



Systematically comparing methods used to study flow in sport: A longitudinal multiple-case study



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ABSTRACT

Objectives: The study aimed to evaluate the effectiveness of existing methods employed to collect experience-near data on flow in sport to develop a more robust approach to investigate the phenomenon in this context.

Design: Longitudinal mixed method multiple-case study.

Method: Ten Irish athletes (M age = 25.12 years, $SD \pm 3.83$) completed the Flow Questionnaire (FQ; Csikszentmihalyi & Larson, 1984) and the Flow State Scale-2 (FSS-2; Jackson & Eklund, 2004) following the completion of five competitive performances. Questionnaire responses were used to identify the occurrence of flow and sample individuals for event-focused interviews (total = 22), which were conducted as soon as possible after performances ($M = 4.05$ days). Data from the quantitative and qualitative phases were analysed independently prior to integrated dataset analysis using within-case and then cross-case analysis.

Results: Flow and clutch states were described by participants during event-focused interviews. Conducting multiple event-focused interviews provided novel insights into similarities and differences in participant experiences across numerous performance contexts. Integration of the questionnaire and interview data revealed issues with the discriminant validity of the FQ and the FSS-2, as the questionnaire contents represented the subjective experience reported by participants during flow and clutch states.

Conclusion: Findings highlight issues with the use of the FQ and FSS-2 to assess the flow experience and reinforce the importance of collecting qualitative data soon after performances until more valid quantitative measures are developed. The methodological issues that emerged are discussed in relation to the existing literature, and potential implications and recommendations for future research are outlined.

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1. Introduction

Flow is an intrinsically rewarding psychological state involving complete task immersion and the perception that actions occur in a spontaneous and automatic manner (Jackson & Csikszentmihalyi, 1999). Csikszentmihalyi (2002) conceptualised the flow experience into nine dimensions, and this representation of the phenomenon has been broadly supported by qualitative (e.g., Chavez, 2008; Jackson, 1996; Swann, Crust, Keegan, Piggott, & Hemmings,

2015) and quantitative (e.g., Aherne, Moran, & Lonsdale, 2011; Stavrou, Jackson, Zervas, & Karteroliotis, 2007) studies in sport. Nakamura and Csikszentmihalyi (2002) proposed three of the dimensions as proximal conditions or antecedents of flow, comprising: *challenge-skills balance* (perceived equilibrium between high skills and demands); *clear goals* (know what to do); and *unambiguous feedback* (receive information regarding task progression). Upon satisfying these conditions, it is proposed that individuals enter a subjective experience that can be epitomised by

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six dimensions¹ (Nakamura & Csikszentmihalyi, 2002), including: *action-awareness merging* (perform automatically), *concentration on the task at hand* (focus on task), *sense of control* (e.g., over performance), *loss of self-consciousness* (reduced concern for self), *transformation of time* (distorted perception of time passing), and *autotelic experience* (enjoyable and intrinsically rewarding state). In sport, flow has been associated with superior performance (Jackson & Roberts, 1992; Swann, Keegan, Crust, & Piggott, 2016), and a range of positive psychological outcomes, including enhanced self-concept (Jackson, Thomas, Marsh, & Smethurst, 2001) and well-being (Haworth, 1993). The performance-based and psychological benefits linked to flow emphasise the relevance and desirability of this psychological state for athletes of all levels, and underscores the importance to understanding how athletes can experience this psychological state more consistently, frequently, and intensely during performances (cf. Swann, 2016).

Although there is broad consensus on the definition and conceptualisation of flow, there is less agreement amongst researchers regarding the most valid and reliable method to assess this psychological state (Moneta, 2012). Indeed, Jackson and Kimiecik (2008) outlined that “one of the greatest challenges in flow research or any research involving subjective experiences, is finding ways to assess the experience itself accurately and reliably” (p. 391). To address these methodological challenges, researchers have advocated that collecting data through multiple methods (Jackson, 2014) and minimising the degree of retrospective recall (e.g., Jackson & Marsh, 1996; Swann, Keegan, Piggott, & Crust, 2012) could offer the greatest potential to advance understanding of flow states in sport. Therefore, the aim of this article is to evaluate the effectiveness of existing quantitative and qualitative methods employed to collect experience-near data on flow in sport to develop a more robust approach to investigate the phenomenon in this context.

