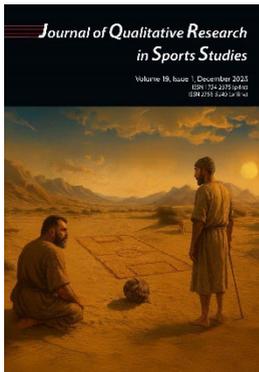


Published by:

Social Inquiry Press: University of Lancashire, Preston, UK.

Date Accepted for Publication: 1st November 2025



Journal of Qualitative Research in Sports Studies

Volume 19, Issue 1, December 2025

High-performance sport management teams: operationalizing cognitive diversity and shared mental models with subject matter experts

¹ Iain Cleland (University of Lancashire, Preston, UK)

² Scott Simon (University of Lancashire, Preston, UK)

³ Simon Whitmarsh-Knight (University of Lancashire, Preston, UK)

⁴ Heather Cleland-Woods (Glasgow University, UK)

⁵ Pamela Richards (University of Lancashire, Preston, UK)

ISSNs: 1754-2375 [print] 2755-5240 [online]

ISBN: 978-1-0683365-1-5 (320 pages)

JQRSS Article No: 7/10-19-1-2025-PG[138]-200

To cite this article:

Cleland, I., Simon, S., Whitmarsh-Knight, S., Cleland-Woods, H. and Richards, P. (2025) High-performance sport management teams: operationalizing cognitive diversity and shared mental models with subject matter experts. *Journal of Qualitative Research in Sports Studies*, 19, 1, 215-234.

URL link to this article:

https://www.academia.edu/145528654/Clive_Palmer_feat_Rugby_Mum_and_The_Bristol_Boys_Joanne_Keeling_Glenn_Smith_Danny_Lee_and_Craig_Lawlor_C_2025_What_does_learning_look_like_Passing_thoughts_on_doctoral_engagement_and_the_predicament_of_learning_Journal_of_Qualitative_Research_in_Sports_Studies_19_1_239_270

Advice to submitters - JQRSS Guide to Contents & Open Call for Papers:

https://www.academia.edu/3513281/JQRSS_Overview_Guide_to_Contents_and_Editorials_by_Volume_-_Open_Call_for_Papers

JQRSS Mapping of Articles (2007- to date):

https://www.academia.edu/8827414/Mapping_of_JQRSS_articles_across_Undergraduate_and_Postgraduate_research

Copyright © Clive Palmer and the individual authors (CC-BY-NC-ND)

Notice:

The discussions, statements of fact and opinions contained in the articles of *The Journal of Qualitative Research in Sports Studies* are those of the respective authors and cited contributors and are set out in good faith for the general guidance of student supported research and the promotion of pedagogical discussion in teaching and learning contexts. No liability can be accepted by the Editor, Advisory Board, the reviewers or the authors/submitters for loss or expense incurred as a result of relying upon particular statements made or circumstances outlined in this journal.



Online Indexing – Open Access Research Platforms:

EBSCO Host: <https://www.ebsco.com/products/ebscohost-research-platform>

Google Scholar: [Dr Clive Palmer PhD, National Teaching Fellow, PFHEA, UKCGE](https://scholar.google.com/citations?user=Dr_Clive_Palmer_PhD)

Academia.edu: <https://uclan.academia.edu/ClivePalmer>

ResearchGate: http://www.researchgate.net/profile/Clive_Palmer

High-performance sport management teams: operationalizing cognitive diversity and shared mental models with subject matter experts

Iain Cleland¹, Scott Simon², Simon Whitmarsh-Knight¹, Heather Cleland-Woods³ and Pamela Richards¹

¹ University of Lancashire, Preston, UK.

² Scotland Rugby League.

³ Glasgow University, UK.

Keywords: *high performance sport, cognitive diversity, shared mental models*

Abstract

The fusion of knowledge from multi-disciplinary Subject Matter Experts (SMEs) is essential in High Performance Management Teams (HPMTs) in sport. HPMTs strive for performance optimization and complex problem solutions. In pursuit of this ambition, HPMTs face the challenge of successfully integrating discipline knowledge from multiple SMEs (e.g., sport scientists, nutritionists, medical staff and coaches) into one congruent performance vision. This paper introduces a novel framework for integrating diverse cognitive skillsets within HPMTs. It explains how Shared Mental Models (SMM) serve as a mechanism to combine knowledge from cognitively diverse SMEs working in HPMTs, ultimately enhancing team performance. The following work is expected to help both professionals and researchers understand the challenges of cognitive diversity in HPMTs and encourage conversations in the community about how specialists from different fields work together in HPMTs in elite sports.

Introduction

Given the complexity of working in elite sport, characterised by rigorous performance standards, professional structures, and the relentless pursuit of excellence, this paper offers a unique contribution to understanding the challenges faced by subject matter experts (SMEs) within High-Performance Management Teams (HPMTs) operating in this demanding environment.

The paper provides an applied perspective which outlines the most critical factors which are of value when integrating inter-disciplinary experts (different cognitive skill sets) within sport HPMTs. The integration of experts from diverse disciplines into a unified performance vision or shared mental model (SMM;



Ashford *et al.*, 2023; Richards *et al.*, 2012) significantly influences performance success across complex domains. The uniqueness of this current work means that it captures the distinct challenges of bringing multiple SMEs (i.e., technical coaches, sports medicine, sport science, performance managers, psychologists etc.) together, to co-create and operationalize one shared performance vision (known as an alpha vision; Richards *et al.*, 2009). The framework presented within the paper outlines the early stages of research on HPMTs in top-level sports, where cognitively divergent experts can be aligned for a united convergent vision, utilizing SMMs which operationalize a shared understanding of the context (Richards *et al.*, 2012). It explores how teams can effectively bring together experts from different disciplines, each with their own unique skills and knowledge, to co-ordinate and deliver one performance vision. Integrating discipline diversity allows for cognitive diversity, or differences in the ways that team members think about important tasks (Klein, 2023) to be maximized. The fusion of multiple SMEs divergent thinking into congruent team thinking aids problem solving and ultimately optimizes the performance of the team or athlete as creative and effective solutions are collectively found (Aggarwal *et al.*, 2019; Richards *et al.*, 2009). This article contributes to a deeper understanding of the essential roles specialists play in fostering success and innovation within HPMTs and how they can; 1) integrate subject expertise to effectively collaborate; and 2) co-create and develop a congruent vision (SMM) facilitating the creation of innovative solutions, which address complex performance problems.

