focusing of attention on appropriate cues, and consequently, cognitive performance is more effective (Jones et al, 2009). Therefore, heightened concentration appears to be a product of challenge-skills balance (Csikszentmihalyi, 2002) during flow occurrence.

Positive Feedback

These players reported positive feedback to be part of their flow states. Feedback is considered to be a condition of flow (Nakamura & Csikszentmihalyi, 2002) and important in helping the individual recognise whether they are moving towards their goal (Jackson &

Csikszentmihalyi, 1999). In turn, positive feedback could facilitate flow by increasing confidence (see above).

The caddie was useful for providing positive feedback which again could facilitate flow. For example, this feedback could be in regard to decision making while planning shots: "When you ask them..."is it five iron or is it six iron?"…you just want that positive thought: "it's a six iron, you can hit it." Perfect! Perfect. So from them you've got to have the positive stuff coming in" (Player 10). Lavallee et al, (2004) suggested that part of the caddie's role was in decision making, and in this case, it appears that agreeing with/reinforcing the player's decision was most useful in terms of facilitating flow.

Effective practice and preparation was also a source of positive feedback about the player's swing or game, which in turn could help them get into flow:

> I played terrible for the first two days…[then] I went and did some work on the range…all of a sudden it just started clicking into place and suddenly [I] just felt good about my game…the last round I could have shot 59…When I'm playing well I get into this zone where I just take flags out (Player 2).

High quality performance was a final source of positive feedback for these golfers, as Player 3 suggested: "[Flow is] result back for me…I think I get into it from doing a few things quite well and then getting a good feeling from there." Jackson (1995) reported that "performance feeling good" facilitated flow, for which "the underlying idea seemed to be that the athlete was receiving feedback from his or her movements that things were in tune" (p.148). Whereas preparation could facilitate flow in the day(s) beforehand, positive feedback from performance was much more immediate, building confidence and leading to flow.

Absence of Negative Thoughts and/or Emotions

These players described an absence of worry, stress, and/or negative thinking during flow, similar to the dimension loss of self-consciousness (Csikszentmihalyi, 2002; Author 1

et al, 2014). Negative thoughts/emotions are commonly reported to prevent and disrupt flow (Jackson, 1995), and by avoiding them, flow was more likely to occur.

Confidence could prevent negative thoughts or emotions during the performance, which in turn facilitated flow. For example, Player 7 suggested that: “With the confidence you know you can do it, so why get stressed at the thought of having to do it?” Similarly, Martens et al (1990) also suggested that cognitive anxiety and state self-confidence represent opposite ends of a continuum, while confidence was found to preventing debilitative anxiety interpretations (Koehn, 2013), facilitating flow.

Optimal environmental and situational conditions also led to the absence of negative thoughts or emotions, as illustrated by players who had not played the course before which helped them focus more clearly on their targets (see above). These optimal conditions surrounding the performance meant there were less inhibiting factors present, and in turn, an absence of negative thoughts or emotions, which facilitated flow.

Effective practice and preparation could also prevent negative thoughts such as doubt or worry during the performance. For example: “you’ve done your practicing...you looked at the right stuff on the course...that’s going to give you confidence to look at stuff without having to worry about missing shots” (Player 4). Hence, feeling more prepared is likely to help prevent negative thoughts such as worry, as well as increasing confidence (see above), and in turn, facilitated flow.

Optimal Arousal

These players reported being relaxed during flow. Athletes commonly report optimal, and often individualised, levels of arousal during flow (Jackson, 1995); however, optimal arousal is not clearly accounted for in Csikszentmihalyi’s (2002) conceptualisation. Hence, in describing European Tour golfers’ flow experiences, Author 1 et al (2014) proposed optimal arousal to be part of an expanded dimension termed “altered cognitive and kinaesthetic

perceptions" which included Csikszentmihalyi's "time transformation". While psychophysiological evidence links flow to increased arousal (de Manzano, Theorell, Harmat & Ullén, 2010), it is interesting that these golfers, and athletes previously (Jackson, 1995), have reported being relaxed during flow instead.