1.1. Researching flow in sport

A range of methods have been employed to investigate the experience of flow in sport, including experience-sampling, interviews, and questionnaires (cf. Swann, 2016). The Experience Sampling Method (ESM; Csikszentmihalyi & Larson, 1987) was developed to obtain real-time data about people's experience as it occurred and was “fresh” in their mind. ESM participants are prompted to complete the one-page Experience Sampling Form by random beeps on an electronic device (e.g., pager beep) at random intervals throughout each day over a period of time (e.g., one week). Although the ESM, or adapted versions of the ESM, have been employed by some researchers in sport (e.g., Delle Fave, Bassi, & Massimini, 2003), the impractical nature of wearing an electronic beeper and disrupting an athlete during competitive performance limits the viability of this approach (Jackson & Kimiecik, 2008). Nonetheless, Csikszentmihalyi (1992) stated that the ESM is “certainly not written in stone” (p. 182), and calls for the

development of more pragmatic alternatives to the ESM in sport have been advanced (Jackson, 2014; Swann, 2016).

The majority of studies employ questionnaires to investigate flow (Engeser & Schiepe-Tiska, 2012). Numerous quantitative measures have been developed to assess the flow experience, although the scales developed by Jackson and Eklund (2002, 2004) are the most widely used (Moneta, 2012). The Flow State Scale (FSS; Jackson & Marsh, 1996), the revised Flow State Scale-2 (Jackson & Eklund, 2002, 2004), and the abbreviated Short Flow Scale (SFS; Jackson, Martin, & Eklund, 2008) adopt a componential perspective on flow based on Csikszentmihalyi's (2002) nine dimensions framework. These measures capture experience-near data on the intensity of flow in specific events and are completed soon after performances. The FSS, FSS-2, and the SFS have been used extensively as a measure of flow in sporting activities (e.g., Aherne et al., 2011; Stavrou et al., 2007). Moreover, the scales have been used to assess this phenomenon in other performance domains, including computer gaming (e.g., Harmat et al., 2015) and music (e.g., Wrigley & Emmerson, 2013).

Despite the prominence of quantitative studies, psychometric inventories struggle to obtain the rich, in-depth descriptions that can be attained through qualitative methods (e.g., Jackson & Kimiecik, 2008; Swann et al., 2012). To collect richer and more detailed insights, recent qualitative studies have used ‘event-focused’ interviews to obtain experience-near data on the subjective experience of excellent performance in sport (Swann et al., 2017b, 2016). Based on the purported association between flow and superior performance (e.g., Jackson & Roberts, 1992), Swann et al. (2017a, 2017b) utilised indicators of excellent performance to sample individuals for event-focused interviews. The criteria for excellent performance included tournament victories, personal best performances, or recognition from others (e.g., player of the match award). By conducting interviews soon after recent and specific events, the findings of these studies have provided several important and novel insights. In addition to providing more precise details on flow, the findings suggest that a second, overlapping “clutch” state can be experienced during superior athletic performance (Swann et al., 2017a, 2017b). This second psychological state is considered to underlie clutch performance (Swann et al., 2017a, 2017b), a term defined as “any performance increment or superior performance that occurs under pressure circumstances” (Otten, 2009, p. 584). Furthermore, clutch performance represents instances when competitive athletes are successful in pressured situations, are cognisant of the pressure attached to the situation, possess a capacity to experience stress, understand the importance of the outcome, and achieve their success through skilled actions (Hibbs, 2010). Thus, clutch performance is defined in terms of performance outcomes (Hibbs, 2010; Otten, 2009), but clutch states refer to the subjective experience underlying clutch performance (Swann et al., 2017a).

Several overlaps in experience were apparent between flow and clutch states (i.e., absorption, altered perceptions, confidence, enhanced motivation, enjoyment, and perceived control), but a number of features distinguished clutch states from flow, comprising: *complete and deliberate focus* rather than *effortless attention*; *heightened arousal* instead of *relaxation*; and *heightened awareness, automaticity of skills, and intense effort* compared to *automatic and effortless experience* (Swann et al., 2017a, 2017b). Qualitative studies investigating flow in sport have primarily explored the experiences of performers *in general* throughout their career, and thus adopted a career-based perspective (e.g., Chavez, 2008; Jackson, 1996; Swann et al., 2015a). Given that evidence of clutch states did not emerge previously, it was suggested that career-based studies might have been unable to identify the subtle differences between these phenomena, and that the description of

¹ There appears to be a lack of clarity regarding the number of dimensions that must be experienced to constitute a flow experience. For example, Nakamura and Csikszentmihalyi (2002) state that the existence of challenge-skills balance, clear goals, and unambiguous feedback leads to the remaining six dimensions of flow. Engeser (2012) postulated that flow is a multifaceted experience, but argued that the autotelic experience could be omitted on the basis that flow can be experienced in activities that might not necessarily be overtly intrinsic in nature (see Engeser & Schiepe-Tiska, 2012). Moreover, a systematic review of qualitative research on flow in elite sport found that athletes typically report experiencing five of Csikszentmihalyi's (2002) nine dimensions at any particular time during flow (Swann et al., 2012). Therefore, there appears to be agreement amongst researchers that flow is multifaceted, but uncertainty regarding the specific number of dimensions required to signify a flow experience.

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