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Contributing factors to the development of shared understanding within football teams.

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Contributing factors to the development of shared understanding within football teams

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Introduction

Shared understanding can be defined as two or more people thinking similarly in specific situations^{12, 3}. Team members who share similar thoughts are positively related to an effective performance.⁴ Within team sports like football, shared understanding between team members facilitates a more coordinated performance.⁵ For example, shared understanding between team members is crucial to defending an opposition corner kick, with each team member requiring an understanding of all team roles and likely actions, rather than just their own. Williamson and Cox and Gershgoren et al. emphasize the importance of shared understanding that underpins a team's ability to perform effectively together.⁶ This would give the team the best chance of defending the corner (e.g. performing effectively together) and not conceding a goal. Having shared understanding between team members is an important component of an effective team,⁷ however shared understanding between team members is not instantaneous.⁸ Due to its complex nature, there are several factors that contribute to the development of shared understanding between team members⁹ with some of these being considered previously in different team sports - such as tennis doubles,¹⁰ field hockey¹¹ and basketball.¹² The focus of this study is therefore to outline how the different contributing factors interact to develop shared understanding between team members within football.

Contributing factors to the development of shared understanding

Shared understanding between team members is facilitated through an effective shared mental model,¹³ increasing the likelihood of an effective team performance.¹⁴ Within a team sport such as football, if team members possess an effective shared mental model, they have effective shared understanding within training and competition, leading to a more efficient performance.¹⁵ For example, within a specific routine (e.g. corner kick, counterattack) team members will use their shared understanding to perform their own role, based on their knowledge of other team members are like to do, resulting in a coordinated team performance. Gershgoren et al. highlights the importance of an effective shared mental model between team members and state that this enables the prediction of what action others are likely to perform in certain situations, based upon their shared understanding.¹⁶ Within a team sport, maximizing a teams' ability to coordinate their actions is crucial to success, with an effective shared mental model at its core.¹⁷ However, there are several factors that influence the development of shared understanding, which is distributed by an effective shared mental model between team members, that require consideration. Some contributing factors have been explored previously within team sport¹⁸ however, the key focus of this article will be on the requirement for a combination of interdependent factors to develop shared understanding between team members within a football setting, rather than factors in isolation. This can

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help to outline specific considerations for coaches and managers to develop within training to help enhance team performance in competition.

One factor that contributes to the development of shared understanding is team members having experience performing together¹⁹ to create expectations of what each player is likely to do in specific situations.²⁰ Experience together allows the anticipation of the future actions of team members based on previous experience in similar situations.²¹ However, without this experience together (e.g. a team with several new players) the likelihood of an effective performance decreases.²² When considering a team with members that do not have much experience performing together, they would not possess shared understanding between one another within a specific situation (e.g. a corner kick or a defensive line) and perform their required interdependent roles. However, as they gain more experience performing together, they will be able to understand the roles of their team members (e.g. who needs to move into what position or who will look to win the ball back from the opposition), as well as their own required actions. All team members would then use this knowledge to perform more effectively together. Baker et al. acknowledge that shared understanding between team members requires experience performing together but accurate shared understanding,²³ facilitated through an effective shared mental model,²⁴ takes time to develop. This experience creates an understanding of team member's roles and likely actions, creating a successful team performance.²⁵ For example, it would be beneficial for team members to understand each other's roles within a certain formation or set piece, based upon previous experience of these scenarios²⁶ improving their ability to execute their performance.²⁷ However, team member's experience must be guided as unstructured experience and may not result in accurate learning²⁸ or shared understanding. Guided experience can be facilitated by the team's coach or coaches,²⁹ to give each of them experience together, which is fundamental to developing shared understanding between each other,³⁰ leading to a more coordinated performance. One method that a coach could adopt to guide their team's experience would be team training,³¹ allowing team members to practice within controlled scenarios that they may face together and allow them to develop the necessary skills to be successful. For example, this process can be seen when a coach wants to develop a specific tactic or routine within training sessions. This approach would provide each player an understanding of their own role within the routine (e.g. a specific counterattack, set piece or defensive shape), based on the coaches specific instructions, as well as the knowledge of what their fellow team members need to do. Having this opportunity would improve team members' understanding of how the team would effectively function and their part in the successful replication within a competitive environment. This approach could be supported by coaches using debriefs and feedback³² to reinforce learning, providing an opportunity for each player to reflect on the successful areas of performance³³ and how to problem solve to improve their areas of development.³⁴ In relation to the previous example, coaches could use the tactical briefing sessions to reinforce roles of each individual team member within a specific tactic or routine and support anyone who is not performing their role correctly. This would increase the teams' overall understanding of the tactic or routine that the coach would look to employ and each individual's role within it. Having this experience will help team members to appreciate each other's roles³⁵ and increase the likelihood of a more effective team performance. Working together effectively, task cohesion, is highlighted with The Model of Team Cohesion for Sports,³⁶ however, this is not enough for a team to be successful as a team must also demonstrate social cohesion, which can be achieved through an increase in experience together.³⁷

Social cohesion is defined as the quality of the relationship between team members out of the sport³⁸ and is an important component to be able to perform effectively together but it is important to note that this can take time to develop.³⁹ Carron, Colman, Wheeler, and Stevens and Marcos, Miguel, Oliva, and Calvo support this suggestion that social cohesion is linked to team members spending time together (e.g. socializing outside of the sport in their free time),⁴⁰ however a combination of social and task cohesion is required.⁴¹ Mullen and Copper state that relationship between task cohesion and performance is stronger than the social cohesion-performance

relationship but both are vital within team sport.⁴² Carron et al. found that social cohesion, in combination with task cohesion, can lead to the prediction of team performance.⁴³ Bosselut et al. highlight the importance of the social cohesion element for team members, most notably facilitating an effective team performance.⁴⁴ Social cohesion can lead to increased pressure to conform to what other members think and feel⁴⁵ and dysfunctional behavioural patterns⁴⁶ including decreased focus and commitment.⁴⁷ For example, social cohesion between team members could lead to disruptive behaviours (e.g. talking when the coach is explaining something or less effort when taking part in specific drills), leading to a decreased performance for those individuals. This would have an impact on the wider team as these individuals may not be able to perform their role effectively within a specific drill, leading to a breakdown in what the coach was looking to achieve. Carron and Brawley state that effective social and task cohesion can lead to an increased familiarity between team members.⁴⁸ A variety of different forms of experience together, in addition to an individual's skills and abilities, can influence team members' understanding of each other⁴⁹ and Casey-Campbell and Martens establishes that it is crucial for any successful team,⁵⁰ leading to enhancements of key elements including improved methods of communication.⁵¹ However, it would be beneficial to further understand how experience together and social cohesion interact with other contributing factors to gain a better understanding of how shared understanding develops between football teams.

Effective methods of communication between team members have been highlighted as a crucial aspect of intra-team interaction⁵² and facilitates a more effective performance, including a reduced chance of performance-related mistakes.⁵³ For example, if team members possess effective methods of communication, they are more likely to perform more effectively together⁵⁴ within specific scenarios (e.g. an attacking situation or defensive set-piece). However, like developing shared understanding,⁵⁵ experience performing together is required to form effective communication methods between team members,⁵⁶ leading to a better team performance.⁵⁷ Cooke et al. further establish that shared understanding between team members is enhanced by a combination of experience together and effective methods of communication.⁵⁸ For instance, team members who have experience performing together will have a familiarity of what certain instructions mean (e.g. push up or drop deeper) and help them to perform their own roles more effectively. This example highlights the use of verbal communication to enhance team performance, which Sullivan and Feltz highlight as a key skill that effective teams should possess.⁵⁹ However, as team member's experience increases, they will be able to demonstrate their improved shared understanding with non-verbal methods of communication.⁶⁰ Malone and Lorimer highlight those non-verbal methods of communication can only be used effectively by team members who have developed an accurate understanding of each other,⁶¹ improving their ability to work together as a team.⁶² For example, instead of requiring verbal methods of communication like shouts, non-verbal methods such as gestures could be adopted,⁶³ increasing the speed of communication between team members and helping teams perform more effectively together.⁶⁴ This can decrease the time required to perform a specific action as a team (e.g. execute an offside trap or a corner routine) to enhance performance. Verbal and non-verbal methods of communication and their importance in relation to an effective team performance have been considered previously,⁶⁵ however, it is important to consider how effective communication methods combine with other factors to develop shared understanding between team members within football.