The caddie helped these players stay calm and relaxed during the round, which again made flow occurrence more likely. For example, it was suggested that: "A good caddie...tries to relax you and that's why you need to have a bit of fun in between shots, have a laugh about what shot you just hit or just stupid things [like] football" (Player 2). Lavallee et al (2004) also reported that caddies played a role in maintaining appropriate arousal levels, presenting another way in which caddies could be important for managing/maintaining flow states.

Confidence also influenced optimal arousal, as Player 7 described: "The confidence creates a level of relaxation within you because you know you can do it." In support of this connection, Jackson (1995) suggested that challenge-skills balance, part of which is high confidence (Author 1 et al, 2014), was related to athletes' arousal levels during flow.

Performance Objectives

The golfers in this study reported having objectives over each shot (e.g., specific targets), for the round (e.g., shooting a certain score), or the outcome of the round/tournament (e.g., winning). Clear goals are considered to be a condition of flow (Nakamura & Csikszentmihalyi, 2002), which facilitated flow for these players by helping them focus during the performance (see above).

The caddie helped identify performance objectives for these players. These objectives were, most commonly, targets over each shot: "I think your caddie can help with targets in particular...he'll just say..."pick that target and hit it there," just to [help you] narrow your target line down" (Player 2). Lavallee et al (2004) suggested that the caddie

should provide sufficient information to give the player the best change of hitting a good shot. This role included identifying targets, which helped facilitate flow.

Automaticity

Automaticity was reported to be part of the flow experience, as highlighted by Player 7: “When you’re in the zone you’re doing something which is 100% natural...You’re not trying, you’re just doing.” Automaticity is considered to be part of Csikszentmihalyi’s dimension action-awareness merging (Author 1 et al, 2014); which is described as one of the clearest indicators of being in flow (Jackson & Csikszentmihalyi, 1999).

High quality performance was the only influence of automaticity identified by these golfers, and was described by Player 1:

> I was playing very well at the time, and swinging it very well and the ball was under control...I was hitting it that good that I didn’t have to really put much thought into it...so it was a hell of a lot easier to be able to get into the zone.

Sense of Control

Perceptions of control over the performance were also reported during flow: “The only way I can describe it [flow] is that I’m in control. I feel strong, I’m in control, I can almost tell you what’s going to happen to it [the ball], you know, it’s very, very strong” (Player 9). Sense of control is a characteristic of flow (Csikszentmihalyi, 2002), meaning that it is part of the experience but not suggested to be involved in flow occurrence.

High quality performance could lead to the sense of control. For example, one player described an occasion during flow when he: “let [the shot] go, looked up, and the ball was [going] exactly where I wanted it to go. And that was a great, great feeling, hugely positive feeling. It gives you a real sense of control” (Player 7).

High Motivation

These players reported being more motivated during flow, described as needing to ‘raise their game’ and ‘get more out of themselves.’ Author 1 et al (2014) found similar themes, suggesting that increased motivation could be a golf-specific aspect of the flow experience. These descriptions are considered to be part of autotelic experience (Author 1 et al, 2014), which describes intrinsic motivation and the intrinsic rewards gained from experiencing flow (Csikszentmihalyi, 2002).

Perceived level of challenge could lead to enhanced motivation: “When there’s crowds, when you’re playing with a bigger player, I think you kind of fall into it [flow] a lot easier…You up your game almost when you play with better players” (Player 5). In support, Russell (2001) suggested that college athletes from various sports were motivated as a function of the importance of the given event.

Summary of Findings

Figure 1 presents a summary of these findings in terms of the facilitators identified, and the specific ways in which they influenced characteristics of flow. The caddie (n = 5), preparation and practice (n = 5), and high-quality performance (n = 4) appeared to influence flow in the highest number of possible ways. The most-influenced aspects of flow (i.e., influenced *by* these facilitators) were heightened concentration (n = 6) and increased confidence (n = 5). Although we do not propose that a higher number of connections suggests a stronger influence on flow, it was interesting that Player 7 described the importance of concentration and confidence for succeeding at the highest level of golf: “To become a repetitive winner, to become a star, to achieve that level of concentration and confidence, only a few people can do that. And that’s what separates the average player to the superstars.”

