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Exploring the interactions underlying flow states: A connecting analysis of flow occurrence in European Tour golfers

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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 exactly 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 golfers.
Design: Qualitative design.
Method: Ten full-time golfers from the European Tour (M age = 37; SD = 13.08) participated 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 have not 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.

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 by 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

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strive to achieve, while also receiving *unambiguous feedback* regarding their progression towards these goals. The person 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 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 consistently reported to facilitate, prevent, and disrupt flow across a range of sports (Swann, Keegan, Piggott, & Crust, 2012). These factors include focus, preparation, motivation, arousal, thoughts and emotions, confidence, environmental and situational conditions, feedback, performance, and team play and interaction (Swann, Keegan, Piggott, & Crust, 2012). 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, Ritchie, O'Connor, Morrell, & Ormston, 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* the 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, 2012).

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 specifically within the data (see Maxwell, 2012). 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). 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 approach is likely to provide clearer understanding of flow occurrence in that context, and more relevant and specific information for athletes, coaches, and practitioners. The self-paced nature of golf, with competitive rounds lasting up to 6 hours, means that there are often long periods of time between