As outlined above, there are different factors that facilitate the development of shared understanding between team members,⁶⁶ leading to a more effective performance.⁶⁷ However, team members may rely on a general understanding of the sport to make decisions⁶⁸ and if they do not possess an effective understanding of each other's roles (e.g. a shared understanding), their ability to predict will not always be accurate⁶⁹ and their choice of actions may not be correct.⁷⁰ Entin and Serfaty and Eccles suggests that a general knowledge of the sport is important and team members must be mixed with an understanding of how each other perform in specific situations to perform effectively together.⁷¹ For example, team members who lack the experience performing together

can rely on their own knowledge and past examples within the sport, however, due to the differing experiences of these players, it would not guarantee coordination of performance. Mach et al. further outlines that possessing an understanding of team member's roles and likely actions directly influences their ability to accurately predict each other's actions,⁷² and thus deliver a coordinated team performance.⁷³ If this understanding is not accurate or does not exist, the chosen actions may not be the right ones, leading to uncoordinated movements.⁷⁴

Research suggests that shared understanding, facilitated by an effective shared mental model,⁷⁵ is enhanced by performance-based experience,⁷⁶ time together in a social setting⁷⁷ and effective methods of communication⁷⁸ to allow team members to predict the actions of others, resulting in a coordinated performance.⁷⁹ However, it would be important to determine how these different factors combine, to facilitate shared understanding between team members within football. Outlining the contributing factors would be beneficial for understanding how these contribute to the development of shared understanding between team members. This knowledge would be beneficial for football managers and coaches to enhance these areas to improve their team's performance. Therefore, the purpose of this research is to outline the specific factors that contribute to the development of shared understanding between football teams. This research will consider what factors combine and interact to facilitate the development of shared understanding between a football team.

Methodology

Participants

Purposeful sampling was used to recruit twelve male football players over the age of sixteen years old ($M_{\text{age}} = 21.83 \pm 6.34$) from youth ($n = 4$), amateur ($n = 6$) and junior levels ($n = 2$) from the Tayside and Angus area in Scotland. This method has been used previously within coaching-based research⁸⁰ and allowed for rich and in-depth information to be collected⁸¹ from a range of perspectives from different performance levels. The participant sample contained six defenders ($M_{\text{age}} = 23.5 \pm 8.38$) and six attackers ($M_{\text{age}} = 20.17 \pm 3.37$), which is a similar sample to other interview-based studies that have looked at relationships in sport.⁸²

Ethical approval statement

Before the project began, ethical approval was granted from the Research Ethics Committee of the School of Social and Health Sciences at Abertay University (SHS/14/P/006). Coaches were contacted through the researcher's existing network with participants then invited to take part via email and those who were interested were asked to contact the researcher and were asked to provide written informed consent. Following this, interview locations and times were arranged.

Data collection

The data collected, presented, and analysed in this study was part of the lead researcher's Doctoral thesis.⁸³ Via this process, semi-structured interviews were completed using an interview schedule (See Appendix 1) to guide discussions. The overall purpose of the interviews was to establish common themes on what elements could contribute to the development of shared understanding between team members and if the participants thought this was crucial to developing an effective relationship within their team member(s). To achieve this, the interview schedule included three different sections. The first section asked participants to outline demographic information, including their football experience, their position and level of performance. The second section centred on participants' relationship within their current team member(s) and how they thought this had developed over time (e.g. Can you tell me what it was like when you first started training with that

player(s)? How do you see this developing in the future?). The third section focused on participants sharing their perspectives of how shared mental models and shared understanding could influence performance and how these influenced the relationship within their team member(s) (e.g. How do you think players are able to coordinate their playing on the pitch? What do you think about the concept of a shared mental model?). To ensure that participants understood the concepts of a shared mental model and shared understanding, they were provided with an explanation of each prior to the third section of the interview. To assist participant understanding, the researcher also provided practical examples from the sport to help them visualize how these concepts worked in practice. The definitions and examples were also standardized across all participants.

A semi-structured interview approach was followed to improve the flow of the interview and facilitated a flexible and relaxed interview,⁸⁴ with open-ended questions to let participants discuss the subject area in detail.⁸⁵ Prompts were used to assist discussion, depending on the length or quality of the participant's answers, to clear up any misunderstanding and gain the optimal information from the interviews.⁸⁶ Each data collection session took between thirty minutes and one hour to complete, with interviews being recorded using a dictaphone. The recorded interviews lasted between four and twenty minutes, with one hour and twenty-five minutes of data collected.

Data analysis

Participant data were transcribed and then analysed through a six-stage reflexive thematic analysis as outlined by Braun and Clarke to establish common themes.⁸⁷ As highlighted previously, the data collected, analysed, and presented in this study was derived from the lead author's thesis.⁸⁸ Thematic analysis is a qualitative method of analysis, used to identify, evaluate, and report patterns in participant's transcripts.⁸⁹ First, the primary researcher familiarized themselves with the data by listening to each recording multiple times.⁹⁰ Second, initial codes were generated by identifying repeated patterns across transcripts.⁹¹ Third, codes were collated and organized into meaningful groups or potential sub-themes.⁹² Additionally, themes were reviewed to ensure they accurately reflected the coded extracts and made sense within the larger data set and research aims. Within this stage, the researchers regularly went back to the initial transcripts together to make sure this was an accurate representation of the data as part of a reflexive analysis process.⁹³ Thus, the primary researcher's biography, specifically their substantial playing and coaching experience in football did not adversely affect the analysis process. Thereafter, themes were meaningfully defined and named. Finally, during final reporting further consideration was given to how subthemes and themes fitted together.

Discussion of findings

The importance of an effective shared mental model to facilitate the development of shared understanding

Participants discussed the importance of having an effective shared mental model with team members and throughout their team. A shared mental model enabled an effective performance, is developed through experience of performing together and is the mechanism that facilitates shared understanding between team members. Coordination based upon prediction and experience performing together, was only possible through shared understanding. Most participants acknowledged the importance of an effective shared mental model within a football team, facilitating shared understanding between team members and highlighted that this can enhance performance. Participants gave their views on how this can influence team performance:

I think that's probably the best way. That's the way you're wanting to play football. If everyone's on the same wavelength, all know what each other are going to do at any one point it's sorta gives the best balance to the team.

If you don't know what the boy beside you is going to do, then you can't tailor your role to do the best for the team . . . [Participant 6]

I think it's important cause if we are all on the same wavelength and we all read each other's games well so that we know what to do next and who's got the ball, what they are going to do with the ball. [Participant 12]

The findings of the current study highlighted the importance of an effective shared mental model within football teams to perform effectively together, based upon an accurate prediction of actions and underpinned by shared understanding. An effective shared mental model is crucial for team members to hold their knowledge of each other (e.g. shared understanding) that they can access within training and competition. This information endorses recommendations made by Mathieu et al. and Marks et al. who emphasized the performance benefits of an effective shared mental model between team members within flight training scenarios.⁹⁴ The benefits of an efficient shared mental model, due to the requirement of interdependency and accurate prediction between team members to perform effectively together was also emphasized within a sporting context by Reimer et al.⁹⁵ Within football, accurate decision making based on an understanding between team members is crucial for the success of the team⁹⁶ therefore the importance of an effective shared mental model, facilitating shared understanding between team members highlighted within this study would enhance prediction and coordination of actions. However, participants acknowledged that an efficient shared mental model requires experience performing together over time to develop, meaning that shared understanding takes time to build up too. For example:

When I first started, I didn't really know anyone so then getting used to them was a bit difficult to start with but now that I've been playing for a few years it's connecting well and that's about it. [Participant 10]

This suggests that within football, experience performing together is crucial to develop an effective shared mental model to facilitate the development of shared understanding, supporting comparable findings within team sport,⁹⁷ where team members require interdependence to be successful. This highlights that an efficient shared mental model enhances team members' ability to predict the actions of their team members,⁹⁸ based on recalling actions of similar and successful past situations⁹⁹ through the facilitation of shared understanding. An effective shared mental model, however, requires experience performing together to be effective¹⁰⁰ within team sports like football, with team members who require interdependence to be successful. Therefore, teams who possess an effective shared mental model, based on experience performing together, can facilitate the development of shared understanding between team members to enhance performance.

The role of experience in football teams

During the interviews, participants highlighted that sporting experience and with team members, was crucial to the development of shared understanding between football players and highlighted examples of personal (e.g. performing different roles) and shared (e.g. within training and competition with their partner) experience and why this was crucial to developing shared understanding. All participants discussed performing various roles within the team, during their football career, including different defensive and attacking positions.

Well, I've been playing for roughly 15 years I would say. I started off when I was very young, about 7 years old or something. During that time, I've played various different positions, mainly in the midfield. I've played at right back before, centre back when I was younger, but my position right now is centre midfield. That's where I'm most comfortable. [Participant 8]

The results highlight that benefit of experience performing different roles within a football team to understand different roles and what actions are needed in specific situations. These findings outline the importance of a general understanding of other team member's roles within football, which is like other team sports¹⁰¹ including football.¹⁰² Similar results were outlined by Baker et al. in field hockey, netball, and basketball, as team members have experience and an understanding of different

roles within a team .¹⁰³ Therefore, these findings underline the importance of team members within football possessing an understanding of different roles, based on experience performing in various positions. This specific experience can be provided by the coach to increase the shared understanding between team members.