[Insert Figure 1 near here]

Concluding Remarks

The aim of this study was to explore how factors perceived to facilitate flow influenced its occurrence, by using connecting analysis. The primary contribution of this study is the identification of ways in which the perceived facilitators could influence flow occurrence. As such, this study begins to answer the call of Kimiecik and Stein (1992) for researchers to investigate the underlying mechanisms of flow. The present research also builds understanding of optimal psychological states in golf by providing insights from a sample of athletes who competed full-time at the highest level in Europe.

By employing connecting analysis, this study attempted to present a more complete way of investigating flow occurrence, and one which could help researchers make progress in attempting to explain this elusive state. The use of both thematic and connecting analyses for studying the occurrence of flow could be particularly useful if researchers continue to explore facilitating factors in different sports or standards of participation. In doing so, it may be possible to identify consistent connections which underlie flow occurrence across settings.

The connections identified here present a range of hypotheses which could be tested quantitatively (e.g., using correlational studies) in order to further establish the mechanisms underlying flow. For example, the Sources of Sport Confidence Questionnaire (Vealey et al, 1998) could assess the influence of facilitators on the high-perceived skills component of challenge-skills balance in flow occurrence (using the Flow State Scale-2; Jackson & Eklund, 2004). Also using the FSS-2, the Test of Performance Strategies (Thomas, Murphy & Hardy, 1999) could assess the influence of psychological skills on flow occurrence. Finally, the Sport Commitment Model Questionnaire (Scanlan et al, 1993) could assess the relationship between commitment and flow, and the Dispositional Flow Scale-2 (Jackson & Eklund, 2004) could explore whether more committed athletes experience flow more often.

Of the facilitating factors identified in the current study, effective preparation, optimal environmental and situational conditions, good performance, and psychological skills are all

similar to factors which have been reported previously (see Author 1 et al, 2012a for a review). Interestingly, positive feedback, goals, and challenge-skills balance (perceived challenge and high confidence) were dimensions of the experience which also influenced others. The influence of these dimensions appears to support their conceptualisation as flow conditions, (Nakamura & Csikszentmihalyi, 2002). Optimal arousal, motivation, and concentration have been reported as facilitators of flow previously, however in this study they were not found to influence any others, suggesting that they may have only been part of the flow experience for these players.

In addition, two novel facilitators were identified. Commitment is suggested to be important factor in distinguishing successful athletes from their less successful counterparts (Orlick & Partington, 1998). Therefore, it is interesting that the current research appears to be the first time commitment has been identified as a facilitator of flow, especially given the extent of flow research which has focused on elite athletes (e.g., Jackson, 1992, 1995; Young, 2000). One explanation could be that commitment is important in individual sports which require the athlete to manage their own training and performance rather than relying on a team manager or coach. Thus, future studies could explore the prevalence of commitment as a facilitator of flow in other sports.

As caddies have not been identified in previous golf-specific studies of flow, their influence could be specific to this highest level of the game (e.g., where they are necessary in tournaments). The present findings support a number of conclusions from Lavallee et al. (2004), and add psychological skills to understanding of this relationship. While a caddie is a golf-specific difference for flow occurrence, it would be interesting to explore whether individuals who play similar roles in other sports have the same influence, such as co-pilots in rally driving, guides in Paralympic events such as skiing, as well as teammates, and partners in sports such as tennis and rowing.

Compared to the common conceptualisation of flow (Csikszentmihalyi, 2002), most dimensions were also reported in this study. However, no connections were identified for enjoyment, absorption, or time transformation. While it could be the case that these players simply did not recall, or were not able to articulate, connections for these three dimensions, it could also be that those dimensions occur as a result of experiencing flow. For example, enjoyment might be gained from the whole experience, rather than being influenced by any specific factors, which could possibly explain why no connections were reported here.

