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Expert consensus on skill acquisition in sport: A Delphi study

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Abstract

Skill acquisition is a rapidly evolving field in sport, but its definitions, roles and professional practices remain inconsistently articulated. Despite growing recognition of its importance, there is a lack of consensus regarding the core competencies and responsibilities of skill acquisition specialists. The aim of this study was to consult with experts to establish a consensus definition of the field of skill acquisition, clarify the roles of its specialists, and understand the needs and requirements of effective applied practice. A panel of 22 international experts in skill acquisition (15.2 ± 8.4 years' experience) took part in a Delphi study using online surveys. The panel reached consensus that skill acquisition specialists represent a unique and currently underrepresented role within multidisciplinary support teams. The panel developed and agreed upon clear definitions of the field and the role of a skill acquisition specialist. The consensus definition of the field was an applied science addressing the performance, learning, and refinement of perceptual, cognitive, and motor skills across the spectrum from novice to expert performers. Key responsibilities of a skill acquisition specialist included practice design, individualised skill development, and education at the organisational level. Furthermore, the panel reached consensus on the essential knowledge and professional skills required to fulfil this role effectively. Findings present an important step towards establishing a framework for professional development and accreditation, which is key for the integration of high-quality, evidence-based skill acquisition practices within sport organisations.

Keywords: multidisciplinary teams; sport science support; practitioner

Key Points

- Skill acquisition specialists operate in multidisciplinary teams to support sports organisations, athletes, and coaches.
- There is often a lack of understanding of the role this specialism plays. Moreover, inconsistent definitions of the field and the specialist role undermine the ability to develop accreditation pathways.
- A panel of 22 experts undertook an anonymous online Delphi process to define the field, the role of its specialists, and the knowledge and skills required.
- The panel defined the field of skill acquisition as: '*an applied science addressing the performance, learning, and refinement of perceptual, cognitive, and motor skills across the spectrum from novice to expert performers'.*
- The panel defined the role of skill acquisition specialists as: *'work in partnership with key individuals and groups (e.g., coaches, athletes) to apply research-led and theoretical principles to enhance and measure the perceptual, cognitive, and motor skills of performers'.*
- The key activities of skill acquisition specialists included supporting practice design, individual skill development, and organisational education and development.
- The knowledge and skills required to conduct the role and work in the field were wide ranging, but knowledge of practice structure and design as well as capturing skill development and transfer were seen as the most important.
- Findings support policymakers in understanding if their organisations could benefit from skill acquisition specialists.
- Definitions and clear role requirements act as a first step in developing an international accreditation framework for this field.

Expert consensus on skill acquisition in sport: A Delphi study

Athlete and coach support teams are becoming increasingly multidisciplinary, integrating expertise from various sport science fields to optimise performance. While researchers and practitioners[1, 2, 3] have advocated for including skill acquisition specialists in these teams, the integration remains limited. Coaches and athletes frequently request skill acquisition support to optimise practice design and skill transfer[4, 5]; however, the inconsistent articulation of definitions, roles, and responsibilities for skill acquisition specialists has hindered their education and broader adoption within multidisciplinary teams (MDTs)[6, 7].

Existing attempts to define the scientific field and practical role of skill acquisition specialists have been put forward by individual research groups, resulting in fragmented perspectives (see peer-reviewed examples presented in Table 1). Definitions of the scientific field and practical role of specialists[9, 10] have suggested that skill acquisition draws on knowledge from various domains, but these definitions often lack sufficient detail regarding the specific benefits, activities and responsibilities of skill acquisition specialists. In contrast, other definitions better outline what the role entails[2, 9, 10]. However, the lack of consensus has impeded the development of national or international frameworks for professional development and accreditation, which are essential for ensuring high-quality evidence-based practice and the development of skill acquisition specialists (for examples from other fields Martin et al., [12] and Silva[13]).