Most participants discussed the importance of experience performing together, with the best method for developing familiarity between team members was through experience playing together. Two participants highlighted that they developed shared understanding when performing and working together through training.

... just game time together. Can't really put it more than that. The more time you play the more you learn.
[Participant 3]

Training players and working together is. I think you've [got to] work the position you are playing in; you should be linking up with the other guy that's in that position. [Participant 10]

The findings of the current study establish that shared understanding between members of a football team takes time to develop and requires experience performing together (e.g. training together), supporting existing literature within interdependent team sports like basketball,¹⁰⁴ football,¹⁰⁵ table tennis doubles¹⁰⁶ and tennis doubles .¹⁰⁷ This outlines the importance of football players gaining experience performing together to develop their shared understanding over time, which is facilitated by an effective shared mental model .¹⁰⁸ As highlighted by participants, task experience (e.g. training sessions and games) was crucial for the development of shared understanding for football teams, like basketball¹⁰⁹ and ice hockey .¹¹⁰

Participants also discussed the benefits of different forms of specific (e.g. guided) experience, rather than just general sporting experience to develop shared understanding. For example, guided experience should be facilitated by a coach, and could include tactical or shaping sessions within training, and in turn can enhance shared understanding between team members. Two participants stated the importance of focusing on tactical work within training sessions.

I'd think in some sort of tactical formation in training where you understand your roles and responsibilities.
[Participant 1]

I think working together in training, doing a drill such as team shape and knowing each other, where everybody else is meant to be and yeah. [Participant 5]

The information gathered from participants of the current study underline the importance of specific guided experience within training to develop shared understanding between football players. Leo et al. also found that specific forms of training,¹¹¹ like tactical training,¹¹² are required for team members to work effectively together within team sport .¹¹³ Like the findings of the current study, Salas et al. outlined specific forms of training,¹¹⁴ including team training, provided team members with an opportunity to gain experience together, problem solve¹¹⁵ and refine their skills within game related scenarios. Participants of the current study established that this environment allowed team members to develop their shared understanding of each other's roles and responsibilities within their football team. Therefore, coaches could use specific types of training to enhance team member's shared understanding with the view of enhancing team performance.

Effective social cohesion between team members

Participants emphasized that effective social cohesion within a team facilitates the development of shared understanding and enhanced their ability to work effectively together (task cohesion). The importance of spending time out of the sport was discussed by participants and was attributed to the development of shared understanding. Three participants suggested that having effective social relationships on and off-field between team members improves their performance together on-field.

I think the fact that we have become better friends over the years it's made us play better together because we are used to each other's company [Participant 4]

... things like doing more social things out with sport. If you get to know the person better, I think that helps to get to know them. To get to know how they play. Just have a better sorta friendship then you can have a better partnership [Participant 6]

Also, as well as you get to know the guys, you become more of a group of mates instead of a team. You can enjoy playing with each other and that definitely helps everyone play better together, I think. [Participant 8]

Within a team sport that is underpinned by interdependence between team members like football, participants stressed the benefit of social cohesion throughout the team for developing shared understanding and enhancing performance (task cohesion). This supports existing findings of the benefits of social cohesion on team performance¹¹⁶ including within a football setting.¹¹⁷ However, experience performing together was outlined by participants to develop relationships between team members, increasing social cohesion and shared understanding and enhancing performance. Although participants of this study only highlighted the positive impact of social cohesion, it is acknowledged that social cohesion can have a negative impact on team performance¹¹⁸ if the balance between social and task cohesion is not correct and balanced.¹¹⁹ The importance of social cohesion and being 'friends' and creating good relationships with team members highlighted by participants supports existing research that emphasized team members who enjoy performing together are more determined to work together,¹²⁰ with conflict between team members attributing to deterioration of performance.¹²¹

Effective communication and enhanced performance

Participants suggested that shared understanding with team members was enhanced by effective methods of communication with a football team, where there is a knowledge of what certain instructions mean. This was outlined by most participants, highlighting this to facilitate a clearer understanding of each other's movements. For example:

Just communication on the park between the pair of us. Our knowledge of each other. Kent [Knew] what each other were going to do. It was like reading each other's minds half the time [Participant 9]

Just the communication and knowing where they'll be at that point of time so then you've always got someone to pass to. [Participant 10]

The findings of the current study outline the positive impact that effective communication, based on a combination of experience performing together and shared understanding between team members, can have on team performance within football. The recommendations from this current study reinforce suggestions that effective methods of communication facilitate understanding between team members¹²² and contribute towards improvements to performance in team sports like tennis doubles,¹²³ football, basketball and handball.¹²⁴ The information gathered from participants outlines the importance of effective methods of communication, based on shared understanding between team members to facilitate an effective team performance within football. Most participants explicitly discussed the role those effective methods of communication have on effective team performance, with two participants giving examples of how they felt about this link.

Players would be able to coordinate on the park definitely through communication. Being able to speak to each other is the most important thing in football but it doesn't even have to be speaking. Communication is different, there's lots of different forms of communication. [Participant 2]

... mostly communication, working together. Then we know each other's games well now. So usually, it's like who wins the ball, who drops off we know that well. [Participant 12]

The suggestions made by participants outline the requirement of effective methods of communication, allowing team members to coordinate their actions, supporting the findings of Sullivan and

Gee and Rico et al.,¹²⁵ who highlighted the link between effective communication and enhanced team performance. This is because over time, team members will develop an accurate understanding of what specific instructions mean¹²⁶ and use this information to perform effectively together.¹²⁷ Onağ and Tepeci theorize that effective sport teams can utilize both verbal and non-verbal methods of communication to perform together.¹²⁸ Some participants proposed where effective understanding was achieved between partnerships, these methods of communication could be exercised, where Sheard and Kakabadse reveal both better and strengthens team performance.¹²⁹ Therefore, the requirement of experience together to develop effective communication methods has been emphasized to be a crucial to develop shared understanding between team members and to produce an effective performance within football.

Prediction and coordination based on shared understanding

Participants outlined that shared understanding facilitated an effective team performance due to the ability to accurately predict the actions of team members. This was possible due to the combination of experience performing together, social cohesion and efficient methods of communication to developing shared understanding between team members in football. Participants highlighted the integral role that shared understanding has within football teams to allow team members to predict the actions of others.

I think over the time of playing together with everyone and the experience you get from playing with each other you should be able to understand each other's roles and what other players should be doing. [Participant 8]

Just working with each other, playing and training with each other on a weekly basis definitely. I mean, like I say before kinda [kind of] sometimes know what the other boy's doing and he knows what I'm doing right away so it's kinda [kind of] instinct [Participant 11]

The participants outlined the need for shared understanding between team members to be able to predict the actions of others within football. However, the ability to accurately predict the actions of others is underpinned by the contributing factors highlighted in previous sections. These findings support suggestions made by Jonker, Van Riemsdijk, and Vermeulen (2010) who also establish that shared understanding, facilitated by an effective shared mental model, enhances team member's knowledge of each other and increases their ability to accurately predict each other's actions in certain scenarios.¹³⁰ Information gathered from participants support the findings of Blickensderfer et al.,¹³¹ who theorize that shared understanding between team members such as tennis double partners, leads to knowledge of their likely actions and a coordinated team performance. The ability to accurately predict the actions of team members within sport is based on previously successful situations,¹³² which participants of the current study outlined to be accurate within their football team and setting.

The information gathered from participants suggests that a combination of experience performing together, an effective social cohesion and effective methods of communication facilitates the development of shared understanding through an effective shared mental model and the ability to predict team member's future actions within football teams. Eleven of the participants discussed how shared understanding between team members led to a coordinated team performance within their football team.

So, you have a general knowledge sorta what's happening at any point, so you know how best to sorta give a bit of cover, bit defensive strategy as well as when you're attacking. [Participant 6]

So as long as you carry out your role to the best of your ability and other players carry out their role, it should all slide together and work. [Participant 8]

Basically, at Team P we worked as a unit. As everyone went forward together then everybody went back together. So, if they weren't. the boys must've been in a position all the time, if not the left back went forward the left

midfielder always dropped back in his place. So, there was always somebody there to pass the ball to basically in our team. [Participant 9]

The participants of the current study outlined the importance of possessing a shared understanding between team members facilitated an effective team performance within team sports like football. However, it is the importance of the contributing factors highlighted in previous sections that create a platform develop shared understanding between team members to facilitate accurate prediction and enhanced performance. Mathieu et al. and Jonker et al. outline the importance of shared understanding, underpinned by an effective shared mental model, leading to an increased likelihood of a coordinated team performance.¹³³ These findings provide support to existing literature theorizing that shared understanding between team members enhances performance in basketball,¹³⁴ football¹³⁵ and tennis doubles.¹³⁶ The findings of the current study emphasize the requirement of shared understanding between team members within football to achieve coordination however, it requires the development of the key factors highlighted previously throughout the discussion.