HPMTs are now, more than ever, required to manage complexity in multifaceted performance challenges. Recent research has suggested that, as the modern world has become more volatile, uncertain, complex and ambiguous, the organizational problems we face can be too difficult for one person alone to solve successfully (Taskan *et al.*, 2022). Instead, the effective HPMT will be enhanced by cognitive agility and more effective decision making, to solve complex problems through the integration of knowledge and expertise from several SMEs (Lawrence, 2013). This integration of knowledge will logically require individuals to function effectively within a ‘discipline-diverse’ (Richards *et al.*, 2009; Richards *et al.*, 2016) team. In this context the term ‘discipline-diversity’ refers to the integration of knowledge and experience from SMEs.

Drawing on over six decades of combined experience working in Olympic, Paralympic and professional sport, tested at global events such as World Cups, European Championships and other high-performance professional sport environments and combined with empirical research, the authors provide a unique insight into the complexity of leading and working in cognitively diverse HPMTs within elite sport. The approach taken for this paper, although not a focus for this publication due to its conceptual nature, is a combination of integrating a dynamic capture of reflective journals, field notes and published empirical work fused into

one innovative hybrid (academic and professional) design. By combining these insights with published research from the authors, the paper creates a comprehensive understanding of the topic. We present a conceptual illustration (see figure 1), illustrating how ‘discipline-diversity’ is operationalized within elite sport HPMTs. In doing so this paper makes a unique and valuable contribution to research, through the dual lens of researchers and practitioners, integrating decades of applied experience.

Defining diversity within the HPMT context

While diversity is well-researched within the literature, the definition of diversity is broad. The current literature describes many different types of diversity, generally categorized into two main areas. The first considers inherent, demographic, observable, measurable or visible elements, whilst the second considers acquired, non-observable, perceived or less visible characteristics (Milliken and Martins, 1996). According to Milliken and Martins (1996), demographic or observable differences include factors such as gender, age, race, ethnicity, distance from colleagues and discipline or area of expertise. They expand on this to suggest that these visible differences are more likely to evoke reactions based on bias or prejudice. Each area can have positive or negative effects on teamwork. For example, in their study into drivers of networked innovation, Lungeanu and Contractor (2015) researched the impact of two different dimensions of diversity, distance and discipline, on collaboration. Their findings suggest that innovative solutions need diverse ideas, highlighting the importance of team diversity. However, such collaboration is enhanced by trust and communication, which can be more difficult with people from diverse backgrounds.

The second categorization focuses on cognitive diversity including characteristics such as education, knowledge, personality, values, skills, functional background and tenure (Milliken and Martins, 1996). Sauer *et al.* (2006) identify two types of cognitive diversity: system understanding (the depth of understanding team members received during training) and team specialization. Both are pertinent to this paper in context of SMM in HPMTs. For the beneficial effects of cognitive diversity to be observed it is important that SMEs have the same understanding of the performance systems they function within (Sauer *et al.*, 2006). This includes the roles of all SMEs, the performance objectives (alpha vision) and the mechanisms through which interactions occur. Complementing this is the integration of discipline expertise through SMEs, where specialist teams can function effectively but can be harmonized with other SME teams, all being shaped by one performance vision as outlined in figure 1. In other words, SMEs have an understanding as to how the task, context and skills of people integrate within the HPMT which is bespoke to their own setting. Such concepts in sport are supported by the early work of Richards *et al.* (2016) and Richards *et al.* (2022) which illustrated SMMs as a concept that

integrates individual roles, awareness of team members and tasks, all within a specific elite sporting context.

Research describes many advantages of diversity in organizational settings. Page (2014) suggests that diversity can improve problem-solving abilities in complex, changing or creative environments where differing points of view help to create recombinant ideas, with each new idea producing ‘super-additivity’ (p.86). However, Lungeanu and Contractor (2015) suggest that scientific collaboration benefits from both diversity and homophily: diversity in knowledge leads to the recombinant ideas necessary for innovation, but some degree of homophily (in terms of prior collaboration), helps to reduce uncertainty and encourage knowledge sharing. This research highlights the ‘Goldilocks effect’ (Balas-Timar and Lile, 2015), which suggests there's an optimal level of diversity for a team's success. Like the fairy tale character seeking the ‘just right’ option, teams need to strike a balance, not too much diversity, not too little, but just the right amount to excel in their tasks. However, it is important to note that the research mentioned above is not alone in highlighting the benefits and drawbacks of diversity. These findings vary across different contexts, indicating that the ideal balance may shift depending on the specific situation or environment. As Milliken and Martins (1996) state in their meta-analysis of the effects of different types of diversity within organizations, heterogeneity provides both opportunities and challenges. With more culturally diverse populations and the growing use of teamwork across sport and business, it is important to understand how performance can benefit from the positive impact of diversity on organizational effectiveness and team member satisfaction.

Defining the HPMT

Exploring contemporary HPMTs, we suggest the traditional approach of performance specialists (general managers, coaches, sport scientists, etc.), working on elements of performance from a mono-perspective, is not conducive to current high-performance sport. By mono-perspective, we infer that a specialist will work independently (or more simply within silos), with their discipline knowledge being applied singularly to the performance context. We propose that the development of a HPMT is a more complex process and that while specialist knowledge may be provided by SMEs, it is exchanged and made useable within context by the HPMTs (Simon and Richards, 2022). In our experience, success in high-performance sports relies on a combination of experts: specialists in specific areas such as biomechanists, hybrid experts with multiple skills such as strength and conditioning coaches who also hold coaching awards for their specific sport, and Subject Matter Expert Teams (SMETs). For example, a SMET might include medical specialists, doctors, physiotherapists, and sport therapists. These experts work cohesively, leveraging their diverse expertise to create a unified high-performance ecosystem. This collaborative approach harnesses individual expertise and integrates diverse

disciplines to innovate, exchange knowledge, and push performance boundaries (Simon and Richards, 2022). Critically then, within HPMTs, diversity can, in some cases, provide the basis for competitive advantage for organizations. However, in order to leverage these differences, it is also important to create a culture of inclusivity so that these different perspectives have space to surface.

HPMTs operate within a complex and dynamic performance ecosystem that is inherently unpredictable (Richards, 2024b). These sociotechnical systems, which involve interactions between people and technology, can give rise to significant challenges and difficulties (Richards and Collins, 2022). We present the argument that SMETs, bringing a diverse cognitive skill set which is divergent, can be aligned in a convergent way through the SMMs which unify the diverse skill set of SMEs. We therefore see cognitive diversity in HPMTs as bringing an advantage to the high-performance setting, where SMEs bring diverse thinking to a performance problem and merge multiple discipline expertise, to create innovative solutions which inform and advance the performance context.

Page (2014) suggests that an additional benefit of diversity, teams can also be more resilient. Alluding to the Law of Requisite Variety (Ashby, 1958), which states that the variety within a system must be at least as great as the environmental variety against which it is attempting to regulate itself. Page (2014) highlights that groups with a diverse set of skills are more likely to withstand external disturbances. In other words, a variety and abundance of skills offer increased responsiveness and, we would argue, potentially elevate resilience to a higher level. The recent shifts towards hybrid work environments (home and office) due to the pandemic introduce a new dimension to the examination of diversity within high-performing teams.