Finally, key attributes (i.e., challenge, confidence, control, and commitment; Clough et al., 2002) associated with mental toughness were also apparent. For example, challenge and confidence are suggested to make up challenge-skill balance (Author 1 et al., 2014); in flow, the individual also experiences a sense of control (Csikszentmihalyi, 2002); while commitment was identified here as a facilitator of these states. A relationship between mental toughness and dispositional flow has been found (Author 3 et al, 2013), but these findings suggest mental toughness and flow states could be related. One example of this relationship could be in the management of flow states: mentally tough golfers may be better able to maximise and prolong flow to perform at their peak for longer, by maintaining focus and avoiding disruptive factors such as negative thoughts or performance mistakes.

Limitations and Recommendations

As with any study, there are limitations. This study sacrificed breadth to achieve depth, and single rather than repeat interviews were conducted. The inherently subjective data analysis process means that while we present our interpretation of the data, others may arrive at alternative explanations and conclusions, although the use of various trustworthiness strategies aimed to address this issue. This study only focused on positive/facilitative influences of flow; preventing and disrupting interactions could also be explored to add detail to the description identified here. Although numerous possible interactions have been

identified which *could* bring about flow, different facilitators and connections may be more relevant in other types of sport. Future studies should investigate other standards of participation and other sporting contexts (e.g., fast-paced, team sports), which would certainly add to these findings. Future researchers could also investigate sports in which flow states may last only a few seconds (e.g., trampolining, or diving) compared to sports in which flow may last for a more extended time period (e.g., marathon runners). For example, researchers could explore whether the experience and facilitators of flow may be different.

While the use of connecting analysis has started to identify how these facilitators influence flow, it remains difficult to know which factors and connections, under which conditions or in what order, are necessary for flow to occur. That is, it is difficult to identify a clear starting point for the process of flow occurrence, or the point at which the player gets into flow. It should also be noted that flow is likely to result from a combination of these connections. That is, preparation can lead to confidence, which in turn makes flow occurrence more likely; however, the connection between preparation and confidence is not guaranteed to produce flow on its own. One avenue for future studies could be to explore ways of collecting “experience-near” (Csikszentmihalyi, 1988) data from specific and recent flow states rather than general reflections on these experiences. This may help researchers gather clearer data about the chronological sequence with which these facilitators and connections occur.

Finally, from an applied perspective, specific strategies could be used to manage, maximise, and prolong flow states. When in flow, these players reported directing their focus (paradoxically) *away* from the performance in between shots to avoid analytical, and possibly disruptive, thoughts. This could also be important for caddies who might (by focusing too much on the task at hand) inadvertently cause the analytical reflections that these players were deliberately seeking to avoid.

References

Note: Five references have been removed to protect the authors' anonymity.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: Freeman.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. doi:10.1191/1478088706qp063oa

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis.* London: Sage.

Chavez, E. (2008). Flow in sport: A study of college athletes. *Imagination, Cognition and Personality, 28*(1), 69-91. doi:10.2190/IC.28.1.f

Clough, P., Earle, K., & Sewell, D. (2002). Mental toughness: The concept and its measurement. In I. Cockerill (Ed.), *Solutions in Sport Psychology* (pp.32-43). London: Thomson.

Coté, J., Samela, J.H., Baria, A., & Russell, S.J. (1993). Organizing and interpreting unstructured qualitative data. *The Sport Psychologist, 7*(2), 127-137.

Cotterill, S. (2010). Pre-performance routines in sport: current understanding and future directions. *International Review of Sport and Exercise Psychology, 3*(2), 132-153. doi:10.1080/1750984X.2010.488269

Creswell, J., & Miller, D. (2000). Determining validity in qualitative inquiry. *Theory into Practice,* 39(3), 124-130. doi:10.1207/s15430421tip3903_2

Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety.* San Francisco: Jossey-Bass.