Roles and responsibilities of practicing skill acquisition specialists when working with coaches and athletes have been outlined in the literature[2, 13, 14], along with the potential benefits[15 16, 17]. Examples of activities include working with coaches to develop practice so that it is more representative of competition, with the aim of improving skill transfer to competition[13], adapting coach verbal instructions using methods shown to improve skill acquisition[14], identifying weaknesses in athlete performance and interventions to improve them

and leading coach education workshops and creating valid measures of sports performance[2]. Moreover, other researchers suggest that the role of skill acquisition specialists could extend beyond working with sport coaches and athletes to include intervention in clinical rehabilitation[18], organisational culture[19], the development and integration of modern technologies like virtual reality[20], and the development of physical literacy in young people[15]. However, without a unified understanding of their responsibilities, the potential benefits of these specialists remain underutilised. Given the neophyte status of skill acquisition as a discipline, this study aimed to establish expert consensus through a Delphi process to define the field, clarify the role of skill acquisition specialists, and identify their responsibilities in elite sport. This work will support sports organisations in understanding the value of skill acquisition specialists within MDTs, guiding policies for the development of professional pathways and accreditation frameworks to ensure the integration of high-quality skill acquisition practice in the field.

Table 1. Existing peer-review definitions of the skill acquisition field and specialist role.

Skill Acquisition Field
"…encompasses motor learning, motor control, neuroscience, the study of expertise, sport and exercise psychology, and crosses over into other exercise science fields of research like strength and conditioning, biomechanics and exercise prescription. As the subdiscipline has evolved, a number of so-called parent disciplines have been represented, ranging from Education and Physical Education, to Psychology, and Physiology (neuropsychology and neurophysiology). The emphasis on other complementary subdisciplines has also evolved to contemporary areas, such as data analytics and computer science." (p.1, Fransen et al., 2021).
"…describes how motor skills are acquired, developed and/or learned by participants with a variety of expertise levels (ranging from clinical populations to elite athletes) and contexts (e.g., the learning of everyday life skills or skills required for elite sporting performance). Ultimately, the aim of skill acquisition science is to provide scientific support for the creation of optimal motor skill learning environments in contexts such as clinical settings, physical education and sport, among many others." (p.2, Choo et al., 2024).
"The field of skill acquisition combines a rich body of knowledge from a variety of fields, including motor learning and control, sport psychology, pedagogy and biomechanics, with the overarching aim of translating research into practice. Research has provided insight into the key motor, cognitive, perceptual and psychological factors that explain expertise in sport and subsequently this information has been used to design and examine training approaches that can expedite a learner's transition from novice performer to expert performer (Farrow, Baker, & MacMahon, 2013; Hodges & Williams, 2020)." (p.35, Malhotra et al., 2022).
Skill Acquisition Specialists
"…a sport scientist that 'examine[s] the theories, principles and processes of motor and perceptual learning' (Steel et al., 2014, p. 1) and works closely with coaches and athletes to bridge the gap between theory and practical application (Steel et al., 2014; Williams & Ford, 2009; Williams, Ford, Causer, Logan, & Murray, 2012)." (p.669, Dehghansai et al., 2020).
"…are concerned with the processes of learning that increase movement and perceptual-cognitive skills based on scientific principles. In doing so, they are able to provide coaches with information that can assist them to design better methods for improving and accelerating skill development." (p.368, Steel et al., 2014).
"…are those with academic training and applied experience in areas related to motor control and learning, motor behaviour, experimental psychology, and neuroscience." (p.1381, Williams & Ford, 2009).
"…aim to support teams and coaches in designing and facilitating effective learning and performance environments." (Otte et al., 2024).

METHOD

Panel Selection

A total of 22 panellists (15.2 ± 8.4 years' experience; 19 male, 3 female) who were currently in a skill acquisition related role in sport volunteered to take part and made up the expert panel. Due to the nature of the Delphi process, sample size calculations based on effect sizes are not possible. Therefore, the number of panellists and level of expertise followed the recommendations of Skulmoski et al[23], who suggest that 10-15 panellists are recommended for a Delphi study in a homogenous sample, and from previous research that has conducted expert consultations in sports settings[24, 25]. The panel was invited in consultation with the Chartered Association of Sport and Exercise Sciences' (CASES; formally known as BASES) Skill Acquisition Special Interest Group and the Expertise and Skill Acquisition Network (ESAN) in the United Kingdom (UK) and via recommendations from international collaborators.