Conclusion

The aim of this research was to outline the factors that contribute to the development of shared understanding between football teams. The findings from this study outline that the development of shared understanding is underpinned by an effective shared mental model and requires a combination of factors including experience performance together, social cohesion and efficient methods of communication. The combination of all the factors, rather than any specific factor alone, assists the development of shared understanding between players in football teams and allows accurate prediction of their team members actions. The findings do not just state the importance of these factors in the development of shared understanding between team members like existing literature,¹³⁷ but these results highlight the requirement of the multiple factors together, rather than in isolation. This outlines the importance of managers and coaches considering these multiple factors, while also expanding the knowledge of the topic area, to integrate within training sessions for developing shared understanding within football teams, rather than only focusing a single factor (e.g. experience performing together), leading to enhanced performance in competition. These findings can help inform coaches on how to enhance their team's performance, regardless of their level (e.g. elite or grassroots level) and this is something they can incorporate within their own training schedules. For example, these factors can be developed by coaches or managers within pre-season, increasing shared understanding between team members to enhance their performance prior to competition. Also, if the combination of these factors, plus other potential elements are considered within team sports like football within future research, this could further establish their importance to the development shared understanding between team members and the impact on team performance. This could be achieved through a similar methodology, to support the creation of a training programme, that managers and coaches could use to develop shared understanding between team members over a shorter time to improve performance at all levels of football. The aim of this approach would be to facilitate shared understanding between team members over a shorter timeframe, providing a more coordinated team performance quicker, providing a competitive edge to teams over their opponents and potential success sooner. A limitation of the study was not gathering opinions of multiple team members within the data collection phase to see if their opinions were similar or different. This would have improved the information gathered to see if they had similar thoughts on the contributing factors of the development of shared understanding within their team. Observing participants when performing would have also been beneficial to see if the perceptions of their shared understanding between team members was accurate in practice, rather than just in theory, and this should be considered within future studies.

Notes

1. Blickensderfer et al, "Shared expectations and implicit coordination in tennis doubles teams"
2. Braun and Clarke, "Reflecting on reflexive thematic analysis"
3. Blickensderfer et al, "Shared expectations and implicit coordination in tennis doubles teams"
4. Rentsch and Davenport, "Sporting a New View: Team Member Schema Similarity in Sports"
5. Fiore et al, "Distributed Coordination Space: Toward a Theory of Distributed Team Process and Performance"; Smith-Jentsch, Mathieu, and Kraiger, "Investigating Linear and Interactive Effects of Shared Mental Models on Safety and Efficiency in a Field Setting"; Poizat et al, "Analysis of Contextual Information Sharing during Table Tennis Matches: An Empirical Study of Coordination in Sports"; Williamson and Cox, "Distributed Cognition in Sports Teams: Explaining Successful and Expert Performance"
6. Gershgoren et al, "Expertise in Soccer Teams: A Thematic Inquiry into the Role of Shared Mental Models within Team Chemistry"
7. Salas, Sims, and Burke, "Is there a 'Big Five' in Teamwork"
8. Baker, Côté, and Abernethy, "Sport-Specific Practice and the Development of Expert Decision-Making in Team Ball Sports"
9. Malone and Lorimer, "The Importance of Shared Understanding within Football Teams"
10. Blickensderfer et al, "Shared expectations and implicit coordination in tennis doubles teams"
11. Baker et al, "Staying at the Top: Playing Position and Performance Affect Career Length in Professional Sport"
12. Onağ and Tepeci, "Team Effectiveness in Sport Teams: The Effects of Team Cohesion, Intra Team Communication and Team Norms on Team Member Satisfaction and Intent to Remain"
13. Mathieu et al, "The Influence of Shared Mental Models on Team Process and Performance"
14. Smith-Jentsch, Mathieu, and Kraiger, "Investigating Linear and Interactive Effects of Shared Mental Models on Safety and Efficiency in a Field Setting"; Gershgoren et al, "Expertise in Soccer Teams: A Thematic Inquiry into the Role of Shared Mental Models within Team Chemistry"
15. Mathieu et al, "The Influence of Shared Mental Models on Team Process and Performance"
16. Gershgoren et al, "Expertise in Soccer Teams: A Thematic Inquiry into the Role of Shared Mental Models within Team Chemistry"
17. Steiner, Macquet, and Seiler, "An Integrative Perspective on Interpersonal Coordination in Interactive Team Sports"
18. Bourbousson et al, "Description of Dynamic Shared Knowledge: An Exploratory Study during a Competitive Team Sports Interaction"; Silva et al, "Shared Knowledge or Shared Affordances? Insights from an Ecological Dynamics Approach to Team Coordination in Sports"
19. Cannon-Bowers and Bowers, "Applying Work Team Results to Sports Teams: Opportunities and Cautions"
20. Williamson and Cox, "Distributed Cognition in Sports Teams: Explaining Successful and Expert Performance"
21. Stout et al, "Planning, Shared Mental Models, and Coordinated Performance: An Empirical Link is Established"; Zoudji and Thon, "Expertise and Implicit Memory: Differential Repetition Priming Effects on Decision Making in Experienced and Inexperienced Soccer Players"
22. Blickensderfer et al, "Shared expectations and implicit coordination in tennis doubles teams"
23. Baker, Côté, and Abernethy, "Sport-Specific Practice and the Development of Expert Decision-Making in Team Ball Sports"
24. Mathieu et al, "The Influence of Shared Mental Models on Team Process and Performance"
25. Benson, Eys, and Irving, "Great Expectations: How Role Expectations and Role Experiences Relate to Perceptions of Group Cohesion"
26. Salas et al, "Understanding and Improving Teamwork in Organizations: A Scientifically Based Practical Guide"; Malone and Lorimer, "The Importance of Shared Understanding within Football Teams"
27. Mathieu et al, "The Influence of Shared Mental Models on Team Process and Performance"
28. Salas et al, "Understanding and Improving Teamwork in Organizations: A Scientifically Based Practical Guide"
29. Gabbett, "Skill-Based Conditioning Games as an Alternative to Traditional Conditioning for Rugby League Players"
30. Blickensderfer et al, "Shared expectations and implicit coordination in tennis doubles teams"
31. Salas et al, "Does Team Training Work? Principles for Health Care"
32. Ellis and Davidi, "After-Event Reviews: Drawing Lessons from Successful and Failed Experience"
33. Salas et al, "Understanding and Improving Teamwork in Organizations: A Scientifically Based Practical Guide"
34. Salas, Nichols, and Driskell, "Testing Three Team Training Strategies in Intact Teams: A Meta-Analysis"
35. Reimer, Park, and Hinsz, "Shared and Coordinated Cognition in Competitive and Dynamic Task Environments: An information processing Perspective for Team Sports"
36. Carron and Brawley, "Group dynamics in sport and physical activity."