Csikszentmihalyi, M. (2002). *Flow: The psychology of optimal experience* (2nd edition). New York: Harper & Row.

de Manzano, O., Theorell, T., Marmat, L., & Ullén, F. (2010). The psychophysiology of flow during piano playing. *Emotion, 10*(3), 301-311. doi: 10.1037/a0018432

Dey, I. (1993). *Qualitative data analysis.* London: Routledge.

Glaser, B.G. (1992). *Basics of grounded theory analysis: Emergence vs forcing.* Mill Valley, CA: Sociology Press.

Griffith, C.R. (1925). Psychology and its relation to athletic competition. *American Physiology Education Review,* 30(4), 193–199. doi:10.1080/23267224.1925.10652511

Jackson, S. (1992). Athletes in flow: A qualitative investigation of flow states in elite figure skaters. *Journal of Applied Sport Psychology, 4*(2), 161-180. doi:10.1080/10413209208406459

Jackson, S. (1995). Factors influencing the occurrence of flow state in elite athletes. *Journal of Applied Sport Psychology, 7*(2), 138-166. doi: 10.1080/10413209508406962

Jackson, S. (1996). Toward a conceptual understanding of the flow experience in elite athletes. *Research Quarterly for Exercise & Sport,* 67(1), 76-90. doi: 10.1080/02701367.1996.10607928

Jackson, S., & Csikszentmihalyi, M. (1999). *Flow in sports: The keys to optimal experiences and performances*. Champaign, IL: Human Kinetics.

Jackson, S., & Eklund, R. (2004). *The flow scale manual.* Morgantown, WV: Fitness Information Technology.

Jackson, S., & Roberts, G. (1992). Positive performance state of athletes: Towards a conceptual understanding of peak performance. *Sport Psychologist, 6*(2), 156-171.

Jackson, S., Martin, A.J., & Eklund, R.C. (2008). Long and short measures of flow: Examining construct validity of the FSS-2, DFS-2 and new brief counterparts. *Journal of Sport and Exercise Psychology, 30*(5), 561-587.

Jones, M., Meijen, C., McCarthy, P., & Sheffield, D. (2009). A theory of challenge and threat states in athletes. *International Review of Sport and Exercise Psychology, 2*(2), 161-180. doi: 10.1080/17509840902829331

Kendall, J. (1999). Axial coding and the grounded theory controversy. *Western Journal of*

Nursing Research, 21(6), 743-757. doi: 10.1177/019394599902100603

Kimiecik, J., & Stein, G. (1992). Examining flow experiences in sport contexts: conceptual issues and methodological concerns. *Journal of Applied Sport Psychology, 4*(2), 144 – 60. doi:10.1080/10413209208406458

Koehn, S. (2013). Effects of confidence and anxiety on flow state in competition. *European Journal of Sport Science, 13*(5), 543-550. doi:10.1080/17461391.2012.746731

Lavallee, D., Bruce, D., & Gorely, T. (2004). The golfer-caddie partnership: An exploratory investigation into the role of the caddie. *Athletic Insight, 6*(1), 20-35.

Locke, E., & Latham, G. (2006). New directions in goal-setting theory. *Current Directions in Psychological Science, 15*(5), 265-268. doi: 10.1111/j.1467-8721.2006.00449.x

Martens, R., Burton, D., Vealey, R., Bump, L., & Smith, D. (1990). Development and validation of the Competitive State Anxiety Inventory-2. In R. Martens, R.S. Vealey, & D. Burton (Eds.), *Competitive anxiety in sport* (pp.117-190). Champaign, IL: Human Kinetics.

Maxwell, J. (2004). Using qualitative methods for causal explanation. *Field Methods, 16*(3), 243-264. doi: 10.1177/1525822X04266831

Maxwell, J. (2012). *A realist approach for qualitative methods.* California: Sage.

Maykut, P., & Morehouse, R. (1994). *Beginning qualitative research: A philosophic and practical guide.* London: Falmer Press.

McCaffrey, N., & Orlick, T. (1989). Mental factors relating to excellence among top professional golfers. *International Journal of Sport Psychology, 20*(4), 256-278.