In developing sufficient techniques to capitalize on the benefits described above Aggarwal *et al.*, (2019) suggest that heterogeneity (in particular cognitive diversity), can improve some team's collective intelligence, and thus their ability to work together across a range of tasks. However, as stated previously, it is important to create a team with just the right amount of cognitive diversity, as too much may result in the benefits being lost due to the high costs of inefficient communication. In simpler terms, while cognitive diversity enhances collective intelligence, too much of a good thing can lead to a lack of consensus in sharing a perspective and finding an agreed solution, resulting in a high cognitive workload owing to coordination costs across the team.

Characteristics of the High-Performance Management Team

To clarify the diversity within HPMTs and provide context for this paper, it is useful to first examine their defining attributes. When operating within the landscape described above, HPMTs have evolved to encompass a range of experts, serving a variety of functions driven by the performance demands and needs of the sport. They

are characterized by clarity of purpose and mission, the goal being to deliver results, (e.g., Olympic medals). These interdisciplinary teams often operate within specialized facilities and training centres that support the athletes to meet the sports performance demand and deliver planned outcomes. Through this diversity of skills, experience and outlook within the HPMTs, debate and challenge to improve performance are encouraged, while promoting innovation and collaboration (Collins, *et al.*, 2018). However, diversity within this setting is not without risk. Skilled leadership that allows diversity of thought and challenge to flourish is often vital to achieving success. It is understood by the authors that the list of characteristics is not exhaustive, and that teams will develop idiosyncratic characteristics driven by their need and function. We argue that understanding the nature and landscape as well as key characteristics of HPMTs is important. The process of defining their task, gaining alignment and collaboration must also be considered when building a shared vision of performance.

Contextualising and defining shared mental models (SMMs)

Addressing the complexity of cognitive diversity in HPMTs, the authors employ and utilize the Naturalistic Decision Making (NDM) paradigm. We propose this theoretical stance for several reasons. First, NDM focuses on decisions which are performed in complex and often unpredictable conditions, in pressurized situations and with extreme time constraints (Klein, 2008). Secondly, NDM researchers seek to investigate how experts perform tasks in dynamic real-world contexts which have ill-structured problems, shifting and changing objectives, time constraint and include multiple players and are influenced by organizational goals (Richards *et al.*, 2016). Such philosophical underpinnings are strongly positioned to help us understand HPMTs in sport, as the theoretical characteristics of NDM match those of performance sport. Finally, the complexity of such fluid environments in which HPMTs function, demands the dynamic interaction of multiple concepts. Investigating these concepts in isolation from each other over inflates their importance (Williams, 2009), and we would argue prevents the connectivity of concepts (performance parameters, goals and philosophy, roles of individuals and sub-teams etc., see Richards *et al.*, 2016) which exist in such environments, and which need to be shared by all team members. Such complexity can be examined and understood through the theory of SMMs, which is a theoretical approach positioned within the paradigm of NDM. Research has shown that a collective understanding of SMMs enables individuals to execute specific roles in a coordinated manner to achieve the same perceived outcome, thereby enhancing the performance of the team (Richards *et al.*, 2009; 2015; 2016; 2022). Drawing on NDM, and specifically SMMs, provides a theoretical framework to understand cognitive diversity in HPMTs.

Within high-performance sporting situations, a SMM of performance (Richards *et al.*, 2012) is vital to develop an agreed collective mindset (shared vision) to a performance strategy, tactical or athlete focus (Richards *et al.*, 2012; Simon and Richards, 2022). Through a defined SMM, collaboration of the HPMT is improved and support is also provided to teams in decision-making and coordination of activities (Stout *et al.*, 1999). More simply, to succeed a shared understanding of the performance task is essential (Standifer and Bluedorn, 2003). This shared understanding of the performance problem or SMM, allows teams to better explain phenomena, innovate, draw inferences and identify relationships between concepts (Cannon-Bowers *et al.*, 1998; Standifer and Bluedorn, 2003). Accordingly, a shared understanding allows alignment of effort and each team member to contribute expert knowledge, derived from their technical experiences, in converging to an agreed area of the performance problem. Through this alignment, the technical elements of a SMM (the what), are augmented by the psycho-social elements (the how), as each team member integrates expertise to collaborate and socially construct a SMM (Richards *et al.*, 2016; Standifer and Bluedorn, 2003). Consequently, performance may be considered through the lens of the distinct members of the HPMT, yet clearly understood by all, developing a shared situational assessment (Endsley, 1995). In other words, a situational assessment of the performance can be explained as ‘knowing what is going on around you’ (Flin *et al.*, 2008:17).

Once a situational assessment of the SMM is created, the team can agree (or disagree), on a convergent direction in developing a context and task specific solution aligned to the SMM. In considering the factors discussed above, we aim to add to the existing body of knowledge in operationalising the SMM within HPMTs by highlighting how a varied range of cognitive diversity and discipline specific expertise can be aligned through an awareness of multiple key concepts. Such an awareness will facilitate a more diverse shared performance understanding, which will translate into enhanced athlete and team performance. How this shared understanding is integrated into HPMTs will be discussed next, particularly in the context of integrating cognitive diversity.

Integrating cognitive diversity into HPMTs

In pursuit of performance, elite management teams working in sport have grown in size and scope with multiple heads of departments and professions working to deliver results. Therefore, modern HPMTs face the challenge of successfully integrating multiple SMEs into interdisciplinary and multidisciplinary high-performance management teams, in search of maximizing performance. However, while a team member may be an expert in their field, there is a requirement that such expertise is harmonized with multiple other experts and integrated into one combined mode of delivery. Accordingly, knowledge from multiple SMEs must be integrated into the structure and functioning of high-performance management teams in support

of a defined performance vision or SMM (Simon and Richards, 2022). Performance is, therefore, more interdisciplinary (and we would argue multi-disciplinary, and even transdisciplinary), than in recent years, with specialists working and sharing knowledge in a collaborative environment (Alfano and Collins; 2023; Burns and Collins, 2023; Ekstrand *et al.*, 2018; Gabbett, 2017).

Accordingly, challenging and defining new performance boundaries demands that performance is analysed and developed through multiple lenses simultaneously. Such a process requires SMEs to explore performance where discipline areas intersect and converge. In doing so, the existing boundaries of performance may be redefined, as we continue to innovate in the pursuit of excellence. We believe as experienced practitioners and researchers that this ‘deep dive’ at the intersection of performance disciplines is essential for performance success. For example, strength and conditioning staff are no longer only charged with getting the athletes ‘fit’, they now relate the team's conditioning approach to tactical playing philosophy and the cognitive demands of the sport (Tee *et al.*, 2018). In addition, such complex integration of knowledge is executed at an individual level to match the athlete's specialism, relevant to playing positions, which is further contextualized within a team context. Therefore, how this complex integration of knowledge is integrated and developed within the HPMT is a key focus.