Panel characteristics are shown in Table 2. Efforts were undertaken to recruit a diverse panel, with particular focus on increasing representation of female experts and individuals from non-Western sporting cultures. However, despite initial interest from several invitees, many were unable to commit the necessary time due to existing professional obligations. Panellists with experience in both academic and applied practice roles were recruited. Many of the panellists identified multiple simultaneous roles, such as academic and practitioner, or skill acquisition specialist and coach developer. The panel included some of the most noteworthy skill acquisition researchers in the world, practitioners in professional sport across three continents, successful early career skill acquisition specialists, and other roles included high performance managers. Panellists were required to have a minimum of 5 years of experience and were recruited via email invitations. They had sufficiently proficient English language skills to read and respond to the surveys. The steering committee did not take part in the Delphi

survey. All panellists provided informed consent prior to taking part in the study. The lead author university ethics committee granted ethical approval.

Table 2: Panel Characteristics

	N
Self-Reported Nationality	
United Kingdom	8
Ireland	5
Australia	3
USA	1
New Zealand (European)	1
New Zealand	1
Canada	1
Joint Canada/France	1
Joint Canada/Australia	1
Primary Location of Work	
United Kingdom	6
Ireland	4
Australia	5
USA	3
New Zealand	2
Canada	1
International	1
Current Role(s)*	
Academic	17
Practitioner	12
Coach	5
Coach Developer	6
Other	4
Years of experience	
6-10	9
11-15	6
16-20	2
>20	5

***n of role types = 42 as multiple roles were reported by several panellists.**

Author positionality

Characteristics of the research team can influence the direction and content of questions in this process and shape analysis of qualitative comments[26]. Constructionism allows us to have an active role in analysing and interpreting the qualitative data that leads to the development of questions between rounds, and we recognise other researchers may have interpreted the data in a different way[27]. The team of authors represent part of the Skill Acquisition Special Interest

Group within CASES. All co-authors identify as skill acquisition specialists in academic roles, with three, including the lead author, also identifying as a practitioner.

Procedure

To facilitate responses from international participants, a Delphi process following the Guidance on Conducting and Reporting Delphi Studies (CREDES) guidance of Jünger et al[28] and conducted using anonymous online surveys was selected[25, 29, 30]. Over a period of three months, each panellist received surveys; two surveys that posed questions on a variety of topics and the third that summarised results because consensus had been met on all key points. These were distributed via online survey software (Qualtrics Research Suite, Qualtrics, Provo, UT, United States). Panellists were given three weeks to respond to each survey, with approximately one month elapsing between each survey.

All survey questions can be found in the supplementary materials. The surveys included a series of multiple-choice questions asking panellists to indicate whether they agreed with specific statements (options: 'Yes', 'No', or 'I don't feel qualified to answer this question') and allowed for qualitative comments to elaborate on their responses, offering further insight to inform subsequent rounds. The first survey was designed based on previous work on skill acquisition in sport, the research objectives to define the nature of the field and role, and the professional qualifications required for accreditation by CASES to become a sport and exercise scientist. The survey comprised seven sections: (i) panellist information; (ii) definitions of the field of skill acquisition; (iii) definitions of the role of the skill acquisition practitioner; (iv) the need for skill acquisition specialists in MDTs; (v) knowledge requirements; (vi) technical skills; and (vii) professional competencies. Detailed information on the development of questions in each section is provided in the results and discussion section.

Following the first round, questions that reached consensus were resolved and excluded from subsequent surveys. For the following round, new questions were developed based on topics that did not reach consensus or issues raised by panellists using qualitative comments provided in the previous round. To design these new questions, the lead researcher applied thematic analysis[31] to identify key themes from the qualitative comments. These were then reflected upon with co-authors[32]. For unresolved questions or new issues, the authors designed the questions for the next round that addressed the identified themes. In each follow-up survey, panellists were presented with findings from the previous round on the specific topic and were then asked the newly developed questions.