Nakamura, J., & Csikszentmihalyi, M. (2002). The concept of flow. In C.R. Snyder & S.J. Lopez (Eds.), *Handbook of positive psychology* (pp.89-105). New York: Oxford University Press.

Nicholls, A., Polman, R., & Holt, N. (2005). The effects of individualized imagery interventions on golf performance and flow states. *Athletic Insight, 7*(1), 43-64.

Orlick, T., & Partington, J. (1998). Mental links to excellence. *The Sport Psychologist, 2*(2), 105-130.

Pates, J. (2013). The effects of hypnosis on an elite senior European golfer: A single-subject design. *International Journal of Clinical and Experimental Hypnosis, 61*(2), 1-12. doi: 10.1080/00207144.2013.753831

Pates, J., & Maynard, I. (2000). The effects of hypnosis on flow states and golf performance. *Perceptual and Motor Skills, 91*(3), 1057-1075. doi: 10.2466/pms.2000.91.3f.1057

Popper, K. R. (1959). *The logic of scientific discovery*. London: Hutchinson.

Potter, J., & Hepburn, A. (2005). Qualitative interviews in psychology: problems and possibilities. *Qualitative Research in Psychology, 2*(4), 281-307. doi:10.1191/1478088705qp045oa

Russell, W.D. (2001). An examination of flow state occurrence in college athletes. *Journal of Sport Behavior, 24*(1), 83-107.

Sayer, A. (1992). *Method in social science: A realist approach* (2nd ed.). London: Routledge.

Scanlan, T., Carpenter, P., Schmidt, G., Simons, J., & Keeler, B. (1993). The Sport Commitment Model: Development for the youth-sport domain. *Journal of Sport and Exercise Psychology, 15*(1), 16-38.

Scanlan, T., Russell, D., Wilson, N., & Scanlan, L. (2003). Project on Elite Athlete Commitment (PEAK): 1. Introduction and methodology. *Journal of Sport and Exercise Psychology, 25*(3), 360-376.

Singer, R. (2002). Preperformance state, routines and automaticity: What does it take to realise expertise in self-paced events? *Journal of Sport and Exercise Psychology, 24*(4), 359-375.

Smith, B., & Caddick, N. (2012). Qualitative methods in sport: A concise overview for guiding social scientific research. *Asia Pacific Journal of Sport and Social Science, 1*(1), 60-73. doi:10.1080/21640599.2012.701373

Sparkes, A.C., & Smith, B. (2009). Judging the quality of qualitative inquiry: Criteriology and relativism in action. *Psychology of Sport and Exercise, 10*(5), 491-497. doi:10.1016/j.psychsport.2009.02.006

Sparkes, A.C., & Smith, B. (2014). *Qualitative research methods in sport, exercise and health.* Oxon: Routledge.

Spencer, L., Ritchie, J., O' Connor, W., Morrell, G., & Ormston, R. (2014). Analysis in practice. In J. Ritchie, J. Lewis, C. McNaughton Nicholls & R. Ormston (Eds.), *Qualitative research practice* (pp.295-345). London: Sage.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Grounded theory technique and procedures* (2nd ed.). Thousand Oaks, CA: Sage.

Sugiyama, T., & Inomata, K. (2005). Qualitative examination of flow experience among top Japanese athletes. *Perceptual and Motor Skills, 100*(3), 969-982. doi: 10.2466/PMS.100.3.969-982

Thomas, P., Murphy, S., & Hardy, L. (1999). Test of performance strategies: Development and preliminary validation of a comprehensive measure of athletes' psychological skills. *Journal of Sports Sciences, 17*(9), 697-711. doi: 10.1080/026404199365560

Vealey, R., Hayashi, S., Garner-Homan, M., & Giaccobi, P. (1998). Sources of sport-confidence: Conceptualisation and instrument development. *Journal of Sport and Exercise Psychology, 20*(1), 54-80.