Developing diversity within HPMTs

The exploration of performance through multiple interdisciplinary and transdisciplinary lens is complex and presents numerous challenges. However, if engaged with correctly, it can be the catalyst for not only achieving world class performances but also the development of a high-performance management culture, in which the specialisms of experts are aligned in an integrated manner (Aggarwal *et al.*, 2019; Page, 2014).

In exploring contemporary HPMTs, we suggest the traditional approach of performance specialists working on performance aspects from a mono-perspective is not conducive to current high-performance sport. O'Neill and Salas (2018), suggest that high performance is difficult to achieve, and many teams fail to reach their full potential. However, those teams who do attain a consistently high level of performance deliver on stakeholder objectives at the highest quality level, mature into capable work units over time and provide members with ongoing opportunities to grow and develop capabilities. Daniel and Davis (2009) suggest two key guiding principles are essential for developing HPMTs. Firstly, establish and communicate the team's mission as a shared goal. In clearly defining and communicating the team's mission, a SMM becomes achievable. We would argue that in some elite environments, although there is an overarching objective which is agreed upon, the road to achieving it can sometimes be split into multiple discipline routes, each having their own beliefs on how best to achieve the outcome. Such teams often fail

to achieve success, as the SMM of a performance vision does not exist, and separate routes either conflict with each other, or fail to create a critical mass, with all perspectives failing to integrate into one direction for success. So, having a defined and agreed SMM of performance is critical (Simon and Richards, 2022). Secondly, the SMM needs to be operationalized and therefore requires that all members understand the team system and processes. In meeting these guiding principles, a framework is presented to guide the development and operationalization of diversity in HPMTs in sport (see figure 1), with the preceding narrative outlining the concepts within the frame.

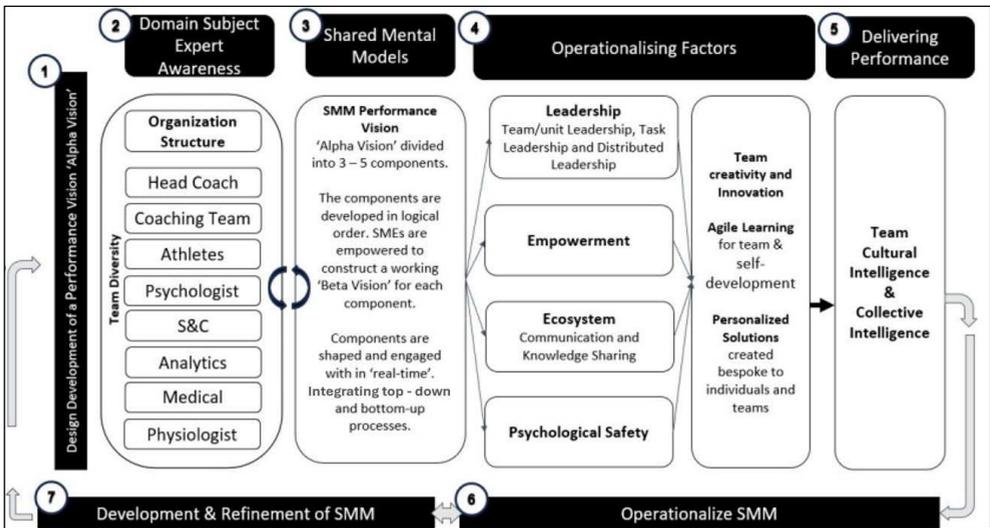


Figure 1: Developing and Operationalizing Diversity in High Performing Sports Teams illustration of concepts, mechanisms and processes.

To develop convergent thinking in 'discipline-diverse' HPMTs five primary mechanisms are required, as illustrated in figure 1. These primary mechanisms are:

- 1) Design and development of a Performance Vision ('Alpha' Vision)
- 2) Domain Subject Expert
- 3) Awareness; Shared Mental Models
- 4) Operationalizing Factors, and
- 5) Performance Features

These five primary mechanisms are being continually deployed and operationalized, as part of a sophisticated reflection and refining process (see aspects 6 and 7 in figure 1). The reflection and refinement process continuously improves and strengthens knowledge development at the individual SME, team, and performance system levels within each mechanism. Operationalization of the performance vision, combined with the development and refinement processes, utilizes a cyclical link from 'in context' performance, which is continually informed

by deliberate reflection of individuals and team performance through after actions reviews. In considering how the development of diversity within the HPMT can be operationalized, we discuss key components within the model (Figure 1).

Performance vision (alpha vision)

Before convergent thinking can be established, a SMM of performance needs to be developed by the relevant leader, say the Performance Director or Head Coach. This is called the 'alpha vision' (Richards *et al.*, 2012); see mechanism 1 in figure 1. The alpha vision represents the ideal of optimal performance, serving as a blueprint for the 'perfect performance' to be achieved. This vision guides how SMEs work and collaborate, shaping their approach to reaching peak performance levels. It includes the complex integration of technical skills, roles, tactical engagement and strategic components of the sport at multiple levels. The alpha vision of performance (see Richards *et al.*, 2009; 2012; 2016; Richards and Collins, 2022) is initially shared with all the SMEs involved in the performance setting, where SMEs are empowered to contribute. The alpha vision is useful in providing clarity of performance for vision and roles, and is a fixed point to team members, so they can frame the problem statement in context of their expertise (Richards *et al.*, 2009). The alpha vision normally consists of three to five key components, which have been identified as key determinants ensuring success e.g., transition play, back-line play, or the start of the race in an individual sport.

Domain subject expert awareness and shared mental models

At the second stage of the model, the SMEs (mechanism 2 in Figure 1) collectively develop performance strategies and training plans which will develop the three – five key aspects of performance from the alpha vision, which are deemed essential for success (mechanism 3). These key aspects of performance are normally developed in a logical order, which is progressive (Richards *et al.*, 2012; 2009). For example, one key aspect of 'turnover play' (regaining possession), would be addressed and developed (in part, or completely), before a second key aspect of 'attacking play', is developed through the SMEs' interdisciplinary lens. The interactions between these two mechanisms are cyclical, as aspects of performance relating to the alpha vision are continually being developed in the performance campaign (Simons and Richards, 2023; Richards and Collins 2022).