37. Ibid
38. Pescosolido and Saavedra, "Cohesion and Sports Teams: A Review."
39. Carron and Brawley, "Group dynamics in sport and physical activity."
40. Carron et al, "Cohesion and Performance in Sport: A Meta Analysis"; Marcos, Miguel, Oliva, and Calvo, "Interactive Effects of Team Cohesion on Perceived Efficacy in Semi-Professional Sport"
41. Benson et al, "Great Expectations: How Role Expectations and Role Experiences Relate to Perceptions of Group Cohesion"
42. Mullen and Copper, "The Relation between Group Cohesiveness and Performance: An Integration"
43. Carron et al, "Cohesion and Performance in Sport: A Meta Analysis"
44. Bosselut et al, "Reciprocity of the Relationship between Role Ambiguity and Group Cohesion in Youth Interdependent Sport"
45. Rovio, Eskola, Kozub, Duda, and Lintunen, "Can High Group Cohesion be Harmful?: A Case Study of a Junior Ice-Hockey Team"
46. Pescosolido and Saavedra, "Cohesion and Sports Teams: A Review"
47. Hardy, Eys, and Carron, "Exploring the Potential Disadvantages of High Cohesion in Sports Teams"
48. Carron and Brawley, "Group dynamics in sport and physical activity."
49. Silva et al, "Shared Knowledge or Shared Affordances? Insights from an Ecological Dynamics Approach to Team Coordination in Sports"
50. Casey-Campbell and Martens, 'Sticking it all Together: A Critical Assessment of the Group cohesion-performance Literature'
51. Eccles & Tenenbaum, "Why an Expert Team is More than a Team of Experts: A Social-Cognitive Conceptualization of Team Coordination and Communication in Sport"
52. Sullivan and Feltz, "The Preliminary Development of the Scale for Effective Communication in Team Sports (SECTS)"
53. LeCouteur and Feo, "Real-Time Communication during Play: Analysis of Team-Mates' Talk and Interaction"
54. Salas, Sims, and Burke, "Is there a 'Big Five' in "
55. Silva et al, "Shared Knowledge or Shared Affordances? Insights from an Ecological Dynamics Approach to Team Coordination in Sports"
56. Cooke et al, "Team Cognition in Experienced Command-and-Control Teams"
57. Eccles & Tenenbaum, "Why an Expert Team is More than a Team of Experts: A Social-Cognitive Conceptualization of Team Coordination and Communication in Sport"
58. Cooke et al, "Team Cognition in Experienced Command-and-Control Teams"
59. Sullivan and Feltz, "The Preliminary Development of the Scale for Effective Communication in Team Sports (SECTS)"
60. Onağ and Tepeci, "Team Effectiveness in Sport Teams: The Effects of Team Cohesion, Intra Team Communication and Team Norms on Team Member Satisfaction and Intent to Remain"
61. Malone and Lorimer, "The Importance of Shared Understanding within Football Teams"
62. Ward, and Eccles, "A Commentary on 'team Cognition and Expert Teams': Emerging Insights into Performance for Exceptional Teams"; Blickensderfer et al, "Shared expectations and implicit coordination in tennis doubles teams"
63. Onağ and Tepeci, "Team Effectiveness in Sport Teams: The Effects of Team Cohesion, Intra Team Communication and Team Norms on Team Member Satisfaction and Intent to Remain"
64. Eccles & Tenenbaum, "Why an Expert Team is More than a Team of Experts: A Social-Cognitive Conceptualization of Team Coordination and Communication in Sport"
65. Ibid.; Lausic et al, "Intrateam Communication and Performance in Doubles Tennis."
66. Mathieu et al, "The Influence of Shared Mental Models on Team Process and Performance"; Eccles & Tenenbaum, "Why an Expert Team is More than a Team of Experts: A Social-Cognitive Conceptualization of Team Coordination and Communication in Sport"; Carron and Brawley, "Group dynamics in sport and physical activity."; Salas et al, "Does Team Training Work? Principles for Health Care"; Jonker, Van Riemsdijk, and Vermeulen, "Shared Mental Models"
67. Williamson and Cox, "Distributed Cognition in Sports Teams: Explaining Successful and Expert Performance"
68. Baker, Côté, and Abernethy, "Sport-Specific Practice and the Development of Expert Decision-Making in Team Ball Sports"
69. Mach, Dolan, and Tzafrir, "The Differential Effect of Team Members' Trust on Team Performance: The Mediation Role of Team Cohesion"
70. Salas, Sims, and Burke, "Is there a 'Big Five' in Teamwork"
71. Entin and Serfaty, "Adaptive Team Coordination"; Eccles, "The Coordination of Labour in Sports Teams"
72. Mach, Dolan, and Tzafrir, "The Differential Effect of Team Members' Trust on Team Performance: The Mediation Role of Team Cohesion"
73. Kermarrec and Bossard, "Defensive Soccer Players' Decision Making: A Naturalistic Study"

74. Jonker, Van Riemsdijk, and Vermeulen, "Shared Mental Models"
75. Mathieu et al, "The Influence of Shared Mental Models on Team Process and Performance"
76. Blickensderfer et al, "Shared expectations and implicit coordination in tennis doubles teams"
77. Carron and Brawley, "Group dynamics in sport and physical activity."
78. Malone and Lorimer, "The Importance of Shared Understanding within Football Teams"
79. Blickensderfer et al, "Shared expectations and implicit coordination in tennis doubles teams"
80. McCarthy "The role of the coach-athlete relationship in world class coaching success"
81. Shaheen et al, 'Sampling in Qualitative Research'
82. Stirling and Kerr, "Abused Athletes' Perceptions of the Coach-Athlete Relationship'; Rhind and Jowett, "Relationship Maintenance Strategies in the Coach-Athlete Relationship: The Development of the COMPASS Model"; Thelwell et al, Examining coaches' perceptions of how their stress influences the coach-athlete relationship' Jowett, S. and Frost, T, "Race/Ethnicity in the all-male coach-athlete relationship: Black footballers' narratives."
83. Malone "An Exploration of the Existence and Development of Shared Understanding Between Football Dyads"
84. Jackson and Beauchamp, "Self-Efficacy as a Metaperception within coach-athlete and athlete-athlete Relationships"
85. Turner III, "Qualitative Interview Design: A Practical Guide for Novice Investigators"
86. Creswell and Poth, "Qualitative Inquiry and Research Design: Choosing among Five Approaches"; Brown and Danaher, "CHE Principles: Facilitating Authentic and Dialogical Semi-Structured Interviews in Educational Research"
87. Braun and Clarke, "Reflecting on reflexive thematic analysis"
88. Malone "An Exploration of the Existence and Development of Shared Understanding Between Football Dyads"
89. Clarke and Braun, "Teaching Thematic Analysis: Overcoming Challenges and Developing Strategies for Effective Learning"
90. Braun and Clarke, "Using Thematic Analysis in Psychology"; Goodwin and Goodwin, "Research in Psychology: Methods and Design"
91. Braun and Clarke, "Reflecting on reflexive thematic analysis"
92. Tuckett, "Applying Thematic Analysis Theory to Practice: A researcher's Experience"
93. Sparkes and Smith, "Qualitative Research Methods in Sport, Exercise and Health: From Process to Product"
94. Mathieu et al, "The Influence of Shared Mental Models on Team Process and Performance"; Marks et al, "The Impact of Cross-Training on Team Effectiveness"
95. Reimer, Park, and Hinsz, "Shared and Coordinated Cognition in Competitive and Dynamic Task Environments: An information-processing Perspective for Team Sports"
96. Kermarrec and Bossard, "Defensive Soccer Players' Decision Making: A Naturalistic Study"
97. Silva et al, "Shared Knowledge or Shared Affordances? Insights from an Ecological Dynamics Approach to Team Coordination in Sports"; Williamson and Cox, "Distributed Cognition in Sports Teams: Explaining Successful and Expert Performance"
98. Mathieu et al, "The Influence of Shared Mental Models on Team Process and Performance"
99. Klein, "Naturalistic Decision Making."
100. Jonker, Van Riemsdijk, and Vermeulen, "Shared Mental Models"; Bourbousson, Poizat, Saury, and Sève, "Description of Dynamic Shared Knowledge: An Exploratory Study during a Competitive Team Sports Interaction."
101. Araújo and Davids, Team Synergies in Sport: Theory and Measures; Reimer, Park, and Hinsz, "Shared and Coordinated Cognition in Competitive and Dynamic Task Environments: An information-processing Perspective for Team Sports"
102. Gershgoren et al, "Expertise in Soccer Teams: A Thematic Inquiry into the Role of Shared Mental Models within Team Chemistry"
103. Baker et al, "Staying at the Top: Playing Position and Performance Affect Career Length in Professional Sport"
104. Cannon-Bowers and Bowers, "Applying Work Team Results to Sports Teams: Opportunities and Cautions"
105. Eys et al, Role "Ambiguity in Sport Teams"
106. Poizat, Bourbousson, Saury, and Sève, "Understanding Team Coordination in Doubles Table Tennis: Joint Analysis of First- and Third-Person Data"
107. Blickensderfer et al, "Shared expectations and implicit coordination in tennis doubles teams"
108. Jonker, Van Riemsdijk, and Vermeulen, "Shared Mental Models"
109. Bourbousson, Poizat, Saury, and Sève, "Description of Dynamic Shared Knowledge: An Exploratory Study during a Competitive Team Sports Interaction"
110. Cannon-Bowers and Bowers, "Applying Work Team Results to Sports Teams: Opportunities and Cautions"
111. Leo et al, "Analysis of Cohesion and Collective Efficacy Profiles for the Performance of Soccer Players"