Vealey, R., & Chase, M. (2008). Self-confidence in sport. In T. Horn (Ed.), *Advances in Sport Psychology* (pp.65-98). Champaign, Il: Human Kinetics.

Young, J. A. (2000). Professional tennis players in the zone. In S. J. Haake & A. Coe (Eds.), *Tennis science and technology* (pp.417-422). Malden, MA: Blackwell Science.

Tables

Table 1: Participant demographics

Player	Age	Seasons on European Tour	Nationality	Current playing status
1	23	3	England	European Tour
2	24	2	England	European Tour
3	26	4	England	European Tour
4	29	6	Belgium	European Tour
5	32	5	England	European Tour
6	34	1	Ireland	European Tour
7	42	12	England	Retired
8	44	20	Ireland	European Tour
9	58	18	Scotland	Senior Tour
10	58	24	England	Senior Tour
Mean (SD)	37 (13.08)	10.7 (7.5)		

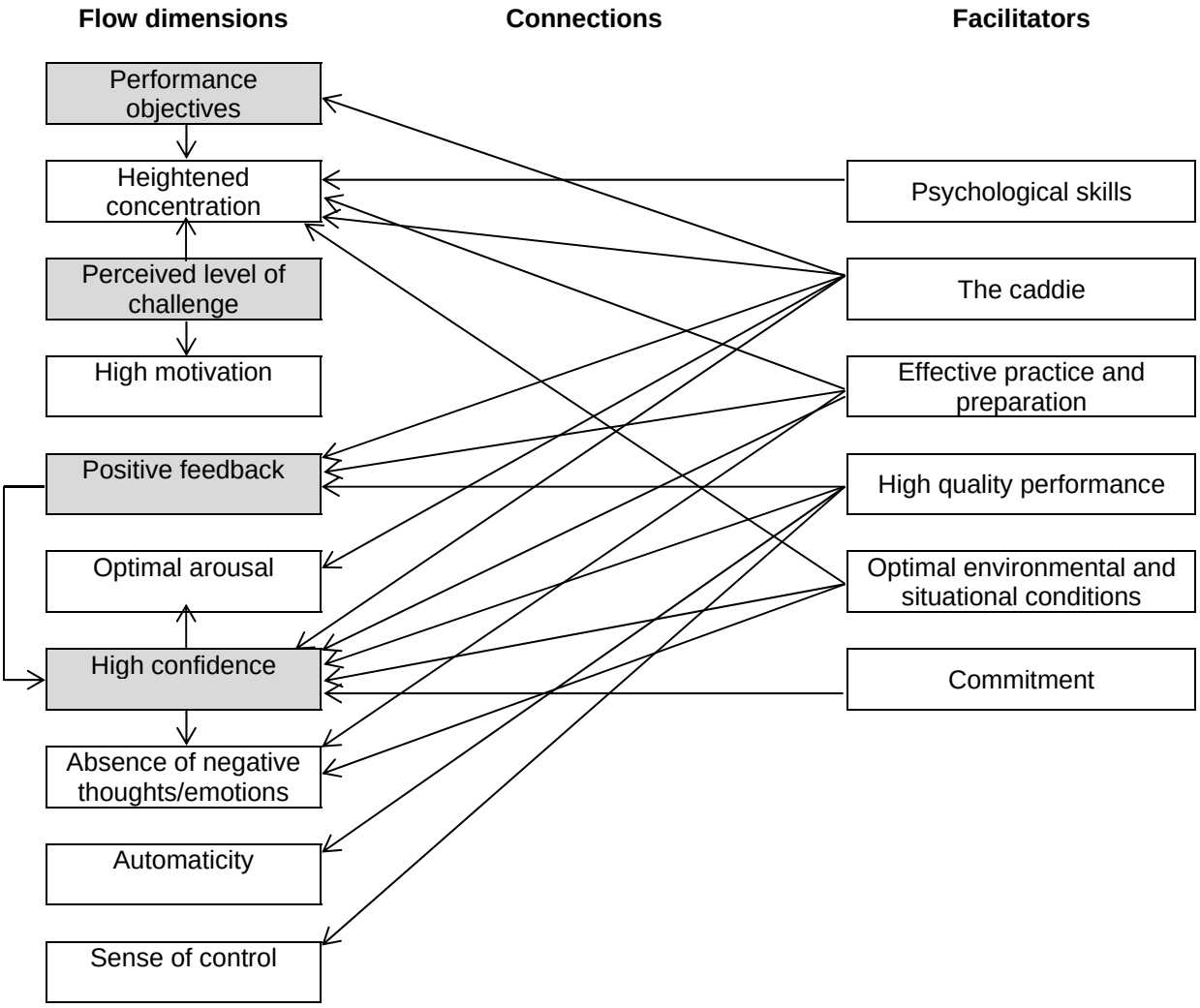
Appendix

Table A1: Factors perceived to facilitate flow by European Tour golfers.

Raw Data Codes	Higher-Order Themes	Categories
Positive, calming, non-distracting circumstances set up for success	Off-course scenario	Commitment
It takes hard work, dedication, and commitment; all I did was work on my game; putting in work during off-season	Hard work, dedication and commitment	
It's all about being professional – it's a life managing thing. Immersing yourself in your own bubble; not allowing anything in the way of what you're doing Being selfish, clearing the decks and saying 'no'; don't do anything, or talk to anyone, that you don't want to	Professionalism and self-management	
Doing the same things every time before playing	Pre-round routine	Effective practice and preparation
Hitting it well during the warm-up; warming up well	Warm-up	
It's all about preparation and having everything in place; doing as much as you can to ensure you play well	Being fully prepared	
Had good practice rounds; ingraining your game through practice	Practicing well	
Mental preparation - mentally rehearsing the round before playing	Mental preparation	
Physically prepared; feeling in good shape; body feels good	Physically prepared	
Felt rested and ready to compete; go to the course with calm mind	Readiness	
Doing the same thing every time; I'm trying to be as focused as I can possibly be during the routine	Pre-shot routine	Psychological skills
Being able to switch focus on and off between shots	Switching on and off	