Through the process the SMEs integrate their area of expertise into the alpha vision, outlining and confirming what their own role is and how it will contribute to the overall objectives (mechanism 2, figure 1). This process also requires the awareness of other SME roles, and how information and team processes across disciplines connect. The process begins at the broader team or organizational level and progressively narrows down to the detailed actions and needs of individuals, ensuring clarity and precision to enhance performance. Therefore, utilizing a top-

down alpha vision approach, which enables the refinement of the bottom-up ‘beta vision’ to be operationalized by SMEs (Richards *et al.*, 2016).

The bottom-up ‘beta vision’ is informed, refined and shaped by real time feedback and engagement when the alpha vision is deployed in the performance setting. During this process (mechanisms 2 and 3, figure 1), SMEs identify how their expertise should intersect and integrate with other SMEs. For instance, a tactical coach may combine their knowledge with a strength and conditioning coach to ensure that the appropriate skills are executed effectively under pressure within a tactical scenario (integrating SME expertise from tactical, technical, physiological and skill acquisition). These specialists may draw on the expertise of the strength and conditioning expert, to ensure that the conditioning program develops the appropriate physical condition for the player, enabling them to perform the skills in the context of tactical play, with the correct technical execution to match the tactical setting. This occurs at each individual performer level, with a connectivity being extended to other players, resulting in the replication of this process across multiple players, facilitating the construction of sub-units within the team and with all units finally being connected to deliver the team performance. This happens for all components of play identified within the original alpha vision. This process is complex and multifaceted and is continually occurring. Integrating various perspectives requires the team leader to empower subject matter experts to contribute and shape the team's strategy. By leveraging collective intelligence (with all SMEs perceiving the performance setting in the same way; Richards *et al.*, 2015), the high-performance management team can incorporate diverse viewpoints to solve performance issues and develop innovative solutions.

Leadership: In operationalizing the alpha vision and empowering the development of a beta SMM the leadership, co-ordination and management of the team is essential to ensure alignment of the HPMT against the performance vision and task outcome (Simon and Richards, 2022; 2023) see mechanism 4 of figure 1. These dynamic situations may be amplified through a limitation of experience or educational skills in managing performance demands. To mitigate these difficulties, leadership within the HPMTs will need many refined skills, experience and philosophies to be responsive to key information and flexible in decision-making in overcoming obstacles and to succeed within this landscape, While transactional leadership, or more simply the leader telling subordinates what to do (Fernando *et al.*, 2020) is one approach, and may be required by the HPMT within crisis moments, it is the authors’ view that a transformational leadership model (Zhang *et al.*, 2018) will enable, empower, resource and support team members to succeed, in the process removing professional separation and creating permeable silos (Simon and Richards, 2022). Transformational leaders focus on followers, motivating them to develop their own leadership potential and in the process enabling higher levels of

performance (Zineldin, 2017). For example, the Head Coach gains cognitive capacity by empowering assistant coaches to lead strategic application of the SMM.

Through a transformational leadership style, or more simply empowering staff (Simon and Richards, 2022), the SMEs within the HPMT are united as a holistic entity, resourced and permitted to lead elements of the HPMT, which is mapped against the SMM. Such distributed task leadership (allowing the SMEs to lead where appropriate), is essential as the complexity of the elite sport needs to transition through the lens of the specialist who has the expertise to deal with the specific aspect being addressed at that moment in time. Or more simply, the most skilled or experienced expert and not the 'highest rank' for a defined period leads the team to achieve task requirements (Simon and Richards, 2023). The key to this is distributed task leadership, through which the task always remains within the context of the alpha vision, ensuring the agreed objective remains the priority, whilst allowing agility and flexibility of execution through empowering delegated leadership. Transformational leadership requires time to establish fully and relies on a mutual commitment to foster a psychologically safe team (Edmondson, 1999). In this team, individuals are actively encouraged to speak up, provide feedback, and take on ownership for leadership roles through mutual trust. These two interconnected concepts are addressed in turn below.

Empowerment: The concept of empowerment is critical in the development of sustainable and robust SMMs (Richards *et al.*, 2016). By empowering staff to become reflective thinkers and autonomous leaders, individuals come to actively engage with the process of prioritizing, ordering, and storing information (Richards *et al.*, 2009) as they make sense of their environment (Westbrook, 2006). Encouraging experts to reflect helps them notice important details in their work environment (Richards *et al.*, 2016) and connect different elements (Richards *et al.*, 2012), which fosters collaboration with other experts. This reflective process also aids in developing mental models (Westbrook, 2006) as individuals understand personal and situational factors better (Richards *et al.*, 2009). It has been well-documented that individuals actively involved in seeking solutions to problems have enhanced learning abilities (Butler, 1997). It has also been recognized that the active engagement of the individual within the performance setting significantly contributes to a greater understanding of conceptual knowledge, and the ability to apply this knowledge within sport specific contexts as found by Richards *et al.*, (2009) with their work in elite field of Hockey. As a result, the concept of empowerment has been explored in a variety of environments as a method of engaging individuals in the learning process. This debate on empowerment extends through education (Skagen *et al.*, 2006), business (Rothstein, 2005) and sport (Lawson 2005; Richards *et al.*, 2009).

The concept of empowerment cannot be easily defined owing to its interpretation across several domains. However, it is essential that a definition is provided to the reader, enabling future narratives within this paper to be placed in context. Empowerment has been defined as ‘...the process by which individuals develop skills and abilities to gain control...and take action to improve their life situations’ (Gutierrez, 1999: p.149). The thread that seems to run through most definitions of empowerment relates to the process by which people gain more control over their decisions. Thus, empowerment in a sporting context enables the empowered individual to have a choice over what happens in his/her development (Arai, 1997), and that the individual can actively engage with shaping and defining their own direction and that of others. It could therefore be suggested that empowering SMEs to engage with the process enables them to prioritize and attend to knowledge that they perceive to be important to achieving the SMM (Richards 2005; Richards *et al.*, 2012) and to share this with other SMEs developing convergent thinking and collective intelligence. This, in turn, enables individuals to contextualize information within the context of the task being performed, hence maximizing performance (Richards *et al.*, 2009; Simon and Richards, 2022). The concept of empowerment is therefore essential in the formulation of sustainable SMMs throughout the SMEs. More specifically, empowerment enables individuals to integrate their own expertise into performance settings (Richards *et al.*, 2009). However, consideration needs to be directed towards the process of how these SMEs connect to the broader context of the SMM (alpha and beta vision). The process of empowerment as outlined above is therefore essential in the development of SMMs within the team of SMEs, as it will facilitate the exchange and sharing of knowledge leading to collaboration.