Consensus Process and Data Analysis

The primary objective of this work was to provide a unified perspective among experts on the definitions of skill acquisition as a field and area of applied practice. To determine when consensus was reached, we referred to guidance from previous Delphi studies, which have used consensus thresholds ranging from 50% to 80%, with some studies categorising consensus levels as low, medium or high[33, 34]. For our study, we set the consensus threshold at 75%, equivalent to 17 out of 22 responses, which reflects medium-to-high level of agreement. Panellists who indicated that they did not feel qualified to answer a question were excluded from the consensus calculations. Where the panel were asked to create definitions from a range of optional phrases, the most frequently selected phrases chosen by the panel were collated to form the prose for a definition. For qualitative responses that offered valuable insights beyond the design of subsequent questions, the first author conducted a reflexive thematic analysis to identify key themes[31]. These themes were discussed and refined in consultation with co-authors[32].

RESULTS

The full quantitative results for all sections and questions can be found in the supplementary materials.

Defining the field of skill acquisition

To offer an initial definition of the field of skill acquisition for the first survey, the authors collated a range of definitions from other sources in the field. These included definitions from UK Coaching and previous academic research in the area (Table 1). No single existing definition was considered sufficient by the authors, so a synthesised definition to propose to the panel was created.

Starting definition of the field:

Skill acquisition is the study of processes involved in the performance and learning of actions across different time scales. It consists of several branches of research (e.g., motor learning, motor control, expert performance, talent identification and development) and parts of larger fields (e.g., psychology, biomechanics, coaching, neuroscience, physical education, physical activity).

In Round 1, panellists were asked if the starting definition accurately describes the field of skill acquisition. Consensus was reached that it partially captured the field (Yes = 14%, No = 5%, Partially = 82%). Eighteen panellists left a rich array of qualitative comments on the definition including issues with the specificity of the terms ‘actions’ and ‘processes’, questions around brevity, and the need to consider applications. From these comments, a list of key themes of the definition were derived. In Round 2, these elements were presented to the panel in a format where they could drag and drop phrases to create their own definitions and allow the authors to quantitatively capture the most popular choices and create a final consensus definition, presented below.

Panel consensus definition for the field:

Skill acquisition is an applied science addressing the performance, learning, and refinement of perceptual, cognitive, and motor skills across the spectrum from novice to expert performers.

Panel consensus definition for the field using sporting "lay" language:

Skill acquisition is an applied science addressing the performance, learning, and refinement of sport and movement skills across the spectrum from novice to expert performers.

Defining the role of skill acquisition specialists

In Round 1, panellists were first asked about the language used for this role. At this stage in the Delphi process, the term 'skill acquisition practitioner' was used to refer to individuals who has expertise in the field of skill acquisition and the role of someone who applies this expertise. However, the panel did not fully agree that this was the right term to describe a specialist with this expertise (Yes = 59%, No = 14%, Partially = 27%). The panel suggested several alternative terms, which were presented in Round 2 for ranking. The results of this can be found in Table 3, with 'Skill Acquisition Specialist' emerging as the highest-ranked term (see also, Otte et al., 2024).

Table 3. The raw number of ranking positions and mean rank of suggested terms for a practitioner applying skill acquisition in sport

Suggested Terminology/Rank	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Mean Rank**
Skill Acquisition Specialist	11	4	1	1	1	0	0	0	1.72
Skill Acquisition Practitioner	5	10	2	1	0	0	0	0	1.94
Skill Learning Specialist	0	2	4	4	4	3	0	1	4.33
Skill Learning Practitioner	1	1	1	6	3	4	2	0	4.61
Skill Acquisition Coach	1	0	4	1	2	3	6	1	5.28

Skill Specialist	0	1	2	1	3	6	5	0	5.44
Learning Designer	0	0	3	4	3	0	1	7	5.72
Skill Acquisitionist	0	0	1	0	2	2	4	9	6.94

A consensus view was also sought on a definition of the role of the skill acquisition specialist. The process of developing the initial definition followed the same approach used to establish consensus on the definition of the field. The authors collated a range of existing definitions from relevant sources within the field and created a preliminary starting definition to present to the panel.