112. Gréhaigne and Godbout, “Tactical Knowledge in Team Sports from a Constructivist and Cognitivist Perspective”; Silva et al, “Shared Knowledge or Shared Affordances? Insights from an Ecological Dynamics Approach to Team Coordination in Sports”
113. Williamson and Cox, “Distributed Cognition in Sports Teams: Explaining Successful and Expert Performance”
114. Salas et al, “Does Team Training Work? Principles for Health Care”
115. Salas, Nichols, and Driskell, “Testing Three Team Training Strategies in Intact Teams: A Meta-Analysis”
116. Falcão, Bloom, and Loughhead, “Coaches’ Perceptions of Team Cohesion in Paralympic Sports”; Caron, Bloom, Loughhead, and Hoffmann,
117. Aristotelis et al, Match Participations, Field Position, Length of Team Membership: Their Impact on Team Cohesion; Gershgoren et al, “Expertise in Soccer Teams: A Thematic Inquiry into the Role of Shared Mental Models within Team Chemistry”
118. Rovio, Eskola, Kozub, Duda, and Lintunen, “Can High Group Cohesion be Harmful?: A Case Study of a Junior Ice-Hockey Team”
119. Hardy, Eys, and Carron, “Exploring the Potential Disadvantages of High Cohesion in Sports Teams”
120. Carron et al, “Cohesion and Performance in Sport: A Meta Analysis”
121. O’Neill, Allen, and Hastings, “Examining the ‘pros’ and ‘cons’ of Team Conflict: A Team-Level Meta-Analysis of Task, Relationship, and Process Conflict”
122. Eccles & Tenenbaum, “Why an Expert Team is More than a Team of Experts: A Social-Cognitive Conceptualization of Team Coordination and Communication in Sport”; Rico et al, “Team Implicit Coordination Processes: A Team Knowledge-Based Approach”
123. Lausic et al, “Intrateam Communication and Performance in Doubles Tennis.”
124. Onağ and Tepeci, “Team Effectiveness in Sport Teams: The Effects of Team Cohesion, Intra Team Communication and Team Norms on Team Member Satisfaction and Intent to Remain”
125. Sullivan and Gee, “The relationship between athletic satisfaction and intrateam communication”; Rico et al, “Team Implicit Coordination Processes: A Team Knowledge-Based Approach”
126. Eccles & Tenenbaum, “Why an Expert Team is More than a Team of Experts: A Social-Cognitive Conceptualization of Team Coordination and Communication in Sport”
127. Gershgoren et al, “Expertise in Soccer Teams: A Thematic Inquiry into the Role of Shared Mental Models within Team Chemistry”
128. Onağ and Tepeci, “Team Effectiveness in Sport Teams: The Effects of Team Cohesion, Intra Team Communication and Team Norms on Team Member Satisfaction and Intent to Remain”
129. Sheard and Kakabadse, “A Process Perspective on Leadership and Team Development”
130. Jonker, Van Riemsdijk, and Vermeulen, “Shared Mental Models”
131. Blickensderfer et al, “Shared expectations and implicit coordination in tennis doubles teams”
132. Cannon-Bowers and Bowers, “Applying Work Team Results to Sports Teams: Opportunities and Cautions”; Silva et al, “Shared Knowledge or Shared Affordances? Insights from an Ecological Dynamics Approach to Team Coordination in Sports”
133. Mathieu et al, “The Influence of Shared Mental Models on Team Process and Performance”; Jonker, Van Riemsdijk, and Vermeulen, “Shared Mental Models”
134. Bourbousson et al, “Temporal Aspects of Team Cognition: A Case Study on Concerns Sharing within Basketball”
135. Silva et al, “Shared Knowledge or Shared Affordances? Insights from an Ecological Dynamics Approach to Team Coordination in Sports”
136. Blickensderfer et al, “Shared expectations and implicit coordination in tennis doubles teams”
137. Eccles & Tenenbaum, “Why an Expert Team is More than a Team of Experts: A Social-Cognitive Conceptualization of Team Coordination and Communication in Sport”; Blickensderfer et al, “Shared expectations and implicit coordination in tennis doubles teams”; Silva et al, “Shared Knowledge or Shared Affordances? Insights from an Ecological Dynamics Approach to Team Coordination in Sports”

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Bibliography

- Alex, B., M. Eys, and P. Gregory Irving. "Great Expectations: How Role Expectations and Role Experiences Relate to Perceptions of Group Cohesion." *Journal of Sport and Exercise Psychology* 38, no. 2 (September 2, 2016) 160–172. [10.1123/jsep.2015-0228](https://doi.org/10.1123/jsep.2015-0228).
- Araújo, D., and K. Davids. "Team Synergies in Sport: Theory and Measures." *Frontiers in Psychology* 7 (2016). <https://www.frontiersin.org/articles/10.3389/fpsyg.2016.01449/full>
- Aristotelis, G., S. Nektarios, S. Aristomenis, and P. Maria. "Match Participations, Field Position, Length of Team Membership: Their Impact on Team Cohesion." *American Journal of Sports Science* 2, no. 2 (January 1, 2014) 48. [10.11648/j.ajss.20140202.17](https://doi.org/10.11648/j.ajss.20140202.17).
- Baker, J., J. Côté, and B. Abernethy. "Sport-Specific Practice and the Development of Expert Decision-Making in Team Ball Sports." *Journal of Applied Sport Psychology* 15 no. 1. (March 1, 2003) 12–25. [10.1080/10413200305400](https://doi.org/10.1080/10413200305400).
- Baker, J., D. Koz, A.-M. Kungl, J. Fraser-Thomas, and J. Schorer. "Staying at the Top: Playing Position and Performance Affect Career Length in Professional Sport." *High Ability Studies* 24 no. 1. (June 1, 2013) 63–76. [10.1080/13598139.2012.738325](https://doi.org/10.1080/13598139.2012.738325)
- Blickensderfer, E.L., R. Reynolds, E. Salas, and J.A. Cannon-Bowers. "Shared Expectations and Implicit Coordination in Tennis Doubles Teams." *Journal of Applied Sport Psychology* 22, no. 4 (2010): 486–499. doi:[10.1080/10413200.2010.507497](https://doi.org/10.1080/10413200.2010.507497).
- Bosselut, G., C.D. McLaren, M.A. Eys, and J.-P. Heuzé. "Reciprocity of the Relationship between Role Ambiguity and Group Cohesion in Youth Interdependent Sport." *Psychology of Sport and Exercise* 13: 3 (May 1, 2012) 341–348. <https://www.sciencedirect.com/science/article/pii/S1469029211001233>
- Bourbousson, J., G. Poizat, J. Saury, and S. Carole. "Temporal Aspects of Team Cognition: A Case Study on Concerns Sharing within Basketball." *Journal of Applied Sport Psychology* 24, no. 2 (April 1, 2012) 224–241. [10.1080/10413200.2011.630059](https://doi.org/10.1080/10413200.2011.630059).
- Bourbousson, J., G. Poizat, J. Saury, and C. Seve. "Description of Dynamic Shared Knowledge: An Exploratory Study during a Competitive Team Sports Interaction." *Ergonomics* 54 no. 2 (-02 2011) 120–138. [10.1080/00140139.2010.544763](https://doi.org/10.1080/00140139.2010.544763).
- Braun, V., and V. Clarke. "Using Thematic Analysis in Psychology." *Qualitative Research in Psychology* 3, no. 2. (January 1, 2006) 77–101. <https://www.tandfonline.com/doi/abs/10.1191/1478088706qp063oa>
- Braun, V., and V. Clarke. "Reflecting on Reflexive Thematic Analysis." *Qualitative Research in Sport, Exercise and Health* 11, no. 4 (2019): 589–597. doi:[10.1080/2159676X.2019.1628806](https://doi.org/10.1080/2159676X.2019.1628806).
- Brown, A., and P.A. Danaher. "CHE Principles: Facilitating Authentic and Dialogical Semi-Structured Interviews in Educational Research." *International Journal of Research & Method in Education* 42 no. 1. (January 1, 2019) 76–90. [10.1080/1743727X.2017.1379987](https://doi.org/10.1080/1743727X.2017.1379987)
- Cannon-Bowers, J.A., and C. Bowers. "Applying Work Team Results to Sports Teams: Opportunities and Cautions." *International Journal of Sport and Exercise Psychology* 4, 4 (2006): 447–462. <https://www.cabdirect.org/cabdirect/abstract/20073072117>
- Caron, J., G. Bloom, T. Loughhead, and M. Hoffmann. "Paralympic Athlete Leaders' Perceptions of Leadership and Cohesion." *Journal of Sport Behavior* 39: (August 11, 2016) 219–238.
- Carron, A.V., and L.R. Brawley. "Group Dynamics in Sport and Physical Activity." In *Advances in Sport Psychology, 3rd Ed*, T. S. Horn (Ed.) 213–455. Champaign, IL, US: Human Kinetics, 2008.
- Carron, A.V., M.M. Colman, J. Wheeler, and D. Stevens. "Cohesion and Performance in Sport: A Meta Analysis." *Journal of Sport & Exercise Psychology* 24, 2 (2002): 168–188. <https://www.cabdirect.org/cabdirect/abstract/20023096283>
- Casey-Campbell, M., and M.L. Martens. "Sticking It All Together: A Critical Assessment of the Group cohesion–performance Literature." *International Journal of Management Reviews* 11, no. 2 (2009): 223–246. <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1468-2370.2008.00239.x>.
- Clarke, V., and V. Braun. "Teaching Thematic Analysis: Overcoming Challenges and Developing Strategies for Effective Learning." *The Psychologist* 26, (2013).