Communication ecosystem: As we have described in this paper, HPMTs are in search of an integrated model with SMEs working in an interdisciplinary manner. As one would expect, communication is key within such a model (see mechanism 4 in figure 1), whether that be the initial development of a SMM which will guide systems of play, or day to day communication around staff and players' welfare. HPMTs have their own communication ecosystems, with SMEs involved in professional relationships across numerous departments. The work by Shah *et al.*, (2023) in elite team sport examined intra-team relationships and informational support. Their research involved participants selecting members of the sports team (apart from themselves), and explored the following questions: ‘Who do you typically seek information and guidance from during a training week?’ i.e. clarity on the intensity of a training session, and ‘Who do you typically turn to for help in thinking through or solving training or performance related problems?’ (Shah *et al.*, 2023:7). The responses indicated the presence or absence of ties to each member of the team. Once the data were collected, a matrix showed connections, or lack of,

between every member of the team e.g., a connection for information seeking and guidance may only be one way and not be reciprocated. Once this matrix was completed, a social network visualization was generated showing a measure of an athlete's network centrality or position within the network. At the time of writing, this method of measuring communication and interaction among group members appears to be novel in sporting environments specifically, potentially offering a promising methodology for systematically assessing and articulating these critical interpersonal dynamics within teams. This would then allow staff to put systems or processes in place that would enhance communication and execution of the performance model.

Psychological safety: Psychological safety has recently been popularised within various research literature across domains (e.g., medical, military, business) and has attracted attention within sports coaching to promote interpersonal risk-taking as identified by Gosai *et al.* (2021). However, within sport, psychological safety still lacks a clear definition (Vella *et al.*, 2022). Much of the research within psychological safety evolved from the work of Edmondson (1999), who defined psychological safety as 'a shared belief that people within a team were safe for interpersonal risk taking' (Edmondson, 1999:1). In elite sport the recent research examines psychological safety within athlete populations, however, it is yet to receive significant research attention within coaching or HPMTs contexts (Vella *et al.*, 2022; Gosai *et al.*, 2021; Taylor *et al.*, 2023). Therefore, this paper offers a contribution to knowledge by recognising its value and position within HPMTs. Within a HPMT in sport context we adopted the definition of psychological safety as offered by Vella *et al.* (2022:15) as '...the perception that one is protected from, or unlikely to be at risk of, psychological harm in sport...'

In keeping with this definition, psychological safety is important within HPMTs to develop multi-directional trust (see mechanism 4, figure 1), that encourages team members to take ownership of problem statements and allow inter-personal risks to be taken, as well as experimentation and innovation to occur.

Whenever a team of SMEs converge, there are usually some discussions relating to difference of opinions. Richards and Collins (2022) outlined that such tensions could be perceived as generating 'desirable difficulties' which can be seen as a positive, generating a creative tension and drive for innovation that keeps things fresh. They progress the concept of psychological safety and suggest that conflict must be of the right kind but 'quality disagreement', the ability to check and challenge but not fall out over it, is a feature of HPMTs. Richards and Collins (2022) suggest that the ability to live life in the 'Zone of Uncomfortable Debate' (ZOOD; Burke, 2011) is an essential component of HPMTs. Creating psychological safety within a HPMT enables 'desirable difficulties' to be effectively discussed.

SMMs relating to the performance vision, are instrumental in facilitating a shared perception of the performance context, influencing a shared understanding of what factors are vital for successful performance (Richards *et al.*, 2012). This enables ‘desirable difficulties’ to be discussed positively and collaboratively, as all members are driven by sharing the same performance objectives, facilitating SMEs divergent thoughts, which can then be aligned convergently.

Critically, trust within a psychological safety construct is multi-directional (Fransen *et al.*, 2020) and involves an expectation from the team members that they will be supported to take risks (within-clear boundaries) and be given the benefit of the doubt if risk taking is unsuccessful (Frazier *et al.*, 2017). More simply, to be successful, HPMT members should have clarity of support and responsibility. Critically then, the creation of robust, proven, psychologically safe environments operationalizes the SMM within the model.

Delivering performance: Within the framework presented, performance (mechanism 5) is ultimately impacted through the development, exchange and application of knowledge in context through the mechanisms 1 to 4 outlined above. The development and intelligent application of knowledge is considered in two processes:

- 1) Cultural Intelligence: defined by Early (2002:274) as ‘a person's capability to adapt effectively to new cultural contexts’ and
- 2) Collective Intelligence: defined by Woolley *et al.*, (2015:420) as ‘the ability of a group to perform a wide variety of tasks’.

Collective intelligence is influenced by group composition and interaction and emerges from a mix of top-down factors (structures, norms, leadership style, platforms, communication) and relates to our previously outlined alpha vision and bottom-up processes (aggregation of group-member characteristics, diversity, SMMs, psychological safety). Aggarwal *et al.*, (2019) suggest that collective intelligence is a dynamic concept supporting the team’s ability to integrate its resources and processes whilst evolving to allow a consistent level of performance across different task contexts.

The augmentation and recruitment of a diverse group of SMEs within the HPMT will aid the development of knowledge held within the HPMTs. Through the operational factors discussed earlier, knowledge generation and exchange are facilitated to improve performance and evolve the beta SMM (Richards *et al.*, 2012; 2016) before the process starts again to allow for growth and modification. More simply put, leaders of HPMTs should consider the collective and cultural intelligence currently within their teams and how this is operationalized and augmented to deliver a collective performance vision.

Conclusion

High performance sport is pressurised and focuses on the marginal gains which can be secured. Such marginal gains are frequently evidenced in the smallest of details (e.g., milliseconds) and can separate winning gold from bronze. In response to achieving such marginal gains, the number of support staff working with teams has increased, as more specialised roles are recognised (e.g., data analyst, platform specialist for video integration, clinical psychologist etc.). The increase in size of the management team brings new challenges, as more subject matter experts need to work in collaboration to deliver performance strategies. In addition to this, the advantages which elite sport seeks are frequently found at the intersection, where scientific disciplines meet. There is a need therefore not only for more specialists to be involved in the performance setting, but also a demand that such expertise is fused together. Traditional ways of working from a discipline's mono-perspective become redundant as working in 'silos' is eliminated. Specialist teams can no longer work in isolation and instead need to be part of the design and creation of an innovative, collaborative team, where divergent thinking originating from separate disciplines are aligned to form one congruent approach.

The integration of multiple SMEs' input into one agreed performance vision enables the team to solve complex performance problems in an innovative manner which is bespoke to the performance setting. The development of such a complex sociotechnical system requires the integration of cognitive diversity, which is derived from the SMEs who work in the performance setting. The authors therefore bring a unique dual lens to address this challenge. Based on decades of experience of researching, and more importantly working within such elite high-performance context, the authors have proposed an original and innovative framework, outlining the key factors which need to be considered when bringing multiple SMEs together within elite sport.