Starting definition of the role:

The role of a skill acquisition practitioner involves the application of knowledge of the field to enhance and measure the acquisition of skilled or competent sport or movement performance. It influences aspects of sports coaching, psychology, performance analysis, strength and conditioning, sport administration, and exercise/physical activity prescription. Examples include, but are not limited to, the best ways to design practice and learning environments or to measure sport and movement performance.

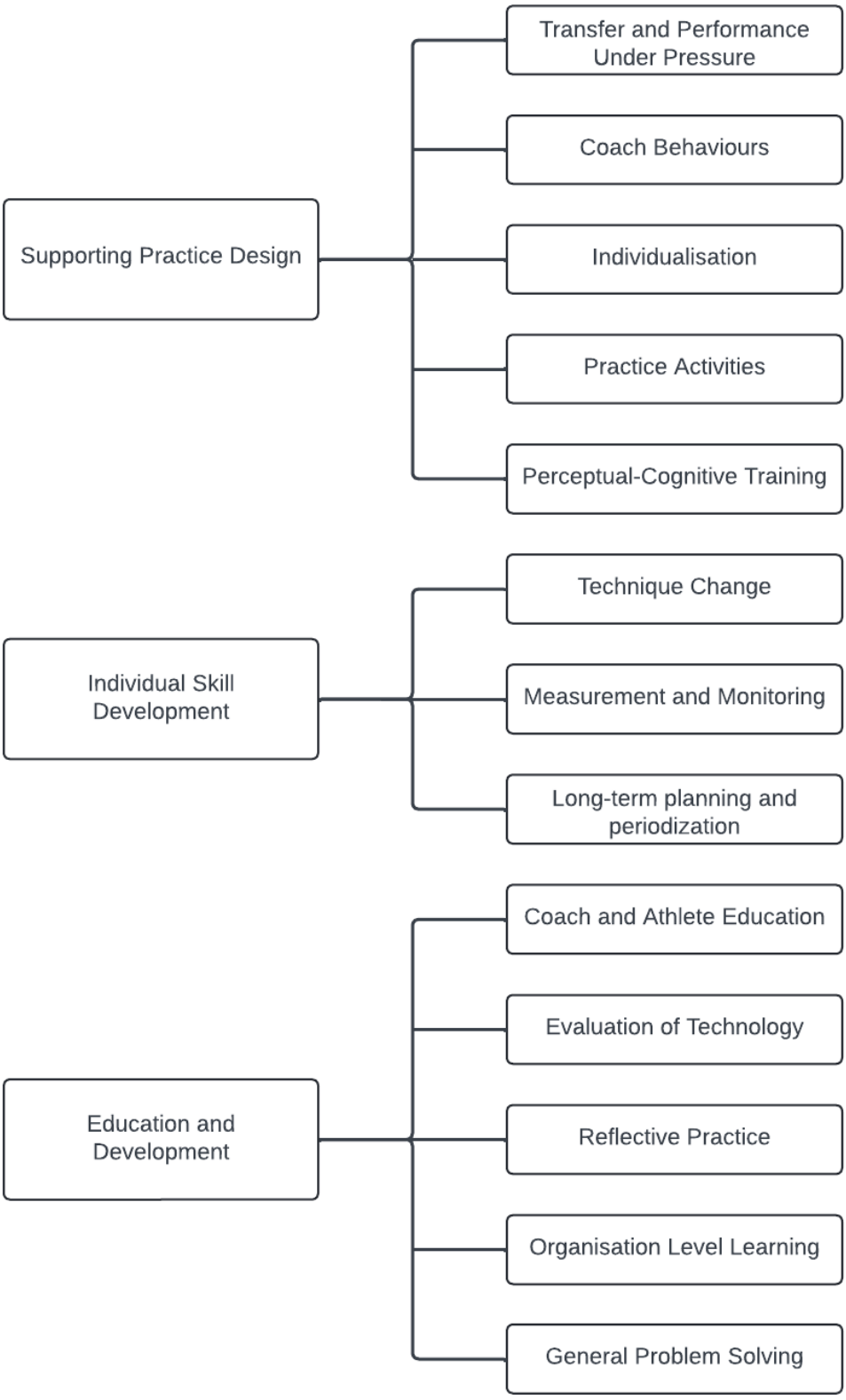
In Round 1, panellists were asked if the starting definition accurately describes the role of the skill acquisition specialist. No consensus was reached (Yes = 32%, No = 5%, Partially = 64%). Sixteen panellists left a rich array of qualitative comments on the role definition, including issues with the examples used and offering other definitions, as well as questions about what the role is really trying to achieve. From these comments, a list of key elements of the definition were derived. In Round 2, the elements were presented to the panel in a format where they could drag and drop phrases to create their own definitions and allow the authors to quantitatively capture the most popular choices and create a final consensus definition. This is presented below.