- Cooke, N., J. Gorman, L. Jasmine, and A. Taylor. "Team Cognition in Experienced Command-and-Control Teams." *Journal of Experimental Psychology: Applied* 13, no. 3 (October 1, 2007) 146–157. [10.1037/1076-898X.13.3.146](https://doi.org/10.1037/1076-898X.13.3.146).
- Creswell, J.W., and C.N. Poth. *Qualitative Inquiry and Research Design: Choosing among Five Approaches*. London, UK: Sage, 2016.
- Eccles, D. "The Coordination of Labour in Sports Teams." *International Review of Sport and Exercise Psychology* 3 no. 2, (September 1, 2010) 154–170. [10.1080/1750984X.2010.519400](https://doi.org/10.1080/1750984X.2010.519400)
- Eccles, D.W., and G. Tenenbaum. "Why an Expert Team Is More than A Team of Experts: A Social-Cognitive Conceptualization of Team Coordination and Communication in Sport." *Journal of Sport & Exercise Psychology* 26, no. 4 (2004): 542–560. doi:[10.1123/jsep.26.4.542](https://doi.org/10.1123/jsep.26.4.542).
- Eduardo, S., D. DiazGranados, S.J. Weaver, and H. King. "Does Team Training Work?" *Principles for Health Care Academic Emergency Medicine* 15, no. 11 (2008): 1002–1009. <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1553-2712.2008.00254.x>.
- Eduardo, S., D.R. Nichols, and J.E. Driskell. "Testing Three Team Training Strategies in Intact Teams: A Meta-Analysis". *Small Group Research* 38 no. 4 (August 1 2007) 471–488. [10.1177/1046496407304332](https://doi.org/10.1177/1046496407304332)
- Eduardo, S., D.E. Sims, and C. Shawn Burke. "Is There a "Big Five" in Teamwork?" *Small Group Research* 36 no. 5 (October 1 2005) 555–599. [10.1177/1046496405277134](https://doi.org/10.1177/1046496405277134)
- Ellis, S., and I. Davidi. "After-Event Reviews: Drawing Lessons from Successful and Failed Experience." *The Journal of Applied Psychology* 90 no. 5 (-09 2005) 857–871. [10.1037/0021-9010.90.5.857](https://doi.org/10.1037/0021-9010.90.5.857).
- Entin, E.E., and D. Serfaty. "Adaptive Team Coordination." *Human Factors* 41 no. 2 (June 1 1999) 312–325. [10.1518/001872099779591196](https://doi.org/10.1518/001872099779591196)
- Eys, M., A. Carron, M. Beauchamp, and S. Bray. "Role Ambiguity in Sport Teams." *Journal of Sport & Exercise Psychology* 25, no. 4 (November 30, 2003) 534–550. [10.1123/jsep.25.4.534](https://doi.org/10.1123/jsep.25.4.534).
- Falcão, W., G. Bloom, and T. Loughead. "Coaches' Perceptions of Team Cohesion in Paralympic Sports." *Adapted Physical Activity Quarterly: APAQ* 32, no. 3 (July 1, 2015) 206–222. [10.1123/APAQ.2014-0122](https://doi.org/10.1123/APAQ.2014-0122).
- Fiore, S., E. Salas, H. Cuevas, and C. Bowers. "Distributed Coordination Space: Toward a Theory of Distributed Team Process and Performance." *Theoretical Issues in Ergonomics Science* 4 no. 3–4. (July 1, 2003) 340–364. [10.1080/1463922021000049971](https://doi.org/10.1080/1463922021000049971).
- Gabbett, T. "Skill-Based Conditioning Games as an Alternative to Traditional Conditioning for Rugby League Players." *Journal of Strength and Conditioning Research/National Strength & Conditioning Association* 20, no. 2 (June 1, 2006) 309–315. [10.1519/R-17655.1](https://doi.org/10.1519/R-17655.1).
- Gershgoren, L., I. Basevitch, E. Filho, A. Gershgoren, Y.S. Brill, R.J. Schinke, and G. Tenenbaum. "Expertise in Soccer Teams: A Thematic Inquiry into the Role of Shared Mental Models within Team Chemistry." *Psychology of Sport and Exercise* C, 24 (2016): 128–139. <https://www.infona.pl/resource/bwmeta1.element.elsevier-2e6b0602-8340-33b1-a522-da63848faea7>
- Goodwin, K.A., and J.C.J. Goodwin. *Research in Psychology: Methods and Design*. New Jersey, USA: John Wiley & Sons, 2016.
- Gréhaigne, J.-F., and P. Godbout. "Tactical Knowledge in Team Sports from a Constructivist and Cognitivist Perspective." *Quest (National Association for Kinesiology in Higher Education)* 47: 4 November 1 1995 490–505. <https://www.tandfonline.com/doi/abs/10.1080/00336297.1995.10484171>
- Hardy, J., M. Eys, and A. Carron. "Exploring the Potential Disadvantages of High Cohesion in Sports Teams." *Small Group Research* 36, no. 2 (April 1, 2005) 166–187. [10.1177/1046496404266715](https://doi.org/10.1177/1046496404266715).
- Jackson, B., and M.R. Beauchamp. "Self-Efficacy as a Metaperception within coach–athlete and athlete–athlete Relationships." *Psychology of Sport & Exercise* 3, 11 (2010): 188–196. <https://www.infona.pl/resource/bwmeta1.element.elsevier-2b0090cf-b030-3821-9271-f046a1cf78e2>
- Jonker, C.M., B.M. Van Riemsdijk, and B. Vermeulen. *Shared Mental Models*. Springer, 2010.
- Jowett, S., and T. Frost. "Race/Ethnicity in the All-Male Coach-Athlete Relationship: Black Footballers' Narratives." *International Journal of Sport and Exercise Psychology* 5, no. 3 (2007): 255–269. doi:[10.1080/1612197X.2007.9671835](https://doi.org/10.1080/1612197X.2007.9671835).
- Kermarrec, G., and C. Bossard. "Defensive Soccer Players' Decision Making: A Naturalistic Study." *Journal of Cognitive Engineering and Decision Making* 8, no. 2 (June 1, 2014) 187–199. [10.1177/1555343414527968](https://doi.org/10.1177/1555343414527968).
- Klein, G. "Naturalistic Decision Making." *Human Factors* 50 no. 3 (June 1 2008) 456–460. [10.1518/001872008X288385](https://doi.org/10.1518/001872008X288385)
- Lausic, D., G. Tenenbaum, D. Eccles, A. Jeong, and T. Johnson. "Intrateam Communication and Performance in Doubles Tennis." *Research Quarterly for Exercise and Sport* 80, no. 2 (July 1, 2009) 281–290. [10.1080/02701367.2009.10599563](https://doi.org/10.1080/02701367.2009.10599563).
- LeCouteur, A., and R. Feo. "Real-Time Communication during Play: Analysis of Team-Mates' Talk and Interaction." *Psychology of Sport and Exercise* 12, no. 2. (March 1, 2011) 124–134. <https://www.sciencedirect.com/science/article/pii/S1469029210000920>
- Leo, F.M., P.A. Sánchez-Miguel, D. Sánchez-Oliva, D. Amado, and T. García-Calvo. "Analysis of Cohesion and Collective Efficacy Profiles for the Performance of Soccer Players." *Journal of Human Kinetics* 39, 1 (2013): 221–229. http://yadda.icm.edu.pl/yadda/element/bwmeta1.element-psjd-doi-10_2478_hukin-2013-0085