The framework within the paper outlines the seven key aspects which need to be considered in the design of HPMT. The narrative walks the reader through the framework which is pictorially presented and provides examples to illustrate key points. The framework is evidence based and draws specifically on the work of Richards and colleagues, highlighting numerous empirical studies which demonstrate the necessity and effectiveness of SMMs within elite sport. The work by Richards *et al.*, provides a blueprint for consolidating the visions of SMEs from cognitively diverse groups, to develop convergent ways of working. The framework makes an original contribution, by highlighting the mechanisms and processes which need to be considered in HPMTs which are cognitively diverse. It is envisaged that the work, although in its embryonic stage, will facilitate discussions within the community and lead to advancements in the design, development and operationalization of HPMT in elite sport.

References

- Aggarwal, I., Williams W.A., Chabris, C.F. and Malone, T. (2019) The impact of cognitive style diversity on implicit learning in teams. *Frontiers in Psychology*, 10, 1, 101-112.
- Alfano, H. and Collins, D. (2023) Good practice in sport science and medicine support: practitioners' perspectives on quality, pressure and support. *Managing Sport and Leisure*, 10, 4, 396-411.
- Arai, S.M. (1997) Empowerment: from the theoretical to the personal. *Journal of Leisurability*, 24, 1, 3-11.
- Ashford, M., Taylor, J., Payne, J., Waldouck, D. and Collins, D. (2023) 'Getting on the same page' enhancing team performance with shared mental models—case studies of evidence informed practice in elite sport. *Frontiers in Sports and Active Living*, 5 (1057143), 1-11.
- Balas-Timar, D. and Lile, R. (2015) The Story of Goldilocks Told by Organizational Psychologists. *Procedia - Social and Behavioral Sciences*, 203, 3, 239-243.
- Burns, A. and Collins, D. (2023) Interdisciplinary practice in performance sport: a scoping review of evidence of collaboration. *European Journal of Sport Science*, 23, 9, 1-36.
- Burke, V. (2011) Organizing for excellence (pp. 99-120). In, Collins, D., Button A. and Richards, H. (Eds.) *Performance Psychology: A practitioners' guide*. Elsevier, Oxford.
- Butler, D.L. (1997) *The roles of goal setting and self-monitoring in students' self-regulated engagement in tasks* [paper]. American Educational Research Association, Chicago, Illinois.
- Cannon-Bowers, J.A. and Salas, E. (1998) Individual and team decision making under stress: Theoretical underpinnings (pp. 17-38). In, Cannon-Bowers, J.A. and Salas, E. (Eds.) *Making decisions under stress: Implications for individual and team training*. American Psychological Association. Washington DC.
- Collins, L., Simon, S. and Carson, H.J. (2018) Para-adventure: a hyper-dynamic problem for the inclusive coach. *Sport in Society*, 22, 7, 1165-1182.
- Daniel, L. and Davis, C. (2009) What makes high-performance teams excel? *Research Technology Management*, 52(4), 40-45.
- Edmondson, A. (1999) Psychological safety and learning behaviour in work teams. *Administrative Science Quarterly*, 44, 2, 350-383.
- Endsley, M.R. (1995) Toward a theory of situation awareness in dynamic systems. *Human Factors*, 37, 1, 32-64.
- Ekstrand, J., Lundqvist, D., Davison, M., D'Hooghe, M. and Pensaard, A.M. (2018) Communication quality between the medical team and the head coach/manager is associated with injury burden and player availability in elite football clubs. *British Journal of Sports Medicine*, 53, 5, 304-308.
- Fernando, G.D., Jain, S.S. and Tripathy, A. (2020) This cloud has a silver lining: Gender diversity, managerial ability, and firm performance. *Journal of Business Research*, 117, 3, 484-496.
- Flin, R.H., O'connor, P. and Crichton, M. (2008) *Safety at the sharp end: training non-technical skills*. Ashgate, Farnham, Surrey, UK.
- Fransen, K., McEwan, D. and Sarkar, M. (2020) The impact of identity leadership on team functioning and well-being in team sport: Is psychological safety the missing link? *Psychology of Sport and Exercise*, 51, [101763].
- Frazier, M.L., Fainshmidt, S., Klinger, R.L., Pezeshkan, A. and Vracheva, V. (2017) Psychological safety: a meta-analytic review and extension. *Personnel Psychology*, 70, 1, 113-165.
- Gabbett, T.J., Kearney, S., Bisson, L.J., Collins, J., Sikka, R., Winder, N., Sedgwick, C., Hollis, E., and Bettel, J.M. (2017) Seven tips for developing and maintaining a high-performance sports medicine team. *British Journal of Sports Medicine*, 52, 10, 626-627.
- Gosai, J., Jowett, S. and Nascimento-Júnior, J.R.A.D. (2021) When leadership, relationships and psychological safety promote flourishing in sport and life. *Sports Coaching Review*, 12, 2, 145-165.
- Gutierrez, L.M.G. (1990) Working with women of color: an empowerment perspective. *Social Work*, 35, 2, 149-153.