Breathing exercises to slow heart rate down	Breathing exercises	
Slow yourself down when you get nervous	Walking slower	
Talk about anything but golf to distract yourself from the situation	Dissociation	
Playing in good weather - no wind, sun shining	Perfect weather	Optimal environmental and situational conditions
Happy in the place; favourite city; nice scenery; good restaurants	Like the place	
The course suited me; feeling good about the course	Like the course	
Feeding off playing partners; comfortable with who playing with	Playing partners	
External factors click into place, everything goes to plan; good yardages keep coming up; luck; calm atmosphere in crowd	External factors click into place	
Making sure you've got the right caddie	→	The caddie
It happens when it means something and the pressure builds; when I'm playing with bigger players in front of crowds	Demanding or challenging situations	Perceived level of challenge
Truly believing in your ability to achieve; having huge confidence and belief in yourself	Confidence	High confidence
Went into the tournament feeling really good about my game	Pre-round confidence	
When you're playing better it happens more; it all stems from playing well/shooting a good score	Playing well/shooting a good score	High quality performance
The better my technique is, the better I'll play; the better you're swinging the club the easier it is to get into (flow)	Having good technique	
Holing long or unexpected putts; hitting bad shots that end up good	Unexpected boosts	
It starts with something good followed by a period of momentum; it's a growth thing – it builds up over time	Psychological momentum	
Knew I was swinging the club well; sensed that the swing was in place; swing clicked into place	Awareness of/feedback regarding swing	Positive feedback
You know how you're swinging the club; Very aware of my technique; Know if I make this move I'll get that result	Awareness of technique	
Good feeling in putting stroke	Aware that putting well	
Trying to win/beat all the other players; trying to play the best I can Needing birdies to make the cut	→	Performance objectives

Figures

Figure 1: Connecting analysis of the ways in which facilitators influenced flow occurrence



Note: Shaded factors were part of the flow experience and also influenced its occurrence.