Panel consensus definition of the role:

Skill acquisition specialists work in partnership with key individuals and groups (e.g., coaches, athletes) to apply research-led and theoretical principles to enhance and measure the perceptual, cognitive, and motor skills of performers.

Role responsibilities and activities

In qualitative responses to the first role definition, panellists raised concerns regarding the clarity of the activities attributed to a skill acquisition specialist. To address this, a sub-set of panellists (those who identified as being in an applied role) were asked to describe and explain the types of problems they are tasked with solving as part of their role. Three overarching activities were highlighted: (i) supporting practice design; (ii) individual skill development; and (iii) education and development. These activities were further underpinned by 13 themes identified across the full panel's responses (Figure 1).



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261 **Figure 1.** Participants who conduct practical work were asked to discuss their skill

262 acquisition related activities in sport. This figure shows thematic analysis if these responses.

The first main theme was ‘Supporting Practice Design’, which encompasses the roles identified by the panel in contributing to how the practice sessions are designed. Key aspects of this theme included facilitating the transfer of learning from training to competition, designing representative learning environments, and preparing athletes to perform under pressure (transfer and performance under pressure). Additionally, panellists identified concepts such as constraints-led practice, variability in training, and practice scheduling (Practice Activities) within this theme. They noted their role in supporting coach behaviours, including instruction, feedback, and coach-athlete relationships (Coach Behaviour). Another important aspect was supporting coaches in individualising practice, often through the manipulation of cognitive load and challenge point of activities, and individualising practice to optimise athlete development (Individualisation). Finally, panellists identified their role in supporting the training of skills like visual processing (e.g., Quiet Eye, visual search), decision making, and anticipation skills (Training Perceptual-Cognitive Skill).

Another main theme was ‘Individual Skill Development’, which refers to the roles panellists recognised in supporting individual athletes across various aspects of skill development. Panellists often specifically mentioned their involvement in facilitating technique change and refinement (Technique Change), as well as their role in measuring and monitoring changes in skill performance (Measurement and Monitoring). Additionally, they noted their role in long-term planning for individual skill development, including the designing of periodized skill development plans (Long-Term Planning and Periodization).

The final main theme was ‘Education and Development’, which captures a range of roles and responsibilities a skill acquisition specialist holds in fostering the education and development of individuals within their organisation. This includes formal and informal education on the evolving concepts and evidence base in skill acquisition, aimed at coaches, athletes (Coach and Athlete Education), and other members within the MDT and organisation

(Organisation Level Learning). Additionally, the theme included facilitating critical reflective practice on current training, development and coaching processes, particularly in encouraging questions like 'why' in these areas (Reflective Practice). Skill acquisition specialists were often responsible for understanding the evidence supporting the integration of technology into training and testing skill, such as the use of virtual reality (Evaluation of Technology) and generally facilitating problem solving across the MDT (General Problem Solving).

The skill acquisition specialist in the MDT

This section aimed to address how skill acquisition specialist differs from other more established areas in the MDT. In Round 1 the panel agreed that skill acquisition is a distinct field of sport science (Yes = 82%, No = 18%) and that it was underrepresented in professional sport compared to other fields (Yes = 91%, No = 9%). Comments often focused on the number of roles available compared to other specialists but also noted that coaches engage with skill acquisition processes every day, so there needs to be consideration for how the work is used, rather than just by who. However, the panel did agree in Round 1 that the role of a skill acquisition specialist is different to that of a coach (Yes = 82%, No = 9%, Partially = 9%), as well as a psychologist (Yes = 91%, No = 0%, Partially = 9%).