- Klein, G. (2023) Cognitive diversity: what it is and why it matters. *Psychology Today*, posed 16th August [online]. Available at: <https://www.psychologytoday.com/us/blog/seeing-what-others-dont/202307/cognitive-diversity-what-it-is-and-why-it-matters> (Accessed 24th October 2025).
- Lawrence, K. (2013) *Developing Leaders in a VUCA Environment*. UNC Executive Development [online]. Available at: <https://emergingrnleader.com/wp-content/uploads/2013/02/developing-leaders-in-a-vuca-environment.pdf> (Accessed 24th October 2025).
- Lawson, H.A. (2005) Empowering people, facilitating community development, and contributing to sustainable development: The social work of sport, exercise, and physical education programs. *Sport, Education and Society*, 10, 1, 135-160.
- Lungeanu, A. and Contractor, N.S. (2015) The effects of diversity and network ties on innovations. *American Behavioral Scientist*, 59, 5, 548-564.
- Milliken, F.J. and Martins, L.L. (1996) Searching for common threads: understanding the multiple effects of diversity in organizational groups. *The Academy of Management Review*, 21, 2, 402.
- O'Neill, T.A. and Salas, E. (2018) Creating high performance teamwork in organizations. *Human Resource Management Review*, 28, 4, 325-331.
- Page, S.E. (2014) Where diversity comes from and why it matters? *European Journal of Social Psychology*, 44, 4, 267-279.
- Richards, P., Mascarenhas, D.R.D. and Collins, D. (2009) Implementing reflective practice approaches with elite team athletes: parameters of success. *Reflective Practice*, 10, 3, 353-363.
- Richards, P., Collins, D. and Mascarenhas, D.R.D. (2012) Developing rapid high-pressure team decision-making skills. The integration of slow deliberate reflective learning within the competitive performance environment: A case study of elite netball. *Reflective Practice*, 13, 3, 407-424.
- Richards, P., Penrose, S. and Turner, M. (2015) *Developing Team Decision-Making Capabilities in elite football Youth Academy Players*. Cluster for Research into Coaching CriC International Coaching Conference, Manchester Metropolitan University, Crewe, UK.
- Richards, P., Collins, D. and Mascarenhas, D.R.D. (2016) Developing team decision-making: a holistic framework integrating both on-field and off-field pedagogical coaching processes. *Sports Coaching Review*, 6, 1, 57-75.
- Richards, P. and Collins, D. (2022) Shared mental models (Chapter 13, pp:199-214). In, Collins D. and Cruickshank, A. (Eds.) *Sport Psychology Essentials*. Human Kinetics, Champaign, IL.
- Richards, P. (2024) *Complex sport systems: using cognitive work analysis to examine workflow of performance analysis working in a world cup campaign (field hockey)*. Institute of Behavior, Sport and Rehabilitation, University of Central Lancashire, UK.
- Richards, P. (2024b) *Decision-making in Sport*. International Conference on Naturalistic Decision-Making, Auckland, New Zealand, 5th July.
- Rothstein, J.S. (2005) Selective participation: controlling workers' input at general motors. *Worker Participation: Current Research and Future Trends*, 16, 1, 151-175.
- Sauer, J., Felsing, T., Franke, H. and Rüttinger, B. (2006) Cognitive diversity and team performance in a complex multiple task environment. *Ergonomics*, 49, 10, 934-954.
- Shah, E.J., Fransen, K., Slater, M.J. and Barker, J.B. (2023) The impact of intra-team communication and support relationships on team identification and collective efficacy in elite team sport: a social network analysis. *International Journal of Sport and Exercise Psychology*, 21, 2, 1-22.
- Simon, S. and Richards, P. (2022) Individualizing coaching in Olympic and paralympic worlds: an applied perspective. *International Sport Coaching Journal*, 9, 3, 1-8.
- Simon, S. and Richards, P. (2023) *A case study: investigating cognitive observational difficulties and expert skills in elite Olympic and paralympic coaches using an applied cognitive task analysis*. Naturalist Decision Making Association – Cognitive Task Analysis: NDMA CTA in Action [online]. Available at: <https://naturalisticdecisionmaking.org/2023/03/22/8747/> (Acc: 2.10.2025)
- Skagen, T., Torras, M.C., Kavli, S. and Mikki, S. (2009) Pedagogical considerations in developing an online tutorial in information literacy. *Commfolit*, 2, 2, 84.

- Sorensen, M. and Roberts, G.C. (2005) Goal orientations and empowerment of individuals with a disability in sports context. *European Bulletin of adapted physical Activity*, 2, 2, 1-8.
- Standifer, R. and Bluedorn, A. (2006) Alliance management teams and entrainment: Sharing temporal mental models. *Human Relations*, 59, 7, 903-927.
- Stout, R.J., Cannon-Bowers, J.A., Salas, E. and Milanovich, D.M. (1999) Planning, shared mental models, and coordinated performance: an empirical link is established. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, 41, 1, 61-71.
- Taskan, B., Junça-Silva, A. and Caetano, A. (2022) Clarifying the conceptual map of VUCA: a systematic review. *International Journal of Organizational Analysis*, 30, 7, 196-217.
- Taylor, J., Collins, D. and Ashford, M. (2022) Psychological safety in high-performance sport: contextually applicable? *Frontiers in Sports and Active Living*, vol. 4.
- Tee, J.C., Ashford, M. and Piggott, D. (2018) A tactical periodization approach for rugby union. *Strength and Conditioning Journal*, 40, 5, 1-13.
- Vella, S.A., Mayland, E., Schweickle, M.J., Sutcliffe, J.T., McEwan, D. and Swann, C. (2022) Psychological safety in sport: a systematic review and concept analysis. *International Review of Sport and Exercise Psychology*, 17, 1, 516-539.
- Westbrook, L. (2006) Mental models: a theoretical overview and preliminary study. *Journal of Information Science*, 32, 6, 563-579.
- Woolley, A.W., Aggarwal, I. and Malone, T.W. (2015) Collective intelligence and group performance. *Current Directions in Psychological Science*, 24, 6, 420-424.
- Zineldin, M. (2017) Transformational leadership behavior, emotions, and outcomes: Health psychology perspective in the workplace. *Journal of Workplace Behavioral Health*. 32, 1 14-25.
- Zhang, L., Cao, T. and Wang, Y. (2018) The mediation role of leadership styles in integrated project collaboration: An emotional intelligence perspective. *International Journal of Project Management*, 36, 2, 317-330.

Ethics statement: This research was conducted with ethical approval at the University of Lancashire.

JQRSS Author Profiles

Iain Cleland¹ is a Lecturer in Sport, Exercise and Health at the University of the West of Scotland. His research, undertaken through a Professional Doctorate at the University of Lancashire, focuses on shared mental models, cognitive diversity, and leadership in high-performance teams. He has extensive international experience in elite sport, including roles with the Boston Red Sox, Scottish Rugby, New Zealand Rugby and the French Top 14. Email IRMCleland@lancashire.ac.uk

Scott Simon¹ graduated from a Professional Doctorate in Elite Performance at the University of Lancashire in 2024. He joined Scotland Rugby League Board in 2019 as Director of Pathways and is now Chair of Scotland Rugby League.

Simon Whitmarsh-Knight³ has over 30 years' experience building and leading diverse commercial teams. He holds a BA (Joint Hons) French and Spanish, MA (Marketing), MA (Coaching and Mentoring) and is studying p/t for a D. Prof. in Elite Performance at ULan.

Heather Cleland Woods⁴ is Professor of Psychology Education and Sleep Health at the University of Glasgow. She has advised the Scottish and UK government on screen use and contributed to the National Sleep Foundation's statement on sleep health across the lifespan.

Pamela Richards⁴ is a Chartered Psychologist and researcher in the School of School of Health, Social Work and Sport: University of Lancashire E: PRichards5@lancashire.ac.uk

Reviewer Comments

In this paper the authors navigate a path through the complexities of sports coaching at elite levels of performance. They remind us that having a shared vision of the ultimate goal in sport is important and how easily that vision can become fuzzy or deflected through misunderstandings between support professionals. However, as the paper illustrates and the authors helpfully warn the elite coaching community, as the number of support professionals grow around a player or team, the scope for confusion or misalignment also grows, giving rise to other visions, such as *alpha* and *beta* as identified by the authors. As a point of development, this comprehensive work is clearly focused upon a team sport and players judging by the vernacular associated with rugby e.g. ‘turnovers’ and the like, so, for wider impact with other elite coaching communities, the authors might usefully expand their thinking to individual sports, as I suspect their findings will have resonance there too.