- Mach, M., S. Dolan, and S. Tzafrir. "The Differential Effect of Team Members' Trust on Team Performance: The Mediation Role of Team Cohesion." *Journal of Occupational and Organizational Psychology* 83, no. 3 (2010): 771–794. doi:10.1348/096317909X473903.
- Malone, M. "An Exploration of the Existence and Development of Shared Understanding between Football Dyads." Abertay University, 2018, <https://rke.abertay.ac.uk/en/studentTheses/60b20dac-6a17-4930-8a84-67ba83884972> (accessed November 13, 2022).
- Malone, M.K., and R. Lorimer. "The Importance of Shared Understanding within Football Teams." *Journal of Sport Psychology in Action* 11, no. 3. (July-02, 2020) 196–210. 10.1080/21520704.2020.1760982
- Marcos, F.M.L., P. Antonio Sánchez Miguel, D. Sánchez Oliva, and T. García Calvo. "Interactive Effects of Team Cohesion on Perceived Efficacy in Semi-Professional Sport." *Journal of Sports Science & Medicine* 9: 2 June 01 2010 320–325. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3761725/>
- Marks, M.A., M.J. Sabella, C. Shawn Burke, and S.J. Zaccaro. "The Impact of Cross-Training on Team Effectiveness." *Journal of Applied Psychology* 87, no. 1 (2002): 3–13. doi:10.1037/0021-9010.87.1.3.
- Mathieu, J.E., T.S. Heffner, G.F. Goodwin, E. Salas, and J.A. Cannon-Bowers. "The Influence of Shared Mental Models on Team Process and Performance." *Journal of Applied Psychology* 85, no. 2 (2000): 273–283. doi:10.1037/0021-9010.85.2.273.
- McCarthy, E. "The Role of the coach-athlete Relationship in World Class Coaching Success." *Journal of Swimming Research* 28, no. 1, 22–31. (2021).
- Mullen, B., and C. Copper. "The Relation between Group Cohesiveness and Performance: An Integration." *Psychological Bulletin* 115, no. 2 (1994): 210–227. doi:10.1037/0033-2909.115.2.210.
- Onağ, Z., and M. Tepeci. "Team Effectiveness in Sport Teams: The Effects of Team Cohesion, Intra Team Communication and Team Norms on Team Member Satisfaction and Intent to Remain." *Procedia - Social and Behavioral Sciences* 150. (September 15, 2014) 420–428. <https://www.sciencedirect.com/science/article/pii/S1877042814050915>
- O'Neill, T., A. Natalie, J. Allen, and E.H. Stephanie. "Examining the "Pros" and "Cons" of Team Conflict: A Team-Level Meta-Analysis of Task, Relationship, and Process Conflict." *Human Performance* 26, no. 3 (2013): 236–260. doi:10.1080/08959285.2013.795573.
- Pescosolido, A.T., and R. Saavedra. "Cohesion and Sports Teams: A Review." *Small Group Research* 43 no. 6 (December 1 2012) 744–758. 10.1177/1046496412465020
- Poizat, G., J. Bourbousson, J. Saury, and C. Sève. "Analysis of Contextual Information Sharing during Table Tennis Matches: An Empirical Study of Coordination in Sports." *International Journal of Sport and Exercise Psychology* 7 no. 4. (January 1, 2009) 465–487. 10.1080/1612197X.2009.9671920
- Poizat, G., J. Bourbousson, J. Saury, and C. Sève. "Understanding Team Coordination in Doubles Table Tennis: Joint Analysis of First- and Third-Person Data." *Psychology of Sport and Exercise* 13, no. 5. (September 1, 2012) 630–639. <https://www.sciencedirect.com/science/article/pii/S1469029212000465>
- Rentsch, J.R., and S.W. Davenport. "Sporting a New View: Team Member Schema Similarity in Sports." *International Journal of Sport and Exercise Psychology* 4 no. 4. (January 1, 2006) 401–421. 10.1080/1612197X.2006.9671805
- Rhind, D.J.A., and S. Jowett. "Relationship Maintenance Strategies in the Coach-Athlete Relationship: The Development of the COMPASS Model." *Journal of Applied Sport Psychology* 22 no. 1. (January 29, 2010) 106–121. 10.1080/10413200903474472
- Rico, R., M. Sánchez-Manzanares, F. Gil, and C. Gibson. "Team Implicit Coordination Processes: A Team Knowledge-Based Approach." *Academy of Management Review* 33, no. 1. (January 1, 2008) 163–184. <https://journals.aom.org/doi/abs/10.5465/AMR.2008.27751276>
- Rovio, E., J. Eskola, S.A. Kozub, J.L. Duda, and T. Lintunen. "Can High Group Cohesion Be Harmful?: A Case Study of A Junior Ice-Hockey Team." *Small Group Research* 40 no. 4 (August 1 2009) 421–435. 10.1177/1046496409334359
- Salas, E., M.L. Shuffler, A.L. Thayer, W.L. Bedwell, and E.H. Lazzara. "Understanding and Improving Teamwork in Organizations: A Scientifically Based Practical Guide." *Human Resource Management* 54, no. 4 (2015): 599–622. <https://onlinelibrary.wiley.com/doi/abs/10.1002/hrm.21628>.
- Shaheen, M., S. Pradhan, and R. Ranajee. "Sampling in Qualitative Research." *In* (2019): 25–51.
- Sheard, A.G., and A.P. Kakabadse. "A Process Perspective on Leadership and Team Development." *Journal of Management Development* 23, no. 1 (2004): 7–106. doi:10.1108/02621710410511027.
- Silva, P., J. Garganta, D. Araújo, K. Davids, and P. Aguiar. "Shared Knowledge or Shared Affordances? Insights from an Ecological Dynamics Approach to Team Coordination in Sports." *Sports Medicine* 9, 43 (2013): 765–772. <https://www.infona.pl/resource/bwmeta1.element.springer-67e2c34c-a495-3e35-a599-0a98e16a1a8a>
- Smith-Jentsch, K., A. John, E. Mathieu, and K. Kraiger. "Investigating Linear and Interactive Effects of Shared Mental Models on Safety and Efficiency in a Field Setting." *Journal of Applied Psychology* 90, no. 3 (2005): 523–535. doi:10.1037/0021-9010.90.3.523.
- Sparkes, A.C., and B. Smith. *Qualitative Research Methods in Sport, Exercise and Health: From Process to Product*. New York, NY, US: Routledge/Taylor & Francis Group, 2014.

- Steiner, S., A.-C. Macquet, and R. Seiler. "An Integrative Perspective on Interpersonal Coordination in Interactive Team Sports." *Frontiers in Psychology* (2017). <https://www.frontiersin.org/articles/10.3389/fpsyg.2017.01440/full>
- Stirling, A.E., and G.A. Kerr. "Abused Athletes' Perceptions of the Coach-Athlete Relationship." *Sport in Society* 12 no. 2. (March 1, 2009) 227–239. [10.1080/17430430802591019](https://doi.org/10.1080/17430430802591019)
- Stout, R.J., A.C.-B. Janis, E. Salas, and M.M. Dana. "Planning, Shared Mental Models, and Coordinated Performance: An Empirical Link Is Established." *Human Factors* 41 no. 1. (March 1, 1999) 61–71. [10.1518/001872099779577273](https://doi.org/10.1518/001872099779577273)
- Sullivan, P., and D.L. Feltz. "The Preliminary Development of the Scale for Effective Communication in Team Sports (SECTS)." *Journal of Applied Social Psychology* 33, no. 8 (2003): 1693–1715. <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1559-1816.2003.tb01970.x>.
- Sullivan, P.J., and C.J. Gee. "The Relationship between Athletic Satisfaction and Intra-team Communication." *Group Dynamics: Theory, Research, and Practice* 11, no. 2 (2007): 107–116. doi:[10.1037/1089-2699.11.2.107](https://doi.org/10.1037/1089-2699.11.2.107).
- Thelwell, R.C., C.R.D. Wagstaff, M.T. Chapman, and G. Kenttä. "Examining Coaches' Perceptions of How Their Stress Influences the Coach-Athlete Relationship." *Journal of Sports Sciences* 35, no. 19 (2017): 1928–1939. doi:[10.1080/02640414.2016.1241422](https://doi.org/10.1080/02640414.2016.1241422).
- Torsten, R., E.S. Park, and V.B. Hinsz. "Shared and Coordinated Cognition in Competitive and Dynamic Task Environments: An Information-processing Perspective for Team Sports." *International Journal of Sport and Exercise Psychology* 4 no. 4. (January 1, 2006) 376–400. [10.1080/1612197X.2006.9671804](https://doi.org/10.1080/1612197X.2006.9671804)
- Tuckett, A.G. "Applying Thematic Analysis Theory to Practice: A Researcher's Experience." *Contemporary Nurse* 19 no. 1–2 (August 1 2005) 75–87. [10.5172/conu.19.1-2.75](https://doi.org/10.5172/conu.19.1-2.75)
- Turner, D. "Qualitative Interview Design: A Practical Guide for Novice Investigators." *The Qualitative Report* 15: 3 May 01 2010 754–760. <https://nsuworks.nova.edu/tqr/vol15/iss3/19>
- Ward, P., and D.W. Eccles. "A Commentary on "Team Cognition and Expert Teams: Emerging Insights into Performance for Exceptional Teams". *International Journal of Sport and Exercise Psychology* 4 no. 4. (January 1, 2006) 463–483. [10.1080/1612197X.2006.9671808](https://doi.org/10.1080/1612197X.2006.9671808)
- Williamson, K., and R. Cox. "Distributed Cognition in Sports Teams: Explaining Successful and Expert Performance." *Educational Philosophy and Theory* 46 no. 6. (May 12, 2014) 640–654. [10.1080/00131857.2013.779215](https://doi.org/10.1080/00131857.2013.779215)
- Zoudji, B., and B. Thon. "Expertise and Implicit Memory: Differential Repetition Priming Effects on Decision Making in Experienced and Inexperienced Soccer Players." *International Journal of Sport Psychology* 34: (July 1, 2003) 189–207.