A key issue raised was in the differentiation of a skill acquisition specialist to a coach developer. The panel did not agree that the roles were different in Round 1 (Yes = 68%, No = 5%, Partially = 27%). Much of the panel fed back a lack of understanding of what a coach developer is or does. In Round 2, the panel were offered a definition of coach developer from the Australian Sports Commission: "The role of the coach developer is a combination of training the trainer and mentoring, with a focus on supporting the coach on the job". The panel did agree that the coach developer would need knowledge of skill acquisition to adequately fulfil this role (Yes = 83%, No = 17%), but that the role of the skill acquisition specialist would

require more specialised knowledge (Yes = 83%, No = 17%). The panel were asked to identify other roles that would need a knowledge of the field of skill acquisition. The panel agreed that coaches, coach developers, strength and conditioning coaches, biomechanists, performance analysts, psychologists, and performance directors all need knowledge of the field (Supplementary Table 1). The panel noted in comments that physiotherapists and rehabilitation specialist should be included as disciplines where significant knowledge of skill acquisition is also required.

Accreditation Requirements

In the UK, the accreditation process for sport and exercise scientists (i.e., CASES) requires applicants wishing to become accredited practitioners to meet specific knowledge, technical skill, and professional competency standards. The final three sections of this study address these requirements within the context of skill acquisition, aiming to inform future accreditation frameworks for the field.

*Knowledge***.** Similar to the process used for defining the field and role, the authors reviewed existing literature, including teaching textbooks and journal articles, to identify the key areas of knowledge within skill acquisition. This resulted in 59 topics of knowledge that may be required. These were presented to the panel, which agreed that all were at least partially needed (see Supplementary Table 3). The topics on which the panel reached consensus as being 'definitely needed' were all related to research in the design and optimisation of practice, including all the concepts identified in the practice design and individual skill development themes in Figure 1.

Technical Skills. As with the knowledge requirements, the authors used existing literature to develop a list of technical skills required by skill acquisition specialists. These and the resulting responses can be found in Supplementary Table 4. The panel rated all listed sills

as being needed. Results closely aligned with the knowledge requirements were measuring performance, learning, retention, and transfer of skill were rated as the most needed.

Professional Competencies. In Round 1, we presented the panellists with the 11 professional competencies that are identified in CASES accreditation processes and asked whether each panellist believed that these are important for the role of skill acquisition specialist. Again, the panel agreed that all were extremely or very important, with professional relationships and behaviours, application of knowledge and skill, and understanding of the delivery environment as the top competencies (Supplementary Table 5).

DISCUSSION

The objective of this work was to implement a Delphi process to generate expert consensus on a definition of the field of skill acquisition, the role of the skill acquisition specialist, and the responsibilities of skill acquisition specialists in sport. The aim was to provide a unified foundation for the growth of the field. We successfully recruited a highly experienced expert panel that reached consensus on clear and simple definitions of both the field and the specialist role, alongside valuable in-depth qualitative insights, and comprehensive detail on specialist activities and knowledge requirements.

The panel agreed that the role should be termed 'Skill Acquisition Specialist', which aligns with terminology used by other research groups (e.g., Otte et al., 2024; Steel et al., 2004; Williams & Ford, 2009), reinforcing consensus in the literature. Moreover, the panel definition of the field shared similarities with some earlier definitions[9, 10] by stating it addresses the learning of skills across the development of expertise but differs to others[8] that state skill acquisition draws on knowledge from various domains. Similarly, the role definition from the panel shared similarities with some wording in earlier definitions[1, 2, 21]. The final panel definitions of the field and role are both accessible to practitioners and theoretically grounded.

They emphasise the application of scientific principles to support performance, learning, and skill refinement, and accurately reflect the dual nature of skill acquisition in both research and practice across sport and potentially other domains. However, the panel definitions of the field and role included the word "cognitive" skill, and we are aware that ongoing debate exists as to the role of cognitive processes in athlete expert performance in competition[35, 36]. Therefore, the panel definitions can be adapted by others to remove the term "cognitive" where individuals disagree with its use. Whilst is unlikely that the debate will be resolved anytime soon, we too are open to removing or keeping this word should evidence and consensus dictate in future.

The role responsibilities and activities of a skill acquisition specialist outlined by the panel and shown in Figure 1 were similar to those found in previous literature, although this consensus study presents them in a unified manner similar to Otte et al.[2], as opposed to across various publications. They provide a clear demarcation of the core work a skill acquisition specialist might be expected to do, although like other sport science fields there will be some overlap with other roles (e.g., strength and conditioning coaches[37]). The responsibilities and activities from the panel of supporting practice design and transfer have been detailed previously[13], as has the role in supporting coach behaviours[14], individualisation of the practice process and coach and staff education[2]. Moreover, similar to the panel, other researchers have outlined a role for skill acquisition specialists in training perceptual-cognitive skill linked to technology[38], measurement and monitoring[2,] organisation level learning[19], and collaborating with the MDT[2]. The focus of the consensus statement on sport meant that some potential roles related to exercise and physical activity[15] and clinical rehabilitation[18] were not included in the survey. However, the unified understanding of roles, responsibilities and activities created by this consensus statement should support sports organisations and coaches in understanding the value of skill acquisition specialists within MDTs and aid in the development of accreditation

pathways. Future accreditation will ensure that those entering the field are equipped with the appropriate knowledge and competencies to support high-performance teams.

The recruited panel was somewhat diverse, comprising many academics, a range of practitioners, and other professionals in sport. The diversity reflects the current state of the field, where many sports rely on sporadic support from academic experts rather than employing full-time skill acquisition specialists. However, the inclusion of individuals implementing skill acquisition expertise full-time in professional sport highlights the growing presence of this role in high-performance settings, suggesting that the field is evolving toward a more integrated approach. The overrepresentation of males and individuals from Western sporting nations also reflects the current state of the field. While there is no recorded data on gender and regional representation, our conference attendance and similar activities suggests a male-dominated landscape, consistent with broader trends of sport science[39].

While the Delphi process proved effective in achieving our keys aims of providing clarity on the definition and role of skill acquisition in sport, it is important to consider its inherent strengths and limitations. Blazey et al.[40, 41] outlines some of these issues and asks four key questions regarding the trustworthiness of consensus statements. To address these issues, we: (i) developed our questions based on previous literature; (ii) defined the process of agreement apriori; (iii) justified the use of the online Delphi method through the need to build international inputs and capture expert opinion from outside the group of authors; and (iv) set a clear criteria for expert selection, with efforts made to describe panel members in detail while maintaining anonymity. Despite these strengths, the sample was primarily recruited through established networks and organisations, which may have excluded individuals operating outside of these structures, potentially limiting the diversity of perspectives represented.

CONCLUSION

We have gained expert consensus on the definition of the field of skill acquisition and the role of skill acquisition specialist, alongside identifying key features of applied practice. The insights gained also offer valuable input on the knowledge and competencies required for working in this field within a high-performance MDT. Findings can inform the development of skill acquisition training and accreditation pathways in academia and from national and international associations of sport science. They can help sports organisations better understand the field and assess whether integrating the expertise would be beneficial to their high-performance systems. There is a need for performance leaders to consider the value of skill acquisition specialists and invest in this role in the same way other disciplines are supported. While providing an invaluable foundation, this data only provides a picture of the current state of the field. The role of a skill acquisition specialist is likely to be dynamic and evolving, especially considering it is the domain most likely to support in implementation of developments such as virtual reality and neurocognitive training, which might shape the future of skill acquisition. We are already seeing skill acquisition specialists leading the way in this area in sport and other domains such as military training, medicine, and health. In sum, there is an opportunity to innovate and improve upon sport science support with the adoption of skill acquisition specialists in professional sports environments.

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